RECONNAISSANCE DATA REPORT

Construction J/P 34334(04)
J/P Number 34005(04)
SSP-299S(188)EC

Bridge & Road Improvements on I-40
Muskogee & Sequoyah, OK





March 8, 2020

ODOT
Oklahoma Department of Transportation

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EXECUTIVE SUMMARY

STUDY AREA

The study area for JP 34334(04) begins 2,000 feet southwest of the western end of the I-40 bridge over the Arkansas River in Muskogee County. Area runs 1.15 miles northeast along Interstate 40 centerline. Project limits run two hundred and fifty feet either side of the highway centerlines for the entire length of the project.

SUMMARY OF FINDINGS

PROPERTY OWNERSHIP

- Six properties are located within the projects boundaries.

UTILITIES

- Five utility providers have lines located within the project boundaries.
- ONEOK Gas Transportation has one 8" gas line.
- CenturyLink has one line running on the south side of the bridge.
- Dobson Technologies has one fiberoptic within the project limits.
- MBO Networks has one fiberoptic line running on the south side of the bridge.
- Cookson Hills Electric Cooperative has two lines running on the north side of I-40 in Sequoyah County.

TRADE FIXTURES

- No trade fixtures where found within the project boundaries.

ACCIDENT DATA

- The accident history report for this site indicates that one fatal accident, five injury accidents, and twenty-nine property damage only accidents have occurred over the last ten years.

BRIDGE

- One bridge (NBI 17051) is located within the project boundaries and crosses the Arkansas River approx. 2.9 miles east of the intersection of I-40 and SH-100.
- Bridge has a sufficiency rating of 83.00.

DETOUR

- Two detour routes are considered for this project and are 11.1 miles and 68.3 miles in length.

CULTURAL RESOURCES

- No historic properties or structures listed in the NRHP were found within the project limits.
- No archaeological sites where found within the project limits.
- No historic cemeteries where found within the project limits.

HAZARDOUS SITES

- No hazardous waste sites were found within the project limits.
- Two SEMS Archive sites (The Gore Riverbed site and the Sequoyah Fuels Corporation Site) are located within the general vicinity of the project
- No ASTs, LASR, or LUST sites where found within the project limits.
- No UST sites where found within the search radius.

- No oilfield wells where located within 1/8 mile of the project limits.
- No coal mines were found to be located within the study area.

NATURAL RESOURCES

- Nine potential threatened and endangered species are listed within the study area.
- No critical habitat for any of the nine species was found within the study area.
- Eight of these species, the Piping Plover, Red Knot, Whooping Crane, Northern Long-eared Bat, Indiana Bat, Gray bat, Ozark Big Eared Bat, and the American burying beetle, have potential habitat within the study area.
- One mapped (aka "blue-line") stream crossings.
- Two wetland features where identified within the study area but where not observed during the site visit.
- One wetland feature was delineated within the site adjacent to Arkansas River.
- The Arkansas River is classified as a permanently flooded limnetic lacustrine stream (L1UBHh) and falls within the U.S. Army Corps of Engineers (USACE) jurisdiction.
- No Eagle nests where found on site but suitable habitat was observed.
- Swallow nests where observed on the I-40 bridge over the Arkansas River.
- No critical resource waters were identified within the study area.

EXISTING FACILITIES

- I-40 has a pavement width of approximately 24 feet with 10 foot paved outside shoulders and 4 foot paved inside shoulders in each direction.
- The project limits are located within the Tribal Boundaries of the Cherokee Nation, Oklahoma.
- The study limits are also within the Eastern Oklahoma Development District.

PREPARED FOR:

Oklahoma Department of Transportation
200 NE 21st St.
Oklahoma City, OK 73104

State Job No: J/P 34334 (04)

Oklahoma Department of Transportation

PREPARED BY:

The Schemmer Associates Inc.
4516 NW 36th Street, Suite 101
Oklahoma City, OK 73122

(405) 259-2000
ODOT Contract: EC-2036H, **Task Order 3**

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SECTION 1: MAPS FOR GEOREFERENCED GRAPHICS

COUNTY MAP

The county map (See Exhibit 1.1) contains a general project location within Muskogee and Sequoyah Counties Oklahoma. Maps were obtained through ODOT's website.

COMPOSITE MAP

The composite map (See Exhibit 1.2) is a detailed map showing the site specifics listed below. All information has been field checked however some error with regard to exact location must still be expected.

- Property ownership with approximate boundaries
- Indian and tribal lands
- Military properties
- OTA properties
- Federal properties and easements
- WRP sites
- Parks recreational facilities
- Wildlife and waterfowl refuges
- Cemeteries
- Utilities & billboards located within the study area
- NRCS structures within the study area
- Moderate or high potential historic sites, archeological sites and historic cemeteries
- Hazardous waste sites, ASTS, USTS, LUSTS, and oil wells within the study area
- Designated critical habitat for any federally-listed endangered, threatened or candidate species
- Potentially jurisdictional wetlands and waters which were field verified and identified

UNITED STATES GEOLOGICAL SURVEY MAP

Site details overlaid on a USGS map of the area. (See Exhibit 1.3)

STATE HIGHWAY DETOUR MAP

Detour routes from end to end of study area for road closures (See Exhibit 1.4). Route length included.

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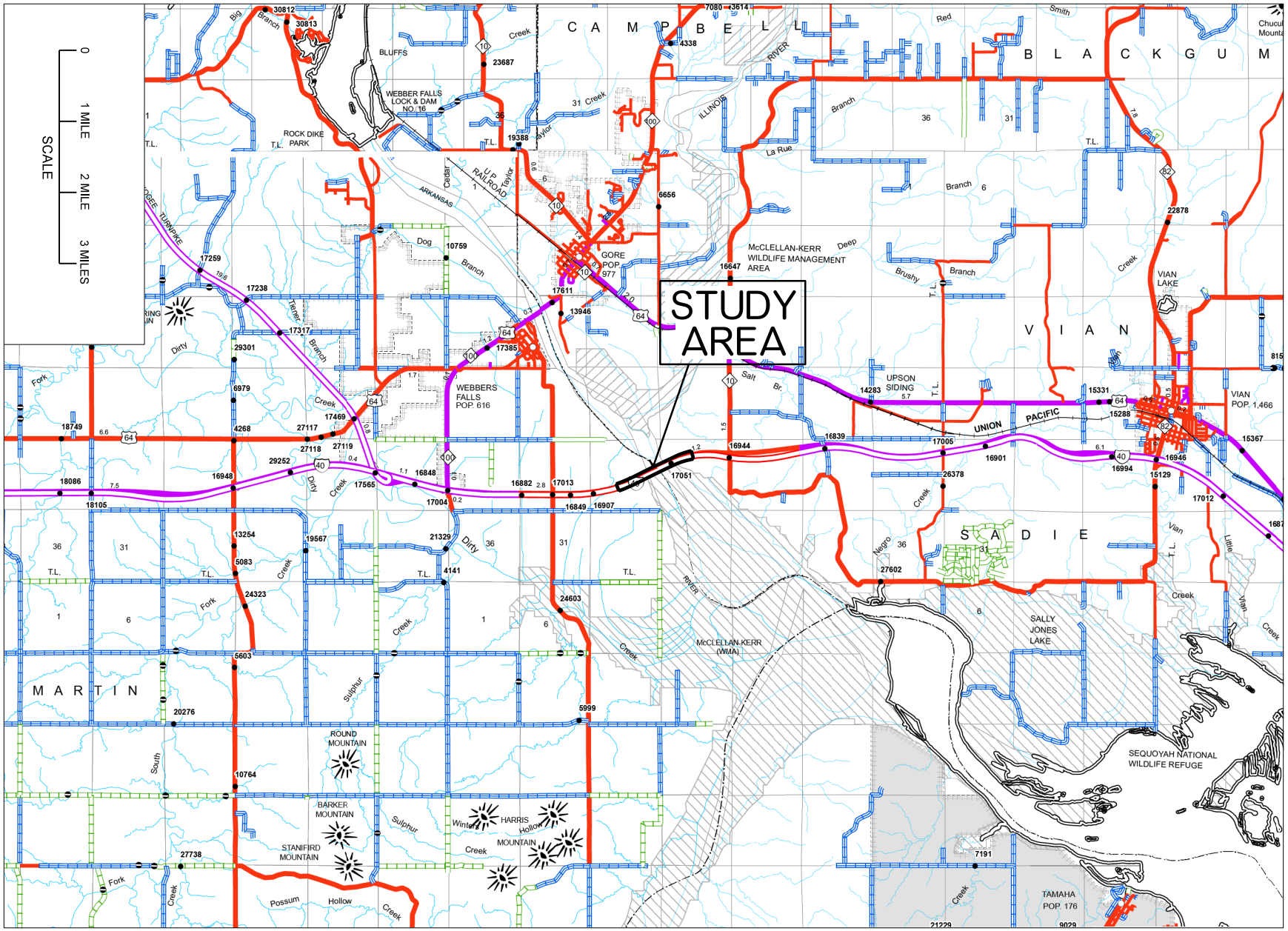
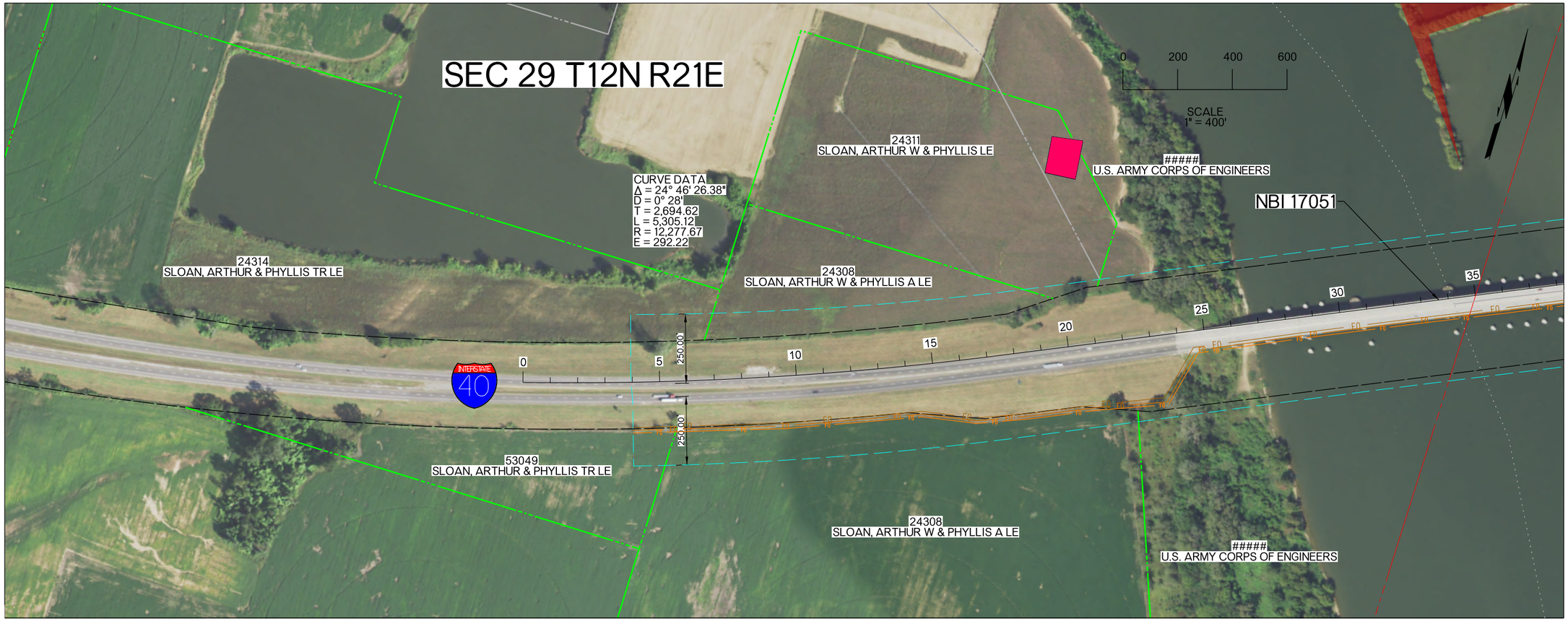
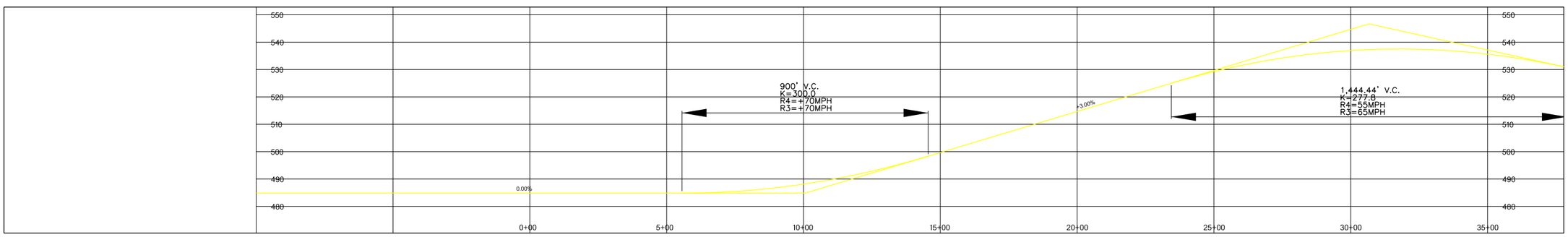


Exhibit 1.1: County Map

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EXISTING ℄
Rt. ℄
Lt. ℄
STUDY AREA BOUNDARY
Gore Riverbed Site
SECTION LINE
PRES R/W
PROPERTY BOUNDARY
U.S. ARMY CORPS PROPERTY BOUNDARY
Sequoyah Fuels Corporation Site
MBO UNDERGROUND FIBER
DOBSON UNDERGROUND FIBER
CENTURYLINK UNDERGROUND FIBER
COOKSON HILLS SINGLE PHASE
Field Confirmed Wetlands
COOKSON HILLS THREE PHASE
ONEOK GAS
Verified Wetlands
NATIONAL WETLANDS INVENTORY MAP FEATURES

ODOT

Constr. J/P 34334(04)
Job No. 34005(04)
Project SSP-299S(188)EC

Muskogee County
I - 40

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Composite Map

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EXISTING ℄
Rt. ℄
Lt. ℄
STUDY AREA BOUNDARY
Gore Riverbed Site
SECTION LINE
PRES R/W
PROPERTY BOUNDARY
U.S. ARMY CORPS PROPERTY BOUNDARY
Sequoyah Fuels Corporation Site
MBO UNDERGROUND FIBER
DOBSON UNDERGROUND FIBER
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Field Confirmed Wetlands
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ONEOK GAS
Verified Wetlands
NATIONAL WETLANDS INVENTORY MAP FEATURES

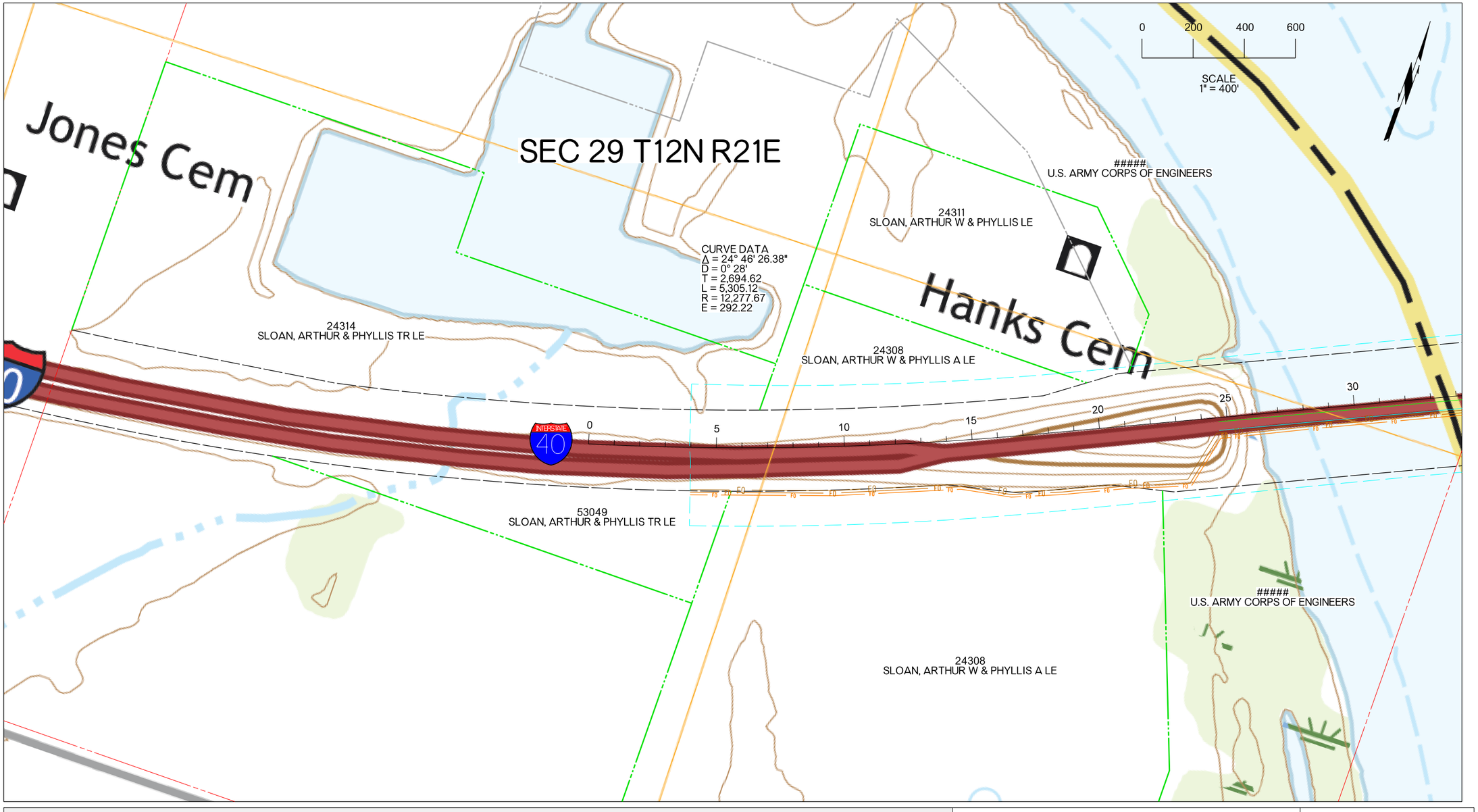
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Job No. 34005(04)
Project SSP-299S(188)EC

Muskogee County
I - 40

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Composite Map

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DOT

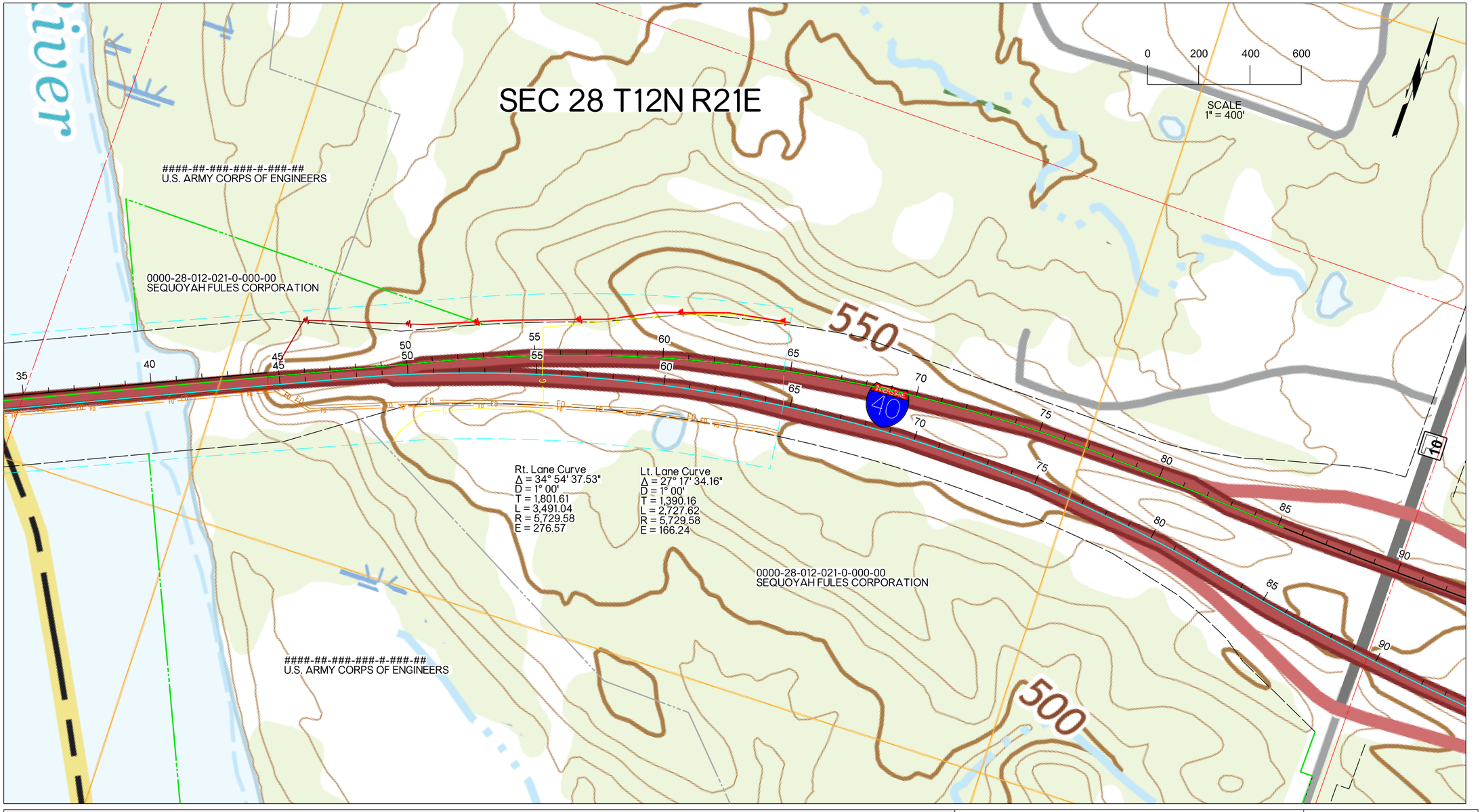
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Job No. 34005(04)
Project SSP-299S(188)EC

Muskogee County
I - 40

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USGS Map

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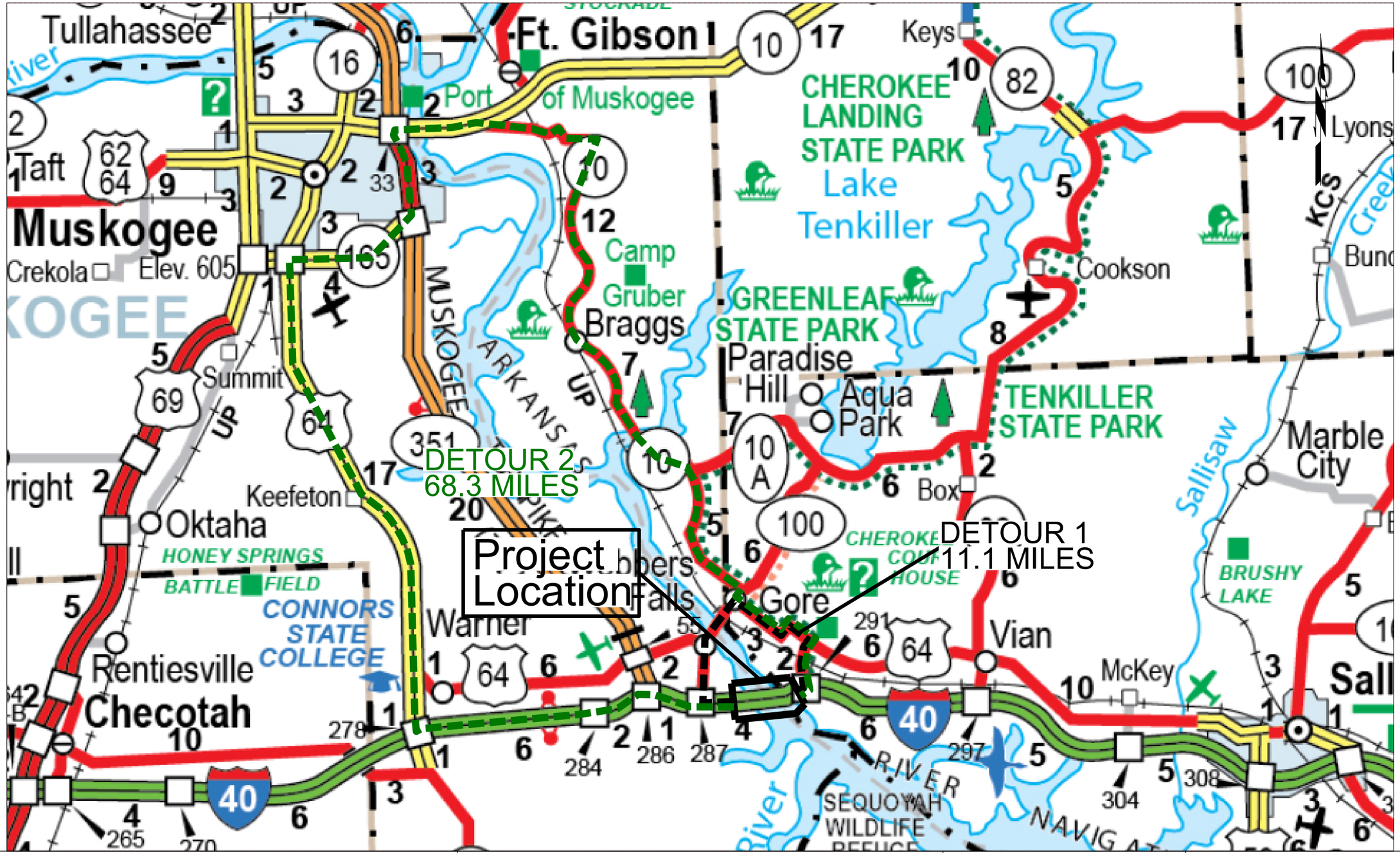
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Muskogee County
I - 40

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USGS Map

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DETOUR 1
11.1 miles

DETOUR 2
68.3 miles

PROJECT LOCATION

0 2 MILES 4 MILES 6 MILES
SCALE

ODOT

Constr. J/P 34334(04)
Job No. 34005(04)
Project SSP-299S(188)EC

Muskogee County
I - 40

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DETOUR MAP

SECTION 2: AS-BUILT PLANS

Current sets of as-built plans where requested from ODOT's Reproduction branch, as well as the ODOT's first field Division. Plans presented in Exhibit 2.1. Email correspondence is provided in Exhibit 2.2.

Re-sub: Oct. 10th, 2005

STATE OF OKLAHOMA

DEPARTMENT OF TRANSPORTATION

REVISIONS

DESCRIPTION	DATE

PLAN OF PROPOSED

STATE HIGHWAY

FEDERAL AID PROJECT NO. BHIY-40-6(341)290

BRIDGE REPAIR

INTERSTATE HIGHWAY NO. I-40

MUSKOGEE/SEQUOYAH COUNTIES

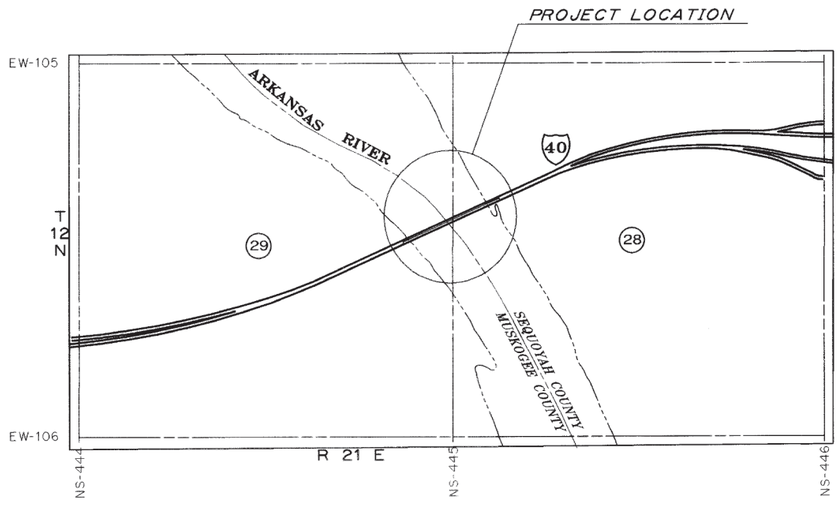
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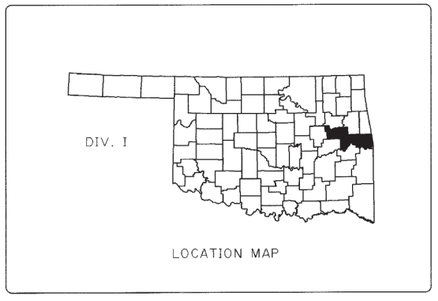
STATE JOB NO. 20833(04)

BRIDGE NBI NO. 17051

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	SUMMARY OF PAY QUANT. & GEN. NOTES - BRIDGE
3-6	GENERAL PLAN & ELEVATION - EXISTING BRIDGE
7-8	PIER 4 ENCASEMENT REPAIR DETAILS





DESIGN DATA

ADT 2002 = 19,600

V = 70 mph

SCALE

PLAN 1" = 50'

PROFILE HOR. 1" = 50'

VER. 1" = 5'

LAYOUT MAP 1" = 1000'

LEVEL DATUM IS MEAN SEA LEVEL (U.S.C. & G.S.)

BEARINGS ARE GRID BEARINGS IN THE O.S.H.D. PLANE COORDINATE SYSTEM.

0 1000 2000

SCALE 1" = 1000'

CONVENTIONAL SIGNS

- PROPOSED ROAD
- RAILROADS
- RANGE & TOWNSHIP LINES
- SECTION LINES
- QUARTER SECTION LINES
- FENCES
- GROUND LINE
- EXISTING ROADS
- BASE LINE
- GRADE LINES
- TELEPHONE & TELEGRAPH
- POWER LINES
- OIL WELLS
- BUILDINGS
- DRAINAGE STRUCTURES-IN-PLACE
- DRAINAGE STRUCTURES-NEW
- RIGHT-OF-WAY LINES-EXISTING
- RIGHT-OF-WAY LINES-NEW
- RIGHT-OF-WAY MARKERS-IN PLACE
- RIGHT-OF-WAY MARKERS-REMOVE & RESET
- RIGHT-OF-WAY MARKERS-NEW
- CONTROLLED ACCESS
- SS — EXISTING SANITARY SEWERS
- G — EXISTING GAS LINES
- W — EXISTING WATER LINES
- TUG — EXISTING TELEPHONE CABLES UNDERGROUND

- INTERSTATE HIGHWAY
- U.S. HIGHWAY
- STATE HIGHWAY

BEFORE YOU DIG.. CALL OKIE 1-800-522-6543

1999 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION – ENGLISH GOVERN, APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, SEPTEMBER 21, 1999.

PREPARED AND SUBMITTED BY:

POE & ASSOCIATES INC.
Oklahoma City, Oklahoma

OKLAHOMA DEPARTMENT OF TRANSPORTATION

REGISTERED PROFESSIONAL ENGINEER — TIMOTHY RAY PURKEYPILE 16021 OKLAHOMA

DATE 9/29/05

OKLA. REG. NO. 16021

OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED	DATE APPROVED
BY	BY
CHIEF ENGINEER	DIVISION ADMINISTRATOR

20833(04) F.A. PROJECT NO. BHIY-40-6(341)290 SHEET NO. 1

SEPTEMBER 29, 2005
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SCHEMMER

REVISIONS	
DESCRIPTION	DATE

MUSKOGEE-SEQUOYAH COUNTIES

PAY QUANTITIES

BRIDGE "A"

ITEM NO.	DESCRIPTION		UNIT	QUANTITY
202(B) 0105	MUCK EXCAVATION	(BR-3)	C.Y.	620
502(A) 6173	ENGINEERED FALSEWORK	(BR-2)	L.SUM	1
502(B) 6174	FALSEWORK ENGINEERING SERVICES	(BR-2)	L.SUM	1
506(A) 1322	STRUCTURAL STEEL	(BR-4)	LB.	840
507(A) 1324	LUMBER (TREATED)	(BR-1)	MFBM	5.85
509(B) 1328	CLASS A CONCRETE	(BR-1)	C.Y.	308.5
511(B) 6010	EPOXY COATED REINFORCING STEEL	(BR-1)	LB.	22,320

(BR-1) Payment for this item will be based on Plan Quantity. See the 1999 Oklahoma Standard Specifications for Highway Construction - "Plan Quantities", Section 109.01(b).

(BR-2) ENGINEERED FALSEWORK: Engineered Falsework and Falsework Engineering Services at Pier 4 for construction of concrete pier encasement shall be the responsibility of the Contractor and shall be designed by a Registered Professional Engineer in the State of Oklahoma. Design calculations and drawings shall be submitted to ODOT Bridge Division for approval prior to construction. The limits of the Falsework are to be determined by the Contractor. See Section 502.04(d) of the 1999 Standard Specifications.

(BR-3) Quantity for Muck Excavation is an estimated quantity based on the excavation limits 2' outside the footing plan dimensions and a 14' depth. Muck Excavation shall be contained and stored until Pier Encasement is complete, then replaced while Falsework is still in place and compacted to Reasonable Density. This work to be completed to the satisfaction of the Engineer.

(BR-4) Quantity for Structural Steel is for Anchor Bolt Extensions on Pier Encasement Repair.

GENERAL NOTES

SPECIFICATIONS:
All construction and materials shall be in accordance with the 1999 Oklahoma Standard Specifications for Highway Construction and Special Provisions. (See Proposal for Special Provisions).

EXISTING BRIDGE PLANS:
The existing bridges were originally constructed under Fed. Aid Project No. I-40-6(99)(100)288 and rehabilitated under Fed. Aid Proj. No. IR-40-6(187)291. The first four spans were replaced under Federal Aid Project No. IMY-0040-6 (288)290. Plans are available from the reproduction branch, Oklahoma Department of Transportation, 200 N.E. 21st St., Oklahoma City, OK 73105

UTILITIES:
CAUTION shall be taken while working near the Existing Fiber Optic Line located on the Underneath Side of the South Deck Cantilever. The Contractor shall be responsible for any damage to this Utility.

EXISTING MATERIALS:
All Materials removed shall become the Property of the Contractor and shall be Disposed of in a Manner Approved by the Engineer.

COAST GUARD NOTIFICATION:
Contractor shall notify the Coast Guard one week in advance of working in or around the channel.

CORP OF ENGINEERS RIGHT-OF-WAY ACCESS:
Any construction activities on the river bank outside of the existing ODOT right-of-way (ROW) fence must be reviewed and approved by the Corp of Engineers (COE) prior to construction. This access includes temporary staging areas, ROW expansion and access roads. Contact Mr. Dan Bentley, COE Eastern Area Manager at (918)-489-5541 regarding this matter.

MUSKOGEE-SEQUOYAH COUNTIES

Design			BRIDGE "A" I-40 OVER ARKANSAS RIVER
Drawn	DAC		SUMMARY OF PAY QUANTITIES AND GENERAL NOTES (BRIDGE)
Checked			
Approved			
Squad	POE		State Job No. 20833(04) Sheet No. 2

SEPTEMBER 29, 2005
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SCHEMMER

REVISIONS	
DESCRIPTION	DATE

BEGIN APPROACH SLAB
STA. 756+77.09

F.F. BACKWALL
STA. 757+07.84

SHLD.

24'-0" TRAFFIC LANES

SHLD.

24'-0" TRAFFIC LANES

N 63°50'08.52"E

756+00 758+00 759+00 761+00 762

N 63°50'08.52"E

3/16"/FT.

2'-5" S.C.

30'-0" CLR ROADWAY

4'-0" MEDIAN BARR.

℄ PIER NO. 1
STA. 758+38.46

℄ PIER NO. 2
STA. 759+68.46

℄ PIER NO. 3
STA. 760+98.46

MATCH LINE STA.762+00

PLAN
SCALE: 1" = 20'-0"

BM - '□' CHISELED ON TOP OF CONC. BARRIER WALL
0.027' LT STA. 753+82 ELEV.= 519.78

BRIDGE LENGTH = 2003.16'

BEGIN BRIDGE
STA. 757+07.09

ABUTMENT NO.1

131'-4½" SPAN NO. 1

130'-0" SPAN NO. 2

130'-0" SPAN NO. 3

201'-6 1/2" SPAN NO. 4

FINISH GRADE
ELEV. 527.33

BRIDGE SEAT
ELEV. 519.41

FIX. EXP. EXP. FIX. FIX. EXP. EXP.

TOP OF PIER 1
ELEV. 522.66

TOP OF PIER 2
ELEV. 525.32

TOP OF STEP
ELEV. 527.36

TOP OF PIER 3
ELEV. 525.23

TOP OF D.S.
ELEV. 469.66

① EXIST. PROFILE ℄ I-40

*2% Line Elev. 469.5

TOP OF D.S.
ELEV. 469.32

TOP OF D.S.
ELEV. 469.23

*2% Line Elev. 46'

BOTT. OF D.S.
ELEV. 401.23

540 520 500 480 460 440 420 400 380

756+00 757+00 758+00 759+00 760+00 761+00 762+00

① THIS INFORMATION WAS DERIVED FROM A PREVIOUS PROJECT AND MAY NOT BE THE ACTUAL PROFILE. REFER TO ODOT'S MOST RECENT UNDERWATER INSPECTION REPORT FOR ACCURATE PROFILE ELEVATIONS.

ELEVATION
SCALE: 1" = 20'-0"

* INFORMATION DERIVED FROM F.A.P. NO. IR-40-6(187)291 BRIDGE REHAB. PLANS

FOR INFORMATION ONLY

Design		
Drawn		
Checked		
Approved		
Squad	POE	

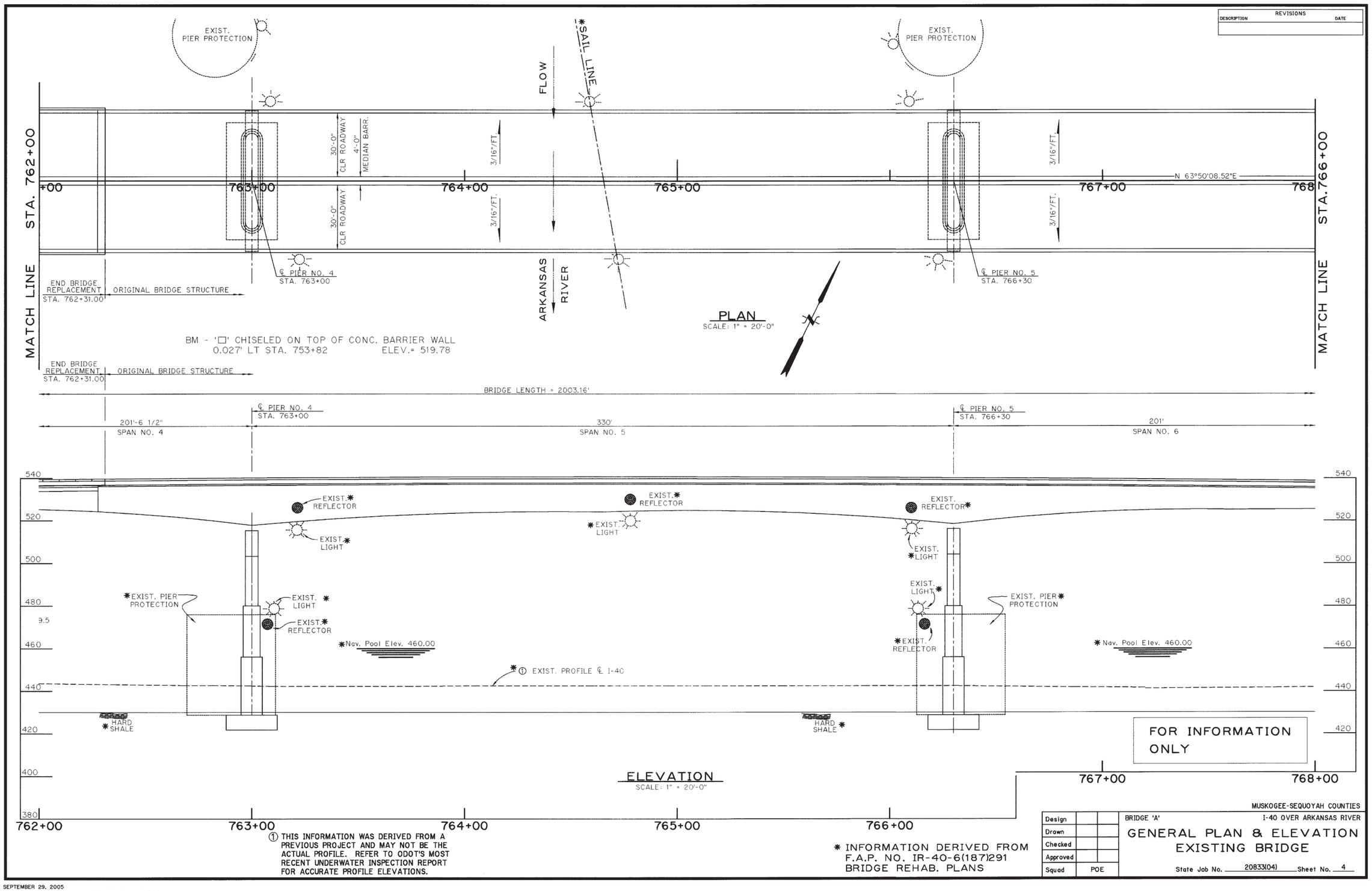
MUSKOGEE-SEQUOYAH COUNTIES

BRIDGE 'A' I-40 OVER ARKANSAS RIVER

GENERAL PLAN & ELEVATION
EXISTING BRIDGE

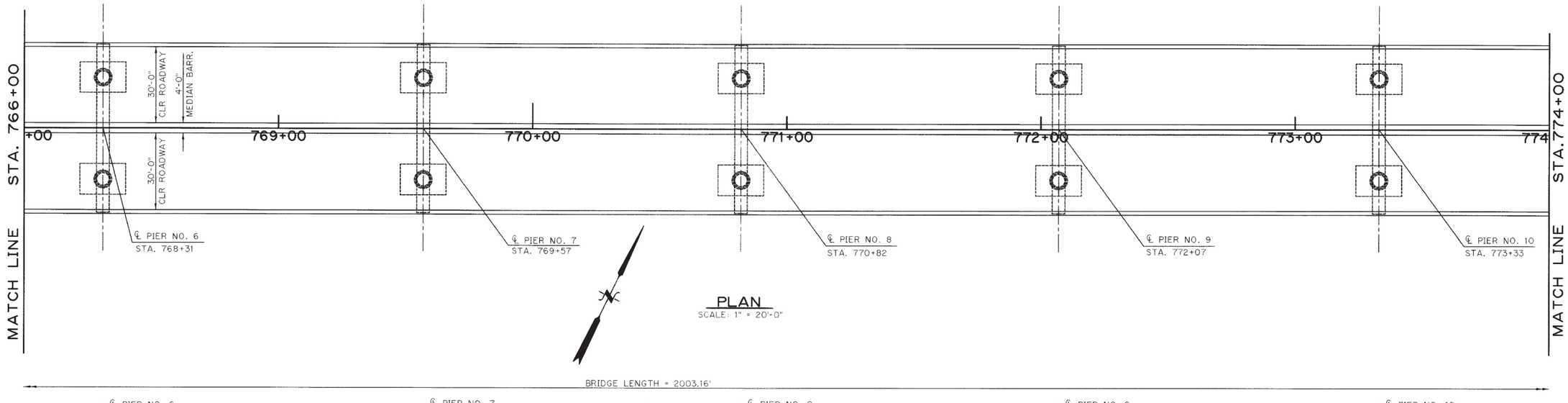
State Job No. 20833(04) Sheet No. 3

SEPTEMBER 29, 2005
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REVISIONS
DESCRIPTION
DATE
EXIST. PIER PROTECTION
SAIL LINE
FLOW
EXIST. PIER PROTECTION
STA. 762+00
MATCH LINE
30'-0" CLR ROADWAY
4'-0" MEDIAN BARR.
30'-0" CLR ROADWAY
3/16"/FT.
3/16"/FT.
3/16"/FT.
3/16"/FT.
+00
763+00
764+00
765+00
767+00
768
N 63°50'08.52"E
STA.766+00
MATCH LINE
℄ PIER NO. 4
STA. 763+00
℄ PIER NO. 5
STA. 766+30
END BRIDGE REPLACEMENT
STA. 762+31.00
ORIGINAL BRIDGE STRUCTURE
ARKANSAS RIVER
PLAN
SCALE: 1" = 20'-0"
BM - '□' CHISELED ON TOP OF CONC. BARRIER WALL
0.027' LT STA. 753+82 ELEV.= 519.78
END BRIDGE REPLACEMENT
STA. 762+31.00
ORIGINAL BRIDGE STRUCTURE
BRIDGE LENGTH = 2003.16'
℄ PIER NO. 4
STA. 763+00
℄ PIER NO. 5
STA. 766+30
201'-6 1/2"
SPAN NO. 4
330'
SPAN NO. 5
201'
SPAN NO. 6
540
520
500
480
460
440
420
400
380
EXIST. REFLECTOR
EXIST. LIGHT
EXIST. PIER PROTECTION
9.5
Nav. Pool Elev. 460.00
① EXIST. PROFILE ℄ I-40
HARD SHALE
762+00
763+00
764+00
765+00
766+00
767+00
768+00
FOR INFORMATION ONLY
ELEVATION
SCALE: 1" = 20'-0"
① THIS INFORMATION WAS DERIVED FROM A PREVIOUS PROJECT AND MAY NOT BE THE ACTUAL PROFILE. REFER TO ODOT'S MOST RECENT UNDERWATER INSPECTION REPORT FOR ACCURATE PROFILE ELEVATIONS.
* INFORMATION DERIVED FROM F.A.P. NO. IR-40-6(187)291 BRIDGE REHAB. PLANS
MUSKOGEE-SEQUOYAH COUNTIES
Design
Drawn
Checked
Approved
Squad POE
BRIDGE 'A'
I-40 OVER ARKANSAS RIVER
GENERAL PLAN & ELEVATION
EXISTING BRIDGE
State Job No. 20833(04) Sheet No. 4
SEPTEMBER 29, 2005
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SCHEMMER

REVISIONS	
DESCRIPTION	DATE



① THIS INFORMATION WAS DERIVED FROM A PREVIOUS PROJECT AND MAY NOT BE THE ACTUAL PROFILE. REFER TO ODOT'S MOST RECENT UNDERWATER INSPECTION REPORT FOR ACCURATE PROFILE ELEVATIONS.

* INFORMATION DERIVED FROM F.A.P. NO. IR-40-6(187)291 BRIDGE REHAB. PLANS

Design		
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Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES

BRIDGE 'A' I-40 OVER ARKANSAS RIVER

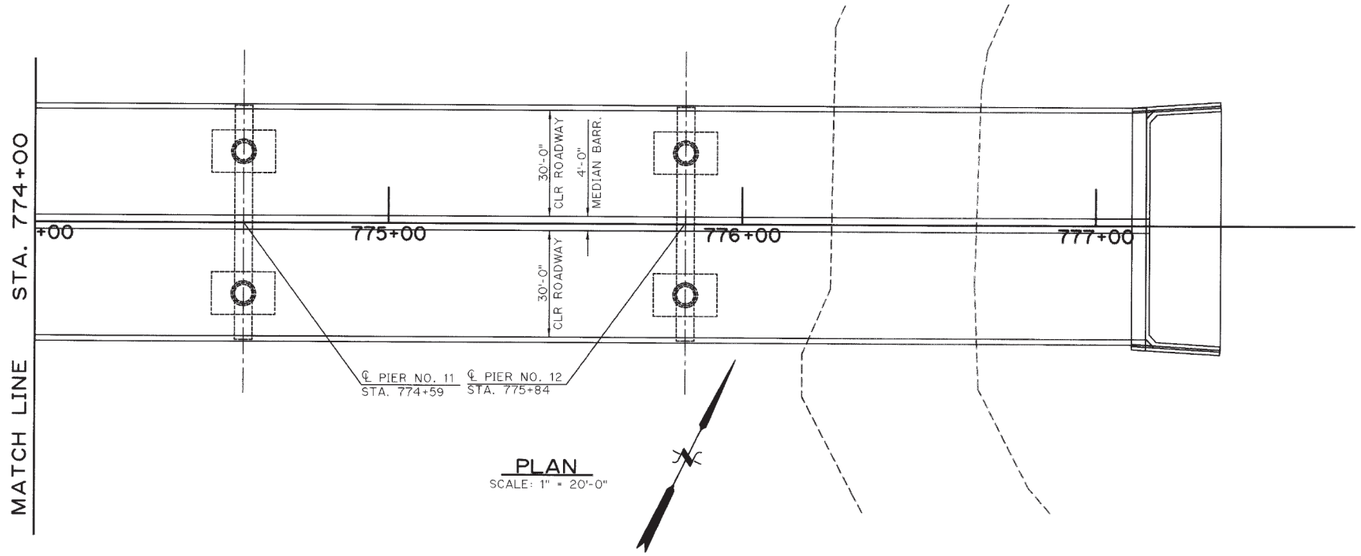
GENERAL PLAN & ELEVATION
EXISTING BRIDGE

State Job No. 20833(04) Sheet No. 5

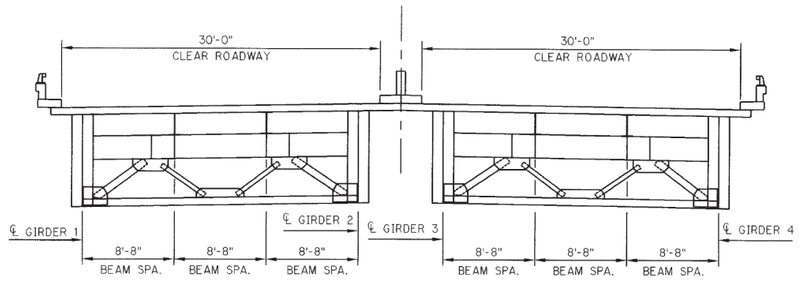
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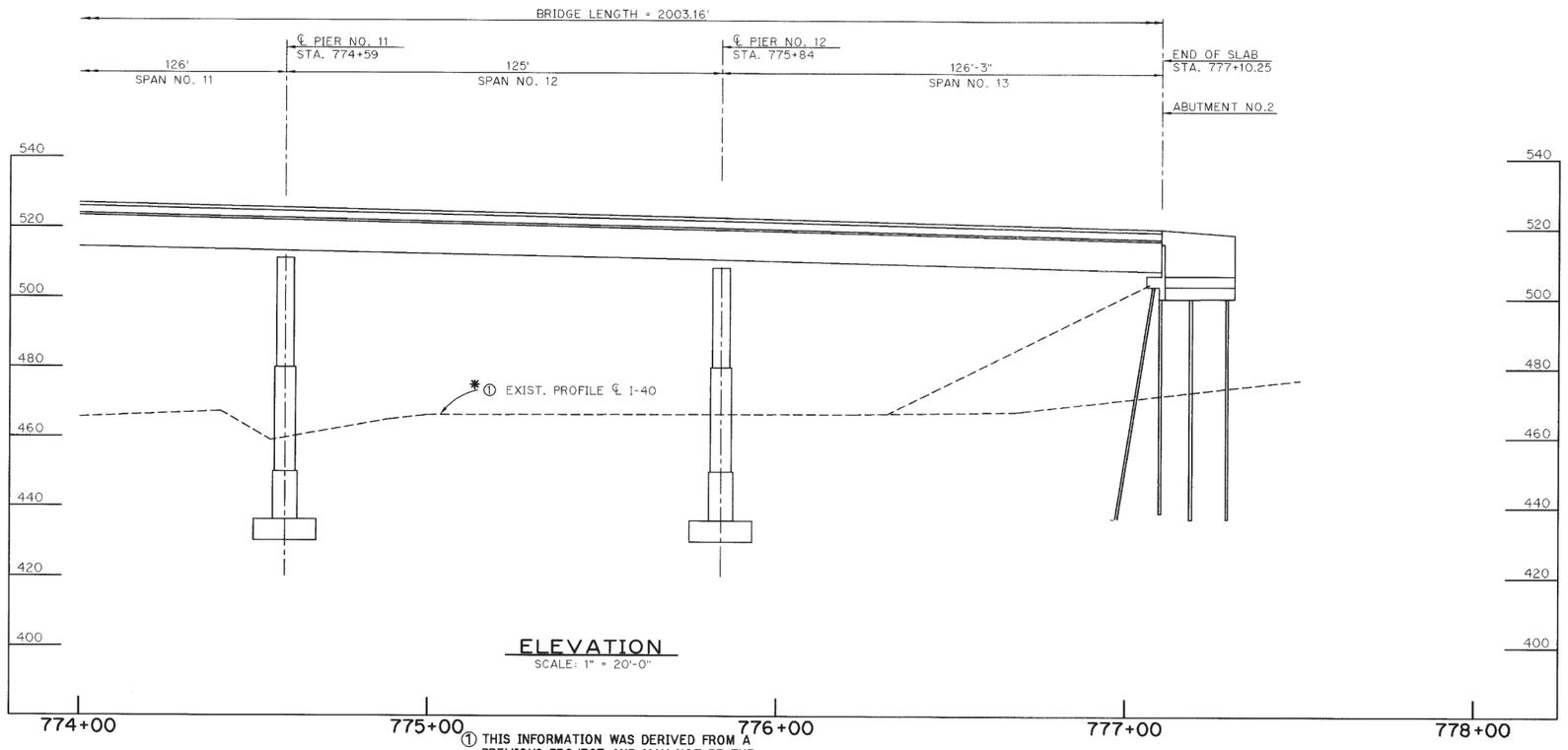
REVISIONS	
DESCRIPTION	DATE



PLAN
SCALE: 1" = 20'-0"



BRIDGE SECTION



ELEVATION
SCALE: 1" = 20'-0"

① THIS INFORMATION WAS DERIVED FROM A PREVIOUS PROJECT AND MAY NOT BE THE ACTUAL PROFILE. REFER TO ODOT'S MOST RECENT UNDERWATER INSPECTION REPORT FOR ACCURATE PROFILE ELEVATIONS.

* INFORMATION DERIVED FROM F.A.P. NO. IR-40-6(187)291 BRIDGE REHAB. PLANS

FOR INFORMATION ONLY

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Approved		
Squad	POE	

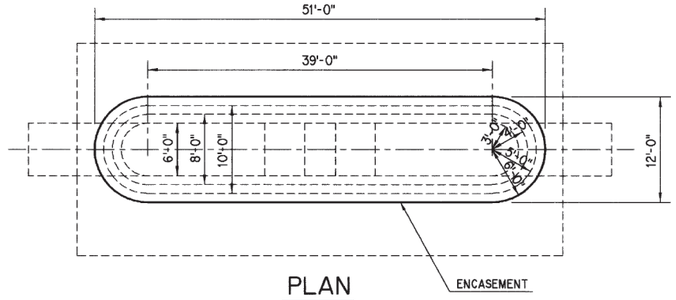
MUSKOGEE-SEQUOYAH COUNTIES

BRIDGE 'A' — I-40 OVER ARKANSAS RIVER

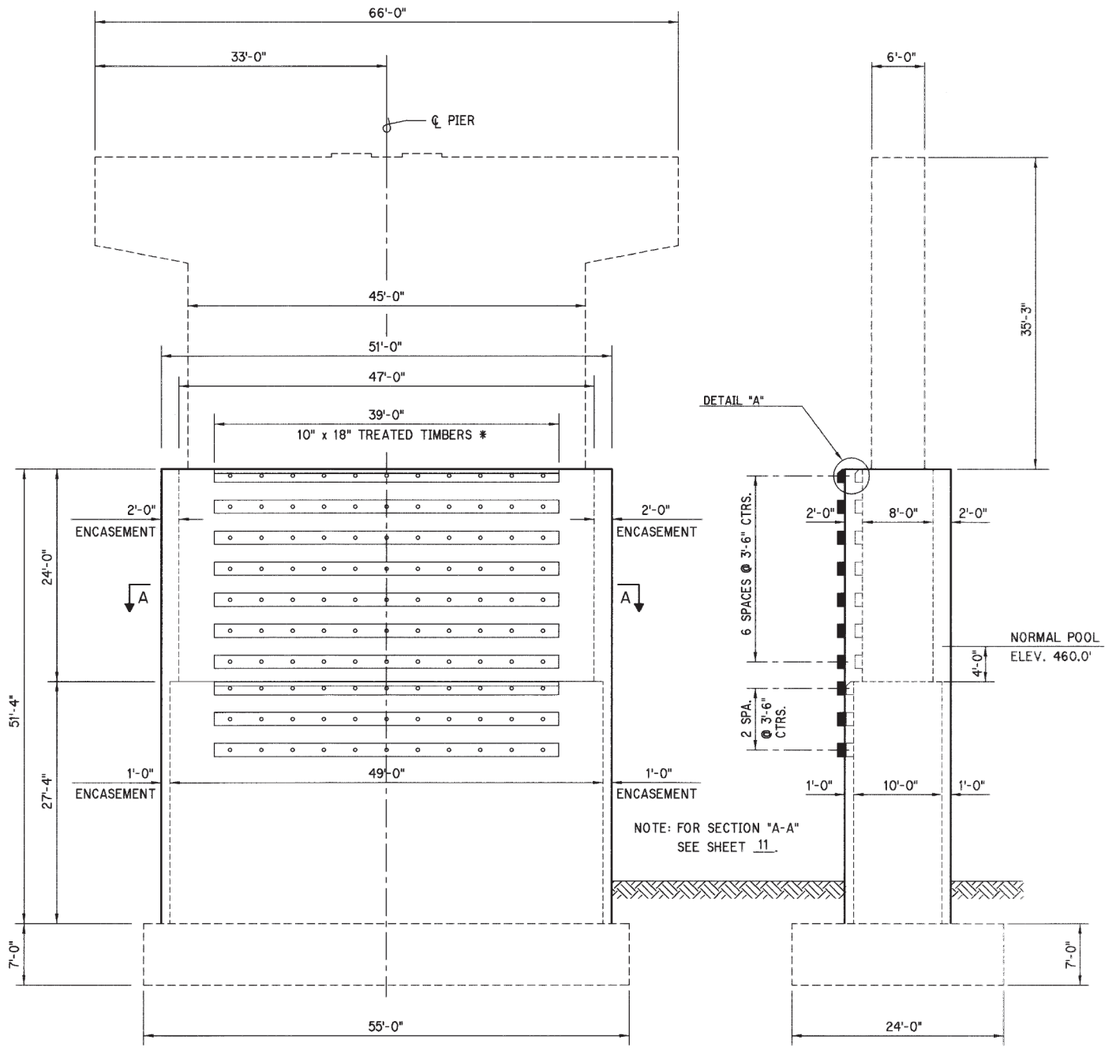
GENERAL PLAN & ELEVATION
EXISTING BRIDGE

State Job No. 20833(04) Sheet No. 6

SEPTEMBER 29, 2005
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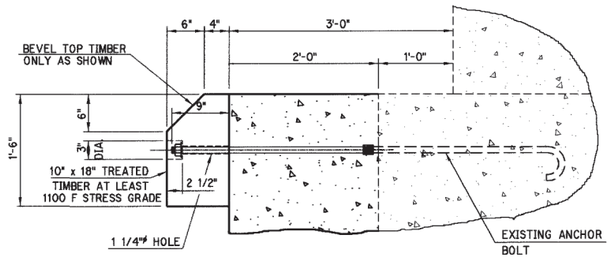


PLAN



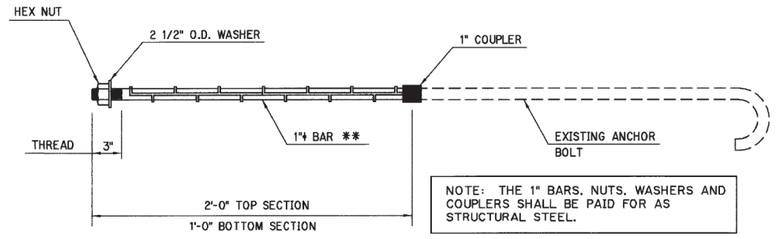
EAST SIDE

NORTH SIDE



DETAIL "A"

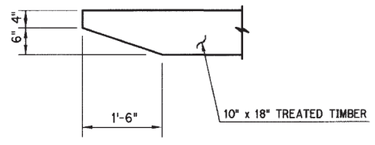
NOTE: EXTEND ALL EXISTING ANCHOR BOLTS PRIOR TO POURING CONCRETE FOR ENCASEMENT.



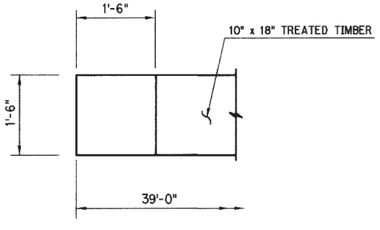
NOTE: THE 1" BARS, NUTS, WASHERS AND COUPLERS SHALL BE PAID FOR AS STRUCTURAL STEEL.

ANCHOR BOLT EXTENSION DETAILS

** NOTE: THE ANCHOR BOLTS MUST BE COMPATIBLE WITH THE TYPE OF TREATMENT USED IN THE TIMBER BUMPERS.



PLAN



ELEVATION

TIMBER DETAILS

NOTE: ALL TIMBERS SHALL BE BEVELED AT ENDS AS SHOWN.

* NOTE: EXISTING TREATED TIMBERS SHALL BE REMOVED PRIOR TO CONCRETE ENCASING AND REPLACED W/ NEW TREATED TIMBERS AFTER ENCASEMENT IS COMPLETE. EXISTING ANCHOR BOLTS SHALL BE LEFT IN PLACE TO TIE TO NEW SECTION OF REINFORCING. (SEE ANCHOR BOLT EXTENSION DETAIL) ALL COST OF MATERIALS AND PLACING OF ANCHOR BOLT EXTENSIONS FOR TIMBER BUMPERS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR LUMBER (TREATED).

REVISIONS

DESCRIPTION	DATE

MUSKOGEE-SEQUOYAH COUNTY

Design	TRP	
Drawn	BI	9-04
Checked		
Approved		
Squad	POE	

BRIDGE "A" I-40 OVER ARKANSAS RIVER

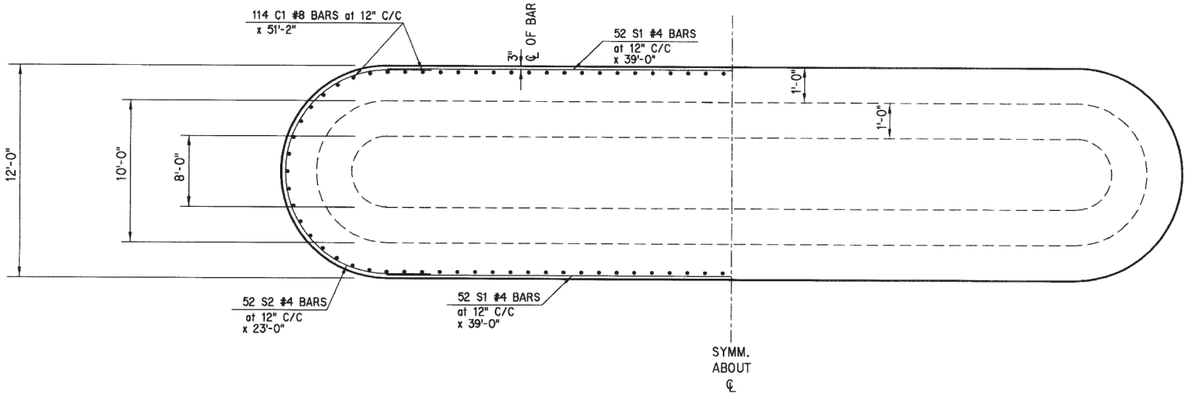
PIER NO. 4
ENCASEMENT REPAIR
(SHEET 1 of 2)

State Job No. 20833(04) Sheet No. 7

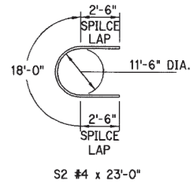
SEPTEMBER 29, 2005
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SCHEMMER

REVISIONS	
DESCRIPTION	DATE



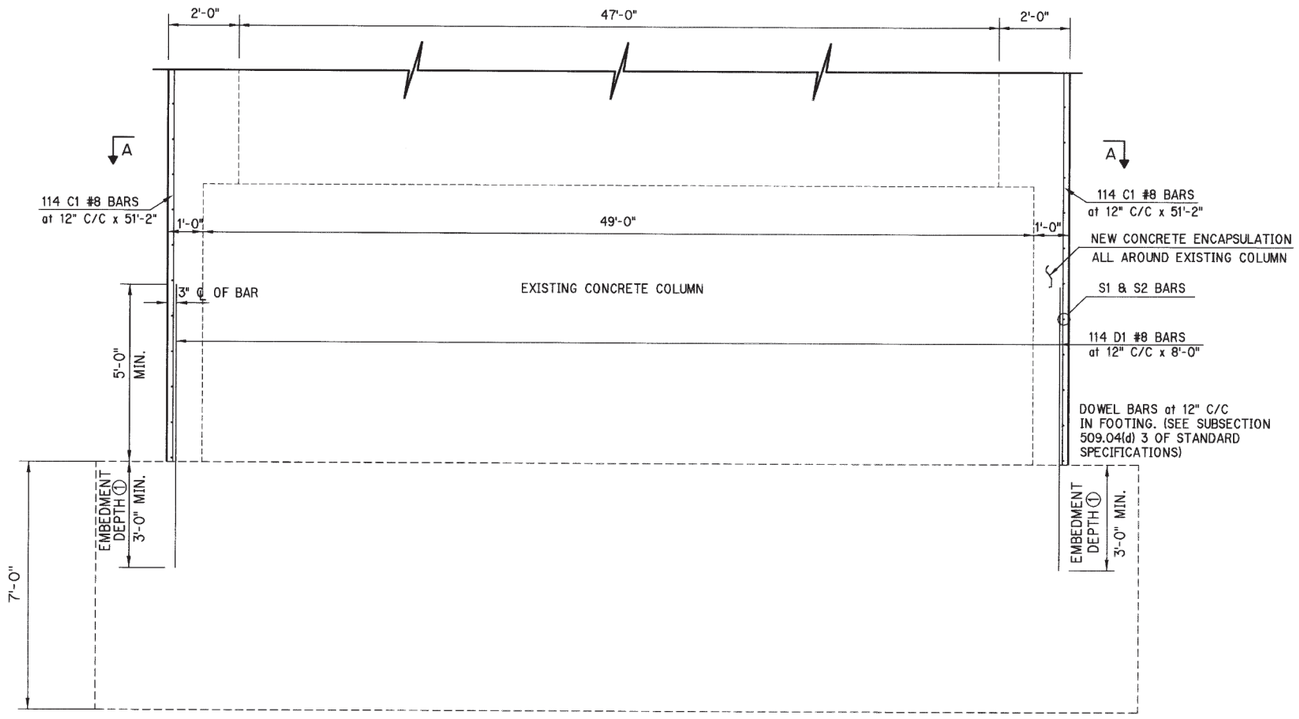
SECTION "A-A"



S2 #4 x 23'-0"

GENERAL CONSTRUCTION NOTE:

PRIOR TO ENCASEMENT OF THE PIER, THE EXISTING PIER CONCRETE SURFACE SHALL BE CLEANED OF FOREIGN MATERIALS USING AN ABRASIVE BLAST OR OTHER APPROVED METHOD TO THE EXTENT THAT CLEAN AGGREGATE IS EXPOSED (FULL AMPLITUDE OF APPROXIMATELY 1/4"). ANY UNSATISFACTORY CONCRETE SHALL BE REMOVED AND THE PROCEDURE FOR SUBSTRUCTURE REPAIR OUTLINED ON SHEET 8 SHALL BE FOLLOWED WITH THE EXCEPTION OF APPLYING THE PNEUMATICALLY PLACED MORTAR OR APPROVED EQUAL. ALL COSTS ASSOCIATED WITH THE PREPARATION OF PIER SURFACE SHALL BE INCLUDED IN OTHER ITEMS OF WORK.



TYPICAL DETAIL OF ANCHORAGE ASSEMBLY

ALL COST FOR THE INSTALLATION OF DOWEL BARS, INCLUDING LABOR, TOOLS, DRILLING, & OTHER INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

① Anchorage System: The Contractor may use an approved Anchorage System that shall be capable of developing the full strength of the reinforcing steel that is to be anchored. The embedment depth shown is to be adjusted to meet the Manufacturer's Requirements. Anchorage shall be installed in accordance with the Manufacturer's Specifications for the system used.

BAR LIST
EPOXY COATED

MARK	NO.	SIZE	FORM	SPACING	LENGTH
C1	114	#8	STR.	12" C/C	51'-2"
S1	104	#4	STR.	12" C/C	39'-0"
S2	104	#4	BNT.	12" C/C	23'-0"
D1	114	#8	STR.	12" C/C	8'-0"

QUANTITES

ITEM	UNIT	QUANTITY
LUMBER (TREATED)	MFBM	5.85
CLASS A CONCRETE	C.Y.	308.5
EPOXY REINF. STEEL	LB.	22,320
STRUCTURAL STEEL	LB.	840

Design	TRP		
Drawn	BI	9-04	
Checked			
Approved			
Squad	POE		

MUSKOGEE-SEQUOYAH COUNTY

BRIDGE "A" I-40 OVER ARKANSAS RIVER

PIER NO. 4
ENCASEMENT REPAIR
(SHEET 2 of 2)

State Job No. 20833(04) Sheet No. 8

SEPTEMBER 29, 2005
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SCHEMMER

Sub 7-15-05

SURVEY CONTROL DATA:
NONE

OKLAHOMA DEPARTMENT OF TRANSPORTATION

DESCRIPTION	REVISIONS	DATE

TRAFFIC CONTROL
PROJECT ENGINEER :
SQUAD SUPERVISOR :

BRIDGE
ENGR. MANAGER :
SQUAD SUPERVISOR :

ROADWAY DESIGN
ENGINEERING MANAGER: _____ SQUAD MEMBERS : _____
ENGINEERING INTERN : _____
CHECKED : _____

P.E. NO. : ___(01)

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION

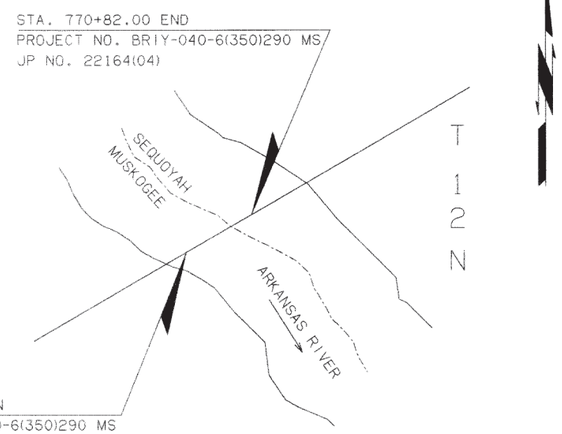
PLAN OF PROPOSED

STATE HIGHWAY
BRIDGE PIER PROTECTION PLANS

PROJECT NO. BRIY-040-6(350)290 MS
INTERSTATE HIGHWAY NO. I-40

MUSKOGEE - SEQUOYAH COUNTIES

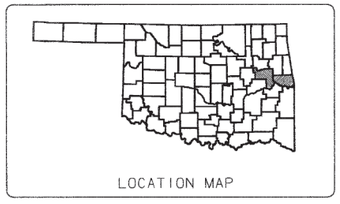
CONTROL SECTION NO. 40-51-15
STATE JOB PIECE NO. 22164(04)
BRIDGE NBIS NO. 17051



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET AND INDEX OF SHEETS
2	GENERAL NOTES
3	GENERAL NOTES AND SUMMARY OF PAY QUANTITIES
4	GENERAL PLAN AND ELEVATION - 1
5	GENERAL PLAN AND ELEVATION - 2
6	PIER PROTECTION STAKING DIAGRAM
7	PIER PROTECTION DETAILS
7A	ALTERNATE PIER PROTECTION REINFORCING DETAILS
8	PIER PROTECTION BAR SCHEDULE
9	NAVIGATION LIGHTING AND LADDER DETAILS.

SCALES 1"
PLAN 1" = ____
PROFILE HOR. 1" = ____
VER. 1" = ___
LAYOUT MAP 1" = ______


LOCATION MAP

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

1999 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION-ENGLISH GOVERN, APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, SEPTEMBER 21, 1999

PREPARED BY:
MODJESKI AND MASTERS, INC.
P.O. BOX 2345
HARRISBURG, PENNSYLVANIA 17105
TELEPHONE 717-790-9565
JOHN M. KULICKI
OKLA. REG. NO. 14295

MODJESKI and MASTERS INCORPORATED Consulting Engineers SINCE 1893

REGISTERED PROFESSIONAL ENGINEER JOHN M. KULICKI 14295 OKLAHOMA

OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED	DATE APPROVED
BY	BY
ASST. DIRECTOR PRECONSTRUCTION	DIVISION ADMINISTRATOR

SWO PROJECT NO. BRIY-040-6(350)290 MS SHEET NO. 1

MUSKOGEE - SEQUOYAH COUNTIES

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REVISIONS		
REV. NO.	DESCRIPTION	DATE
1	REVISED NOTES	7/27/05

GENERAL NOTES

WORK IN THE RIVER

THE PIER PROTECTION SHALL BE BUILT ADJACENT TO THE EXISTING BRIDGE PIERS AND WITHIN A NAVIGABLE WATERWAY WHICH HAS A SPECIFIED NAVIGATION CHANNEL AS SHOWN ON THE PLANS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROPRIATE GOVERNMENTAL AGENCIES HAVING REGULATORY AUTHORITY OVER THE WATERWAY, INCLUDING THE U. S. COAST GUARD (USCG) AND THE U. S. ARMY CORPS OF ENGINEERS (COE). ANY RESTRICTIONS IMPOSED UPON RIVER TRAFFIC AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL REQUIRE THAT THE CONTRACTOR OBTAIN ANY AND ALL PERMITS NECESSARY TO ALLOW THE TEMPORARY RESTRICTION PRIOR TO BEGINNING THE WORK.

THE CONTRACTOR SHALL BE RESTRICTED FROM OCCUPYING OR OBSTRUCTING THE NAVIGATION CHANNEL FOR EXTENDED PERIODS. A SINGLE ANNUAL 10–DAY PERIOD IS AVAILABLE, USUALLY AT THE END OF AUGUST, WHEN THE WEBBERS FALLS LOCK AND DAM (NO. 16) IS CLOSED FOR MAINTENANCE AND THE CONTRACTOR MAY, WITH THE APPROVAL OF THE COE AND USCG, OCCUPY THE CHANNEL DURING THAT TIME. BRIEF OUTAGES CAN BE ACCOMMODATED WITH ADVANCE APPROVAL OF THE COE AND USCG. SHORTER INCURSIONS MAY OCCUR WHEN RIVER TRAFFIC IS KNOWN TO BE ABSENT BY MONITORING ADJACENT LOCKS, WITH DUE CONSIDERATION FOR PLEASURE CRAFT.

THE CONTRACTOR SHALL BE REQUIRED TO BE FAMILIAR WITH COE OPERATING PRACTICES, WHICH MAY CAUSE RAPID CHANGES IN FLOW AND THE RESULTING RIVER LEVEL. HORNS AND VISIBLE SIGNALS ARE USED TO WARN WATERCRAFT. IN CASES OF EXTREME HIGH WATER, WHICH MAY OCCUR FOLLOWING STORMS, THE CONTRACTOR SHALL BE REQUIRED TO LOCK HIS FLOATING EQUIPMENT UP TO THE RESERVOIR POOL LEVEL. AN EVACUATION PLAN SHALL BE DEVELOPED AND SUBMITTED TO THE BRIDGE ENGINEER FOR APPROVAL. WORK IN THE RIVER SHALL NOT BEGIN UNTIL THE PLAN HAS BEEN APPROVED. THE CONTRACTOR SHALL COORDINATE ALL ACTIVIES WITH THE COE, WEBBERS FALLS AND ROBERT S. KERR DAM PROJECT OFFICES, AND THE USCG.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY AND ALL FINES OR PENALTIES IMPOSED BY ANY GOVERNMENTAL AGENCY AS A RESULT OF HIS ACTIVITES IN OR ON THE WATERWAY.

SPECIFICATIONS

COMPLY WITH THE REQUIREMENTS OF THE 1999 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EXCEPT AS MODIFIED BY THE PLANS.

DESIGN DATA

THE PIER PROTECTION HAS BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE 2004 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

SEISMIC DESIGN

SEISMIC FORCES DO NOT CONTROL THE DESIGN OF THE PIER PROTECTION.

VESSEL COLLISION LOAD

THE PIER PROTECTION SYSTEM (DRILLED SHAFTS) HAS BEEN DESIGNED FOR AN ESTIMATED IMPACT LOAD OF 2,400 KIPS FROM A THREE BARGE LONG LOADED HOPPER BARGE TOW TRAVELING AT 6 MPH, OR A TWO BARGE LONG EMPTY TANKER BARGE TOW TRAVELING AT THE SAME SPEED.

THE DRILLED SHAFTS ARE DETAILED TO RESIST IMPACT FROM LARGER TOWS THROUGH PLASTIC DEFORMATION AND DAMAGE.

DEAD LOAD

THIS PIER PROTECTION HAS BEEN DESIGNED FOR FULL DEAD LOAD SELF–WEIGHT.

STRUCTURAL STEEL

ALL STRUCTURAL STEEL FOR LADDERS SHALL BE ASTM A36 (GALVANIZED).

STRUCTURAL STEEL FOR THE DRILLED SHAFT REINFORCEMENT H–PILES SHALL BE AASHTO M223 (A572) GRADE 50.

REINFORCING

ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M31, GRADE 60. WELDING OF REINFORCING BARS DURING FABRICATION OR CONSTRUCTION IS NOT PERMITTED.

STRUCTURE GEOMETRY

ALL DIMENSIONS ARE IN FEET AND INCHES, UNLESS NOTED.
ALL ELEVATIONS ARE IN FEET, UNLESS NOTED.
ALL DIMENSIONS SHOWN ARE HORIZONTAL AND VERTICAL, UNLESS NOTED.

CONSTRUCTION PLANS OF EXISTING BRIDGE

DETAIL PLANS FOR THE EXISTING BRIDGE ARE AVAILABLE FROM THE REPRODUCTION BRANCH OF THE OKLAHOMA DEPARTMENT OF TRANSPORTATION, 200 N.E. 21st STREET, OKLAHOMA CITY, OK 73105. THE PROJECT NUMBER IS IR–40–6(187)291.

DRILLED SHAFTS

THE PERMANENT CASING METHOD AS DESCRIBED IN THE 1999 OKLAHOMA STANDARD SPECIFICATIONS SHALL BE USED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE TIP ELEVATION OF THE CASING. THE CASING SHALL BE NEW AND UNUSED MATERIAL WITH A MINIMUM THICKNESS OF 0.5 INCHES. THE EXTERIOR SURFACE OF THE CASING SHALL BE PAINTED. THE LIMITS OF PAINTING SHALL EXTEND FROM THE TOP OF THE CASING TO 5 FEET BELOW THE NORMAL POOL ELEVATION. THE PAINT SYSTEM SHALL BE SSPC: THE SOCIETY FOR PROTECTIVE COATINGS – PAINT SPECIFICATION NO.16 (COAL TAR EPOXY – POLYAMIDE PAINT) AND CONSIST OF A RED PRIMER COAT AND A BLACK TOP COAT.

THE CONTRACTOR HAS THE OPTION OF USING EITHER OF TWO REINFORCING DETAILS SHOWN ON THE PLANS. REMOVABLE FORMS FOR THE PORTION OF THE SHAFT EXTENDING ABOVE THE NORMAL POOL ELEVATION MAY BE UTILIZED IF THE REINFORCING DETAIL USING A COMBINATION OF BARS AND H–PILES IS SELECTED. REMOVABLE FORMS SHALL NOT BE PERMITTED IF THE ALTERNATIVE DRILLED SHAFT REINFORCING DETAILS UTILIZING ONLY BARS IS SELECTED, IN WHICH CASE THE SHAFT SHALL BE CASED FULL LENGTH.

USE CROSSHOLE SONIC LOGGING (CSL) AS DIRECTED BY THE ENGINEER TO VERIFY THE INTEGRITY OF THE DRILLED SHAFT AFTER COMPLETION OF THE CONCRETE POUR. CONTRACTOR SHALL ONLY PERFORM CSL TESTING ON THE FIRST CONSTRUCTED DRILLED SHAFT.

IF OVERSIZED CASING IS USED, THE LOCATION OF THE DRILLED SHAFTS ADJACENT TO THE NAVIGATION CHANNEL SHALL BE ADJUSTED BY THE CONTRACTOR SUCH THAT THE NAVIGATION CLEARANCE SHOWN ON THE PLANS IS MAINTAINED.

GEOTECHNICAL INVESTIGATION

THE CONTRACTOR SHALL BE REQUIRED TO PERFORM A BRIDGE GEOTECHNICAL INVESTIGATION AND PROVIDE A BRIDGE GEOTECHNICAL REPORT TO THE ENGINEER. THE BRIDGE GEOTECHNICAL INVESTIGATION SHALL BE PERFORMED IN ACCORDANCE WITH DEPARTMENT OF TRANSPORTATION GEOTECHNICAL SPECIFICATIONS FOR ROADWAY DESIGNS AND BRIDGES AND RELATED STRUCTURES AND DEPARTMENT ACCEPTABLE PRACTICES UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF OKLAHOMA. THE REPORT SHALL INCLUDE THE FINDINGS OF ALL GEOTECHNICAL WORK DESCRIBED IN THIS SECTION.

THE CONTRACTOR SHALL BE REQUIRED TO BE FAMILIAR WITH THE SOIL CONDITIONS AND THE CHARACTERISTICS OF THE BEDROCK AT THE SITE. NO SITE SPECIFIC GEOTECHNICAL INVESTIGATION WAS PERFORMED DURING THE DESIGN PHASE OF THIS PROJECT. INFORMATION ON THE REGIONAL BEDROCK CHARACTERISTICS MAY BE OBTAINED FROM PREVIOUS DRILLED SHAFT CONSTRUCTION PROJECTS AT THE SH–51 BRIDGE (CAPITAL IMPROVEMENT PROJECT NO. CIP–173B(018)IP, BRIDGE PLANS, 2000), THE I–40 BRIDGE (FEDERAL AID PROJECT NO. IMY–0040–6(288), GEOTECHNICAL REPORT, 2002), AND THE US–59 BRIDGE (STATE AID PROJECT BRFY–168A(035)GB & (070)GB, BRIDGE PLANS AND GEOTECHNICAL INVESTIGATION REPORT, 2000). THIS INFORMATION IS AVAILABLE FROM THE REPRODUCTION BRANCH OF THE OKLAHOMA DEPARTMENT OF TRANSPORTATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CONCLUSIONS DRAWN FROM THE AVAILABLE INFORMATION.

THE BEDROCK MATERIAL SHALL BE EVALUATED BY TEXAS CONE PENETROMETER (TCP) AT EACH DRILLED SHAFT LOCATION PRIOR TO EXCAVATION. PERFORM THE TCP TEST AT EACH 5–FOOT TO 10–FOOT INTERVAL OF CORE HOLE AND AT EACH SIGNIFICANT CHANGE IN STRATUM. TCP TESTS SHALL EXTEND TO A DEPTH OF 46 FT INTO BEDROCK. THE OVERBURDEN MATERIAL AT EACH OF THE LOCATIONS SHALL ONLY BE SAMPLED.

A COPY OF THE DRILLING LOGS SHALL BE MADE AVAILABLE TO THE ENGINEER UPON COMPLETION OF EACH CORE. WORK SHALL NOT BEGIN ON A DRILLED SHAFT UNTIL THE CORE AT ITS LOCATION HAS BEEN COMPLETED AND EVALUATED BY THE BRIDGE ENGINEER.

ROCK CORES WITH A MINIMUM DIAMETER OF 2–INCHES SHALL BE TAKEN AT 6–FOOT INTERVALS TO A DEPTH OF 40 FT INTO BEDROCK AT THE LOCATION OF THE FIRST CONSTRUCTED DRILLED SHAFT ONLY. THESE CORES SHALL BE EXAMINED AND TESTED TO DETERMINE PERCENT CORE RECOVERY, ROCK QUALITY DESIGNATION (RQD), UNCONFINED COMPRESSION STRENGTH AND INTACT ELASTIC MODULUS. THE RESULTS OF THESE LABORATORY TESTS SHALL BE MADE AVAILABLE TO THE ENGINEER WITHIN SEVEN DAYS OF RECEIVING THE CORES. WORK SHALL NOT START ON THE SECOND DRILLED SHAFT UNTIL THESE RESULTS ARE EVALUATED BY THE ENGINEER. RESULTS SHALL BE CORRELATED WITH THE TCP TESTS.

THE CONTRACTOR MAY PERFORM THE GEOTECHNICAL INVESTIGATION BEFORE THE DRILLED SHAFT CONSTRUCTION BEGINS. THE CORE FOR EACH DRILLED SHAFT MAY BE TAKEN OUTSIDE THE LIMITS OF THE DRILLED SHAFT BUT NOT MORE THAN A DISTANCE OF ONE DIAMETER FROM THE EDGE OF DRILLED SHAFT.

ALL COSTS TO COMPLETE THE WORK AS DESCRIBED, INCLUDING ADDITIONAL BARGES AND OTHER EQUIPMENT, LABOR, TESTING, REPORTING AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER LUMP SUM OF "GEOTECHNICAL INVESTIGATION".

DRILLED SHAFT – FOUNDING ELEVATIONS

ESTIMATED BOTTOM OF DRILLED SHAFT ELEVATIONS SHOWN ON THE PLANS ARE BASED SOLELY UPON THE ROCK ELEVATIONS SHOWN ON THE INTERSTATE HIGHWAY NO. I–40 BRIDGE REHAB. PLANS (F.A.P. NO. IR–40–6(187)291). FINAL ELEVATIONS MAY VARY PENDING ACTUAL CONDITIONS ENCOUNTERED AT EACH DRILLED SHAFT, AND THE INFORMATION OBTAINED BY THE SUB–BOTTOM CORE HOLE OPERATION. FINAL ELEVATION SELECTED SHALL BE AT THE DISCRETION OF THE ENGINEER. THE INCREASED OR DECREASED QUANTITIES OF WORK SHALL BE PERFORMED AT THE CONTRACT UNIT PRICE PER LINEAR FOOT OF SHAFT.

THE ROCK LINE USED TO DETERMINE THE FOUNDING ELEVATIONS OF THE DRILLED SHAFTS SHALL BE TAKEN AS THE ELEVATION WHERE MORE THAN 50 BLOWS ARE REQUIRED TO PENETRATE 5 INCHES IN THE TCP TEST.

SUB–BOTTOM (ROCK) CORE HOLES SHALL BE PERFORMED AT EACH DRILLED SHAFT LOCATION AFTER THE DRILLED SHAFT EXCAVATION HAS REACHED THE ESTIMATED ELEVATION SHOWN ON THE PLANS. CORE DIAMETER SHALL BE A MINIMUM OF 2–INCHES, AND THE CORE HOLE DEPTH SHALL BE A MINIMUM OF 1.0 TIMES THE DRILLED SHAFT DIAMETER BELOW THE ESTIMATED BOTTOM OF DRILLED SHAFT ELEVATION, OR BELOW AN ELEVATION SELECTED BY THE ENGINEER. PROVIDE THE CORE SAMPLE TO THE ENGINEER FOR REVIEW.

FURTHER PROGRESS ON THE DRILLED SHAFT SHALL NOT PROCEED UNTIL THE CORE SAMPLE HAS BEEN EXAMINED BY THE ENGINEER AND THE FINAL BOTTOM OF DRILLED SHAFT ELEVATION HAS BEEN ESTABLISHED BY THE ENGINEER.

THE SUB–BOTTOM CORE HOLES MAY BE PERFORMED AT THE SAME TIME AND AS PART OF THE GEOTECHNICAL INVESTIGATION. THE SUB–BOTTOM CORE HOLES FOR EACH DRILLED SHAFT MAY BE TAKEN OUTSIDE THE LIMITS OF THE DRILLED SHAFT BUT NOT MORE THAN A DISTANCE OF ONE DIAMETER FROM THE EDGE OF DRILLED SHAFT.

IF IT IS DETERMINED IN THE FIELD THAT A LOWER FOUNDING ELEVATION IS REQUIRED, THE BOTTOM OF THE REINFORCING CAGE MAY BE ALLOWED TO TERMINATE A MAXIMUM OF 4 FEET ABOVE THE BOTTOM OF THE DRILLED SHAFT.

UTILITIES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE HE MAY INFLICT TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF HIS WORK. PRIOR TO DRILLING, THE CONTRACTOR SHALL CALL FOR A LIST OF ALL UNDERGROUND FACILITIES REGISTERED IN THE AREA OF CONSTRUCTION, LISTED WITH THE FOLLOWING AGENCIES:

THE OKLAHOMA ONE–CALL SYSTEM, INC. (CALL OKIE) 1–800–522–6543
THE LOCAL COUNTY CLERK'S OFFICE

DEPTH AND LOCATION OF EXISTING UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

HISTORICAL HYDRAULIC DATA

CONTRACTOR SHALL VERIFY ALL RIVER BOTTOM AND WATER ELEVATIONS NOTED ON THE PLANS. STREAM GAGE RECORDS ARE AVAILABLE FOR:

STATION 07249450, ARKANSAS RIVER AT FORT SMITH, ARKANSAS 1879 TO 1957
STATION 07246500, ARKANSAS RIVER NEAR SALLISAW, OKLAHOMA 1927 TO 1970

ANY MORE RECENT RECORDS ARE MAINTAINED BY THE U. S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT.

TEMPORARY CONSTRUCTION

DUE TO THE CLOSE PROXIMITY TO THE NAVIGATION CHANNEL AND THE RELATIVELY DEEP WATER LEVEL, NO TEMPORARY ISLANDS OF DUMPED ROCK OR CONTINUOUS CAUSEWAYS ARE PERMITTED FOR CONTRACTOR ACCESS DURING DRILLED SHAFT CONSTRUCTION. BARGE ACCESS AND PLATFORMS FOR MACHINERY AND MATERIALS IS THE SOLE METHOD OF CONSTRUCTION. ALL TEMPORARY CHANNEL OBSTRUCTIONS MUST BE REMOVED IMMEDIATELY PRIOR TO COMPLETION OF THE PROJECT.

USCG/COE PERMIT RESTRICTIONS

THE CONTRACTOR SHALL CONFORM TO ALL REQUIREMENTS INCLUDED IN BOTH THE CORPS OF ENGINEERS PERMIT AND THE U.S. COAST GUARD SECTION 9 NAVIGABLE WATERS PERMIT.

POINTS OF CONTACT FOR EACH AGENCY ARE AS FOLLOWS:

CORPS OF ENGINEERS
KERR DAM
DENNIS JOHNSON, GENERAL MANAGER
(918) 775–4475 (EXT. 710)

TULSA CORPS OFFICE
JOHNNY BELL, PROJECT MANAGER
(918) 669–7341

U. S. COAST GUARD
THE COMMANDER, EIGHTH COAST GUARD DISTRICT
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103–2398
ATTN: MR. ROGER WIEBUSCH, BRIDGE BRANCH
(314) 539–3900 (EXT. 2378)

⚠ **BRIDGE NAVIGATION LIGHTING**

DESCRIPTION:

THE WORK COVERED UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, AND PERFORMING ALL OPERATIONS IN CONNECTION WITH THE INSTALLATION OF THE NAVIGATIONAL LIGHTS FOR THE PIER PROTECTION SYSTEM (DRILLED SHAFTS). NAVIGATIONAL LIGHTS SHALL COMPLY WITH THE U.S. DEPARTMENT OF TRANSPORTATION, UNITED STATES COAST GUARD, BRIDGE ADMINISTRATION DIVISION REQUIREMENTS, AS SPECIFIED IN 33 CFR 118 – LIGHTING OF BRIDGES, LATEST EDITION.

MATERIALS:

(A) NAVIGATIONAL LIGHTS. NAVIGATIONAL LIGHTS (PIER PROTECTION SYSTEM MOUNTED) SHALL BE A STEADY BURNING (NOT FLASH), 180 DEG. ILLUMINATION, SOLAR–POWERED, "CARMANAH" MODEL 701 OR APPROVED EQUAL, WITH A CLEAR LENS AND RED LIGHT EMITTING DIODE (LED) OUTPUT TO MARK THE MARGIN OF THE NAVIGABLE CHANNEL. ALL NAVIGATIONAL LIGHTS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS. THE NAVIGATIONAL LIGHTS SHALL BE OF SUFFICIENT CANDLEPOWER AS TO BE VISIBLE AGAINST THE BACKGROUND LIGHTING FROM AN APPROACHING VESSEL AT A DISTANCE OF AT LEAST 2,000 YARDS, 90 PERCENT OF THE NIGHTS OF THE YEAR.

I–40 BRIDGE OVER ARKANSAS RIVER	MUSKOGEE–SEQUOYAH COUNTIES	
GENERAL NOTES		
Design	MJB	10/04
Detail	DTP	10/04
Check	LKD	2/05
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION	
JOB PIECE NO. 22164(04)	SHEET NO. 2	

Printed: 11/08/2005 10:52 AM

SCHEMMER

REV. NO.	DESCRIPTION	DATE
1	REVISED NOTES / PAY ITEMS	7/27/05
2	ADD NOTES	11/4/05

GENERAL NOTES (CONTINUED)

CONSTRUCTION METHODS:

THE NAVIGATIONAL LIGHTING WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS, AND SHALL CONFORM TO ALL APPLICABLE LOCAL REGULATIONS. COORDINATE PLACEMENT OF THE NAVIGATIONAL LIGHT ANCHOR BOLTS WITH THE DRILLED SHAFT CONTRACTOR

THE CONSTRUCTION OF THE NAVIGATIONAL LIGHTING SHALL CONFORM TO THE FOLLOWING SECTIONS OF THE OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION:

SECTION 801.02 FOR GENERAL REQUIREMENTS

AFTER THE FINAL INSTALLATION AND ADJUSTMENT, THE NAVIGATIONAL LIGHTING SYSTEM SHALL BE VISUALLY INSPECTED FROM A DISTANCE NOT LESS THAN 500 YARDS TO ENSURE THE PROPER ALIGNMENT OF EACH LIGHT IN ACCORDANCE WITH THE INTENDED MARKINGS OF THE NAVIGABLE CHANNEL AS SHOWN ON THE DRAWINGS. ANY MISALIGNMENT OF THE LIGHTS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

METHOD OF MEASUREMENT:

△1 "BRIDGE NAVIGATION LIGHTING" WILL NOT BE MEASURED FOR PAYMENT. THE COMPLETE SYSTEM, CONSISTING OF TWO SOLAR-POWERED, 180 DEG. ILLUMINATION, RED LED OUTPUT LIGHTS AND ASSOCIATED MOUNTING HARDWARE SHALL BE PAID FOR ON A LUMP SUM BASIS. INCLUDED IN THE COST OF THIS ITEM OF WORK, THE CONTRACTOR SHALL PROVIDE ONE REPLACEMENT SOLAR-POWERED LIGHT TO THE OKLAHOMA DEPARTMENT OF TRANSPORTATION FIELD DIVISION 1 OFFICE.

BASIS OF PAYMENT:

△1 PAYMENT FOR "BRIDGE NAVIGATION LIGHTING" SHALL BE MADE ON A LUMP SUM BASIS. THIS LUMP SUM PRICE SHALL INCLUDE FURNISHING, INSTALLING AND TESTING A COMPLETE NAVIGATIONAL LIGHTING SYSTEM AS SHOWN ON THE DRAWINGS AND AS DESCRIBED HEREIN FOR THE BRIDGE. THIS LUMP SUM PRICE ALSO INCLUDES ALL REPLACEMENT ITEMS AND BIRD SPIKES AS WELL AS ALL ANCHOR BOLTS, NUTS AND WASHERS NEEDED TO MOUNT THE NAVIGATIONAL LIGHTS TO THE TOPS OF THE SPECIFIED PIER PROTECTION SYSTEMS.

AIDS TO NAVIGATION – REFLECTIVE PANELS AND VERTICAL CLEARANCE GAUGE △2

SUPPLEMENT "BRIDGE NAVIGATION LIGHTING" △1 WITH THE FOLLOWING:

DESCRIPTION:

THE WORK SHALL CONSIST OF FURNISHING ALL LABOR, MATERIALS, EQUIPMENT AND PERFORMING ALL OPERATIONS IN CONNECTION WITH INSTALLING COAST GUARD APPROVED, RED, HIGH INTENSITY GRADE, RETRO-REFLECTIVE SQUARE PANELS ON THE DOWNSTREAM FACE OF THE PIER PROTECTION SYSTEM (DRILLED SHAFTS).

△2 THE WORK SHALL ALSO INCLUDE FURNISHING ALL LABOR, MATERIALS, EQUIPMENT AND PERFORMING ALL OPERATIONS IN CONNECTION WITH INSTALLING COAST GUARD APPROVED VERTICAL CLEARANCE GAUGES AS SPECIFIED IN THE COAST GUARD PERMIT AND AT THE LOCATION SHOWN ON THE PLANS.

MATERIALS:

PROVIDE COAST GUARD APPROVED, RED, HIGH INTENSITY GRADE, RETRO-REFELECTIVE 2'-0" SQUARE PANEL. THE RED RETRO-REFLECTIVE SHEETING MATERIAL SHALL BE TYPE VIII, SUPER-HIGH-INTENSITY RETRO-REFLECTIVITY CHARACTERISTICS AT LONG AND MEDIUM DISTANCES AS DETERMINED BY THE R_A VALUES OF TABLE 2 OF ASTM D 4956 AT 0.2 DEG. OBSERVATION ANGLE. THIS SHEETING IS TYPICALLY AN UNMETALLIZED MICROPRISMATIC RETRO-REFLECTIVE ELEMENT MATERIAL. PANEL SHALL BE PERMANENTLY BONDED TO A 1/4-INCH THICK GALVANIZED STEEL BACKING PLATE. USE 3/8-INCH DIAMETER GALVANIZED FERRULE LOOP INSERTS WITH GALVANIZED BOLTS AND WASHERS TO SECURE PANEL ASSEMBLY TO THE PIER PROTECTION SYSTEM (DRILLED SHAFT) FACE. SUBMIT PROPOSED REFLECTIVE PANEL ASSEMBLY AND ATTACHMENTS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.

△2 PROVIDE COAST GUARD APPROVED VERTICAL CLEARANCE GAUGES AS SPECIFIED IN THE COAST GUARD PERMIT.

CONSTRUCTION METHODS:

INSTALLATION OF THE RED REFLECTIVE PANELS SHALL BE IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND THE OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. COORDINATE PLACEMENT OF THE FERRULE LOOP INSERTS WITH THE DRILLED SHAFT CONTRACTOR.

△2 INSTALLATION OF THE VERTICAL CLEARANCE GAUGES SHALL BE IN ACCORDANCE WITH THE COAST GUARD PERMIT. SUBMIT PROPOSED INSTALLATION PROCEDURES TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING WORK.

METHOD OF MEASUREMENT:

THE REFLECTIVE PANELS WILL NOT BE MEASURED FOR PAYMENT. THE COMPLETE ASSEMBLY, INCLUDING THE REFLECTIVE PANELS, GALVANIZED STEEL BACKING PLATE, FERRULE LOOP INSERTS, BOLTS AND WASHERS SHALL BE FURNISHED AND INSTALLED, AND INCLUDED IN THE LUMP SUM BID PRICE FOR "BRIDGE NAVIGATION LIGHTING" △1

△2 THE VERTICAL CLEARANCE GAUGES WILL NOT BE MEASURED FOR PAYMENT. THE COMPLETE ASSEMBLIES SHALL BE FURNISHED AND INSTALLED, AND INCLUDED IN THE LUMP SUM BID PRICE FOR "BRIDGE NAVIGATION LIGHTING."

BASIS OF PAYMENT:

△1 PAYMENT FOR THE REFLECTIVE PANELS SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR "BRIDGE NAVIGATION LIGHTING" PAY ITEM NUMBER 801 6238. △1 THIS SHALL INCLUDE FURNISHING AND INSTALLING THE REFLECTIVE PANEL ASSEMBLIES ON THE DOWNSTREAM FACES OF THE PIER PROTECTION SYSTEM (DRILLED SHAFTS).

△2 PAYMENT FOR FURNISHING AND INSTALLING THE APPROVED VERTICAL CLEARANCE GAUGES SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR "BRIDGE NAVIGATION LIGHTING", PAY ITEM NUMBER 801 6238.

CONSTRUCTION TRAFFIC CONTROL (TO-25)

THE CONTRACTOR SHALL HAVE THE OPTION OF POURING THE DRILLED SHAFT CONCRETE FROM THE BRIDGE DECK. IN ORDER TO DO THIS, CONSTRUCTION TRAFFIC CONTROL SHALL BE INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, AND APPLICABLE O.D.O.T. STANDARD DRAWINGS. THE CONTRACTOR SHALL PROVIDE A PROPOSED TRAFFIC CONTROL PLAN FOR APPROVAL TO THE ENGINEER PRIOR TO BEGINNING WORK. PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL DEVICES AND PAVEMENT MARKINGS REQUIRED FOR COMPLETION OF THE PROJECT.

ALL SIGNS, BARRICADES AND CHANNELIZING DEVICES WHICH ARE SHOWN WITH EITHER TYPE "A" OR TYPE "C" LIGHTS IN THE STANDARD DRAWINGS SHALL HAVE THE CORRESPONDING LIGHT ATTACHED DURING NON- DAYLIGHT HOURS.

LANE CLOSURE

ALL WORK REQUIRING THE CLOSING OR NARROWING OF ONE LANE OF TRAFFIC ON THE BRIDGES SHALL BE PERFORMED DURING DAYLIGHT HOURS ONLY. TRAFFIC ON THE BRIDGE SHALL RETURN TO NORMAL DURING NIGHT TIME HOURS. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO REOPEN THESE LANE CLOSURES AS SOON AS POSSIBLE.

△2 **SUSPENSION OF TIME**

AT THE COMPLETION OF THE GEOTECHNICAL INVESTIGATON, THE CONTRACTOR MAY REQUEST THAT THE ENGINEER SUSPEND CONTRACT TIME. CONTRACT TIME WILL BE SUSPENDED UNTIL ANY FURTHER CONSTRUCTION BEGINS OR UNTIL THE FLEXIBLE START DATE, WHICHEVER IS FIRST. SHOULD CONTRACT TIME BE SUSPENDED, NO ADDITIONAL COMPENSATION FOR RE-MOBILIZATION WILL BE ALLOWED.

PAY QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
506(A) 6005	STRUCTURAL STEEL A36 (BR-1)	LB	400.00
516(A) 6135	DRILLED SHAFTS 144" DIAMETER	LF	1,560.00
516(C) 6200	CROSSHOLE SONIC LOGGING	EA	1.00
516(D) 6400	CSL ACCESS TUBES	LF	819.00
535 6760	(PL) GEOTECHNICAL INVESTIGATION	LSUM	1.00
△1 801 6238	(PL) BRIDGE NAVIGATION LIGHTING	LSUM	1.00

BR-1: PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITIES ONLY, SEE SECTION 109.01(b) OF THE STANDARD SPECIFICATIONS.

PAY QUANTITIES

CONSTRUCTION

ITEM	DESCRIPTION	UNIT	QUANTITY
640 1398	FIELD OFFICE	EA	1.00
641 1399	MOBILIZATION	LSUM	1.00

PAY QUANTITIES

STAKING

ITEM	DESCRIPTION	UNIT	QUANTITY
642 0098	STAKING	LSUM	1.00

PAY QUANTITIES

TRAFFIC

ITEM	DESCRIPTION	UNIT	QUANTITY
880(J) 8905	CONSTRUCTION TRAFFIC CONTROL (TO-25)	LSUM	1.00

I-40 BRIDGE OVER ARKANSAS RIVER — MUSKOGEE-SEQUOYAH COUNTIES

GENERAL NOTES AND SUMMARY OF PAY QUANTITIES

Design	MJB	10/04
Detail	DTP	10/04
Check	LKD	02/05

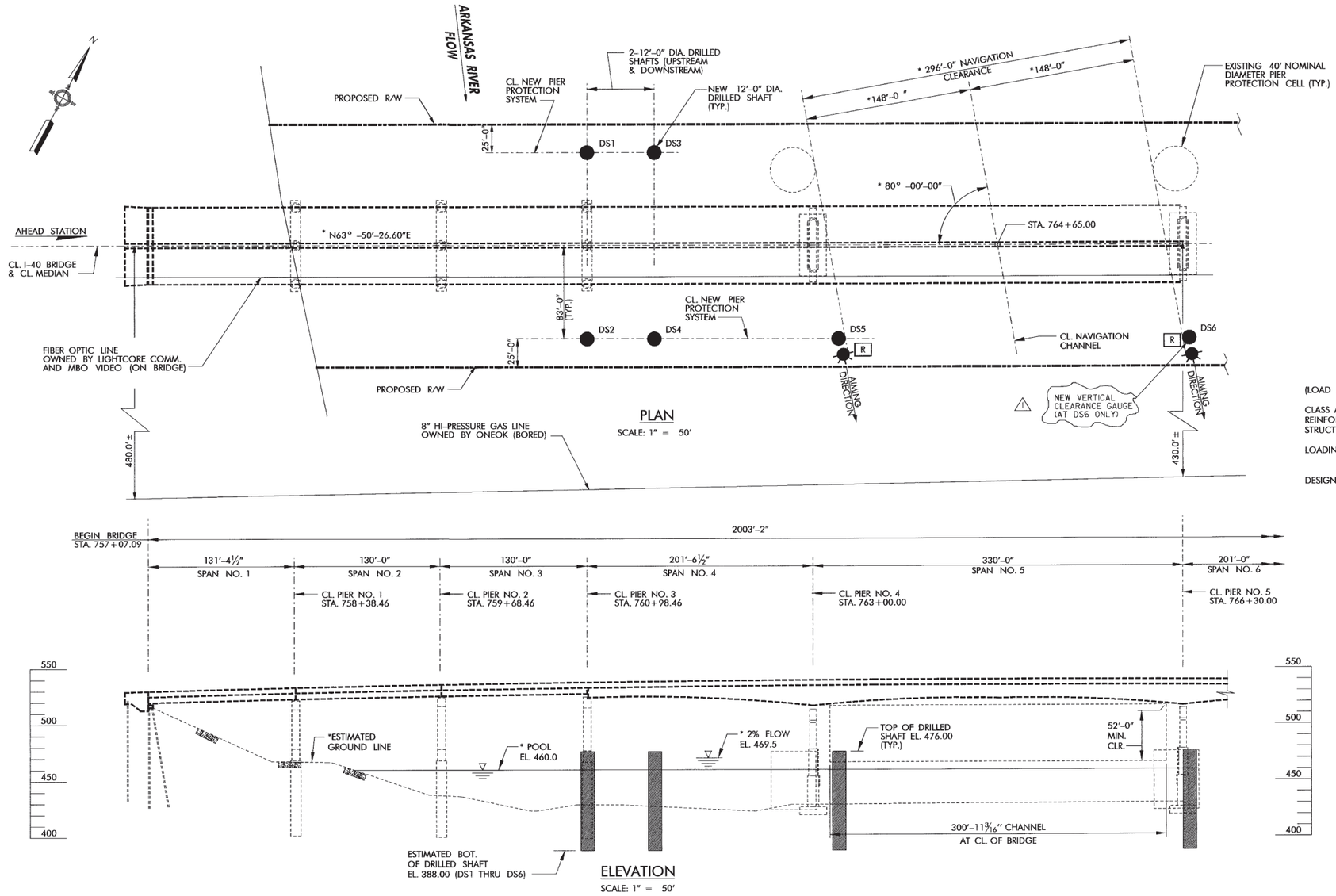
STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION

JOB PIECE NO. 22164(04) — SHEET NO. 3

Printed by gdaigle on DSK1 CV at 9:50:47 AM 11/08/2005

SCHEMMER

REV. NO.	DESCRIPTION	DATE
1	CLEARANCE GAUGE LOCATION	11/4/05



DESIGN DATA

(LOAD AND RESISTANCE FACTOR DESIGN)

CLASS AA CONCRETE f'c = 4000 PSI
REINFORCING STEEL fy = 60,000 PSI
STRUCTURAL STEEL Fy = 36 KSI (M270) GRADE 36 (LADDERS)
Fy = 50 KSI (M223) GRADE 50 (H-PILES)

LOADING: A THREE BARGE LONG LOADED HOPPER BARGE TOW TRAVELING AT 6 MPH, OR A TWO BARGE LONG EMPTY TANKER BARGE TOW TRAVELING AT 6 MPH, WITH AN ESTIMATED IMPACT LOAD OF 2,400 KIPS.

DESIGN: 2004 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (THIRD EDITION)

NOTES:

FOR GENERAL NOTES, SEE SHEETS 2 AND 3.
FOR INDEX OF SHEETS, SEE SHEET 1.
FOR PIER PROTECTION STAKING DIAGRAM, SEE SHEET 6.
FOR PIER PROTECTION DETAILS, SEE SHEET 7.

DS16 ● DENOTES 144" DRILLED SHAFT.

DENOTES RED SOLAR-POWERED NAVIGATIONAL LIGHT (180 DEG. ILLUMINATION).

R DENOTES 2' x 2' RED HIGH INTENSITY PANEL.

* INFORMATION DERIVED FROM F.A.P. NO. IR-40-6(187) 291 BRIDGE REHAB. PLANS

I-40 BRIDGE OVER ARKANSAS RIVER — MUSKOGEE-SEQUOYAH COUNTIES

GENERAL PLAN AND ELEVATION - 1

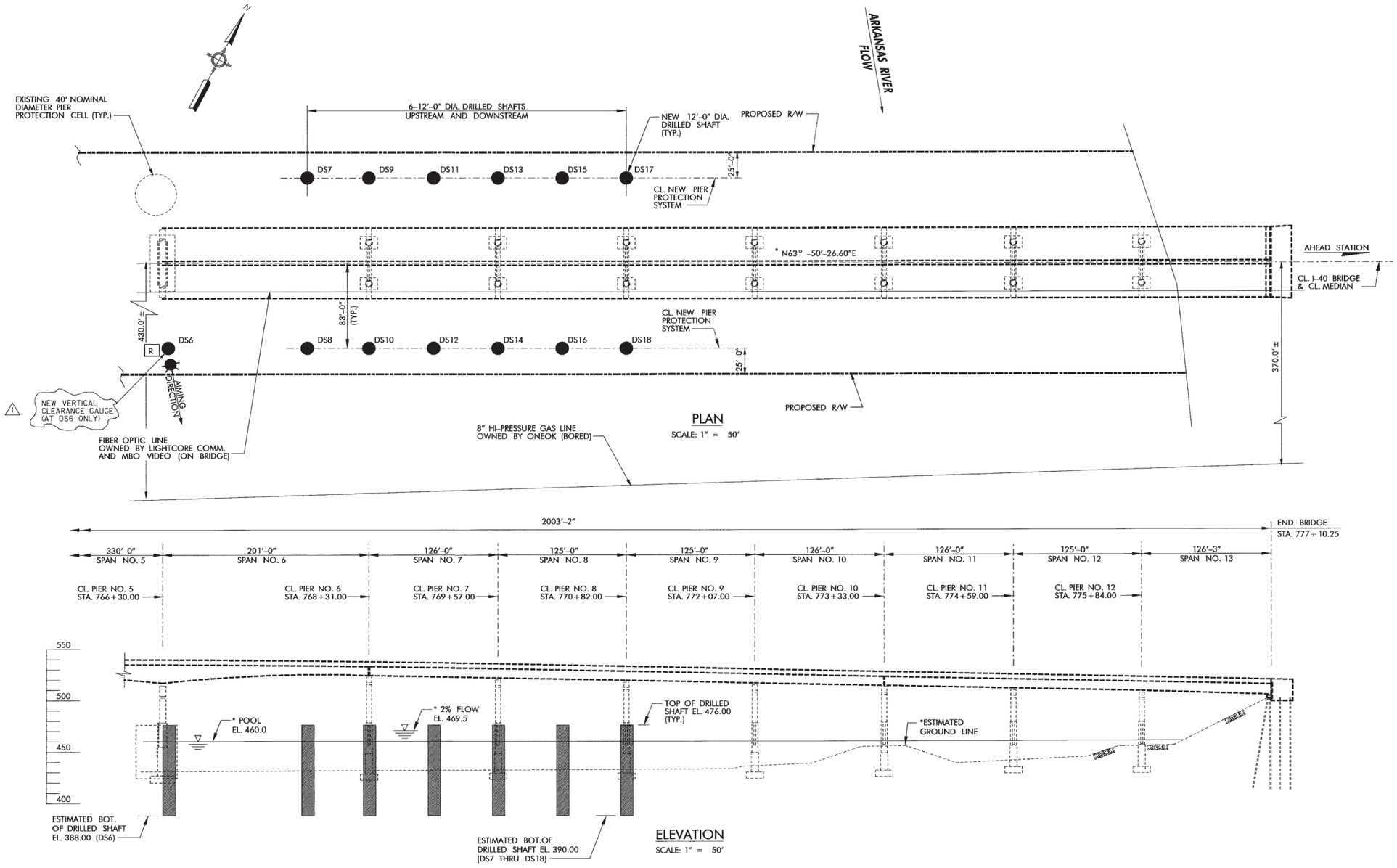
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Detail	DTP	10/04
Check	MJB	02/05

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION
JOB PIECE NO. 22164(04) — SHEET NO. 4

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REV. NO.	DESCRIPTION	DATE
1	CLEARANCE GAUGE LOCATION	11/4/05



* INFORMATION DERIVED FROM F.A.P. NO. IR–40–6(187) 291 BRIDGE REHAB. PLANS

NOTES:

FOR GENERAL NOTES, SEE SHEETS 2 AND 3.
FOR INDEX OF SHEETS, SEE SHEET 1.
FOR PIER PROTECTION STAKING DIAGRAM, SEE SHEET 6.
FOR PIER PROTECTION DETAILS, SEE SHEET 7.

DS16 ● DENOTES 144" DRILLED SHAFT.

DENOTES RED SOLAR–POWERED NAVIGATIONAL LIGHT (180 DEG. ILLUMINATION).

R DENOTES 2' x 2' RED HIGH INTENSITY PANEL.

I–40 BRIDGE OVER ARKANSAS RIVER — MUSKOGEE–SEQUOYAH COUNTIES

GENERAL PLAN AND ELEVATION - 2

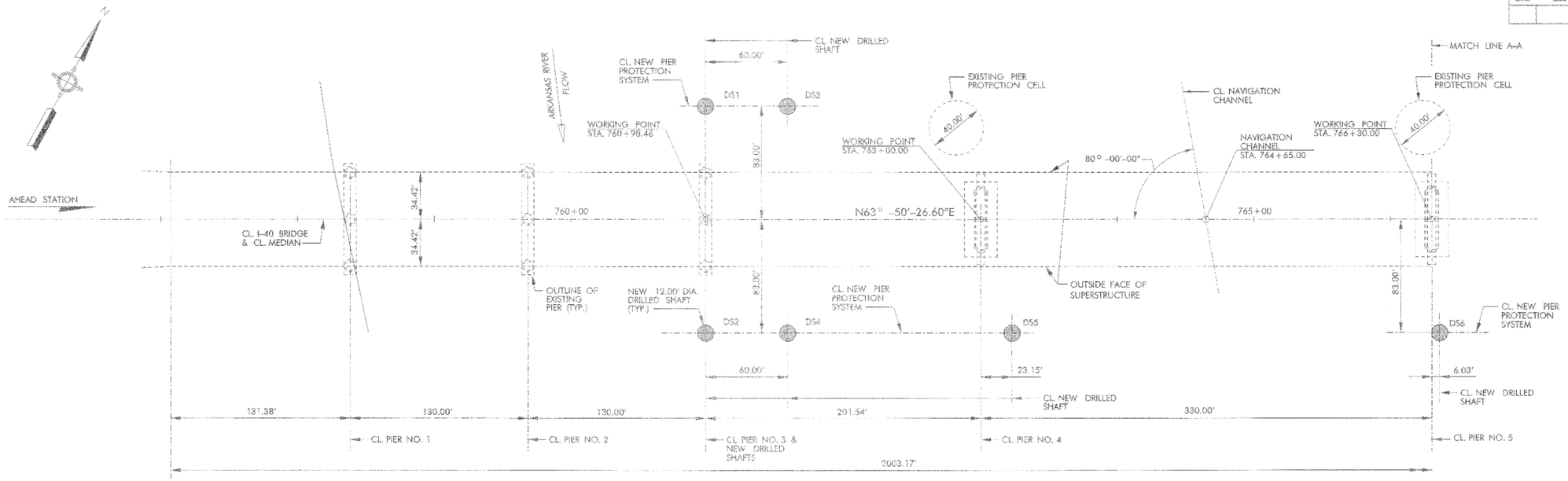
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Detail	DTP	10/04
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STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION

JOB PIECE NO. 22164(04) — SHEET NO. 5

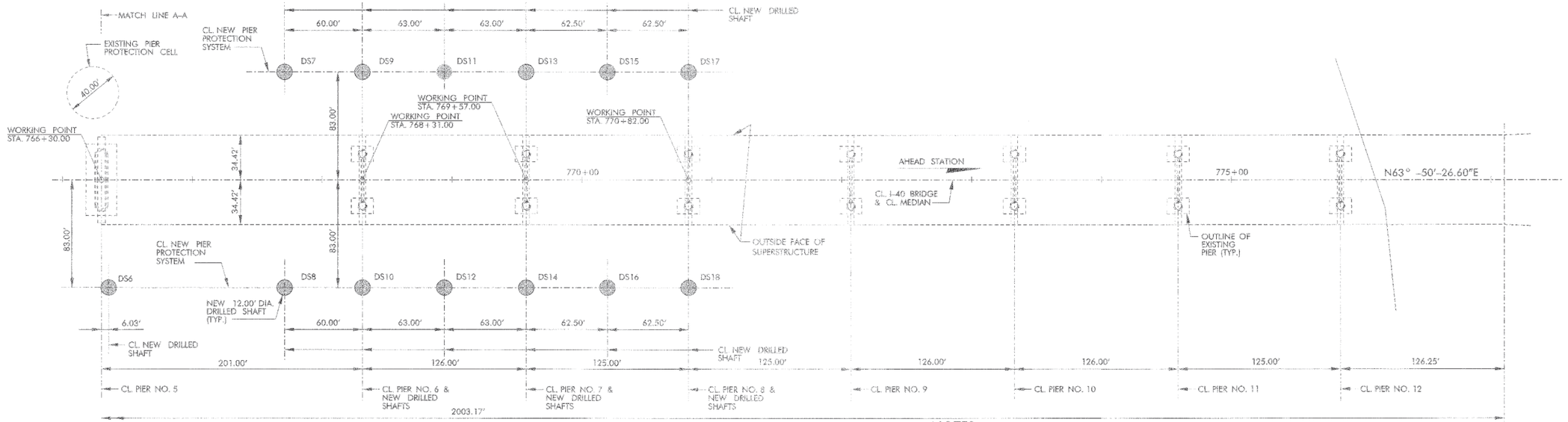
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REVISIONS			
REV. NO.	DESCRIPTION	DATE	



PIER PROTECTION STAKING DIAGRAM

SCALE: 1" = 40'



PIER PROTECTION STAKING DIAGRAM

SCALE: 1" = 40'

NOTES:

FOR GENERAL NOTES, SEE SHEETS 2 AND 3.
FOR PIER PROTECTION DETAILS, SEE SHEET 7.
THE DIMENSIONS, STATIONING AND INTERSECTION ANGLES SHOWN ARE BASED ON INFORMATION AS DETAILED IN THE ORIGINAL CONSTRUCTION PLANS OF THE EXISTING BRIDGE (F.A.P. NO. IR-40-6(187) 291), AND MAY NOT REPRESENT THE AS-BUILT CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THIS DATA BEFORE BEGINNING CONSTRUCTION. PLANS OF THE EXISTING STRUCTURE ARE AVAILABLE FROM THE DEPARTMENT UPON REQUEST.

DS10 DENOTES 144" DRILLED SHAFT.

I-40 BRIDGE OVER ARKANSAS RIVER — MUSKOGEE-SEQUOYAH COUNTIES

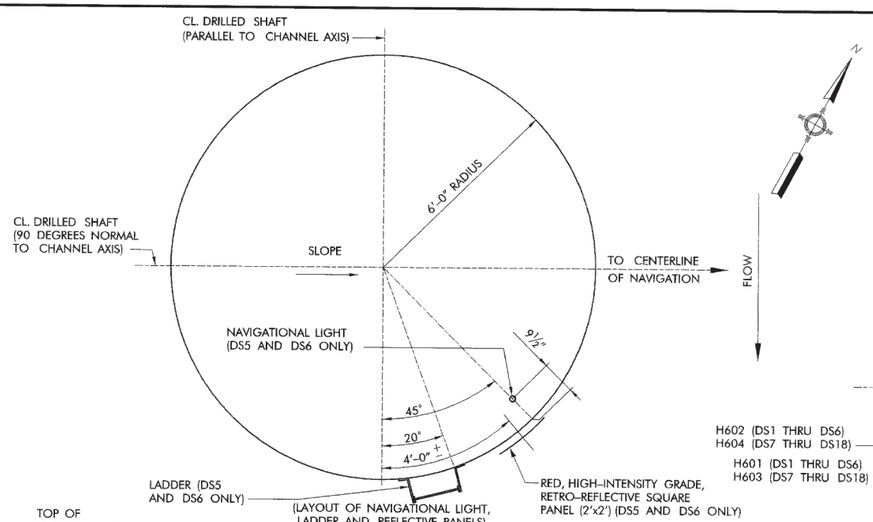
PIER PROTECTION STAKING DIAGRAM

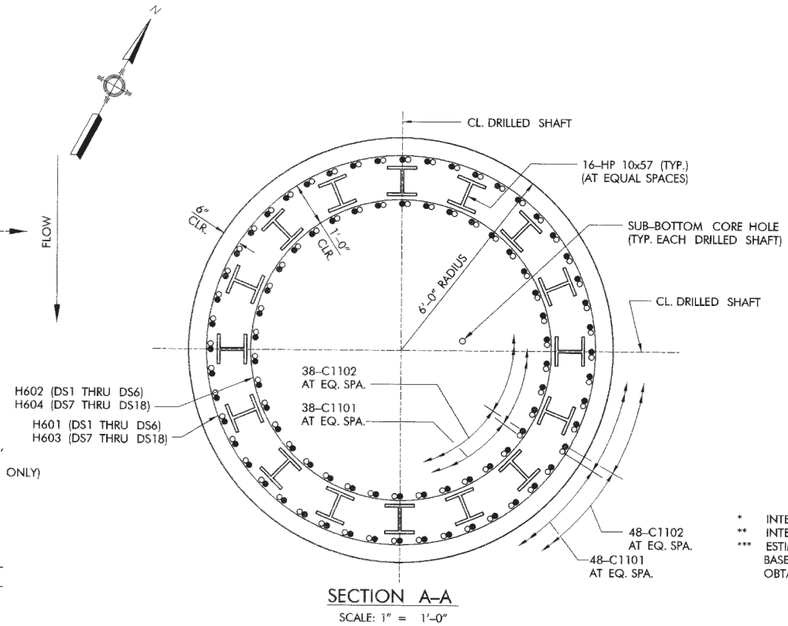
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Detail	DTP	10/04
Check	MJB	2/05

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION | JOB PIECE NO. 22164(04) | SHEET NO. 6

SCHEMMER

REVISIONS			
REV. NO.	DESCRIPTION		DATE

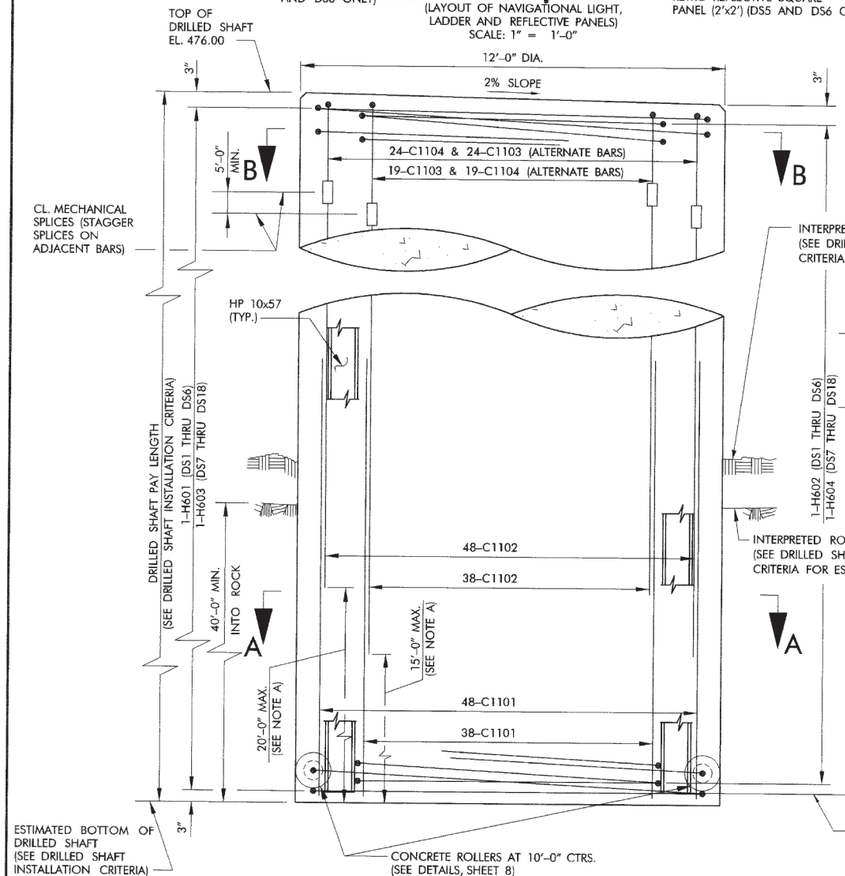




SECTION A–A
SCALE: 1" = 1'-0"

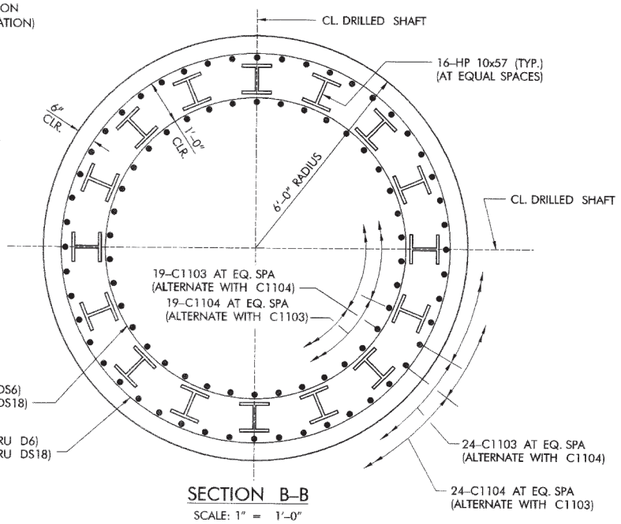
DRILLED SHAFT INSTALLATION CRITERIA					
ID	SHAFT SIZE (IN.)	INTERPRETED GROUND LINE EL. * (FT.)	INTERPRETED ROCK LINE EL.** (FT.)	ESTIMATED BOTTOM OF SHAFT EL.*** (FT.)	SHAFT PAY LENGTH (FT.)
DS1	144	432.50	428.00	388.00	88.00
DS2	144	432.50	428.00	388.00	88.00
DS3	144	431.75	428.00	388.00	88.00
DS4	144	431.75	428.00	388.00	88.00
DS5	144	429.75	428.00	388.00	88.00
DS6	144	429.00	428.00	388.00	88.00
DS7	144	432.00	430.00	390.00	86.00
DS8	144	432.00	430.00	390.00	86.00
DS9	144	433.25	430.00	390.00	86.00
DS10	144	433.25	430.00	390.00	86.00
DS11	144	434.00	430.00	390.00	86.00
DS12	144	434.00	430.00	390.00	86.00
DS13	144	435.00	430.00	390.00	86.00
DS14	144	435.00	430.00	390.00	86.00
DS15	144	439.25	430.00	390.00	86.00
DS16	144	439.25	430.00	390.00	86.00
DS17	144	443.50	430.00	390.00	86.00
DS18	144	443.50	430.00	390.00	86.00

* INTERPRETED GROUND LINE ELEVATION: ESTIMATED FROM ORIGINAL CONSTRUCTION PLANS OF THE EXISTING BRIDGE.
** INTERPRETED ROCK LINE ELEVATION: ESTIMATED FROM ORGINAL CONSTRUCTION PLANS OF THE EXISTING BRIDGE.
*** ESTIMATED BOTTOM OF SHAFT ELEVATION: THE ELEVATION TO WHICH THE SHAFT SHALL BE CONSTRUCTED BASED ON THE GEOTECHNICAL INVESTIGATION, CORE HOLE BORINGS OR OTHER GEOTECHNICAL DATA OBTAINED DURING CONSTRUCTION. THE ENGINEER SHALL SPECIFY A DIFFERENT TIP ELEVATION IF REQUIRED.



NOTE A:
STAGGER OFFSET ON ADJACENT BARS.

ELEVATION
SCALE: 1" = 1'-0"



SECTION B–B
SCALE: 1" = 1'-0"

* INFORMATION DERIVED FROM F.A.P. NO. IR-40-6(187) 291 BRIDGE REHAB. PLANS

NOTES:
FOR GENERAL NOTES, SEE SHEETS 2 AND 3.
ALL CONCRETE SHALL BE CLASS AA.
CHAMFER CONCRETE EDGES 1½IN. BY 1½IN.
FOR GENERAL PLAN AND ELEVATION, SEE SHEETS 4 AND 5.
FOR DRILLED SHAFT LAYOUT, SEE SHEET 6.
FOR REINFORCING BAR SCHEDULE, SEE SHEET 8.
FOR DETAILS OF NAVIGATION LIGHT, LADDER AND REFLECTIVE PANELS, SEE SHEET 9.
DS1 DENOTES DRILLED SHAFT IDENTIFIER.

I–40 BRIDGE OVER ARKANSAS RIVER	MUSKOGEE–SEQUOYAH COUNTIES	Design	LKD 10/04
PIER PROTECTION DETAILS		Detail	DTP 10/04
		Check	MJB 2/05
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION	JOB PIECE NO. 22164(04)	SHEET NO. 7

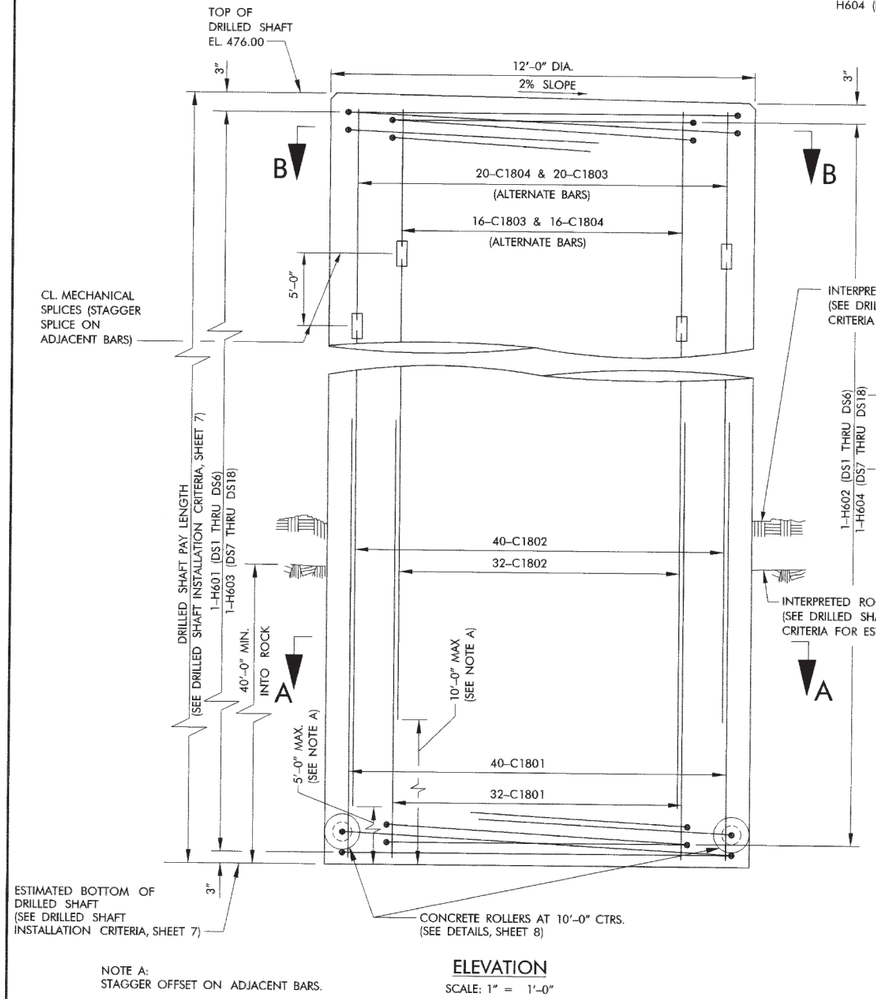
SCHEMMER

REVISIONS			
REV. NO.	DESCRIPTION		DATE

ALTERNATE PIER PROTECTION BAR SCHEDULE (DS1 THRU DS18)*

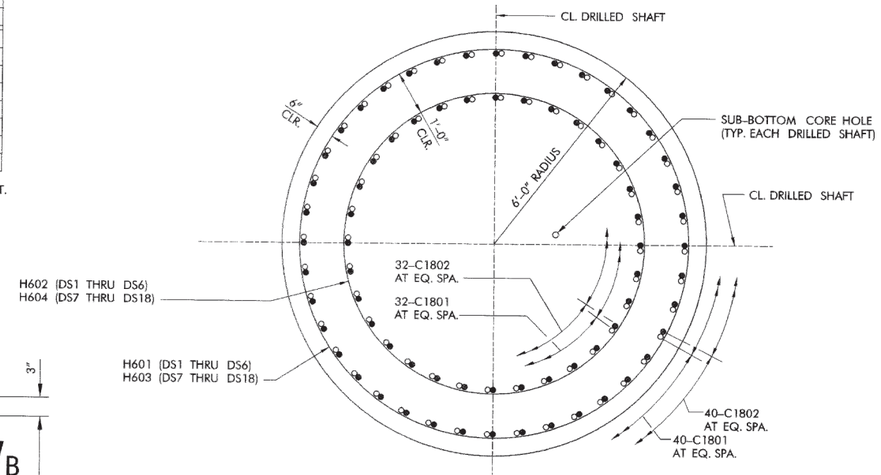
MARK	SIZE	LENGTH	NUMBER	TYPE	A	B	C	R	PITCH	NO. TURNS
C1801	18	60′–0″	1296	STR.						
C1802	18	60′–0″	1296	STR.						
C1803	18	17′–6″	648	STR.						
C1804	18	22′–6″	648	STR.						
H601	6	6152′	6	5				5′–6″	6″	178
H602	6	4964′	6	5				4′–5¼″	6″	178
H603	6	6014′	12	5				5′–6″	6″	174
H604	6	4852′	12	5				4′–5¼″	6″	174

* COST OF THESE BARS TO BE INCLUDED IN PRICE BID PER LINEAR FOOT OF 144″ DIAMETER DRILLED SHAFT.

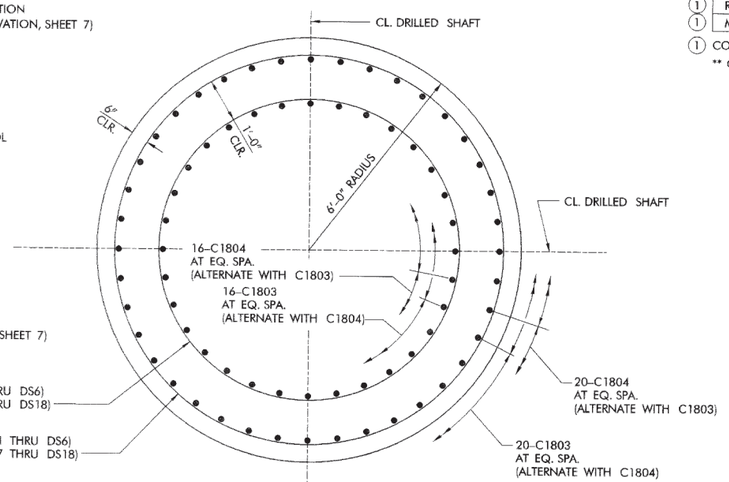


NOTE A:
STAGGER OFFSET ON ADJACENT BARS.

ELEVATION
SCALE: 1″ = 1′–0″



SECTION A–A
SCALE: 1″ = 1′–0″



SECTION B–B
SCALE: 1″ = 1′–0″

ALTERNATE PIER PROTECTION QUANTITIES**

ITEM	UNIT	DS1 THRU DS6	DS7 THRU DS18
DRILLED SHAFTS 144 INCHES DIAMETER	LF	528	1032
CROSS HOLE SONIC LOGGING TESTS	EA	TOTAL = 1	
CSL ACCESS TUBES	LF	819	
(1) REINFORCING STEEL (GRADE 60)	LB	922,705	1,840,905
(1) MECHANICAL SPLICE	EA	432	864

(1) COST TO BE INCLUDED IN PRICE BID PER LINEAR FOOT OF 144″ DIAMETER DRILLED SHAFT.
** QUANTITIES SHOWN ARE A SUMMATION OF THE DRILLED SHAFT IDENTIFIERS INDICATED

NOTES:
FOR GENERAL NOTES, SEE SHEETS 2 AND 3.
ALL CONCRETE SHALL BE CLASS AA.
CHAMFER CONCRETE EDGES 1½ IN. BY 1½ IN.
FOR GENERAL PLAN AND ELEVATION, SEE SHEETS 4 AND 5.
FOR DRILLED SHAFT LAYOUT, SEE SHEET 6.
FOR REINFORCING BAR TYPES, SEE SHEET 8.
DS1 DENOTES DRILLED SHAFT IDENTIFIER.

* INFORMATION DERIVED FROM F.A.P. NO. IR-40-6 (187) 291 BRIDGE REHAB. PLANS.

I-40 BRIDGE OVER ARKANSAS RIVER — MUSKOGEE-SEQUOYAH COUNTIES

ALTERNATE PIER PROTECTION REINFORCING DETAILS

Design	ZP	6/05
Detail	EAR	6/05
Check	MJB	6/05

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION
JOB PIECE NO. 22164(04) — SHEET NO. 7A

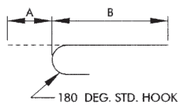
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REVISIONS		
REV. NO.	DESCRIPTION	DATE

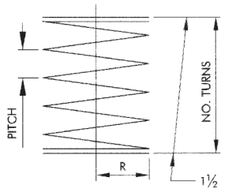
PIER PROTECTION BAR SCHEDULE (DS1 THRU DS18)*

MARK	SIZE	LENGTH	NUMBER	TYPE	A	B	C	R	PITCH	NO. TURNS
C1101	11	60'–0"	1548	STR.						
C1102	11	60'–0"	1548	STR.						
C1103	11	14'–1"	774	2	1'–7"	12'–6"				
C1104	11	9'–1"	774	2	1'–7"	7'–6"				
H601	6	6152'	6	5				5'–6"	6"	178
H602	6	4964'	6	5				4'–5¼"	6"	178
H603	6	6014'	12	5				5'–6"	6"	174
H604	6	4852'	12	5				4'–5¼"	6"	174

* COST OF THESE BARS TO BE INCLUDED IN PRICE BID PER LINEAR FOOT OF 144" DIAMETER DRILLED SHAFT.

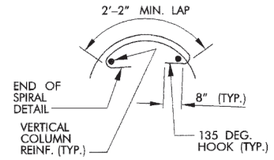


TYPE 2

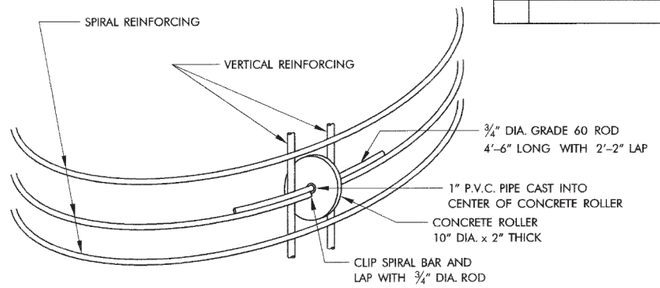


TYPE 5

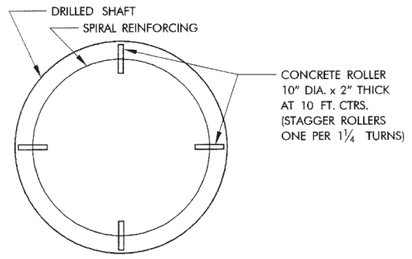
BAR TYPES
NO SCALE



OPTIONAL SPIRAL SPLICE

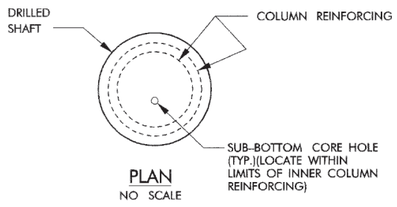


DETAIL OF ROLLER INSTALLATION

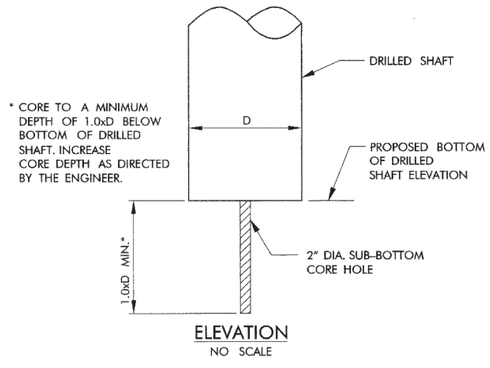


DETAIL OF ROLLER PLACEMENT

CONCRETE ROLLER DETAILS
NO SCALE

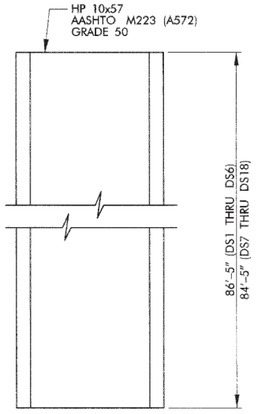


PLAN
NO SCALE

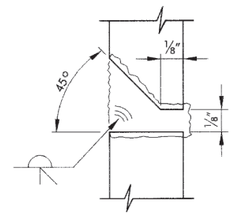


ELEVATION
NO SCALE

SUB-BOTTOM CORE HOLE DETAILS FOR DRILLED SHAFTS



DETAIL OF H-PILE



DETAIL OF WELDED PILE SPLICE
(SECTION THRU FLANGE & WEB)

(THE NUMBER OF SPLICES PER PILE SHALL NOT EXCEED TWO, AND THE SPLICES SHALL BE STAGGERED SUCH THAT THE PERCENTAGE OF SPLICES WITHIN FIVE FEET FROM A GIVEN LOCATION SHALL NOT EXCEED 33 PERCENT.)

QUANTITIES**

	ITEM	UNIT	DS1 THRU DS6	DS7 THRU DS18
(1)	PILES, FURNISHED (HP 10x57)	LF	8,296	16,208
	DRILLED SHAFTS 144 INCHES DIAMETER	LF	528	1,032
	CROSS HOLE SONIC LOGGING TESTS	EA	TOTAL = 1	
	CSL ACCESS TUBES	LF	819	
(1)	REINFORCING STEEL (GRADE 60)	LB	460,915	917,325
(1)	MECHANICAL SPLICE	EA	516	1,032

(1) COST TO BE INCLUDED IN PRICE BID PER LINEAR FOOT OF 144" DIAMETER DRILLED SHAFT.
** QUANTITIES SHOWN ARE A SUMMATION OF THE DRILLED SHAFT IDENTIFIERS INDICATED

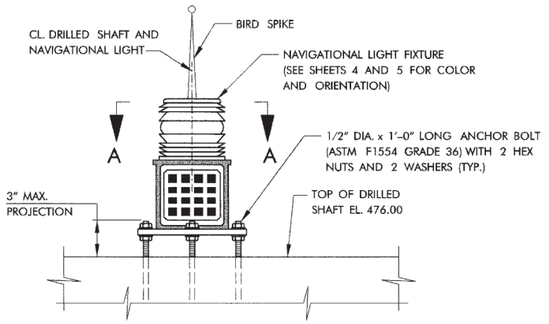
NOTES:

FOR GENERAL NOTES, SEE SHEETS 2 AND 3.
FOR PIER PROTECTION DETAILS, SEE SHEET 7.
DS1 DENOTES DRILLED SHAFT IDENTIFIER.
QUANTITIES ARE BASED ON ESTIMATED BOTTOM OF SHAFT ELEVATION. THE ACTUAL BOTTOM OF SHAFT ELEVATION WILL BE DETERMINED BY THE ENGINEER.

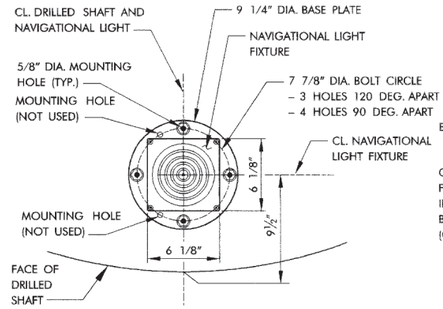
I-40 BRIDGE OVER ARKANSAS RIVER	MUSKOGEE-SEQUOYAH COUNTIES	Design	LKD	10/04
PIER PROTECTION BAR SCHEDULE		Detail	DTP	10/04
		Check	MJB	2/05
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION	JOB PIECE NO. 22164(04)		SHEET NO. 8

SCHEMMER

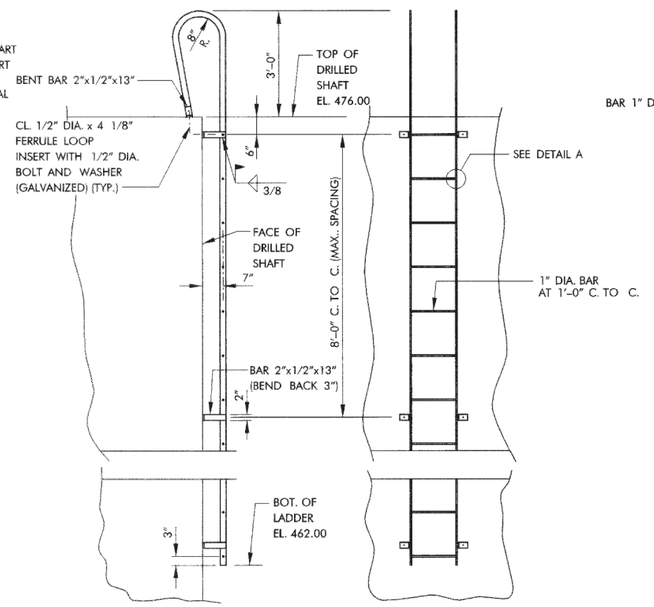
REVISIONS		
REV. NO.	DESCRIPTION	DATE



NAVIGATIONAL LIGHT MOUNTING DETAIL
(DS5 AND DS6)
NO SCALE

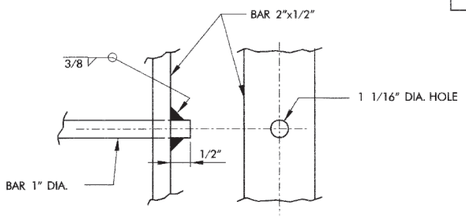


VIEW A–A
NO SCALE

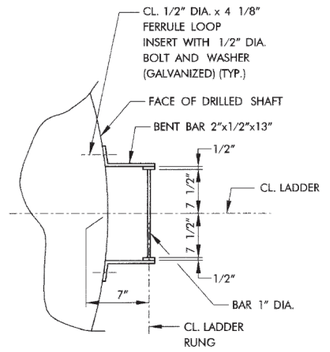


SIDE ELEVATION

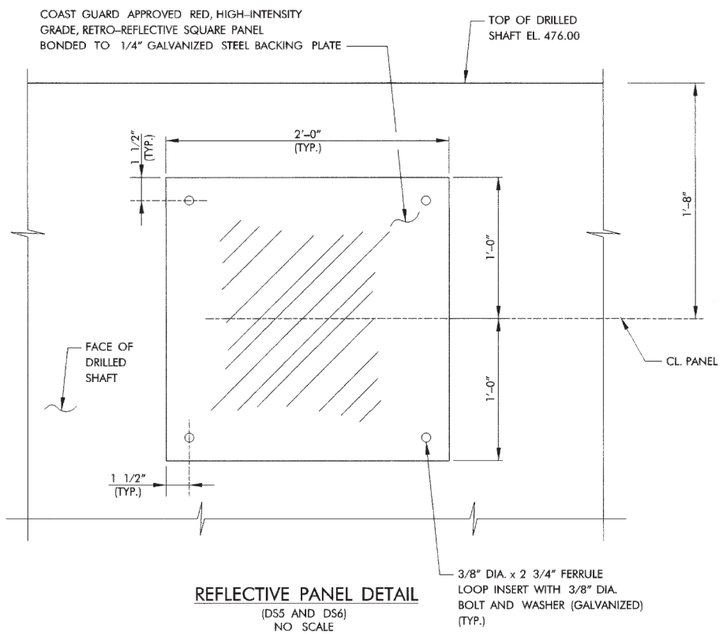
END ELEVATION



DETAIL A



PLAN



REFLECTIVE PANEL DETAIL
(DS5 AND DS6)
NO SCALE

LADDER DETAILS
(DS5 AND DS6)
SCALE: 1/2" = 1'-0"

NOTES:

FOR GENERAL NOTES, SEE SHEETS 2 AND 3.
FOR GENERAL PLAN AND ELEVATION, SEE SHEETS 4 AND 5.
FOR LOCATION OF NAVIGATIONAL LIGHT, LADDER AND REFLECTIVE PANELS, SEE PLAN VIEW ON SHEET 7.
ALL STEEL ITEMS SHALL BE GALVANIZED AS FOLLOWS:
ALL ANCHOR BOLTS, NUTS AND WASHERS ASTM A153 CLASS C
ALL OTHER STEEL ITEMS ASTM A123.
DS1 DENOTES DRILLED SHAFT IDENTIFIER.

I-40 BRIDGE OVER ARKANSAS RIVER	MUSKOGEE–SEQUOYAH COUNTIES	Design	MJB 10/04
NAVIGATION LIGHTING AND LADDER DETAILS		Detail	DTP 10/04
		Check	LKD 2/05
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION	JOB PIECE NO. 22164(04)	SHEET NO. 9

STATE OF OKLAHOMA

DEPARTMENT OF TRANSPORTATION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS	
DESCRIPTION	DATE
1 ADDED SHEET NO. 42A TO INDEX AFTER LETTING	6-17-2002
2 REVISED END PROJECT STATION, BRIDGE LENGTH AND PROJECT LENGTH AFTER LETTING	7-26-2002

PLAN OF PROPOSED

STATE HIGHWAY

FEDERAL AID PROJECT NO. IMY-0040-6(288)290

BRIDGE REPAIR

INTERSTATE HIGHWAY NO. I-40

MUSKOGEE/SEQUOYAH COUNTIES

CONTROL SECTION 40-68-22

STATE JOB NO. 20029(05)

BRIDGE NBI NO. 17051

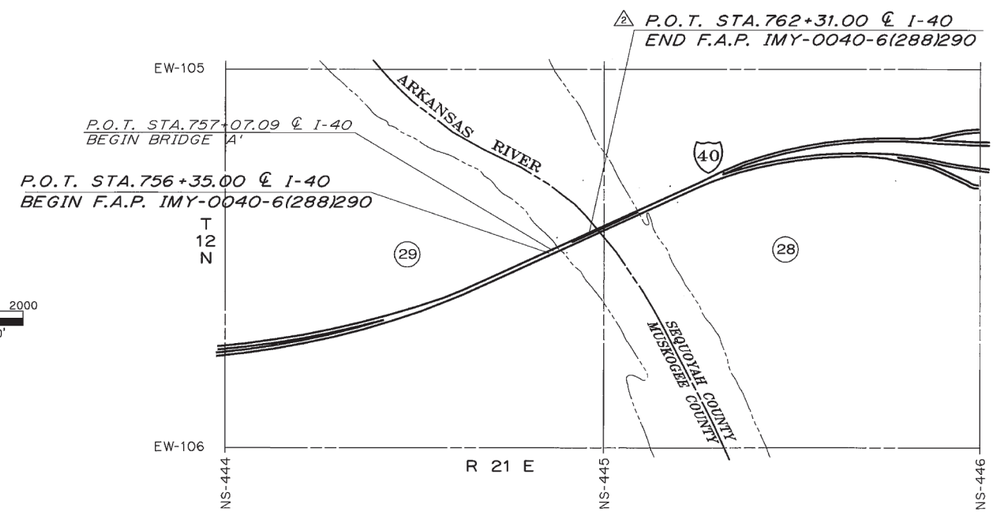
INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTION - ROADWAY
3	SUMMARY OF PAY QUANT. & NOTES - ROADWAY
4	SUMMARY OF PAY QUANT. & GEN. NOTES - BRIDGE
5	PLAN & PROFILE
6	STORMWATER POLLUTION PREVENTION PLAN
7	DETAIL SHEET
8-10	GENERAL PLAN & ELEVATION - BRIDGE 'A'
11	SUBSTRUCTURE LAYOUT
12	ABUTMENT EXCAVATION AND UNDERDRAIN DETAILS
13-14	ABUTMENT DETAILS
15-18	PIER DETAILS
19-21	SUPERSTRUCTURE DETAILS - SPANS 1, 2 & 3
22-23	SLAB LAYOUT - SPANS 1, 2 & 3
24-25	DETAILS OF SEALED EXPANSION JOINT - PIER 1
26-27	DETAILS OF MODULAR EXPANSION JOINT - PIER 3
28-29	BULB TEE BEAM DETAILS - SPANS 1, 2 & 3
30	BEARING ASSEMBLY DETAILS - SPANS 1, 2 & 3
31	BEAM AND DIAPHRAGM LAYOUT - SPANS 1, 2 & 3
32	BULB TEE BEAM AND DIAPHRAGM DETAILS - SPANS 1, 2 & 3
33-36	APPROACH SLAB DETAILS
37-38	DRAIN AT END OF BRIDGE DETAILS
39	DELETED
40	SPAN 4 TYPICAL CROSS SECTION
41	SPAN 4 SLAB REINFORCING PLAN
42	SPAN 4 BEAM FRAMING PLAN
1 42A	SPAN 4 FLAME-STRAIGHTENING
43	PLATE GRIDER ELEVATION AND DETAIL @ EXP. JOINT
44	SPAN 4 PLATE GRIDERS FIELD SPLICE AND NOTES
45	BEARING DETAILS PIER NO.3 SPAN 4 & STIFFENER DETAILS
46	DETAILS OF LATERAL BRACING VIBRATION DAMPENER
47	SPAN 4 CALC. PLAN
48	INTERMEDIATE CROSS FRAME LAYOUTS
49	END CROSS FRAME LAYOUTS

THE FOLLOWING STANDARDS WILL BE REQUIRED FOR THIS PROJECT:

SPI-3-00E	MB-3-01E	PM5-1-00E	TCS6-1-00E
RWF1-1-01E	ECM2-2-01E	PM6-1-00E	TCS7-1-00E
PCPR-2-00E	TSC2-2-00E	TCS1-1-02E	TCS9-1-00E
LECS-3-01E	GRAU1-1-01E	TCS2-1-00E	TCS10-1-00E
LTU-3-00E	GRH-3-00E	TCS3-1-00E	TCS31-1-00E
CSCD-4-01E	HP1-1-01E	TCS4-1-00E	TCS65-1-00E
PUD-2-00E	PM1-1-00E	TCS5-1-00E	TCS66-1-00E

PTR-1-21 (OBSOLETE)



DESIGN DATA

ADT 2002 = 19,600

V = 70 mph

SCALE

PLAN 1" = 50'

PROFILE HOR. 1" = 50'

VER. 1" = 5'

LAYOUT MAP 1" = 1000'

LEVEL DATUM IS MEAN SEA LEVEL (U.S.C. & G.S.)

BEARINGS ARE GRID BEARINGS IN THE O.S.H.D. PLANE COORDINATE SYSTEM.

0 1000 2000

SCALE 1" = 1000'

CONVENTIONAL SIGNS

- PROPOSED ROAD
- RAILROADS
- RANGE & TOWNSHIP LINES
- SECTION LINES
- QUARTER SECTION LINES
- FENCES
- GROUND LINE
- EXISTING ROADS
- BASE LINE
- GRADE LINES
- TELEPHONE & TELEGRAPH
- POWER LINES
- OIL WELLS
- BUILDINGS
- DRAINAGE STRUCTURES-IN-PLACE
- DRAINAGE STRUCTURES-NEW
- RIGHT-OF-WAY LINES-EXISTING
- RIGHT-OF-WAY LINES-NEW
- RIGHT-OF-WAY MARKERS-IN PLACE
- RIGHT-OF-WAY MARKERS-REMOVE & RESET
- RIGHT-OF-WAY MARKERS-NEW
- CONTROLLED ACCESS
- SS EXISTING SANITARY SEWERS
- G EXISTING GAS LINES
- W EXISTING WATER LINES
- TUG EXISTING TELEPHONE CABLES UNDERGROUND

- INTERSTATE HIGHWAY
- U.S. HIGHWAY
- STATE HIGHWAY

BEFORE YOU DIG.. CALL OKIE 1-800-522-6543

1999 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION – ENGLISH GOVERN, APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, SEPTEMBER 21, 1999.

ROADWAY LENGTH	72.09 FT.	0.014 MILES
2 BRIDGE LENGTH	523.91 FT.	0.099 MILES
2 PROJECT LENGTH	596.00 FT.	0.113 MILES
EQUATIONS	NONE	
EXCEPTIONS	NONE	

PREPARED AND SUBMITTED BY:

POE & ASSOCIATES INC.
Oklahoma City, Oklahoma

T. R. Purkeypile

DATE 6/9/02

OKLA. REG. NO. 16021

REGISTERED PROFESSIONAL ENGINEER TIMOTHY RAY PURKEYPILE 16021 OKLAHOMA

E. Gene McCollom

DATE 6/9/02

OKLA. REG. NO. 6270

REGISTERED PROFESSIONAL ENGINEER E. GENE McCOLLOM 6270 OKLAHOMA

OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED	DATE APPROVED
BY	BY
CHIEF ENGINEER	DIVISION ADMINISTRATOR

20029(05) F.A. PROJECT NO. IMY-0040-6(288)290 SHEET NO. 1

JUL 26, 2002 - 9:52:12
G:\PROJECTS\I-40 bridge\TITLE_I-40_BRIDGE.DWG

SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS	DATE
1 ADDED SHEET NO. 42A TO INDEX AFTER LETTING	6-17-2002
2 REVISED END PROJECT STATION, BRIDGE LENGTH AND PROJECT LENGTH AFTER LETTING	7-26-2002
■ CHANGE IN PLAN	9-16-2002

STATE OF OKLAHOMA

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED

STATE HIGHWAY

FEDERAL AID PROJECT NO. IMY-0040-6(288)290

BRIDGE REPAIR

INTERSTATE HIGHWAY NO. I-40

MUSKOGEE/SEQUOYAH COUNTIES

CONTROL SECTION 40-68-22

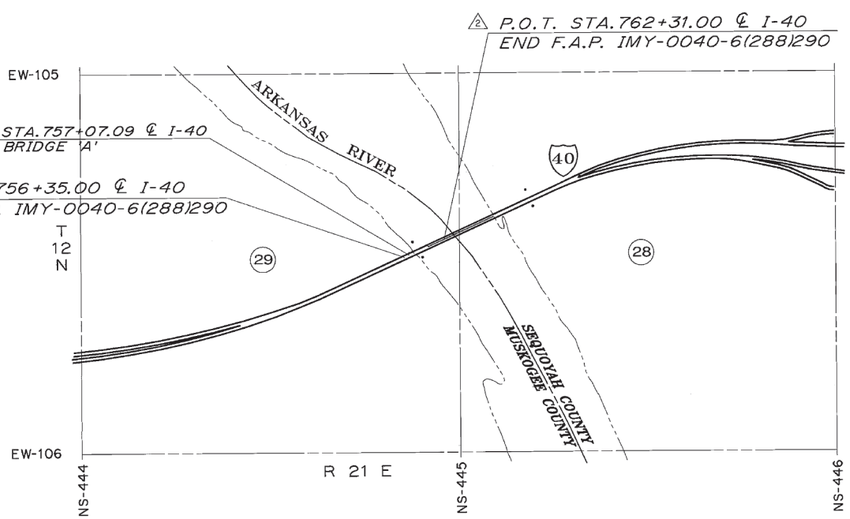
STATE JOB NO. 20029(05)

BRIDGE NBI NO. 17051

DESIGN DATA

ADT 2002 = 19,600

V = 70 mph



SCALE 1"

PLAN 1"= 50'
PROFILE HOR. 1"= 50'
VER. 1"= 5'
LAYOUT MAP 1"= 1000'

0 1000 2000
SCALE 1"= 1000'

LEVEL DATUM IS MEAN SEA LEVEL (U.S.C. & G.S.)
BEARINGS ARE GRID BEARINGS IN THE O.S.H.D. PLANE COORDINATE SYSTEM.

CONVENTIONAL SIGNS

- PROPOSED ROAD
- RAILROADS
- RANGE & TOWNSHIP LINES
- SECTION LINES
- QUARTER SECTION LINES
- FENCES
- GROUND LINE
- EXISTING ROADS
- BASE LINE
- GRADE LINES
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- POWER LINES
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- RIGHT-OF-WAY LINES-NEW
- RIGHT-OF-WAY MARKERS-IN PLACE
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- SS EXISTING SANITARY SEWERS
- G EXISTING GAS LINES
- W EXISTING WATER LINES
- TUG EXISTING TELEPHONE CABLES UNDERGROUND

- INTERSTATE HIGHWAY
- U.S. HIGHWAY
- STATE HIGHWAY



1999 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION – ENGLISH GOVERN, APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, SEPTEMBER 21, 1999.

■ CHANGE-IN-PLAN NO. ___

ROADWAY LENGTH	72.09	FT.	0.014 MILES
2 BRIDGE LENGTH	523.91	FT.	0.099 MILES
2 PROJECT LENGTH	596.00	FT.	0.113 MILES
EQUATIONS	NONE		
EXCEPTIONS	NONE		

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30	BEARING ASSEMBLY DETAILS - SPANS 1, 2 & 3
31	BEAM AND DIAPHRAGM LAYOUT - SPANS 1, 2 & 3
32	BULB TEE BEAM AND DIAPHRAGM DETAILS - SPANS 1, 2 & 3
33-36	APPROACH SLAB DETAILS
37-38	DRAIN AT END OF BRIDGE DETAILS
39	DELETED
40	SPAN 4 TYPICAL CROSS SECTION
41	SPAN 4 SLAB REINFORCING PLAN
42	SPAN 4 BEAM FRAMING PLAN
1 42A	SPAN 4 FLAME-STRAIGHTENING
43	PLATE GRIDER ELEVATION AND DETAIL @ EXP. JOINT
44	SPAN 4 PLATE GRIDERS FIELD SPLICE AND NOTES
45	BEARING DETAILS PIER NO.3 SPAN 4 & STIFFENER DETAILS
46	DETAILS OF LATERAL BRACING VIBRATION DAMPENER
47	SPAN 4 CALC. PLAN
48	INTERMEDIATE CROSS FRAME LAYOUTS
49	END CROSS FRAME LAYOUTS
■ B49A	DECK AND APPROACH SLAB JOINT REPAIR AND SUM. OF QUANT.
■ B49B	PIER, ABUT. BR. SEAT, BACKWALL & FIXED SHOE REPAIR DETAILS

THE FOLLOWING STANDARDS WILL BE REQUIRED FOR THIS PROJECT:

SPI-3-00E	MB-3-01E	PM5-1-00E	TCS6-1-00E
RWF1-1-01E	ECM2-2-01E	PM6-1-00E	TCS7-1-00E
PCPR-2-00E	TSC2-2-00E	TCS1-1-02E	TCS9-1-00E
LECS-3-01E	GRAU1-1-01E	TCS2-1-00E	TCS10-1-00E
LTU-3-00E	GRH-3-00E	TCS3-1-00E	TCS31-1-00E
CSCD-4-01E	HP1-1-01E	TCS4-1-00E	TCS65-1-00E
PUD-2-00E	PM1-1-00E	TCS5-1-00E	TCS66-1-00E

PTR-1-21 (OBSOLETE)

PREPARED AND SUBMITTED BY:

POE & ASSOCIATES INC.
Oklahoma City, Oklahoma

T. R. Purkeypile
DATE 6/9/02
OKLA. REG. NO. 16021

REGISTERED PROFESSIONAL ENGINEER TIMOTHY RAY PURKEYPILE 16021 OKLAHOMA

E. Gene McCollom
DATE 6/9/02
OKLA. REG. NO. 6270

REGISTERED PROFESSIONAL ENGINEER E. GENE McCOLLOM 6270 OKLAHOMA

OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED	DATE APPROVED
BY	BY
CHIEF ENGINEER	DIVISION ADMINISTRATOR

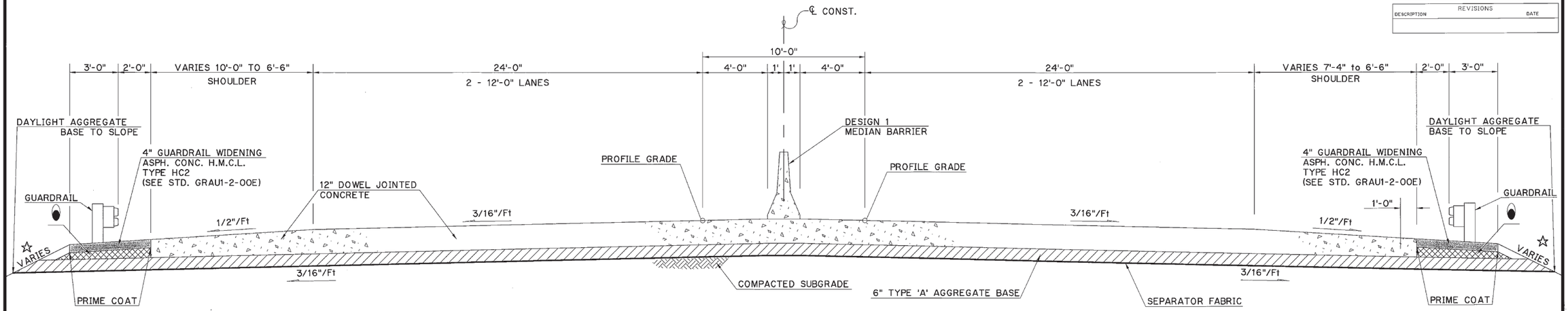
20029(05) F.A. PROJECT NO. IMY-0040-6(288)290 SHEET NO. 1A

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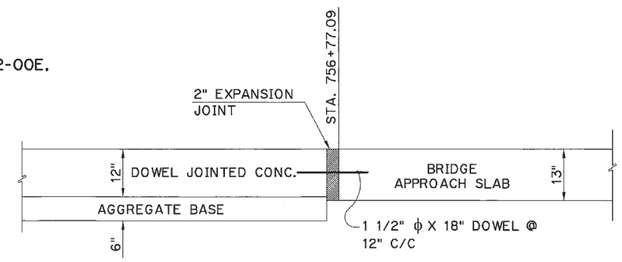
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS	
DESCRIPTION	DATE



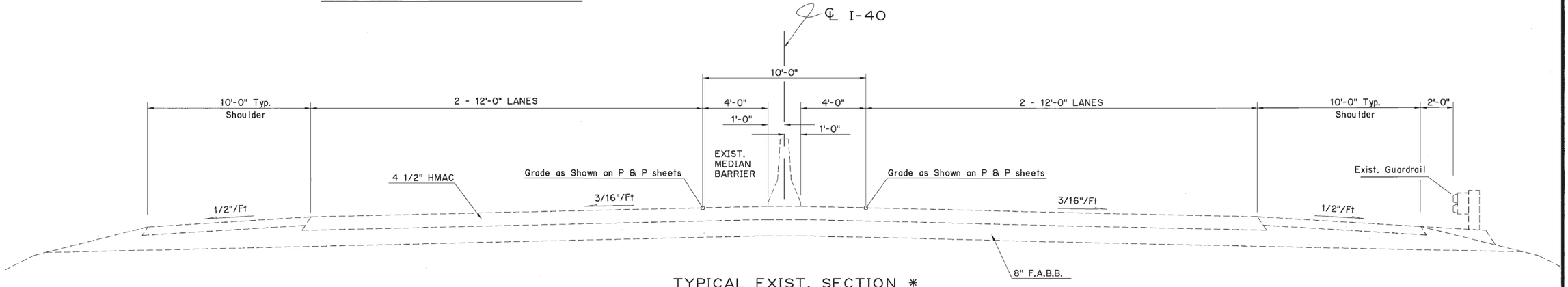
TYPICAL PAVING SECTION
STA. 756+35.00 TO STA. 756+77.09

SEE STD. CSCD-4-01E, PCPR-2-00E, LECS-3-01E & LTU-3-00E



SECTION @ APPROACH SLAB

- TO BE BACKFILLED WITH AGGREGATE BASE MATERIAL AND COMPACTED AS PART OF FINISHING OPERATIONS. COST TO BE INCLUDED IN PRICE BID FOR "AGGREGATE BASE".
- ✳ INFORMATION DERIVED FROM F.A.P. NO. I-40-6(100)288 PLANS.
- ☆ SLAB SOD ALL DISTURBED AREAS.



TYPICAL EXIST. SECTION ✳
STA. 752+00 TO STA. 757+00.79

MUSKOGEE/SEQUOYAH COUNTIES
I-40 OVER ARKANSAS RIVER

Design		
Drawn		
Checked		
Approved		
Squad	POE	

TYPICAL ROADWAY SECTIONS

State Job No. 20029(05) Sheet No. 2

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SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS	
DESCRIPTION	DATE
1 DELETED ITEM	06-10-2002
2 MOD. QUANT/ITEM/NOTE	06-11-2002

SUMMARY OF PAY QUANTITIES (ROADWAY)

ITEM NUMBER	DESCRIPTION		UNIT	QUANTITY
202(E)	UNCLASSIFIED BORROW (TOPSOIL)	(16)	C.Y.	4,000
202(G)	EARTHWORK	(1)	L.SUM	1
210	OBLITERATING ABANDONED ROAD	(8)	STA.	22
221	TEMPORARY SLOPE DRAINS	(5, 6)	L.F.	2
222	TEMPORARY BALE BARRIER	(5, 6)	L.F.	200
223	TEMPORARY SILT FENCE	(5, 6)	L.F.	2,500
224	TEMPORARY SEDIMENT FILTER	(5, 6, 15)	EA.	2
225	TEMPORARY SEDIMENT BASIN	(5, 6, 15)	EA.	2
227	TEMPORARY SILT DIKE	(5, 6, 15)	EA.	10
230(A)	SOLID SLAB SODDING	(H-33)(2,7,9)	S.Y.	31,460
232(A)	SEEDING METHOD A	(H-33)(16, 21)	AC.	5
233(A)	VEGETATIVE MULCHING	(H-13, 24)(16)	AC.	5
303	AGGREGATE BASE		C.Y.	72
325	SEPARATOR FABRIC		S.Y.	403
403(E)	TRAFFIC BOUND SURF. CSE. TYPE 'E'	(F-7)(16)	TON	50
411	(PL) ASPHALT CONCRETE (4")	(F-66)(4,10)	S.Y.	364
414(B1)	12" H.E.S. DOWEL JOINTED CONCRETE PAV.	(13)	S.Y.	342
509(D)	CLASS 'C' CONCRETE	(17)	C.Y.	24
609(D)	BITUMINOUS CURBING	(17, 18)	L.F.	68
619(B)	REMOVAL OF ASPHALT PAVEMENT	(F-37,43)	S.Y.	566
619(B)	REMOVAL OF GUARD RAIL	(F-43)	L.F.	168
619(B)	REMOVAL OF CONCRETE MEDIAN BARRIER	(F-43)	L.F.	65
619(C)	SAWING PAVEMENT		L.F.	81
623(A)	BEAM GUARD RAIL-W-BEAM-SINGLE	(12)	L.F.	644
623(F)	GUARD RAIL ANCHOR UNIT (TYPE B)		EA.	1
623(F)	GUARD RAIL ANCHOR UNIT (TYPE D-BF)		EA.	2
624(A)	FENCE - STYLE WWF	(F-32)	L.F.	995
624(B)	GATES - STYLE WWF (4.5' HIGH X 16' LONG)		EA.	1
627(I)	CONCRETE MEDIAN BARRIER, DESIGN 1	(3)	L.F.	43
855(A)	TRAFFIC STRIPE (PLASTIC) (4" WIDE)	(11)	L.F.	3190

PAY QUANTITY NOTES

(F-7) ESTIMATED AT 120 LBS. PER CU. FT.

(F-32) INCLUDES 2% FOR GROUND MEASUREMENT.

(F-37) MATERIALS REMOVED SHALL NOT BE MEASURED FOR PAYMENT UNDER SEC. 202.06 UNCLASSIFIED EXCAVATION.

(F-43) TO BECOME THE PROPERTY OF AND BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED BY THE ENGINEER.

(F-66) ESTIMATED AT 112 LBS. PER SQ. YD. PER 1" THICK.

PAY ITEM NOTES

(1) THIS ITEM SHALL INCLUDE REMOVING, STOCKPILING, AND REPLACING AVAILABLE TOPSOIL ON THE FINISHED SLOPES.

(2) PRICE BID TO INCLUDE COST OF 1.259 M-GALLONS WATERING. ESTIMATED AT 40 GALLONS PER S.Y. OF SODDING AND TO INCLUDE COST OF 0.49 TONS OF 0-46-0 FERTILIZER, APPLIED AT THE RATE OF 150 LBS. PER ACRE, JUST PRIOR TO THE REPLACEMENT OF SALVAGED TOPSOIL AND SHALL INCLUDE COST OF 2.36 TONS OF 10-20-10 FERTILIZER, APPLIED AT THE RATE OF 150 LBS PER 1000 S.Y.. QUANTITY SHOWN IS FOR ESTIMATING PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ADEQUATE GRASS GROWTH AS DETERMINED BY THE ENGINEER.

(3) THIS ITEM TO BE CONSTRUCTED USING HIGH-EARLY-STRENGTH, CLASS A CONCRETE.

(4) PRICE BID FOR "ASPHALT CONCRETE" SHALL INCLUDE PRIME COAT. ESTIMATED AT 0.15 GAL. OF RESIDUAL ASPHALT PER SQ. YD. ON TOP OF SUBGRADE.

(5) THIS IS AN ESTIMATED QUANTITY TO BE USED FOR TEMPORARY EROSION AND POLLUTION CONTROL.

(6) IF TEMPORARY SEDIMENT CONTROL DEVICES ARE DAMAGED THE CONTRACTOR SHALL REPAIR OR REPLACE SAID ITEMS AS EXPEDITIOUSLY AS POSSIBLE. THE COST SHALL BE INCURRED BY THE CONTRACTOR.

(7) THE CONTRACTOR SHALL RECEIVE 60% PAYMENT AT THE TIME OF INSTALLATION, 20% AFTER WATERING PERIOD IS OVER AND 20% UPON PROOF OF GROWTH.

(8) THIS ITEM TO BE USED TO OBLITERATE CONSTRUCTION ACCESS AND HAUL ROAD.

(9) THIS ITEM IS AN ESTIMATED QUANTITY TO BE USED IN LOCATIONS SHOWN ON THE PLANS AND WHERE REQUIRED BY THE ENGINEER.

(10) THIS ITEM IS FOR GUARDRAIL WIDENING AND CONSISTS OF HOT MIX COLD LAY ASPHALT TYPE HC2.

(11) THIS IS AN ESTIMATED QUANTITY TO BE USED FOR LANE AND EDGE STRIPING. CONTRACTOR SHALL BE PAID FOR ONLY THE REQUIRED STRIPE USED TO MEET AND MATCH EXISTING STRIPE. QUANTITY SHOWN INCLUDES 1790 L.F. TRAFFIC STRIPE (PLASTIC) (WHITE) AND 1400 L.F. TRAFFIC STRIPE (PLASTIC) (YELLOW). TRAFFIC STRIPE (PLASTIC) WILL BE MEASURED BY THE LINEAR FOOT OF FOUR INCH (4") WIDE TRAFFIC STRIPE OR THE EQUIVALENT AMOUNT OF FOUR INCH (4") WIDE STRIPE WHEN A NARROWER OR WIDER STRIPE IS SPECIFIED IN THE STANDARD DRAWINGS.

SUMMARY OF PAY QUANTITIES (TRAFFIC OPERATIONS)

ITEM NUMBER	DESCRIPTION		UNIT	QUANTITY
1 857(A)	PAVE. MARKERS CLASS C TYPE 2-C	(TS-15)	EA.	16
880(J)	(PL) CONSTRUCTION TRAFFIC CONTROL	(14, 19)(TO-25)	L.SUM	1
882(A)	PORTABLE CHANGEABLE MESSAGE SIGN	(16)(TO-84)	S.D.	110

SUMMARY OF PAY QUANTITIES (TIME BID)

ITEM NUMBER	DESCRIPTION	UNIT	QUANTITY
644	(SP) TIME (B) BID	HR.	6000 2

SUMMARY OF PAY QUANTITIES (STAKING)

ITEM NUMBER	DESCRIPTION		UNIT	QUANTITY
1 642	STAKING	(20)	L.SUM	1

PAY ITEM NOTES

(12) STEEL POSTS WITH STEEL BLOCKOUTS WILL NOT BE ALLOWED. CONTRACTOR SHALL SUPPLY WOOD OR STEEL POSTS WITH WOOD OR PLASTIC BLOCKOUTS WHICH HAVE PASSED NCHRP-350 LEVEL 3 TESTING AS APPROVED BY THE ENGINEER. BLOCKOUTS SHALL BE CONSISTENT WITH EXISTING.

(13) MAINLINE SHOULDERS SHALL BE DOWEL JOINTED.

(14) THIS ITEM IS FOR USE IN LANE OR SHOULDER CLOSURES ETC., REQUIRED TO PERFORM CONTRACT WORK AFTER SUBSTANTIAL COMPLETION AND TRAFFIC IS PLACED ON THE FACILITY.

(15) PRICE BID SHALL INCLUDE REMOVAL OF ACCUMULATED SILT.

(16) THIS ITEM IS AN ESTIMATED QUANTITY TO BE USED IF AND WHERE DEEMED NECESSARY BY THE ENGINEER.

(17) THIS ITEM IS USED FOR SLOPE DRAINS AND BASINS AT END OF BRIDGE.

(18) A CONCRETE CURB MAY BE SUBSTITUTED FOR THE 4" ASPHALT CURB USING CLASS 'C' CONCRETE. SEE SHEET 37 & 38.

(19) THE CONTRACTOR SHALL COORDINATE HIS TRAFFIC CONTROL DEVISES, SIGNS, ETC., WITH THOSE OF ODOT'S NOW IN PLACE IN THE CONSTRUCTION AREA.

(20) UNIT PRICE BID FOR THESE ITEMS SHALL BE FOR BRIDGE, ROADWAY AND TRAFFIC.

(21) PRICE BID TO INCLUDE COST OF 400 M-GALLONS WATERING. ESTIMATED AT 80 GALLONS PER ACRE. OF SEEDING AND TO INCLUDE COST OF 0.38 TONS OF 0-46-0 FERTILIZER, APPLIED AT THE RATE OF 150 LBS. PER ACRE, JUST PRIOR TO THE REPLACEMENT OF SALVAGED TOPSOIL AND SHALL INCLUDE COST OF 0.75 TONS OF 10-20-10 FERTILIZER, APPLIED AT THE RATE OF 300 LBS PER ACRE. QUANTITY SHOWN IS FOR ESTIMATING PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ADEQUATE GRASS GROWTH AS DETERMINED BY THE ENGINEER.

EROSION CONTROL NOTES

(H-13) THE QUANTITIES ESTIMATED FOR TEMPORARY EROSION AND POLLUTION CONTROL IS 5 ACRES.

(H-24) VEGETATIVE MULCHING: THE VEGETATIVE MULCH SHALL BE ANCHORED IN ACCORDANCE WITH THE "MULCHING-TILLER METHOD", AS SPECIFIED IN 233.04(b) OF THE STANDARD SPECIFICATIONS.

(H-33) AT THE BEGINNING OF TURFING OPERATIONS, ANY AREAS INCLUDED IN PLANNED QUANTITIES THAT HAVE GROWN A SATIFFACTORY VOLUNTEER TURF OF PERENNIAL GRASS, AS DETERMINED BY THE ENGINEER, SHALL BE FERTILIZED AND WATERED AS CALLED FOR ON THE PLANS, BUT SHALL NOT BE SEEDED, SODDED, OR SPRIGGED.

GENERAL CONSTRUCTION NOTES (ROADWAY)

THE CONTRACTOR WILL GIVE ODOT A MINIMUM OF TWO WEEKS NOTICE BEFORE OPENING PROJECT TO TRAFFIC TO ENABLE ODOT FORCES TO REMOVE THEIR FIELD OFFICES POWER SUPPLY. EQUIPMENT, ETC.

GENERAL CONSTRUCTION NOTES (ROADWAY CONT'D)

NOTE:
THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY RIGHT-OF-WAY FENCE AS REQUIRED WHEN THE PORTION OF THE PROJECT THAT REQUIRED THIS FENCE IS COMPLETED. THE TEMPORARY FENCE SHALL BE REMOVED, AND PERMANENT RIGHT-OF-WAY FENCING SHALL BE RESTORED OR INSTALLED IN A MANNER APPROVED BY THE ENGINEER. COST OF TEMPORARY FENCING SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

THE CONTRACTOR SHALL KEEP THE OPEN TRENCH DRAINED. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

CONSTRUCTION SITE AND STAGING AREA SHALL BE RETURNED TO ORIGINAL CONDITION AND THE APPLICATION OF SLAB SOD OR SEED SHALL BE AS DIRECTED BY THE ENGINEER.

TRAFFIC OPERATIONS PAY QUANTITY NOTES

2 (TO-25) 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. THE CONTRACTOR SHALL PROVIDE A PROPOSED TRAFFIC CONTROL PLAN FOR APPROVAL BY THE ENGINEER PRIOR TO BEGINNING WORK. PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL DEVICES AND PAVEMENT MARKINGS REQUIRED FOR COMPLETION OF THE PROJECT.
ALL SIGNS, BARRICADES, AND CHANNELIZING DEVICES WHICH ARE SHOWN WITH EITHER TYPE 'A' OR TYPE 'C' LIGHTS IN THE STANDARD DRAWINGS SHALL HAVE THE CORRESPONDING LIGHT ATTACHED DURING NON-DAYLIGHT HOURS.

(TO-84) 55 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 ODOT 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.

(TS-15) RAISED PAVEMENT MARKERS SHALL BE INSTALLED BY CLASS AND TYPE ACCORDING TO APPLICABLE O.D.O.T. STANDARD DRAWINGS

CONSTRUCTION NOTES

NO PAYMENT WILL BE MADE FOR THE REMOVAL OF ABANDONED UTILITY PIPE LINES THAT INTERFERE WITH CONSTRUCTION. ALL COST TO BE INCLUDED IN OTHER ITEMS.

ALL WORK AND/OR MATERIALS NOT CLASSIFIED AS A "CONTRACT PAY ITEM" SHALL BE CONSIDERED INCIDENTAL AND THE COST THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS WHICH ARE CLASSIFIED FOR PAYMENT.

(CAUTION) THE LOCATION OF ALL UTILITIES AS SHOWN ARE APPROXIMATE. DUE TO RELOCATIONS PLANNED OR PRESENTLY UNDER CONSTRUCTION THERE ARE SOME UTILITIES THAT WILL BE RELOCATED AND NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ALL UTILITIES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE HE MAY INFLICT TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF HIS DIGGING, TRENCHING, BORING, ETC.. PRIOR TO DIGGING NEAR THE UTILITIES, THE CONTRACTOR SHALL CALL FOR A LIST OF ALL UNDER GROUND FACILITIES REGISTERED IN THE AREA OF CONSTRUCTION LISTED WITH THE FOLLOWING AGENCIES:
THE "OKIE" NOTIFICATION CENTER (405) 840-5021 OR 1-800-522-6543.



THE OWNERS OF UTILITIES LOCATED WITHIN THE LIMITS OF THIS PROJECT ARE:

ONG
P.O. BOX 871
TULSA, OK. 74102
(918)831-8240

ONEOK GAS TRANSPORATION
907 E. INDEPENDENCE
SHAWNEE, OK 74804-4158
(405)878-6264

MBO VIDEO,
DIGITAL TELEPORT,
ETI :
CROSS TELEPHONE
P.O. BOX 9
WARNER, OK. 74469
(918)463-2921

DEPTH & LOCATION OF EXISTING UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

MUSKOGEE/SEQUOYAH COUNTIES
I-40 OVER ARKANSAS RIVER

Design		
Drawn		
Checked		
Approved		
Squad	POE	

SUMMARY OF PAY QUANTITIES (ROADWAY)

State Job No. 20029(05) Sheet No. 3

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MUSKOGEE COUNTY

PAY QUANTITIES

BRIDGE 'A'

ITEM NO.	DESCRIPTION		UNIT	QUANTITY	
202(C)	UNCLASSIFIED BORROW	(BR-5)	C.Y.	50	
501(B)	SUBSTRUCTURE EXCAVATION COMMON	(BR-1)	C.Y.	214	
501(G)	CLSM BACKFILL	(BR-1)	C.Y.	225	
503(A)	PRESTRESSED CONCRETE BEAMS (72 BT)	(BR-1)	L.F.	4668	
504(A)	APPROACH SLAB	(BR-1)	S.Y.	270	
504(C)	(PL) MODULAR EXPANSION JOINT	(BR-1)	L.F.	70	
504(C)	SEALED EXPANSION JOINT	(BR-1)	L.F.	70	
504(G)	HANDRAILING	(BR-1)(BR- 6)(BR- 7)	L.F.	1047.4	
506(A)	STRUCTURAL STEEL	(BR-1)(BR- 7)	LB.	421890	2
509(A)	CLASS AA CONCRETE	(BR-1)	C.Y.	1283.9	
509(B)	CLASS A CONCRETE	(BR-1)	C.Y.	1677.5	1
511(A)	REINFORCING STEEL	(BR-1)	LB.	12080	1
511(B)	EPOXY COATED REINFORCING STEEL	(BR-1)	LB.	398490	1
514(A)	PILES, FURNISHED (HP 12x53)	(BR-2)	L.F.	2118	
514(B)	PILES, DRIVEN (HP 12x53)	(BR-2)	L.F.	2118	
515(A)	WATER REPELLENT (VISUALLY INSPECTED)	(BR-1)	S.Y.	3372	1
516(A)	DRILLED SHAFTS 108" DIAMETER		L.F.	609	1
520	(PL) HMWM CRACK PREPARATION	(BR-1)	L.F.	525.9	
520	(PL) HMWM RESIN	(BR-2)	GAL.	11.0	
535	(PL) FIXED BEARING ASSEMBLY		EA.	36	
535	(PL) EXPANSION BEARING ASSEMBLY		EA.	40	
535	(PL) GEOTECHNICAL INVESTIGATION		L.SUM	1	
535	(PL) LATERAL BRACING VIBRATION DAMPENER	(BR-7)	EA.	12	
613(P)	6" PERF. PIPE UNDERDRAIN ROUND	(BR-1)(BR- 3)	L.F.	82	
613(Q)	6" NON-PERF. PIPE UNDERDRAIN RND.	(BR-2)(BR- 4)	L.F.	50	
619(B)	(PL) REMOVAL OF BRIDGE ITEMS		L.SUM	1	
619(B)	(PL) REMOVAL OF BRIDGE ITEM (TYPE A)		L.SUM	1	
619(B)	(PL) REMOVAL OF BRIDGE ITEM (TYPE B)		L.SUM	1	
640	FIELD OFFICE		EA.	1	
641	MOBILIZATION		L.SUM	1	
643	(SP) CONTRACTORS QUALITY CONTROL		L.SUM	1	1

(BR-1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITY. SEE THE 1999 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION - "PLAN QUANTITIES", SECTION 109.01(b).

(BR-2) THE QUANTITY SHOWN FOR THIS ITEM IS ESTIMATED AND SHALL BE USED ONLY AT THE DISCRETION OF THE ENGINEER.

(BR-3) PAYMENT FOR THIS ITEM SHALL INCLUDE THE COSTS OF ALL LABOR, MATERIALS, AND TOOLS NECESSARY TO COMPLETE THE WORK, INCLUDING THE COST OF PIPE UNDERDRAIN COVER MATERIAL.

(BR-4) PAYMENT FOR THIS ITEM SHALL INCLUDE THE COSTS OF ALL LABOR, MATERIALS, AND TOOLS NECESSARY TO COMPLETE THE WORK, INCLUDING THE COST OF TRENCH EXCAVATION AND STANDARD BEDDING MATERIAL.

(BR-5) THIS QUANTITY IS FOR DRESSING UP THE SLOPE IN FRONT OF EXISTING ABBUTMENT.

(BR-6) THE PAY ITEM "HANDRAILING" CONSISTS OF FURNISHING AND INSTALLING ALUMINUM HANDRAILING, POSTS AND ANCHOR BOLTS WHICH SHALL MATCH THE EXISTING HANDRAIL. THIS SHALL INCLUDE ALL COST OF LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

(BR-7) BRIDGE CAN BE OPENED TO TRAFFIC PRIOR TO INSTALLATION OF LATERAL BRACING VIBRATION DAMPENER. FIELD PAINTING OF STRUCTURAL STEEL AND INSTALLATION OF HANDRAILING. PAINTING OF STRUCTURAL STEEL BEAMS SHALL BE COMPLETED PRIOR TO INSTALLATION OF LATERAL BRACING VIBRATION DAMPENERS.

SPECIFICATIONS:
All construction and materials shall be in accordance with the 1999 Oklahoma Standard Specifications for Highway Construction and Special Provisions. (See Proposal for Special Provisions).

2 TERMS OF THE DEPARTMENT OF THE ARMY PERMIT NO. 12187:
A permit, issued pursuant to Section 404 of the Clean Water Act, is pending on this project. General and specific conditions, from the Section 404 Permit, will be based upon the overall scope and design required for final construction of the Arkansas River Bridge. Upon issuance of a permit from the Department of the Army, the contractor will be required to comply with all conditions, whether general or specific.

2 FLAME STRAIGHTENING:
Flame Straightening or other repair and/or replacement of the Steel Memebers in the cantilever section including girders, stringers and secondary members may be required. The extent of Flame Staightening and repair could not be determined prior to bid opening and the price for this work will be negotiated as a Change Order. No increase in time will be allowed for this work.

GENERAL BRIDGE NOTES

REVISIONS		
	DESCRIPTION	DATE
3	REVISED NOTE AFTER LETTING	06-12-2002
4	ADDED NOTE AFTER LETTING	06-17-2002

REVISIONS		
	DESCRIPTION	DATE
1	ADDED/MOD. ITEM/NOTE	06-10-2002
2	REVISED QUANTITY & NOTES & ADDED NOTES	06-11-2002

2 EXISTING BRIDGE PLANS:
The existing bridges were originally constructed under Fed. Aid Project No. I-40-6(99)(100)288 and rehabilitated under Fed. Aid Proj. No. IR-40-6(187)291. Plans are available from the reproduction branch, Oklahoma Dept. of Transportation, 200 N.E. 21st St., Oklahoma City, OK 73105

FIXED BEARING ASSEMBLIES:
Provide and install fixed bearing assemblies of the size, shape and location as detailed in the plans. There is an estimated total of 9590 lbs of structural steel for the fixed bearing assemblies. Include all costs associated with providing and installing the fixed elastomeric pads, anchor plates, contact plates, contact angles, and anchor bolts, nuts and washers, including all material, labor, equipment, and incidentals necessary to complete the work as shown in the plans, in the price bid per Each of "FIXED BEARING ASSEMBLIES".

EXPANSION BEARING ASSEMBLIES: (PRESTRESSED CONC. BEAMS)
Provide and install expansion bearing assemblies of the size, shape and location as detailed in the plans. There is an estimated total of 9410 lbs of structural steel for the expansion bearing assemblies. Include all costs associated with providing and installing the expansion elastomeric pads, anchor plates, contact plates, contact angles, and anchor bolts, nuts and washers, including all material, labor, equipment, and incidentals necessary to complete the work as shown in the plans, in the price bid per Each of "EXPANSION BEARING ASSEMBLIES".

EXPANSION BEARING ASSEMBLIES:(STEEL BEAMS)
Provide and Install expansion bearing assemblies of the size, shape and location as detailed in the plans. There is an estimated 440 lbs. of structural steel for each expansion bearing assembly at Pier no. 3, Span 4. Include all costs associated with providing and installing the expansion elastomeric pad, anchor plate, stainless steel plate, PTFE sheet, 3/4" steel plate, contact angles, and anchor bolts, nuts and washers, including all material, labor, equipment, and incidentals necessary to complete the work as shown in the plans in the price per Each of "Expansion Bearing Assemblies".

HMWM SEALING & REPAIR FOR BRIDGE DECKS:
This note is generally written in the imperative mood. In sentences using the imperative mood the subject, "the contractor" is implied. Reference to the Contractor is also implied in this language by the use of "shall", "shall be", or similar words and phrases. In material specifications, the subject may also be the supplier, fabricator, or manufacturer supplying material, products, or equipment for use on the project.

Wherever "directed", "required", "prescribed", or other similar words are used, the "direction", "requirement", or "order" of the Engineer is intended. Similarly, wherever "approved", "acceptable", "suitable", "satisfactory", or other similar words are used, the words mean "approved by", "acceptable to", or "satisfactory to" the Engineer. The word "will" generally pertains to decisions or actions of the Engineer.

DESCRIPTION. This work consists of using High Molecular Weight Methacrylate (HMWM) resin to fill, seal and bond construction joints in the bridge deck.

MATERIALS. Use HMWM resin as a topical treatment to fill construction joints in bridge decks. The HMWM resin shall have a viscosity of 8 to 20 cps and readily flow by gravity into cracks narrower than 0.001 inches in width. The HMWM resin shall have a low volatility and shall not readily evaporate. Note that standard methyl methacrylate (MMA) resins are very volatile and are not suitable for filling joints or cracks. Do not use MMA.

Submit the manufacturer's product information to the Engineer for approval before purchasing the resin. The Engineer may require a trial application before approval. The Engineer will reject the use of poorly performing material.

CONSTRUCTION.

a) General. Submit a work plan including, but not limited to, surface preparation techniques, materials to be used, and installation procedures.

b) HMWM Installation. Clean the exposed concrete surface of curing compounds, asphaltic materials and excess grout before treating with HMWM. Make certain the surfaces to be bonded together are dry before applying HMWM. Mask the slab approximately 1/2 inch on both sides of the crack in order to contain the HMWM. To keep the resin from flowing along the cross slope of the slab, it may be necessary to mask across the crack in one or two feet intervals. When masking across the crack is no longer necessary remove it and fill the void with resin. If the crack or joint extends to the bottom of the bridge deck, then seal the bottom of the crack so that the HMWM will not flow through.

Use a metallic drier and peroxide to catalyze the HMWM monomers to initiate polymerization. Sweep, squeegee, pour or spray the HMWM resin in the construction joint at a rate of approximately 1 gal./50 L.F. Allow resin to flow into the joints. It may be necessary to apply the HMWM resin several times in order to completely fill in the joint. To improve skid resistance, broadcast dry sandblasting sand into the final application of resin on the deck surface before the resin hardens.

Apply the resin when the concrete and air temperature is between 45 degrees F and 90 degrees F. Use approved specially formulated resins to apply outside this temperature range.

METHOD OF MEASUREMENT. The pay items "HMWM CRACK PREPARATION" and "HMWM RESIN" shown in the plans are estimated quantities and shall be used only at the discretion of the Engineer. Payment only for deck construction joint including optional longitudinal joint, transverse joint at pier 2, and transverse joint at end bridge slab replacement will be allowed. Payment will not be made for wasted or unused material. Accepted HMWM joint repair shall be measured on the surface by the linear feet of joint and by the gallons of HMWM resin.

BASIS OF PAYMENT. Accepted quantities, measured as provided above, will be paid for at the contract unit price for:

HMWM CRACK PREPARATION	LIN.FT.
HMWM RESIN	GAL.

which shall be full compensation for performing the work as specified above and the furnishings of all materials, labor, tools, equipment and incidentals necessary to complete the work.

1 CONSTRUCTION LOADS:
Allow the concrete in substructure elements, such as drilled shafts, piers, pier caps, and abutments, to reach at least 75 percent of its specified strength and age before loading these elements with girders, precast concrete or steel. No construction operations shall occur on span 5 until span 4 deck is poured. The ballast (portable median barriers) placed on span 4 shall remain in place until after span 4 is poured.

TRAFFIC LOADS:
Do not permit traffic loads on concrete decks or approach slabs until all concrete in the structure has attained its specified strength.

STAY-IN-PLACE FORMS:
Stay-in-Place Steel Deck Forms may be used if the minimum deck slab thickness of 8" for Concrete spans and 8 1/2" for Steel spans is obtained by measuring from the top of the deck slab to the top portion of the steel corrugation. Additional concrete weight of the deck slab shall not exceed 10 psf.

All cost associated with the use of Stay-in-Place Forms including all materials, labor, equipment, incidentals, and professional services shall be at the Contractor's expense. For additional information concerning the use of Stay-In-Place Forms, See Section 502 of the 1999 Standard Specifications.

GEOTECHNICAL INVESTIGATION:
The Contractor is required to perform a Bridge Foundation Investigation and provide a Bridge Foundation Report to the Engineer. The Bridge Foundation Investigation will be performed in accordance with Department of Transportation Geotechnical Specifications For Roadway Designs and Bridges and Related Structures and Department acceptable practices under the supervision of Professional Engineer licensed to practice in the State of Oklahoma.

A total of 4 borings will be required at the locations shown in the plans. Two borings are required at pier 2 & 3. The foundation material will be evaluated with Texas Cone Penetrometer. Overburden material will be evaluated using Standard Penetrometer. At each pier location, the overburden at one of the boring locations will be sampled and tested in accordance with the Departments aforementioned geotechnical specification.

The estimated depth to bedrock and required depth of Texas Cone Penetrometer tests for each boring location tests are as follows:

Pier 1 - Based on boring logs which are included in the Proposal.

Pier 2 - Estimated depth from mudline to bedrock is 30 feet. Texas Cone Penetrometer tests are required to a depth of 40 feet into bedrock.

Pier 3 - Estimated depth from mudline to bedrock is 15 feet. Texas Cone Penetrometer tests are required to a depth of 40 feet into bedrock.

All borings will be backfilled in accordance with Oklahoma Water Resource Board Regulation Specification 785:-35-11-2.

Copy of boring logs will be made available to the Engineer upon completion of each boring. Work will not begin on Drilled Shafts until both borings at each substructure element have been completed and evaluated by the Bridge Engineer.

All costs to complete the work as described including barges and other equipment, labor, testing, backfilling, reporting and incidentalsshall be included in the price bid per Lump Sum of "GEOTECHNICAL INVESTIGATION".

REMOVAL OF BRIDGE ITEMS:
Consists of removal and disposal of abutment backwall, wingwalls, and approach slabs in a manner approved by the Engineer. All material removed shall become the property of the Contractor and shall be disposed of in a manner approved by the Engineer.

2 ITEM "REMOVAL OF BRIDGE ITEM (TYPE A)" INCLUDES:
Removal and Disposal of approximately 10' of existing bridge decks, sidewalks, parapets, median walls and handrails.
Removal of one cross frame approximately 2'-9" west of plate girder field splice and lateral bracing to first cross frame east of field splice.
Removal of balance of plate girders left in place to field splice.
Removal of approximately 10'-0" of roadway stringers.
All work shall be done in accordance with Subsection 619.04(b)-2 of the Specifications and in a manner approved by the Engineer. Prior to any work being started, a proposed method of preventing debris from falling into the water below shall be submitted to the Engineer for his approval. Concrete pieces with no reinforcement and no larger than 6" in any direction may fall into the water. Any damage to the existing beams and shear connectors due to the Contractor's negligence shall be repaired to the satisfaction of the Engineer at the Contractor's expense. All materials shall become the property of the Contractor.

3 REMOVAL OF BRIDGE ITEM (TYPE B):
Consists of the removal of the standing north column of Pier 3 completely intact from a point no less than 6 feet below the transition collar and extending to a point no less than 6 feet above said collar, the removal of remainder of the submerged sheared south column of Pier 3 as intact as possible, and the removal of the submerged pier cap in no more than three proportional pieces, all as futher directed by the engineer. In addtion, any further remains of Pier 3 will be demolished and removed to the bottom of the channel.

The Pay Item "Lateral Bracing Vibration Dampener" consists of Furnishing and Installing all hardware as shown on the plans and approved by the Engineer. This shall include all cost of labor, material, equipment and incidentals necessary to complete this Item of Work as well as any adjustment for tightness required at exsiting dampers.

1 PRESTRESSED BULB TEE BEAMS:
Beams can be transported to the site provided they are 3 days old and have met the 28 day strength requirement.

4 PAINTING: (STRUCTURAL STEEL)
The new structural steel shall be painted to match the existing paint color (aluminum).

MUSKOGEE-SEQUOYAH COUNTIES

Design		
Drawn		
Checked		
Approved		
Squad	POE	

BRIDGE 'A' I-40 OVER ARKANSAS RIVER

SUMMARY OF PAY QUANTITIES AND GENERAL BRIDGE NOTES (BRIDGE)

State Job No. 20029(05) Sheet No. 4

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SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS

DESCRIPTION	DATE

PLAN — DATE / BY / SURVEYED / PLOTTED / NOTE BOOK / NO. / ALIGNMENT CHECKED / R/W OR MAY CHECKED

LIMITS OF NO ACCESS

Present R/W

SEC. 29, T12N. R21E

BEGIN FENCE +50 240'

755

TOE OF SLOPE

P.O.B. STA. 750+00 ℄ I-40

CONST. 451 L.F. WWF

P.O.T. STA. 756+77.09 END RDWY PAV - BEG APPR SLAB

P.O.T. STA. 757+07.09 END APPR SLAB - BEG BRIDGE

P.O.E. STA. 775+64.02 ℄ I-40

P.O.T. STA. 756+35.00 ℄ I-40
BEGIN CONSTRUCTION

N 63°50'08.52" E ✳

℄ I-40

EXISTING RIGHT-OF-WAY DERIVED FROM F.A.P. NO. IR-40-6(187)291 BRIDGE REHAB. PLANS.

CONST. 524 L.F. 4' WWF

ACCESS AND HAUL ROAD EXTENDS 1450 L.F.±

BEGIN FENCE +75 190'

APPROX. LOCATION EXISTING GRAVEL ACCESS AND HAUL ROAD

136.03' S 71°57'57"W

16' GATE

TOE OF SLOPE

394.52' S 63°50'09"W

+25 240

Present R/W

290.20' N 35°58'09"W

NOTE: WHEN ACCESS AND HAUL ROAD IS NO LONGER REQUIRED FOR CONSTRUCTION, THE CONTRACTOR SHALL OBLITERATE & SLAB SOB DISTURBED AREA.

CONSTRUCTION SITE AND STAGING AREA SHALL BE RETURNED TO ORIGINAL CONDITION & SLAB SODDED.

LIMITS OF NO ACCESS

506.24' S 26°11'05"E

✳BEARING WAS ESTABLISHED USING CONTROL MONUMENTS SET FOR BRIDGE SHIFT DETECTION AND IS BASED ON SWO 2502(1) AND FAP I-40-6(99)(100)288 I-40 PLANS. BEARING TO VERIFIED IN THE FIELD.

612.37' N 44°40'12"E

TEMPORARY CONSTRUCTION EASEMENT FOR CONTRACTOR STAGING.

FOR DETAILS NOT SHOWN SEE DETAIL SHEET NO. Z

PROFILE — DATE / BY / SURVEYED / PLOTTED / NOTE BOOK / NO. / ALIGNMENT CHECKED / R/W OR MAY CHECKED

50 0 50 100
Horizontal Scale in Feet

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BM - '□' CHISELED ON TOP OF CONC. BARRIER WALL
0.027' LT STA. 753+82 ELEV.= 519.78

P.O.T. STA. 756+35.00 ℄ I-40
BEGIN CONSTRUCTION

P.O.T. STA. 756+77.09 END RDWY PAV - BEG APPR SLAB

P.O.T. STA. 757+07.09 END APPR SLAB - BEG BRIDGE

+3.09%

APPROX. 2.3:1 SLOPE

PROFILE EXIST. FIN. GRADE

P.V.C. STA. 756+17.59
EL. 524.71

1334' V.C. K=273

540 530 520 510 500 490 480 470 460

752+00 753+00 754+00 755+00 756+00 757+00 758+00 759+00

527.13 529.74 531.97

P.I. 762+84.59
EL. 545.32

+3.09% -1.80%

1334' V.C. K=273

VERTICAL CURVE DATA

State Job No. 20029(05) Sheet No. 5

SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS	
DESCRIPTION	DATE

STORMWATER POLLUTION PREVENTION PLAN

SITE DESCRIPTION

PROJECT LIMITS: RECONSTRUCT THE WEST FOUR (4) BRIDGE SPANS AND APPROACH OF THE ARKANSAS RIVER BRIDGE ON I-40 IN MUSKOGEE COUNTY.

PROJECT DESCRIPTION: FOUR LANE ROADWAY AND BRIDGE RECONSTRUCTION

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:

1. PLACE ALL TEMPORARY EROSION CONTROL DEVICES THAT WILL NOT INTERFERE WITH TOPSOIL SALVAGING OPERATIONS.
2. PERFORM TOPSOIL SALVAGING OPERATIONS, PRESERVING ANY VEGETATION NOT IMPEDING CONSTRUCTION.
3. PLACE REMAINING TEMPORARY EROSION CONTROL DEVICES AS REQUIRED OR NEEDED.
4. PERFORM GRADING AND SURFACING OPERATIONS.
5. PLACE PERMANENT EROSION CONTROL DEVICES ON ULTIMATE SLOPES.
6. REMOVE TEMPORARY EROSION CONTROL DEVICES.

SPECIAL INSTRUCTIONS: OBLITERATE AND SLAB SOD ACCESS AND HAUL ROAD

TOTAL AREA TO BE DISTURBED: 6.5 Acs.

NOTE: THIS AREA IS NORMALLY CALCULATED AS "R/W TO R/W" FOR THE EXTENTS OF THE PROJECT, INCLUDING ANY INCIDENTAL CONSTRUCTION. EACH PROJECT SHOULD BE ASSESSED INDIVIDUALLY.

WEIGHTED RUNOFF COEFFICIENT: 0.70

NOTE: THIS SHOULD BE DETERMINED BY THE HYDRAULIC DESIGNER FOR THE PROJECT. THIS VALUE SHOULD BE THE AVERAGE "C" FACTOR USED ON THE PROJECT. IT SHOULD BE BASED ON THE ANTICIPATED FUTURE LAND USE.

NAME OF RECEIVING WATERS: ARKANSAS RIVER

NOTE: THIS SHOULD DESCRIBE EACH NAMED CREEK, RIVER, OR BODY OF WATER WHICH IS RECEIVING STORM WATER RUNOFF.

NOTE: THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE OR SITE MAP THAT ILLUSTRATES THE DRAINAGE CHARACTERISTICS AND RECEIVING WATERS FOR EACH PROJECT. SEE SHEET NUMBER(S) ___

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

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

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 21 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

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

OFFSITE VEHICLE TRACKING:

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

NOTES:

OTHER EROSION AND SEDIMENT CONTROLS

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 inches (as recorded by a non-freezing rain guage 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 (SW3P) is required to comply with the Oklahoma Pollution Discharge Elimination System (OPDES) regulations. This plan is developed 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) forms that have been filed with the Oklahoma Department of Environmental Quality (ODEQ). 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 Subsections of ODOT's Standard Specifications book should be noted:

- 103.05 Bonding Requirements
- 104.10 Final Cleaning Up
- 106.08 Storage and Handling of Materials
- 107.01 Laws, Rules and RegulationsTo Be Observed
- 107.15 Storm Water Management
- 220.01 & 220.03 Temporary Erosion, Sedimentation, and Stormwater Pollution Prevention and Control

In addition:

"EPA – Final NPDES General Permits for Storm Water Dischanges From Construction Sites; Notices" Federal Register, Monday, July 6, 1998 – Volume 60, Number 128

"ODEQ General Permit (GP-005A) for Storm Water Dischanges From Construction Activities within the State of Oklahoma". ODEQ, Water Quality Division, February 1, 1999.

Design		
Drawn		
Checked		
Approved		
Squad	POE	

STORMWATER POLLUTION PREVENTION PLAN

State Job No. 20029(05) Sheet No. 6

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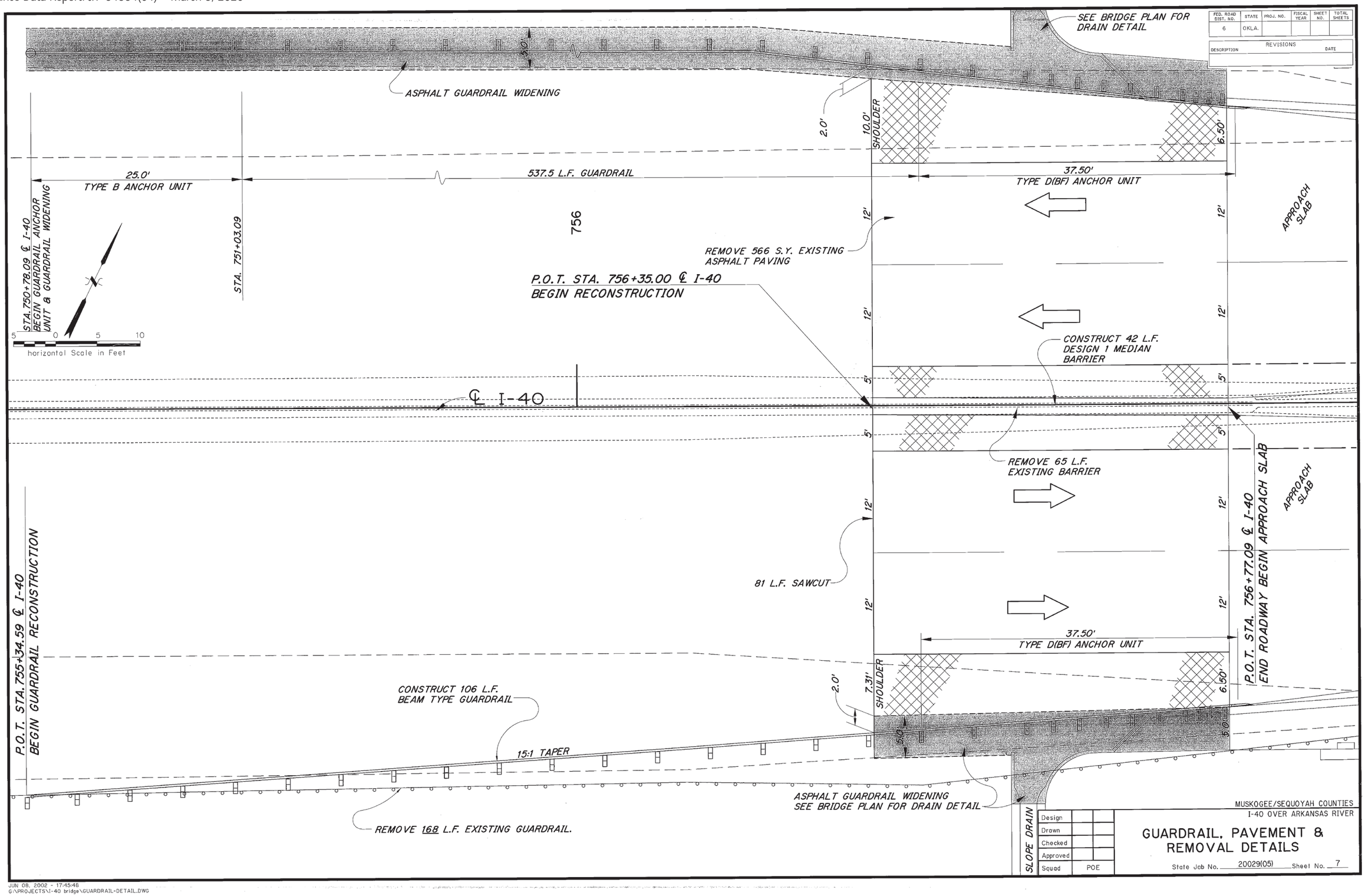


Exhibit 2.1: As-Built Plans

DESIGN DATA

DESIGN SPECIFICATIONS:

AASHTO LRFD Bridge Design Specifications, 1998 edition and 2000 Interims for Span 1, 2 and 3 (Including Pier 3)

AASHTO Bridge Design Specifications, 1996 edition and 1997 Interims for Span 4

DESIGN LOADING:

HL-93 for Spans 1, 2 and 3 (Including Pier 3)
HS-20 for Span 4

Oklahoma Overload (Strength-II Load Combination)

Operating Rating (LFD) HS-44

Design Dead Load includes an allowance of 20 psf for a future wearing surface.

UNIT STRESSES:

Class AA Concrete	f'c = 4,000 psi
Class A Concrete	f'c = 3,000 psi
Prestressed Beam Concrete	f'c = 10,000 psi f'ci = 7,000 psi
Reinforcing Steel (Grade 60)	Fy = 60,000 psi
Structural Steel (A36)	Fy = 36,000 psi

Prestressed Strand: 0.60 in. nominal diameter Type 270 K, 7-wire uncoated, low-relaxation strand conforming to AASHTO M203 (ASTM A416) and Supplement 1.

FOUNDATION PRESSURES

PIERS	PIER 1	PIER 2	PIER 3
DRILLED SHAFT DIAMETER	108"	108"	108"
MINIMUM DEPTH INTO ROCK =	27'	27'	27'
FACTORED REACTION (TONS/SHAFT) =	2290	2313 △1	1973 △1 △2
NOMINAL UNIT BEARING RESISTANCE (TSF) =	70	70	70
BEARING RESISTANCE FACTOR =	0.7	0.7	0.7
FACTORED BEARING RESISTANCE =	3117	3117	3117
NOMINAL UNIT FRICTION RESISTANCE (TSF) =	10	10	10
FRICTION RESISTANCE FACTOR =	0.45	0.45	0.45
FACTORED FRICTION RESISTANCE =	2290	2290	2290
DEPTH OF SANDSTONE NEGELECTED FOR FRICTION =	9.0'	9.0'	9.0'
TOTAL FACTORED RESISTANCE (TONS/SHAFT) =	5407	5407	5407

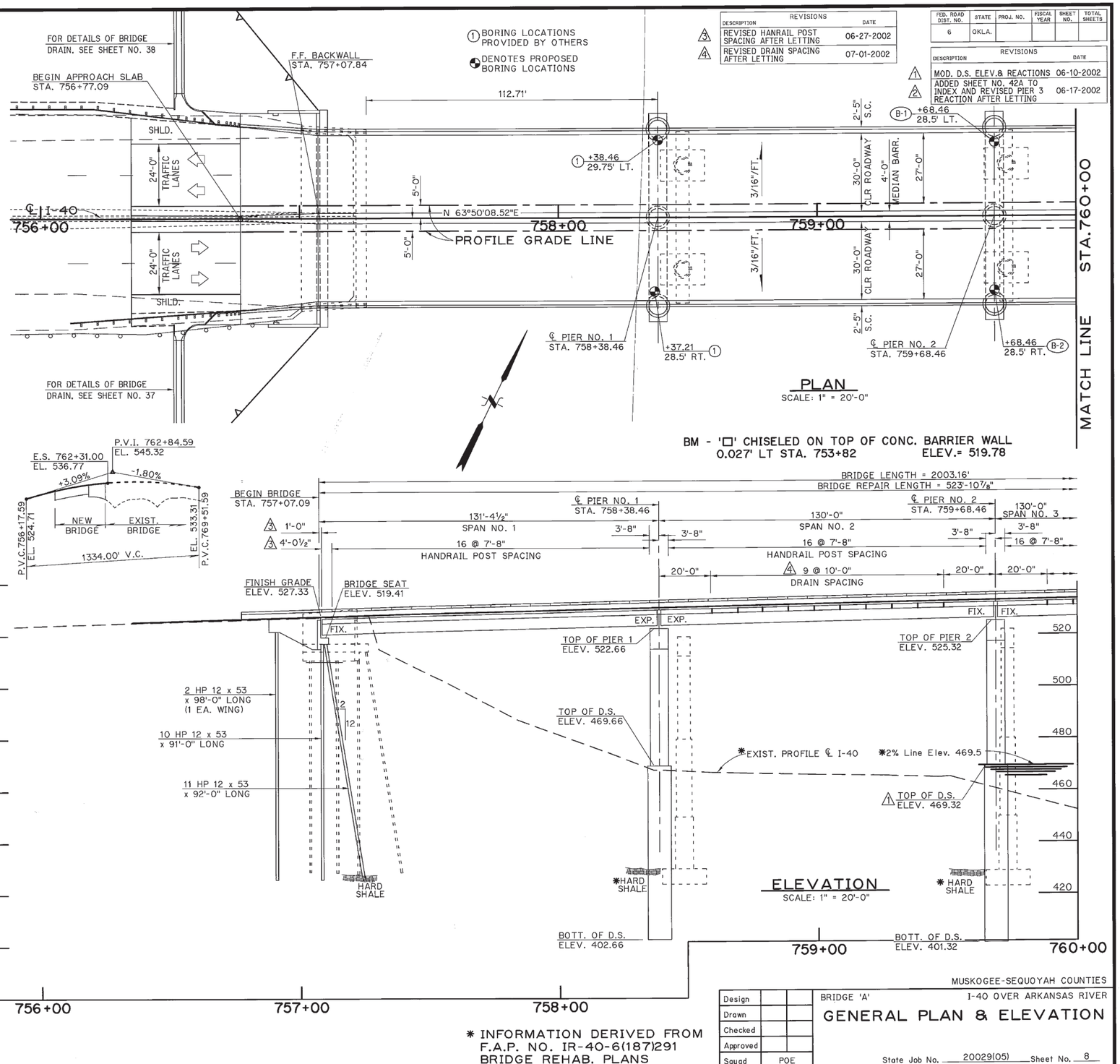
ABUTMENTS	ABUT. 1
	HP 12 x 53
MAXIMUM FACTORED PILE REACTION =	89.7 TONS PER PILE

STEEL PILING: All Abutment Piling shall be driven through the compacted fill. Steel Piling shall be driven to point bearing on solid foundation material at the approximate elevation shown on the Plans. If practical refusal is not obtained at this elevation, driving shall continue until the minimum required bearing of 128 tons is obtained. The length of steel piling shown on the Plans is for estimating purposes only.

Bearing capacity of the piles shall be determined by Engineering News-Record (ENR) Formula Method.

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
4	SUMMARY OF PAY QUANTITIES & GENERAL NOTES (BRIDGE)
8-10	GENERAL PLAN & ELEVATION - BRIDGE 'A'
11	SUBSTRUCTURE LAYOUT
12	ABUTMENT EXCAVATION AND UNDERDRAIN DETAILS
13-14	ABUTMENT DETAILS
15-18	PIER DETAILS
19-21	SUPERSTRUCTURE DETAILS - SPANS 1, 2 & 3
22-23	SLAB LAYOUT - SPANS 1, 2 & 3
24-25	DETAILS OF SEALED EXPANSION JOINT - PIER 1
26-27	DETAILS OF MODULAR EXPANSION JOINT - PIER 3
28-29	BULB TEE BEAM DETAILS - SPANS 1, 2 & 3
30	BEARING ASSEMBLY DETAILS - SPANS 1, 2 & 3
31	BEAM AND DIAPHRAGM LAYOUT - SPANS 1, 2 & 3
32	BULB TEE BEAM AND DIAPHRAGM DETAILS - SPANS 1, 2 & 3
33-36	APPROACH SLAB DETAILS
37-38	DRAIN AT END OF BRIDGE DETAILS
39	DELETED
40	SPAN 4 TYPICAL CROSS SECTION
41	SPAN 4 SLAB REINFORCING PLAN
42	SPAN 4 BEAM FRAMING PLAN
△2 42A	SPAN 4 FLAME-STRAIGHTENING
43	PLATE GIRDER ELEVATION AND DETAIL @ EXP. JOINT
44	SPAN 4 PLATE GRIDERS FIELD SPLICE AND NOTES
45	BEARING DETAILS PIER NO.3 SPAN 4 & STIFFENER DETAILS
46	DETAILS OF LATERAL BRACING VIBRATION DAMPENER
47	SPAN 4 CALC. PLAN
48	INTERMEDIATE CROSS FRAME LAYOUTS
49	END CROSS FRAME LAYOUTS
STD.	HP1-1
STD.	PTR-1 (OBSOLETE STD.)
STD.	PUD-2
STD.	LECS-3
STD.	SPI-3



* INFORMATION DERIVED FROM F.A.P. NO. IR-40-6(187)291 BRIDGE REHAB. PLANS

REVISIONS	
DESCRIPTION	DATE
△3 REVISED HANRAIL POST SPACING AFTER LETTING	06-27-2002
△4 REVISED DRAIN SPACING AFTER LETTING	07-01-2002

REVISIONS	
DESCRIPTION	DATE
△1 MOD. D.S. ELEV.& REACTIONS	06-10-2002
△2 ADDED SHEET NO. 42A TO INDEX AND REVISED PIER 3 REACTION AFTER LETTING	06-17-2002

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

Design		
Drawn		
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES

BRIDGE 'A' I-40 OVER ARKANSAS RIVER

GENERAL PLAN & ELEVATION

State Job No. 20029(05) Sheet No. 8

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS	
DESCRIPTION	DATE
1 MOD. D.S. ELEV.	06-10-2002
2 REVISED DRAIN SPACING AFTER LETTING	07-01-2002
3 REVISED DIMENSIONS AND STATION AFTER LETTING	07-02-2002

DENOTES PROPOSED BORING LOCATIONS

EXIST. PIER PROTECTION

+98.46 28.5' LT. (B-3)

△3 END BRIDGE REPLACEMENT STA. 762+27.50

2'-5" S.C. | 3/16"/FT. | 30'-0" CLR ROADWAY | 4'-0" MEDIAN BARR. | 27'-0"

5'-0"

N 63°50'08.52"E

761+00 762+00 763+00 764+00 765+00

PROFILE GRADE LINE

(B-4) +98.46 28.5' RT.

℄ PIER NO. 3 STA. 760+98.46

END BRIDGE SLAB REPLACEMENT STA. 762+31.00

FLOW

*SAIL LINE

ARKANSAS RIVER

MATCH LINE STA. 760+00

MATCH LINE STA. 766+00

PLAN
SCALE: 1" = 20'-0"

BM - '□' CHISELED ON TOP OF CONC. BARRIER WALL
0.027' LT STA. 753+82 ELEV.= 519.78

BRIDGE LENGTH = 2003.16'

BRIDGE REPAIR LENGTH = 523'-10⅞"

130'-0" SPAN NO. 3 | 132'-6½" | 6'-2½"

16 @ 7'-8" HANDRAIL POST SPACING | 3'-8" | 3'-8" | 16 @ 7'-8" HANDRAIL POST SPACING

△4 9 @ 10'-0" DRAIN SPACING | 20'-0" | 20'-0" | 11 @ 10'-0" DRAIN SPACING | 2'-6½"

☆ 129'-0½" △5 SPAN NO. 4

☆ 72'-6" △5 EXIST. FIELD SPLICE

EXP. EXP.

② TOP OF STEP ELEV. 527.36

② TOP OF PIER 3 ELEV. 525.23

△1 TOP OF D.S. ELEV. 469.23

BOTT. OF D.S. ELEV. 401.23

☆ FIELD VERIFY THIS DIMENSION

*2% Line Elev. 469.5

*EXIST. PIER PROTECTION

*EXIST. PROFILE ℄ I-40

*Nav. Pool Elev. 460.00

EXIST.* REFLECTOR | EXIST.* LIGHT

HARD *SHALE

② IT IS IMPORTANT THAT THE TOP OF PEDESTAL ELEVATIONS BE NO HIGHER THAN THE PLAN ELEVATIONS TO PROVIDE FOR THE MODULAR JOINT.

ELEVATION
SCALE: 1" = 20'-0"

540 520 500 480 460 440 420 400 380

760+00 761+00 762+00 763+00 764+00 765+00 766+00

* INFORMATION DERIVED FROM F.A.P. NO. IR-40-6(187)291 BRIDGE REHAB. PLANS

Design		
Drawn		
Checked		
Approved		
Squad	POE	

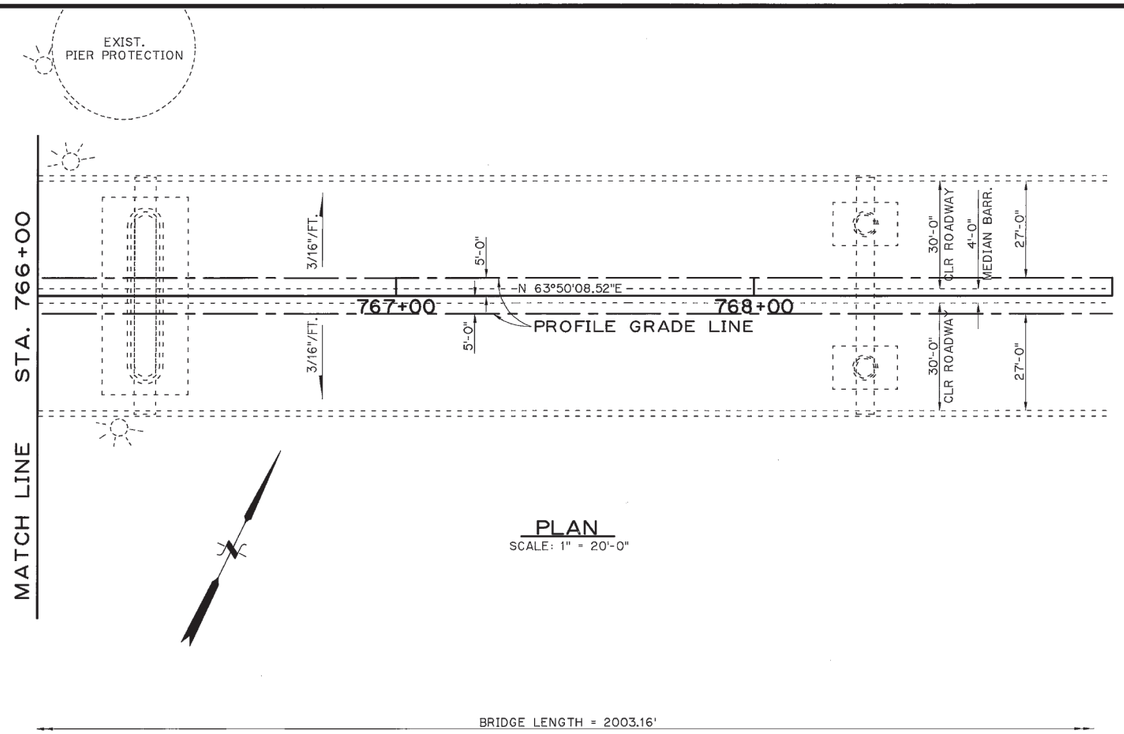
MUSKOGEE-SEQUOYAH COUNTIES

BRIDGE 'A' I-40 OVER ARKANSAS RIVER

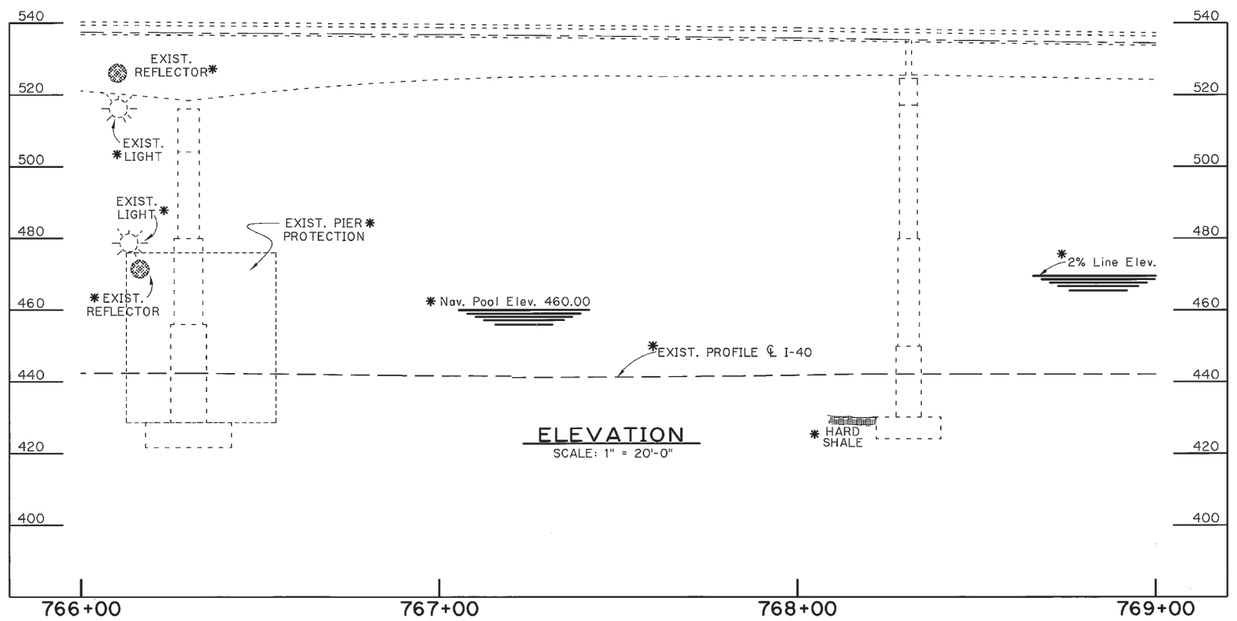
GENERAL PLAN & ELEVATION

State Job No. 20029(05) Sheet No. 9

JULY 2, 2002 - 13:20:28
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PLAN
SCALE: 1" = 20'-0"



ELEVATION
SCALE: 1" = 20'-0"

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS

	DESCRIPTION	DATE
1	MOD. D.S. ELEV. & QUANTS	06-10-2002
2	REVISED QUANTITY	06-11-2002
3	REVISED PIER QUANTITIES AND TOTAL AS PER CHANGE IN END SHAPE OF WEBWALL AT CONTRACTOR'S REQUEST AFTER LETTING	6-25-2002

SUMMARY OF QUANTITIES

	ITEM NO.	ITEM	UNIT	ABUTS.	PIERS	SUPERSTR. (SPAN 1-3)	SUPERSTR. (SPAN 4)	APPR. SLABS	TOTAL	
	202(C)	UNCLASSIFIED BORROW	C.Y.	50	---	---	---	---	50	
	501(B)	SUBSTRUCTURE EXCAVATION COMMON	C.Y.	214	---	---	---	---	214	
	501(G)	CLSM BACKFILL	C.Y.	225	---	---	---	---	225	
	503(A)	PRESTRESSED CONCRETE BEAMS (72 BT)	L.F.	---	---	4668	---	---	4668	
	504(A)	APPROACH SLAB	S.Y.	---	---	---	---	270	270	
	504(C)	(PL) MODULAR EXPANSION JOINT	L.F.	---	---	70	---	---	70	
	504(C)	SEALED EXPANSION JOINT	L.F.	---	---	70	---	---	70	
	504(G)	HANDRAILING	L.F.	---	---	782.8	264.6	---	1047.4	
2	506(A)	STRUCTURAL STEEL	LB.	---	---	11490	410400	---	421890	2
	509(A)	CLASS AA CONCRETE	C.Y.	---	---	986.7	287	10.2	1283.9	
1 3	509(B)	CLASS A CONCRETE	C.Y.	83.8	1600.4	---	---	---	1684.2	1 3
1 3	511(A)	REINFORCING STEEL	LB.	---	9590	---	---	---	9590	1 3
1 3	511(B)	EPOXY COATED REINFORCING STEEL	LB.	10770	164060	156600	68960	990	401380	1 3
	514(A)	PILES, FURNISHED (HP 12x53)	L.F.	2118	---	---	---	---	2118	
	514(B)	PILES, DRIVEN (HP 12x53)	L.F.	2118	---	---	---	---	2118	
	515(A)	WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	117	742	1990	467	56	3372	
1	516(A)	DRILLED SHAFTS 108" DIAMETER	L.F.	---	609	---	---	---	609	1
	520	(PL) HMWM CRACK PREPARATION	L.F.	---	---	459.9	66	---	525.9	
	520	(PL) HMWM RESIN	GAL.	---	---	8	3	---	11	
	535	(PL) FIXED BEARING ASSEMBLY	EA.	---	---	36	---	---	36	
	535	(PL) EXPANSION BEARING ASSEMBLY	EA.	---	---	36	4	---	40	
	535	(PL) LATERAL BRACING VIBRATION DAMPENER	EA.	---	---	---	12	---	12	
	535	(PL) GEOTECHNICAL INVESTIGATION	L.SUM	---	---	---	---	---	1	
(1)	613(P)	6" PERF. PIPE UNDERDRAIN ROUND	L.F.	82	---	---	---	---	82	
(2)	613(Q)	6" NON-PERF. PIPE UNDERDRAIN RND.	L.F.	50	---	---	---	---	50	
	619(B)	(PL) REMOVAL OF BRIDGE ITEMS	L.SUM	---	---	1	---	---	1	
	619(B)	(PL) REMOVAL OF BRIDGE ITEM (TYPE A)	L.SUM	---	---	---	1	---	1	
	619(B)	(PL) REMOVAL OF BRIDGE ITEM (TYPE B)	L.SUM	---	1	---	---	---	1	
	643	(SP) CONTRACTORS QUALITY CONTROL	L.SUM	---	---	---	---	---	1	

(1) INCLUDES ALL COST OF PIPE UNDERDRAIN COVER MATERIAL, APPROX. 12 C.Y.

(2) INCLUDES ALL COST OF TRENCH EXCAVATION AND STANDARD BEDDING MATERIAL, APPROX. 24 C.Y. TRENCH EXCAVATION AND 24 C.Y. STANDARD BEDDING MATERIAL.

* INFORMATION DERIVED FROM F.A.P. NO. IR-40-6(187)291 BRIDGE REHAB. PLANS

Design		
Drawn		
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES

BRIDGE 'A' I-40 OVER ARKANSAS RIVER

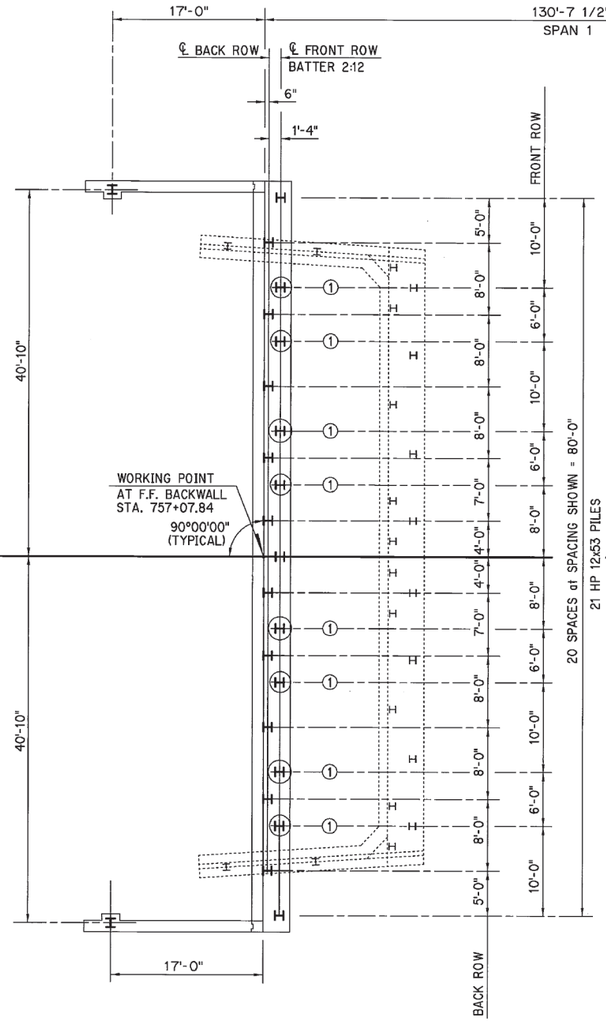
GENERAL PLAN & ELEVATION

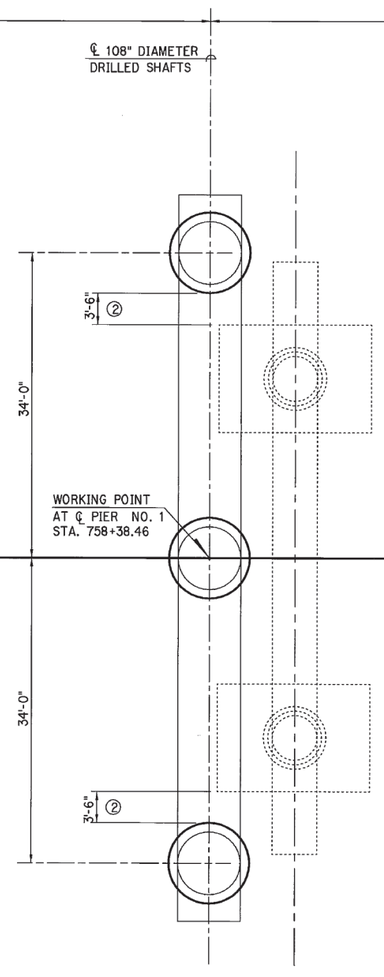
State Job No. 20029(05) Sheet No. 10

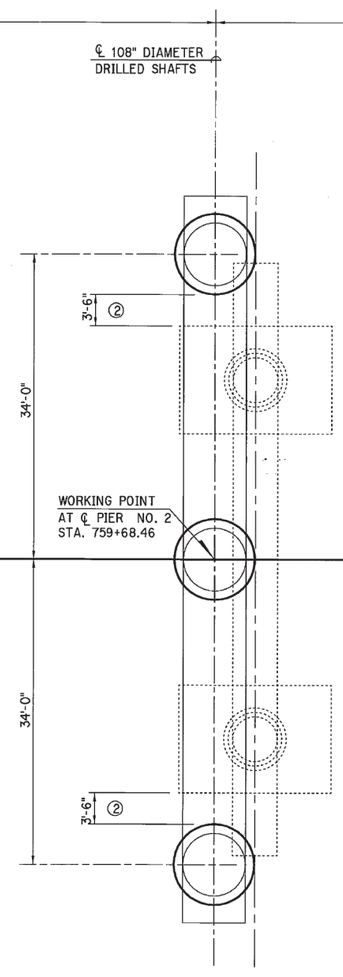
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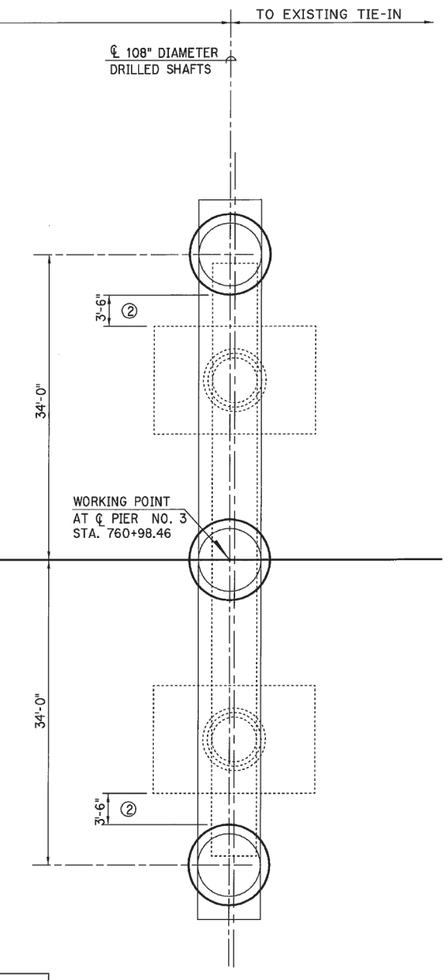
SCHEMMER

REVISIONS	
DESCRIPTION	DATE









NOTE: ALL PILES ARE HP 12 x 53.

① THESE PILES WERE POSITIONED SO AS TO MISS THE EXISTING ABUTMENT PILES AS SHOWN ON THE EXISTING PLANS.

② THESE DIMENSIONS WERE DETERMINED BASED ON THE EXISTING PLAN FOOTING LOCATIONS.

③ BEARING WAS ESTABLISHED USING CONTROL MONUMENTS SET FOR BRIDGE SHIFT DETECTION AND IS BASED ON SWO 2502(1) AND FAP I-40-6(99)100)288 I-40 PLANS. BEARING TO BE VERIFIED IN THE FIELD.

PLAN



MUSKOGEE-SEQUOYAH COUNTIES

Design		
Drawn	BI	
Checked		
Approved		
Squad	POE	

BRIDGE "A" I-40 OVER ARKANSAS RIVER

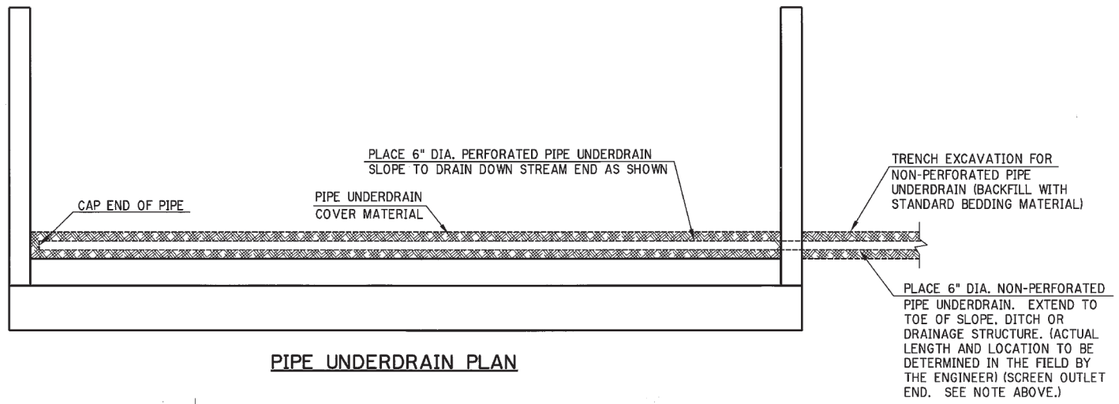
SUBSTRUCTURE LAYOUT

State Job No. 20029(05) Sheet No. 11

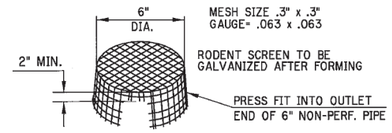
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SCHEMMER

REVISIONS	
DESCRIPTION	DATE

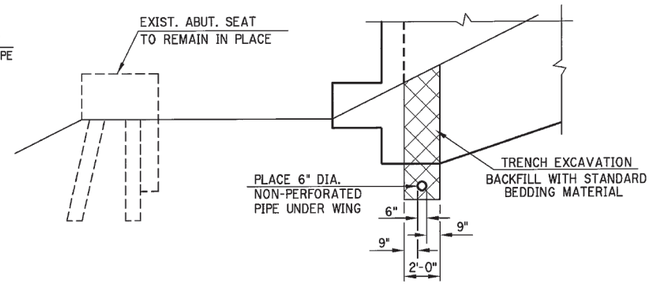


PIPE UNDERDRAIN PLAN

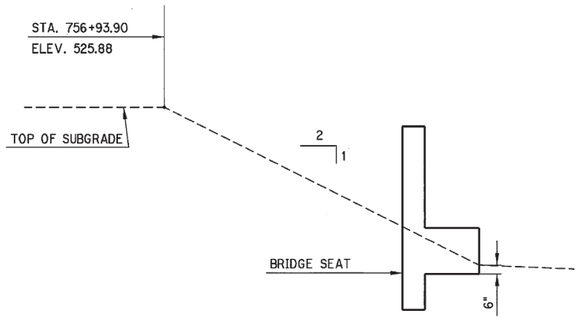


RODENT SCREEN DETAIL

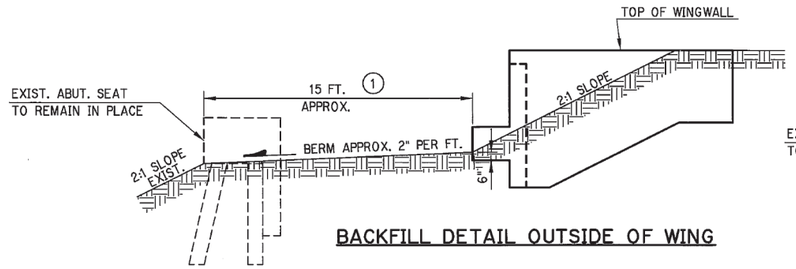
NOTE:
RODENT SCREEN SHALL BE PREFORMED BY THE MANUFACTURER AND DELIVERED TO THE CONSTRUCTION SITE FORMED TO FIT 6" DIAMETER PIPE DRAIN. RODENT SCREEN SHALL BE PLACED AT THE OUTLET END OF NON-PERFORATED PIPE UNDERDRAIN. ALL COST TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK. MESH SHALL BE 0.3" x 0.3" GAUGE SHALL BE 0.063" x 0.063" GALVANIZE MESH AFTER FORMING.



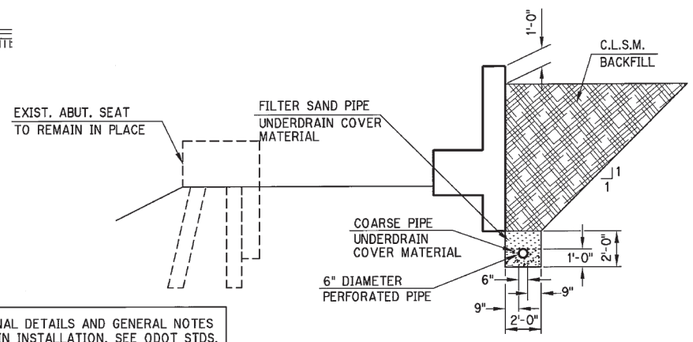
TRENCH EXCAVATION DETAIL



DETAIL OF GRADING AT ABUTMENT



BACKFILL DETAIL OUTSIDE OF WING



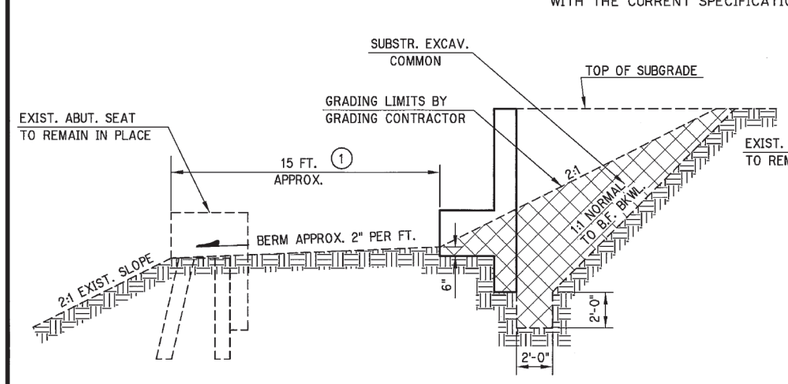
UNDERDRAIN INSTALLATION DETAIL

CONSTRUCTION NOTES

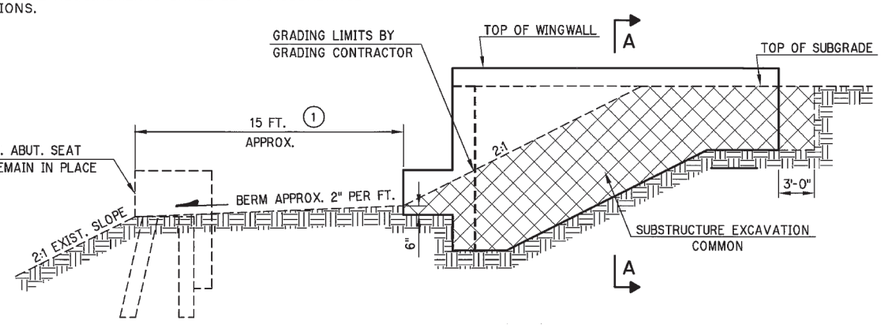
1. SUPERSTRUCTURE SHALL BE IN PLACE PRIOR TO BACKFILLING WITH CLSM.
2. PLACE CLSM BACKFILL IN THREE TOTAL LIFTS CONSISTING OF A 4' 1st LIFT. A 4' 2nd LIFT. A 2' 3rd LIFT. AND THE REMAINDER IN THE LAST LIFT. CONTRACTOR MAY ALSO PLACE THE CLSM IN 2' LIFTS IF HE SO DESIRES.
3. THE EXTENT. LOCATION. AND DEPTH OF DRAINS MAY BE ADJUSTED BY THE ENGINEER TO SUIT CONDITIONS FOUND DURING CONSTRUCTION.
4. COST OF ALL FITTINGS TO BE INCLUDED IN PRICE BID PER LINEAR FOOT OF PIPE UNDERDRAIN.
5. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE CURRENT SPECIFICATIONS.

NOTE: FOR ADDITIONAL DETAILS AND GENERAL NOTES FOR PIPE UNDERDRAIN INSTALLATION, SEE ODOT STDS. PUD-2 AND SPI-3

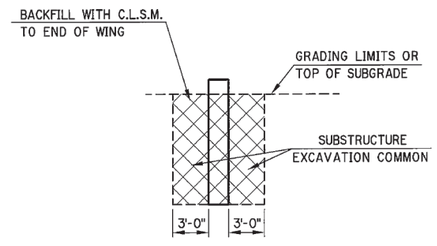
(1) LIMITS OF BERM TO BE VERIFIED IN THE FIELD.



SECTION THRU BRIDGE SEAT



WING ELEVATION



SECTION A-A
SECTION THRU WING

SUBSTRUCTURE EXCAVATION COMMON:
Contractor may excavate to the neat lines of the abutment, and if in satisfactory condition to the Engineer, he may pour the concrete against the compacted fill. If necessary, the Contractor shall use forms on the back vertical face of the abutment and remove the same after concrete is set. Backfilling shall be low strength backfill material (CLSM), placed in accordance with Section 501. The CLSM shall be placed in lifts with adequate time to set to prevent overturning of the backwall. Measurement and Payment for "Substructure Excavation Common" at abutments shall in accordance with the diagram shown on the plans.

ABUTMENT EXCAVATION DIAGRAM

Design		
Drawn	BI	
Checked		
Approved		
Squad	POE	

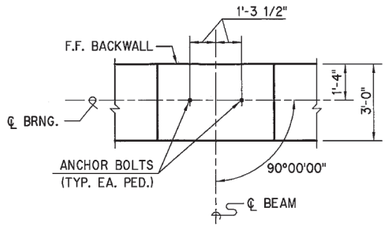
MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" I-40 OVER ARKANSAS RIVER

ABUTMENT EXCAVATION AND UNDERDRAIN DETAILS

State Job No. 20029(05) Sheet No. 12

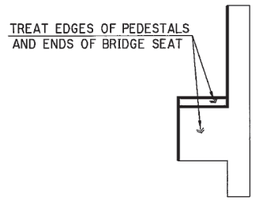
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FED. ROAD DESIGNATION	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				



ANCHOR BOLT LAYOUT

NOTE: FOR PROJECTION AND DETAIL OF ANCHOR BOLTS, SEE SHEET NO. 30.



WATER REPELLENT SURFACE TREATMENT

AREAS INDICATED WITH HEAVY LINES SHALL RECEIVE A PENETRATING WATER REPELLENT SURFACE TREATMENT.

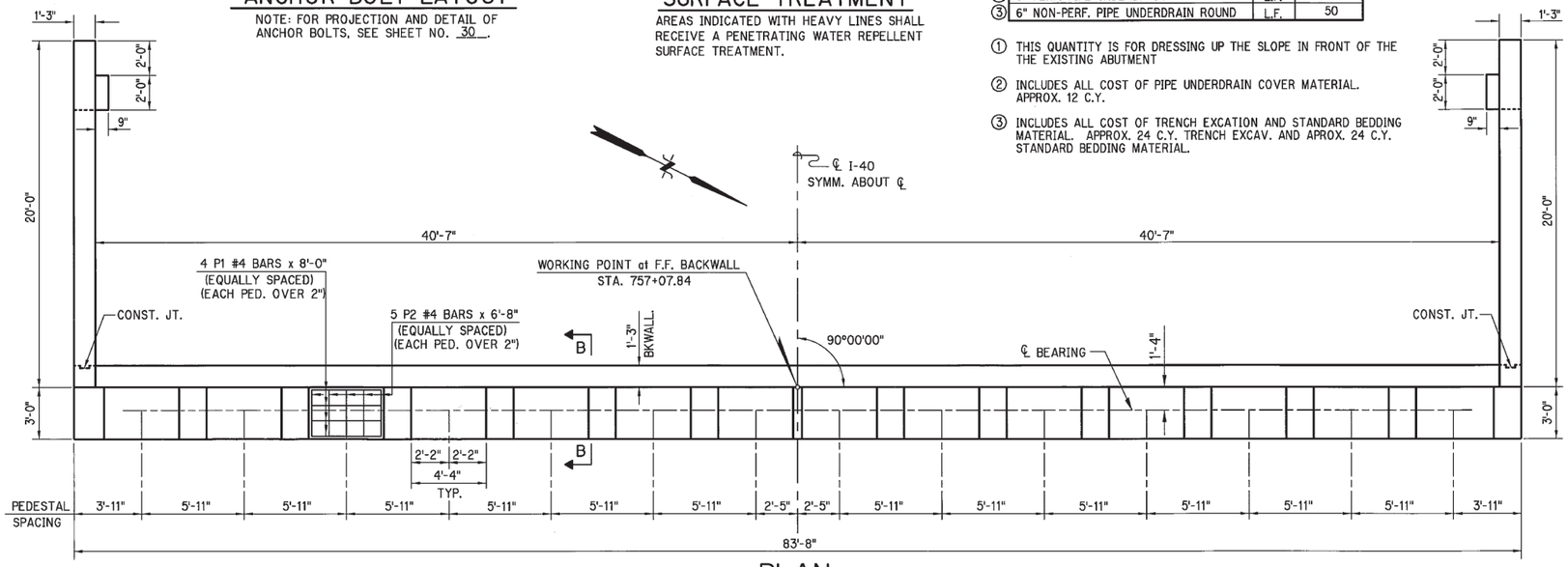
QUANTITIES

	ITEM	UNIT	TOTAL
①	UNCLASSIFIED BORROW	C.Y.	50
	CLSM	C.Y.	225
	SUBSTR. EXCAVATION COMMON	C.Y.	214
	CLASS A CONCRETE	C.Y.	83.8
	EPOXY COATED REINF. STEEL	LB.	10,770
	WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	117
	PILES, FURNISHED (HP 12 x 53)	L.F.	2118
	PILES, DRIVEN (HP 12 x 53)	L.F.	2118
②	6" PERF. PIPE UNDERDRAIN ROUND	L.F.	82
③	6" NON-PERF. PIPE UNDERDRAIN ROUND	L.F.	50

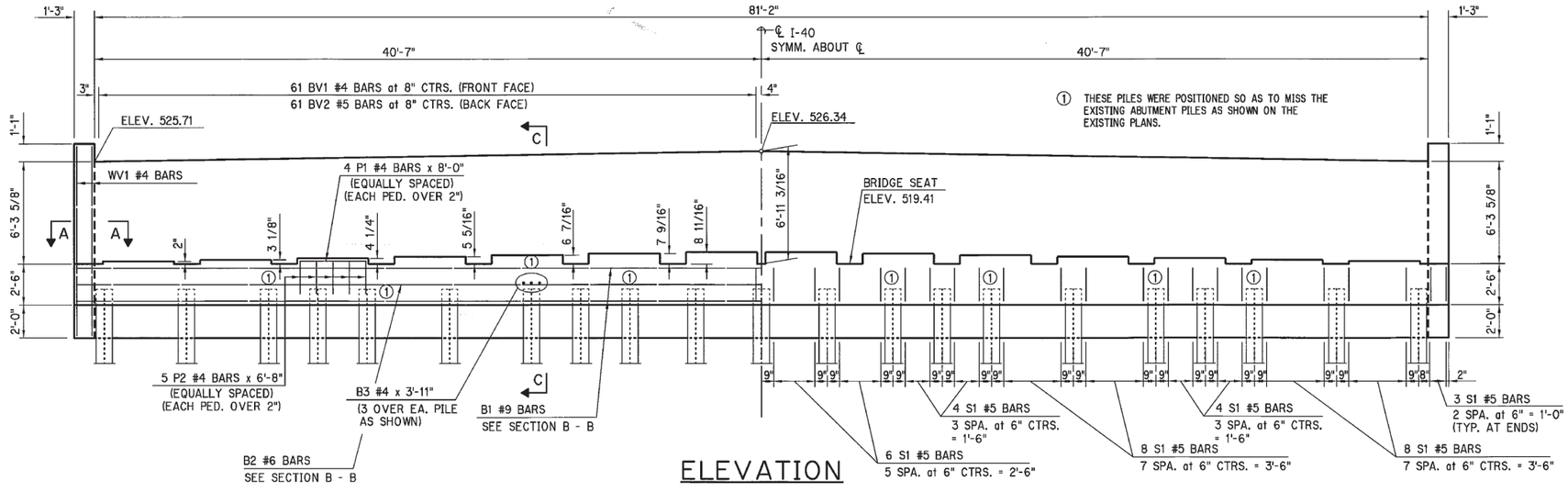
① THIS QUANTITY IS FOR DRESSING UP THE SLOPE IN FRONT OF THE THE EXISTING ABUTMENT

② INCLUDES ALL COST OF PIPE UNDERDRAIN COVER MATERIAL. APPROX. 12 C.Y.

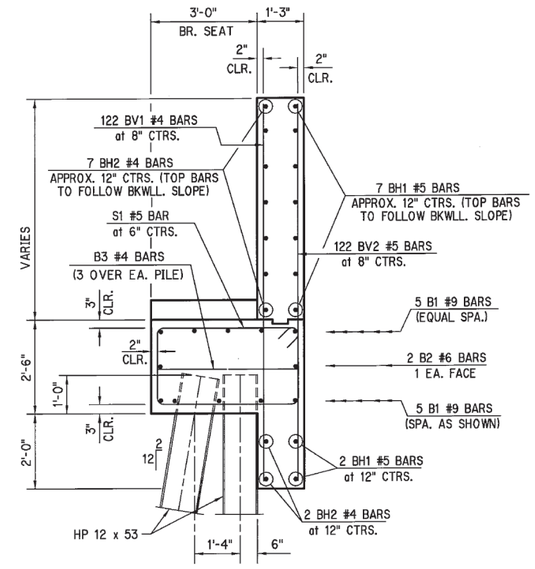
③ INCLUDES ALL COST OF TRENCH EXCATION AND STANDARD BEDDING MATERIAL. APPROX. 24 C.Y. TRENCH EXCAV. AND APROX. 24 C.Y. STANDARD BEDDING MATERIAL.



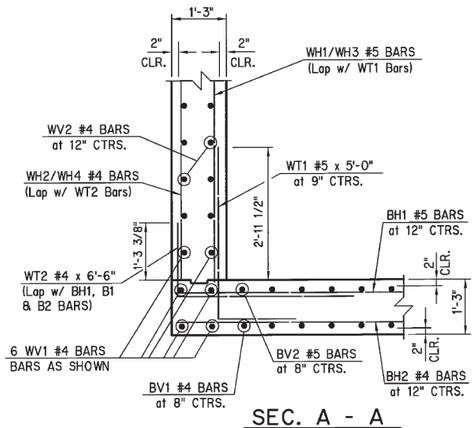
PLAN



ELEVATION



SECTION B - B



SEC. A - A

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

ALL REINFORCING STEEL SHALL HAVE A 2" CLEARANCE UNLESS OTHERWISE SHOWN OR NOTED.

ALL PEDESTALS SHALL HAVE A 3/4" CHAMFER.

Design	TRP	
Drawn	DAC	
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES

BRIDGE "A" — I-40 OVER ARKANSAS RIVER

ABUTMENT NO. 1 DETAILS

SHEET 1 OF 2

State Job No. 20029(05) Sheet No. 13

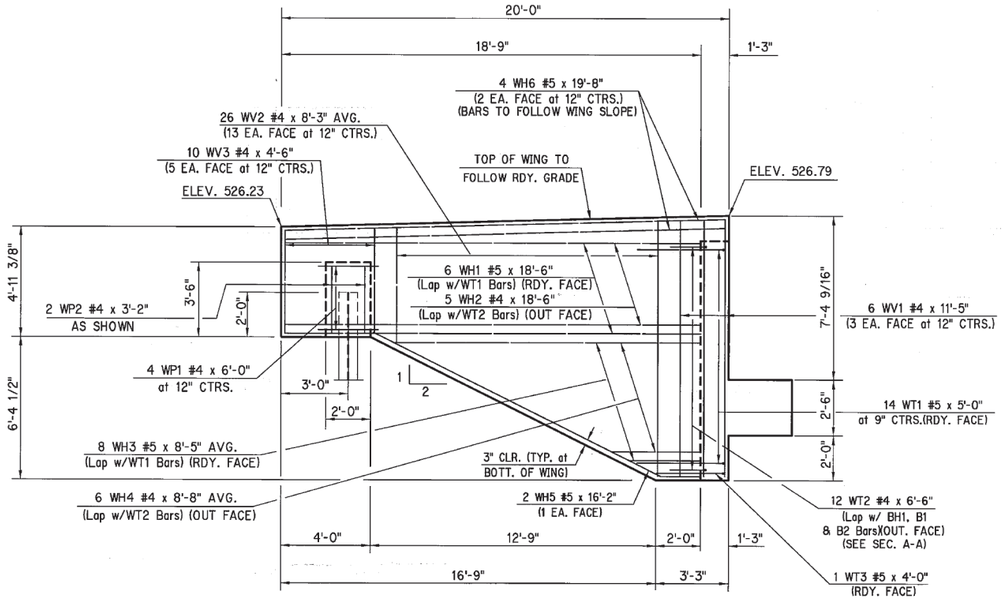
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SCHEMMER

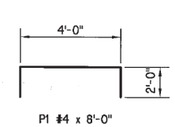
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS

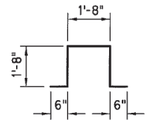
DESCRIPTION	DATE



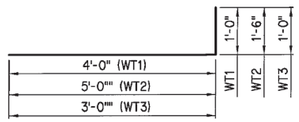
WING - ELEVATION



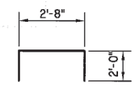
P1 #4 x 8'-0"



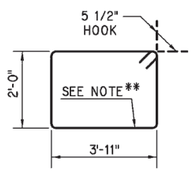
WP1 #4 x 6'-0"



WT1 #5 x 5'-0"
WT2 #4 x 6'-6"
WT3 #5 x 4'-0"

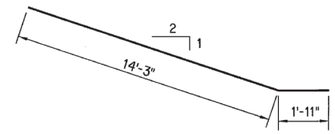


P2 #4 x 6'-8"

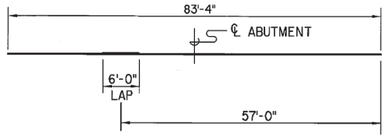


S1 #5 x 12'-9"

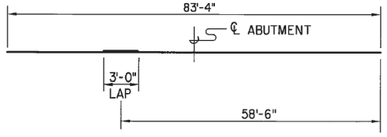
**NOTE: THIS SECTION OF S1 BAR SHALL BE FIELD CUT AS REQUIRED TO CLEAR PILES OR SPACED TO MISS THE PILES.



WH5 #5 x 16'-2"



B1 #9 BARS x 89'-4"
ALTERNATE SPLICES ABOUT
℄ OF ABUTMENT



BH1 #5 BARS x 86'-4"
BH2 #4 BARS x 86'-4"
B2 #6 BARS x 86'-4"

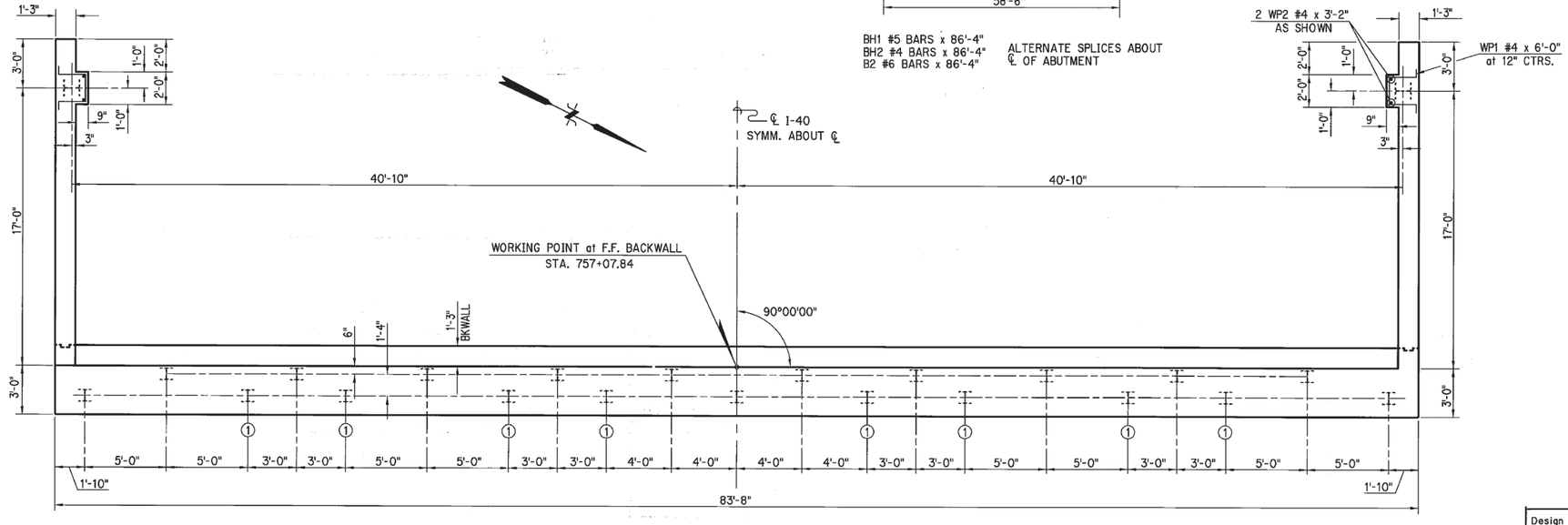
ALTERNATE SPLICES ABOUT
℄ OF ABUTMENT

BAR LIST - EPOXY COATED

	MARK	NO.	SIZE	FORM	SPACING	LENGTH
②	BH1	9	#5	STR.	12" C/C	86'-4"
②	BH2	9	#4	STR.	12" C/C	86'-4"
①	BV1	122	#4	STR.	8" C/C	10'-9" AVG.
①	BV2	122	#5	STR.	8" C/C	10'-9" AVG.
②	B1	10	#9	STR.	AS SHOWN	89'-4"
②	B2	2	#6	STR.	AS SHOWN	86'-4"
	B3	63	#4	STR.	AS SHOWN	3'-11"
	S1	126	#5	BNT.	6" C/C	12'-9"
	WT1	28	#5	BNT.	9" C/C	5'-0"
	WT2	24	#4	BNT.	AS SHOWN	6'-6"
	WT3	2	#5	BNT.	AS SHOWN	4'-0"
	WH1	12	#5	STR.	9" C/C	18'-6"
	WH2	10	#4	STR.	AS SHOWN	18'-6"
①	WH3	16	#5	STR.	9" C/C	8'-5" AVG.
①	WH4	12	#4	STR.	AS SHOWN	8'-8" AVG.
	WH5	4	#5	BNT	AS SHOWN	16'-2"
	WH6	8	#5	STR.	AS SHOWN	19'-8"
	WV1	12	#4	STR.	12" C/C	11'-5"
①	WV2	52	#4	STR.	12" C/C	8'-3" AVG.
	WV3	20	#4	STR.	12" C/C	4'-6"
	WP1	8	#4	BNT.	12" C/C	6'-0"
	WP2	4	#4	STR.	AS SHOWN	3'-2"
	P1	48	#4	BNT.	AS SHOWN	8'-0"
	P2	60	#4	BNT.	AS SHOWN	6'-8"

① LENGTH VARIES:
BV1 = 10'-5" TO 11'-1"
BV2 = 10'-5" TO 11'-1"
WH3 = 3'-6" TO 13'-4"
WH4 = 4'-0" TO 13'-4"
WV2 = 5'-1" TO 11'-5"

② LENGTH INCLUDES LAP AS FOLLOWS:
BH1, BH2 & B2 = 3'-0"
B1 = 6'-0"



PILE SPACING DIAGRAM

NOTE: ALL PILES ARE HP 12 x 53
(BATTER FRONT ROW 2:12)

① THESE PILES WERE POSITIONED SO AS TO MISS THE EXISTING ABUTMENT PILES AS SHOWN ON THE EXISTING PLANS.

Design	TRP	
Drawn	DAC	
Checked		
Approved		
Squad	POE	

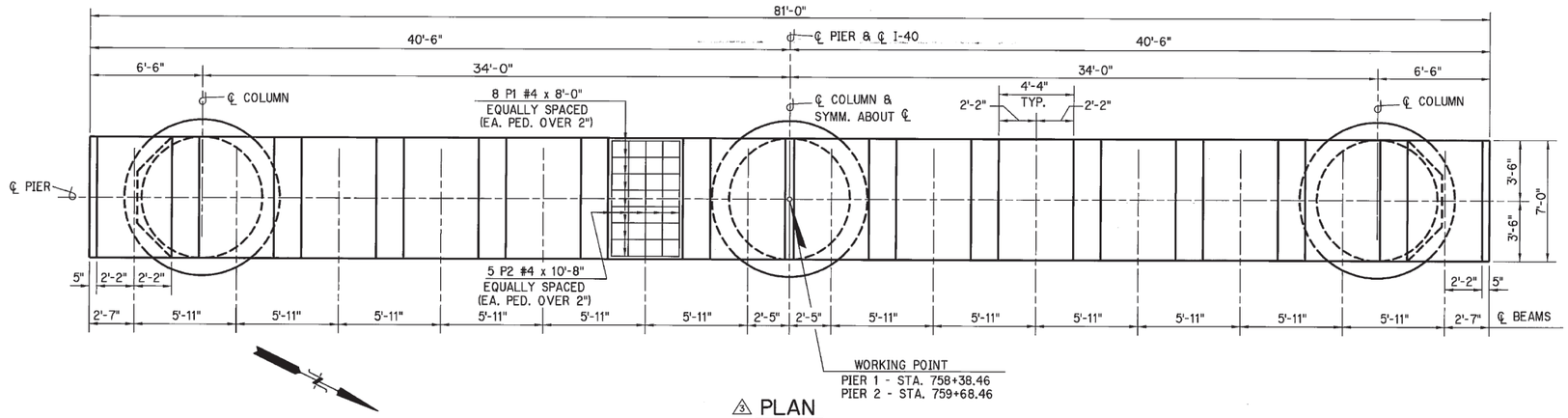
MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" I-40 OVER ARKANSAS RIVER

ABUTMENT NO. 1 DETAILS
SHEET 2 OF 2

State Job No. 20029(05) Sheet No. 14

JUNE 9, 2002
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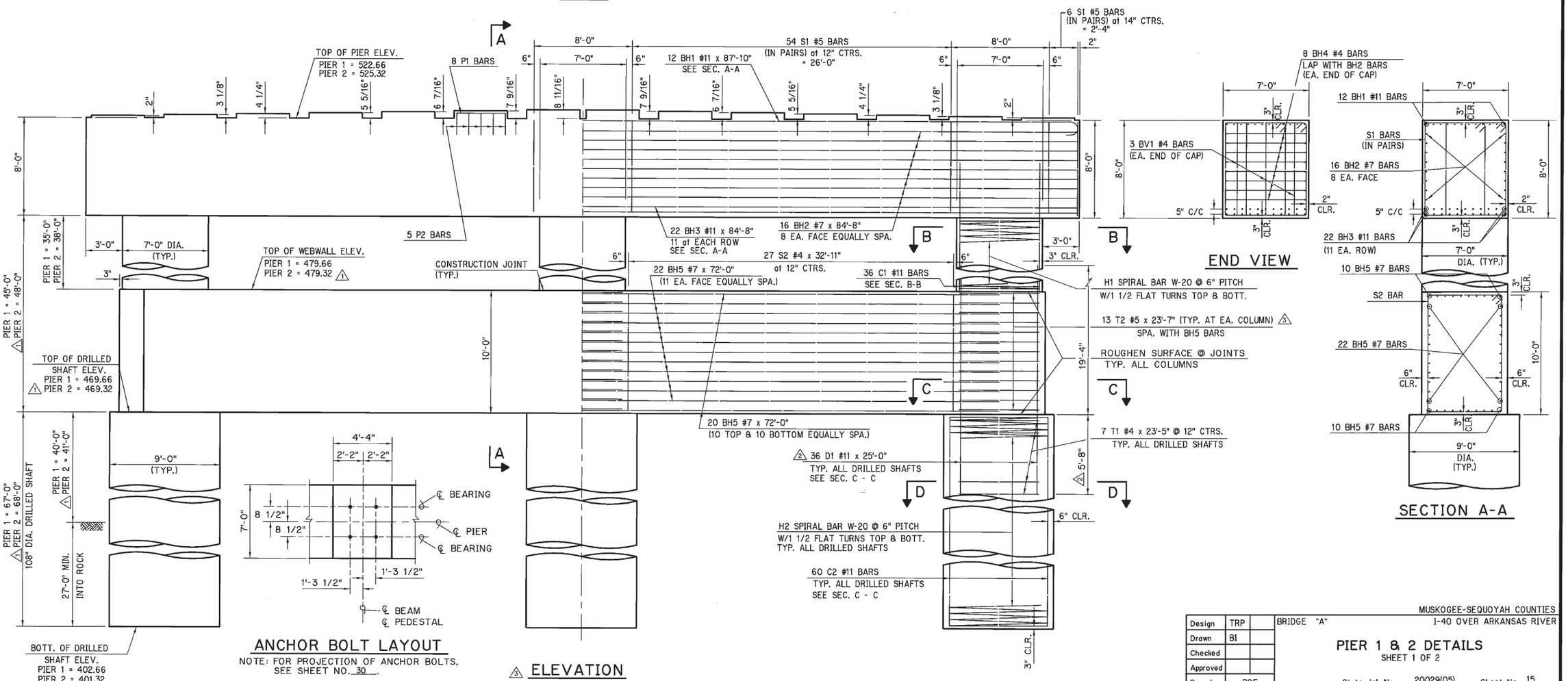
REVISIONS		
	DESCRIPTION	DATE
1	RAISED PIER NO. 2 WEBWALL AND REVISED QUANTITIES	6-10-02
2	REVISED D1 BAR LENGTH AND EMBEDMENT AFTER LETTING	6-17-02
3	CHANGED END SHAPE OF WEBWALL AND REINFORCING AND REVISED QUANTITIES AT CONTRACTOR'S REQUEST AFTER LETTING	6-25-02



⚠3 PLAN

QUANTITIES			⚠1 PIER #2	⚠1 TOTAL	
ITEM	UNIT	PIER #1			
CLASS A CONCRETE	C.Y.	517.5	530.3	1047.8	⚠3
REINFORCING STEEL	LB.	3,030	3,280	6,310	⚠3
EPOXY COATED REINF. STEEL	LB.	53,990	55,710	109,700	⚠3
DRILLED SHAFT 108" DIA.	L.F.	201	204	405	
≠ WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	234	234	468	

≠ TOP AND SIDES OF PIER CAP AND PEDESTALS.



JUNE 25, 2002
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Design	TRP	
Drawn	BI	
Checked		
Approved		
Squad	POE	

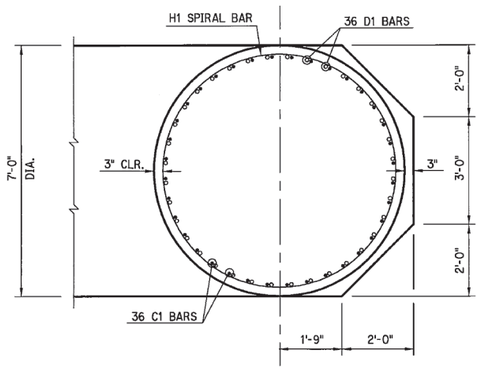
MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" 1-40 OVER ARKANSAS RIVER

PIER 1 & 2 DETAILS
SHEET 1 OF 2

State Job No. 20029(05) Sheet No. 15

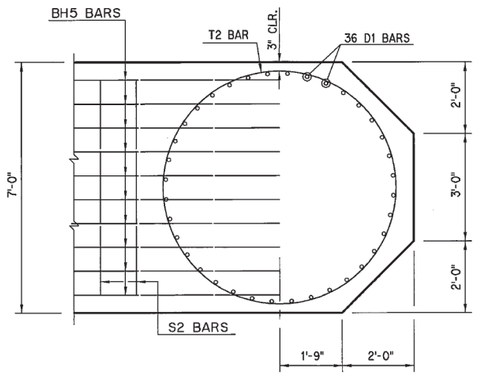
SCHEMMER

REVISIONS		
	DESCRIPTION	DATE
1	REVISED BH1 BAR DIMENSIONS, REINF. BAR TABLE AND REINF. NOTE	6-10-02
2	CHANGED C2 BARS TO NON-EPOXY COATED REINF.	6-11-02
3	REVISED D1 BAR LENGTH AFTER LETTING	6-17-02
4	REVISED DETAILS AND BAR LIST AND ADDED T2 BAR DETAIL AS PER CHANGE IN END OF WEBWALL SHAPE AND REINF. AT CONTRACTOR'S REQUEST AFTER LETTING	6-25-02



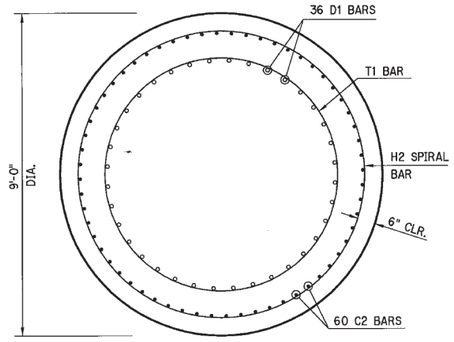
SECTION B-B

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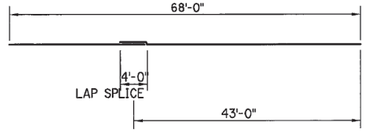


SECTION C-C

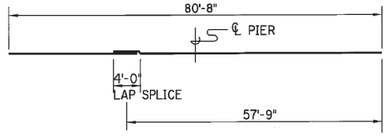
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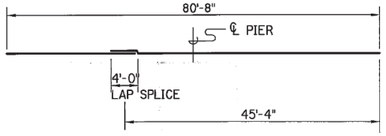
SECTION D-D



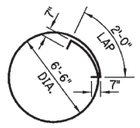
BH5 #7 x 72'-0"
ALTERNATE SPLICES ABOUT
℄ OF PIER



BH2 #7 BARS x 84'-8"
ALTERNATE SPLICES ABOUT
℄ OF PIER

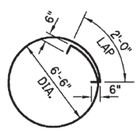


BH3 #11 BARS x 84'-8"
ALTERNATE SPLICES ABOUT
℄ OF PIER

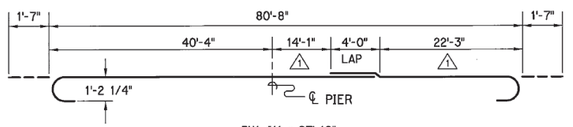


T2 #5 x 23'-7"

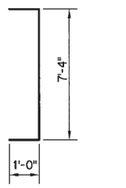
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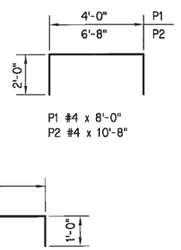
T1 #4 x 23'-5"



BH1 #11 x 87'-10"



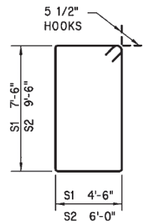
BV1 #4 x 9'-4"



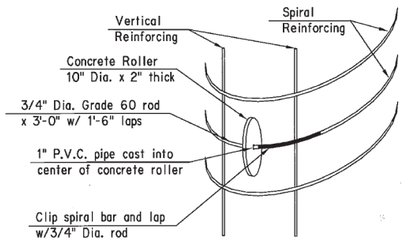
P1 #4 x 8'-0"
P2 #4 x 10'-8"



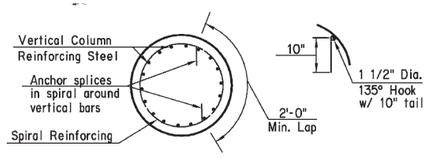
BH4 #4 x 8'-6"



S1 #5 x 24'-11"
S2 #4 x 31'-11"

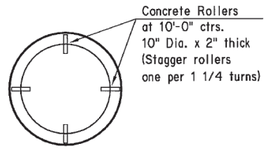


ROLLER INSTALLATION DETAIL



SPIRAL REINFORCING SPLICE DETAIL

NOTE: Spiral bars shall conform to AASHTO M-32.
Spiral bar lengths do not include lap. If lap is required, the length of the lap shall be as shown.



ROLLER PLACEMENT DETAIL

ALL BENT BAR DIMENSIONS ARE OUT TO OUT.

FOR DETAIL OF BEARING ANCHOR BOLT, SEE SHEET NO. 30.

BAR LIST - ONE PIER

	MARK	NO.	SIZE	FORM	SPACING	LENGTH	
(2)(1)	BH1	12	#11	BNT.	EQUAL	87'-10"	
(2)(1)	BH2	16	#7	STR.	EQUAL	84'-8"	
(2)(1)	BH3	22	#11	STR.	EQUAL	84'-8"	
(1)	BH4	16	#4	BNT.	EQUAL	8'-6"	
(2)(1)	BH5	42	#7	STR.	EQUAL	72'-0"	
(1)	BV1	6	#4	BNT.	EQUAL	9'-4"	
(1)	C1	108	#11	STR.	EQUAL	SEE TABLE	
2 ▲	C2	180	#11	STR.	EQUAL	SEE TABLE	
▲ (1)	D1	108	#11	STR.	EQUAL	25'-0"	3
▲ (1)	T1	21	#4	BNT.	12" C/C	23'-5"	
4 (1)	T2	39	#5	BNT.	AS SHOWN	23'-7"	
	H1	3	W-20	BNT.	6" PITCH	SEE TABLE	
▲	H2	3	W-20	BNT.	6" PITCH	SEE TABLE	
(1)	S1	120	#5	BNT.	12" C/C	24'-11"	
(1)	S2	54	#4	BNT.	12" C/C	31'-11"	
(1)	P1	96	#4	BNT.	AS SHOWN	8'-0"	
(1)	P2	60	#4	BNT.	AS SHOWN	10'-8"	

(1) EPOXY COATED

(2) LENGTH SHOWN INCLUDE LAP:
BH1 - 1 at 4'-0" ALTERNATING ABOUT ℄ PIER
BH2 - 1 at 4'-0" ALTERNATING ABOUT ℄ PIER
BH3 - 1 at 4'-0" ALTERNATING ABOUT ℄ PIER
BH5 - 1 at 4'-0" ALTERNATING ABOUT ℄ PIER

▲ THESE BARS INCLUDED IN PRICE BID PER L.F. OF DRILLED SHAFT.

REINFORCING BAR TABLE

LOCATION	C1 BAR LENGTH	C2 BAR*▲ LENGTH	H1 BAR** LENGTH	H2 BAR***▲ LENGTH	
PIER 1	40'-6"	81'-0"	1483'-2"	3435'-1"	1
1 PIER 2	43'-6"	82'-0"	1605'-8"	3485'-4"	

3

*LENGTH SHOWN INCLUDES 1 - 14'-6" LAP.

THESE BARS IS INCLUDED IN THE PRICE BID PER L.F. OF DRILLED SHAFT.

1 **LENGTH SHOWN INCLUDE LAPS FOR SPLICES AS FOLLOWS:
PIER 1 - 2 LAPS
PIER 2 - 2 LAPS

***LENGTH SHOWN INCLUDE LAPS FOR SPLICES AS FOLLOWS:
PIER 1 - 4 LAPS
PIER 2 - 4 LAPS
CONTRACTOR MAY ADD ADDITIONAL SPLICES AS NECESSARY. ADD 3'-8" FOR ANY ADDITIONAL SPLICE. PAYMENT WILL NOT BE MADE FOR EXTRA LENGTH REQUIRED.

MUSKOGEE-SEQUOYAH COUNTIES

Design	TRP	
Drawn	BI	
Checked		
Approved		
Squad	POE	

BRIDGE "A" I-40 OVER ARKANSAS RIVER

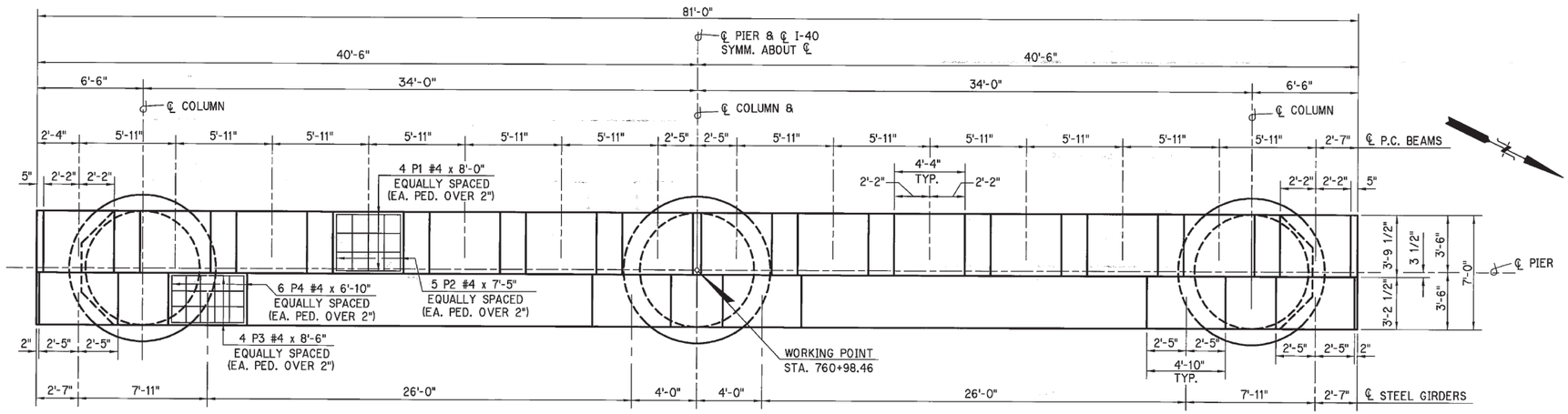
PIER 1 & 2 DETAILS
SHEET 2 OF 2

State Job No. 20029(05) Sheet No. 16

JUNE 25, 2002
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SCHEMMER

REVISIONS		
	DESCRIPTION	DATE
1	RAISED WEBWALL AND REVISED QUANTITIES	6-10-02
2	REVISED NUMBER OF C2 BARS AFTER LETTING	6-12-02
3	REVISED D1 BAR LENGTH AND EMBEDMENT AFTER LETTING	6-17-02
4	CHANGED END SHAPE OF WEBWALL AND REINFORCING AND REVISED QUANTITIES AT CONTRACTOR'S REQUEST AFTER LETTING	6-25-02

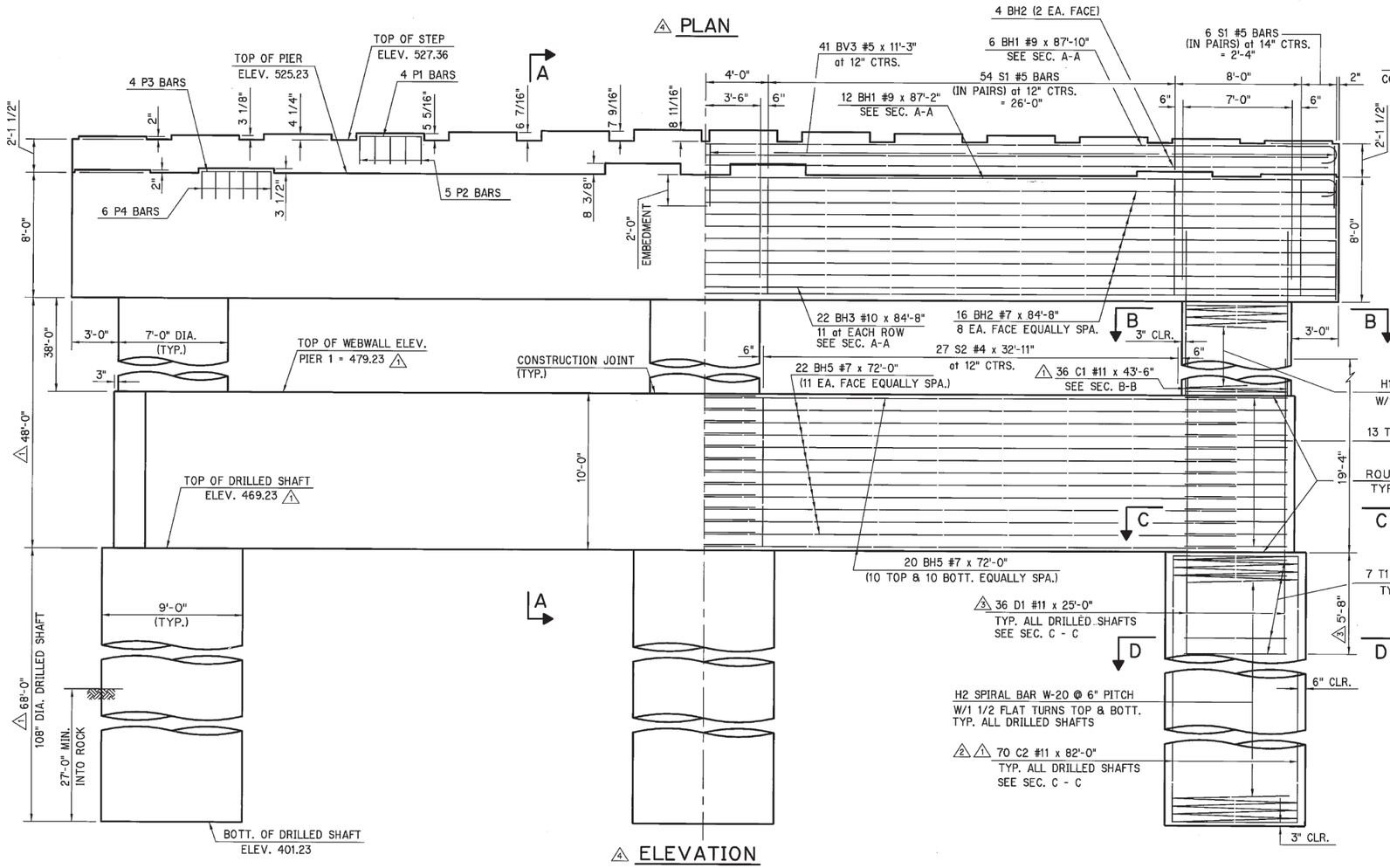


⚠1 QUANTITIES

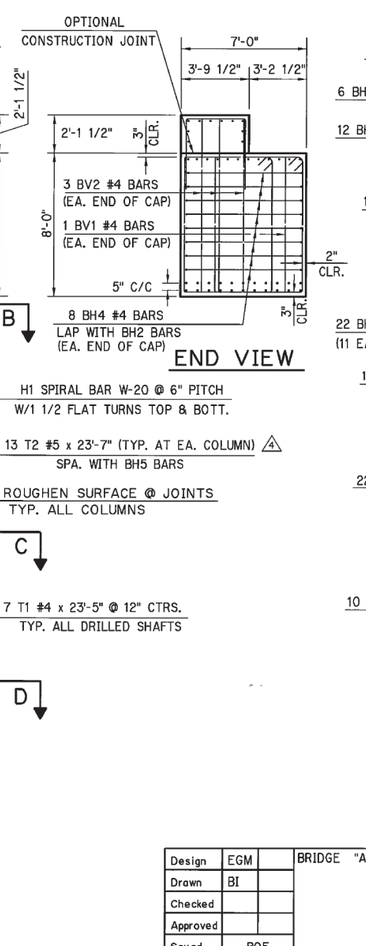
ITEM	UNIT	TOTAL	
CLASS A CONCRETE	C.Y.	552.6	⚠4
REINFORCING STEEL	LB.	3280	⚠4
EPOXY COATED REINF. STEEL	LB.	54,360	⚠4
DRILLED SHAFT 108" DIA.	L.F.	204	
≠ WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	274	

≠ TOP AND SIDES OF PIER CAP AND PEDESTALS.

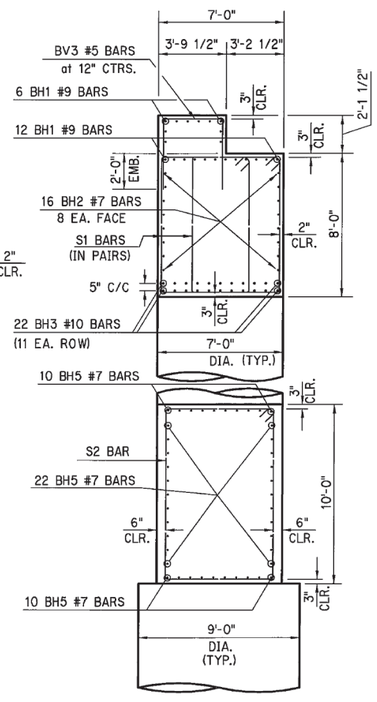
⚠4 PLAN



⚠4 ELEVATION



END VIEW



SECTION A-A

JUNE 25, 2002
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MUSKOGEE-SEQUOYAH COUNTIES

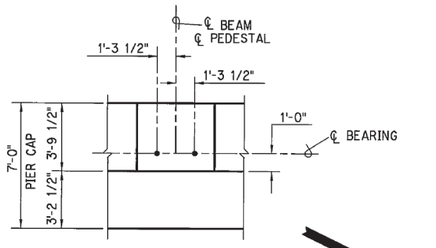
Design	EGM	
Drawn	BI	
Checked		
Approved		
Squad	POE	

BRIDGE "A" I-40 OVER ARKANSAS RIVER

PIER 3 DETAILS

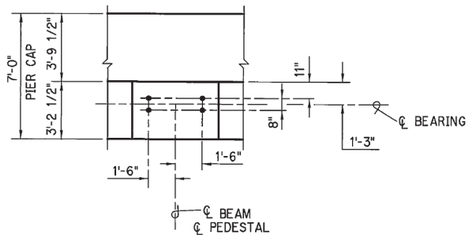
SHEET 1 OF 2

State Job No. 20029(05) Sheet No. 17



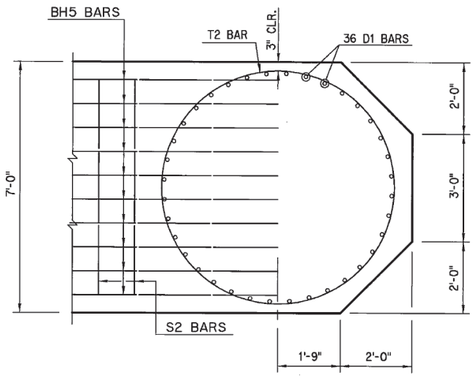
ANCHOR BOLT LAYOUT
P.C. BEAMS

NOTE: FOR PROJECTION OF ANCHOR BOLTS. SEE SHEET NO. 30.

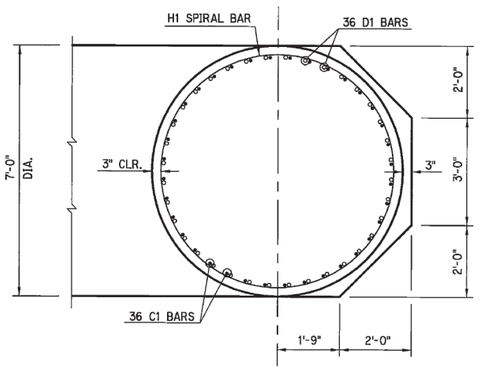


ANCHOR BOLT LAYOUT
STEEL GIRDERS

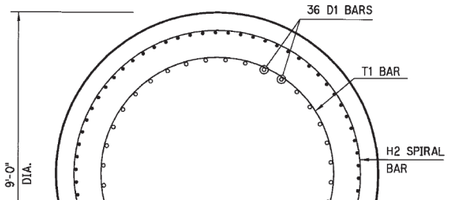
NOTE: FOR PROJECTION OF ANCHOR BOLTS. SEE SHEET NO. 45.



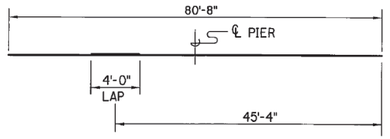
SECTION C-C
△5



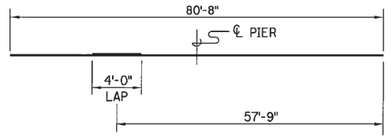
SECTION B-B
△5



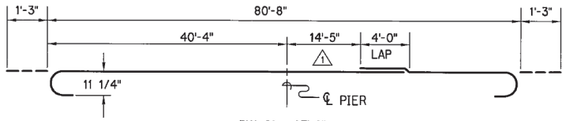
SECTION D-D



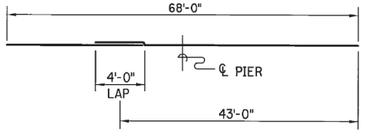
BH3 #10 BARS x 84'-8"
ALTERNATE SPLICES ABOUT ℄ PIER



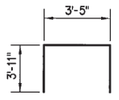
BH2 #7 BARS x 84'-8"
ALTERNATE SPLICES ABOUT ℄ PIER



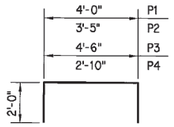
BH1 #9 x 87'-2"
ALTERNATE SPLICES ABOUT ℄ PIER



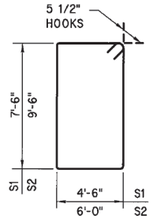
BH5 #7 x 72'-0"
ALTERNATE SPLICES ABOUT ℄ PIER



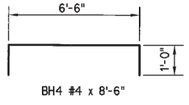
BV3 #5 x 11'-3"



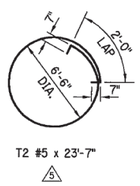
P1 #4 x 8'-0"
P2 #4 x 7'-5"
P3 #4 x 8'-6"
P4 #4 x 6'-10"



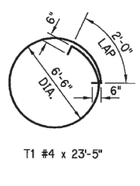
S1 #5 x 24'-11"
S2 #4 x 31'-11"



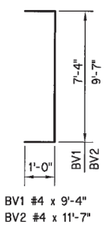
BH4 #4 x 8'-6"



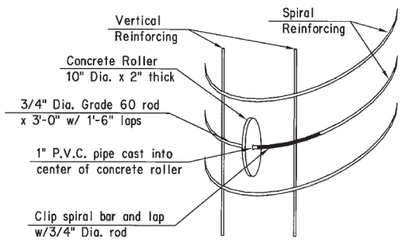
T2 #5 x 23'-7"
△5



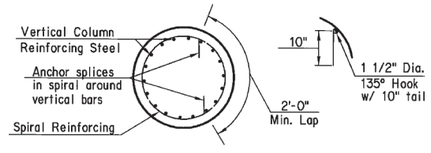
T1 #4 x 23'-5"



BV1 #4 x 9'-4"
BV2 #4 x 11'-7"

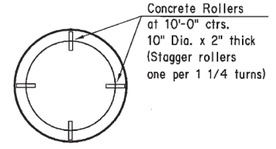


ROLLER INSTALLATION DETAIL



SPIRAL REINFORCING SPLICE DETAIL

NOTE: Spiral bars shall conform to AASHTO M-32. Spiral bar lengths do not include lap. If lap is required, the length of the lap shall be as shown.



ROLLER PLACEMENT DETAIL

REVISIONS		
	DESCRIPTION	DATE
△1	REVISED BH1 BAR DIMENSION AND REINF. BAR LENGTHS, DESIGNATED D1 BAR TO BE INCLUDED IN PRICE OF DRILLED SHAFT AND REVISED REINF. NOTES	6-10-02
△2	CHANGED C2 BARS TO NON-EPOXY COATED REINF.	6-11-02
△3	REVISED NUMBER OF C2 BARS AFTER LETTING	6-12-02
△4	REVISED D1 BAR LENGTH AFTER LETTING	6-17-02
△5	REVISED DETAILS AND BAR LIST AND ADDED T2 BAR DETAIL AS PER CHANGE IN END OF WEBWALL SHAPE AND REINF. AT CONTRACTOR'S REQUEST. ALSO ADDED EPOXY COATED DESIGNATION TO BV2, BV3, P3 AND P4 BARS AND REMOVED "INCLUDED IN DRILL SHAFT" DESIGNATION FROM P1 BARS AFTER LETTING	6-25-02

ALL BENT BAR DIMENSIONS ARE OUT TO OUT.

FOR DETAIL OF BEARING ANCHOR BOLT, SEE SHEET NO. 30.

BAR LIST

	MARK	NO.	SIZE	FORM	SPACING	LENGTH	
(2)(1)	BH1	18	#9	BNT.	EQUAL	87'-2"	
(2)(1)	BH2	16	#7	STR.	EQUAL	84'-8"	
(2)(1)	BH3	22	#10	STR.	EQUAL	84'-8"	
(1)	BH4	16	#4	BNT.	EQUAL	8'-6"	
(2)(1)	BH5	42	#7	STR.	EQUAL	72'-0"	
(1)	BV1	2	#4	BNT.	EQUAL	9'-4"	
△5 (1)	BV2	6	#4	BNT.	AS SHOWN	11'-7"	
△5 (1)	BV3	82	#5	BNT.	12" C/C	11'-3"	
(1)	C1	108	#11	STR.	EQUAL	43'-6"	△1
△3 △2 * ▲	C2	210	#11	STR.	EQUAL	82'-0"	△1
△1 ▲ (1)	D1	108	#11	STR.	EQUAL	25'-0"	△4
▲ (1)	T1	21	#4	BNT.	12" C/C	23'-5"	
△5 (1)	T2	39	#5	BNT.	AS SHOWN	23'-7"	
**	H1	3	W-20	BNT.	6" PITCH	1605'-8"	△1 △5
***▲	H2	3	W-20	BNT.	6" PITCH	3485'-4"	△1 △5 △1
(1)	S1	120	#5	BNT.	12" C/C	24'-11"	
(1)	S2	54	#4	BNT.	12" C/C	31'-11"	
△5 (1)	P1	48	#4	BNT.	AS SHOWN	8'-0"	
(1)	P2	60	#4	BNT.	AS SHOWN	7'-5"	
△5 (1)	P3	16	#4	BNT.	AS SHOWN	8'-6"	
△5 (1)	P4	24	#4	BNT.	AS SHOWN	6'-10"	

(1) EPOXY COATED

(2) LENGTH SHOWN INCLUDE LAP:
BH1 - 1 at 4'-0" ALTERNATING ABOUT ℄ PIER
BH2 - 1 at 4'-0" ALTERNATING ABOUT ℄ PIER
BH3 - 1 at 4'-0" ALTERNATING ABOUT ℄ PIER
BH5 - 1 at 4'-0" ALTERNATING ABOUT ℄ PIER

▲ THESE BARS INCLUDED IN PRICE BID PER L.F. OF DRILLED SHAFT.

*LENGTH SHOWN INCLUDES 1 - 14'-6" LAP.
THESE BARS IS INCLUDED IN THE PRICE BID PER L.F. OF DRILLED SHAFT.

△1 **LENGTH SHOWN INCLUDES 2 LAPS FOR SPLICES. CONTRACTOR MAY ADD ADDITIONAL SPLICES AS NECESSARY, ADD 3'-8" FOR ANY ADDITIONAL SPLICE.

△1 ***LENGTH SHOWN INCLUDES 4 LAPS FOR SPLICES CONTRACTOR MAY ADD ADDITIONAL SPLICES AS NECESSARY, ADD 3'-8" FOR ANY ADDITIONAL SPLICE. PAYMENT FOR THESE BARS IS INCLUDED IN THE PRICE BID PER L.F. OF DRILLED SHAFT.

MUSKOGEE-SEQUOYAH COUNTIES

Design	EGM	
Drawn	BI	
Checked		
Approved		
Squad	POE	

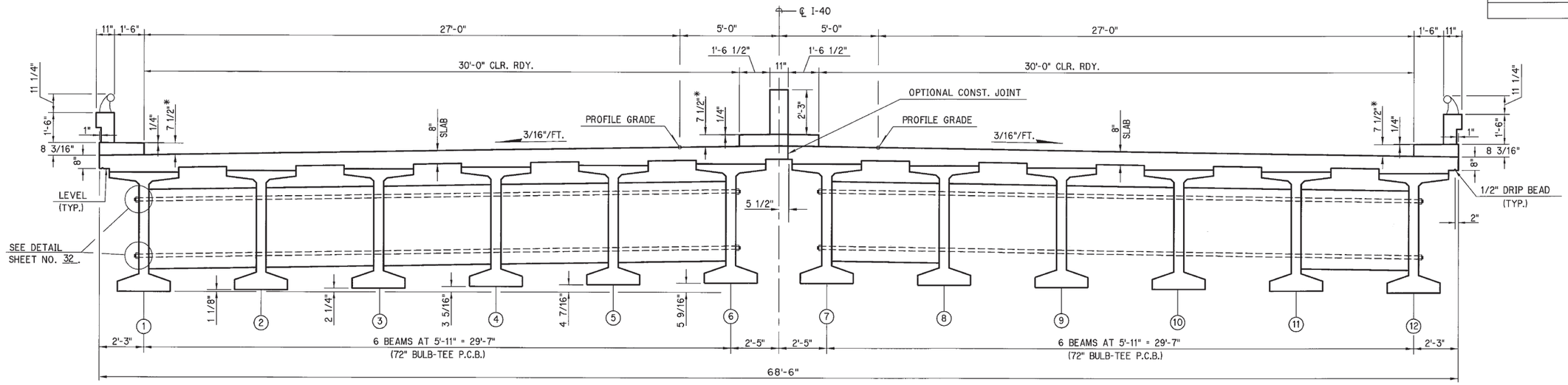
BRIDGE "A" I-40 OVER ARKANSAS RIVER

PIER 3 DETAILS
SHEET 2 OF 2

State Job No. 20029(05) Sheet No. 18

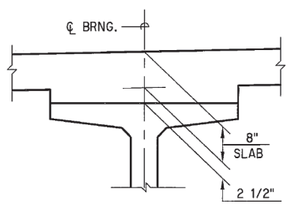
JUNE 25, 2002
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REVISIONS	
DESCRIPTION	DATE



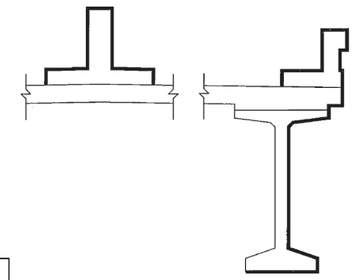
TYPICAL BRIDGE SECTION
(AT MID SPAN SHOWN)

*NOTE: THE CURB HEIGHT WAS BASED ON A 1 1/2" OVERLAY ON THE EXIST. BRIDGE DECK. THIS DIMENSION SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD.



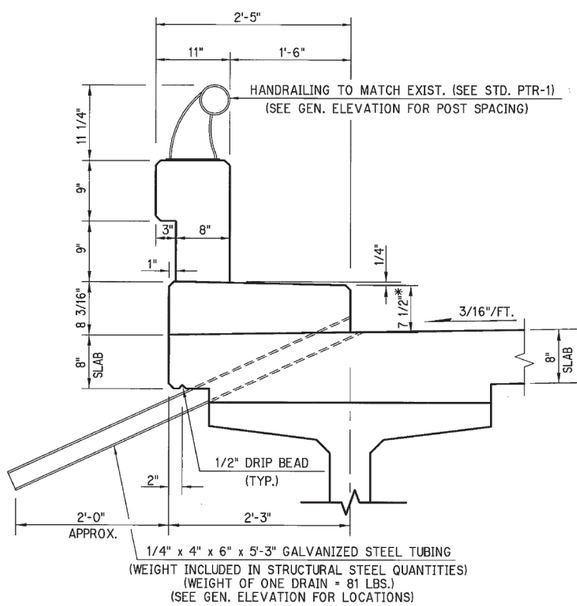
HAUNCH DETAIL

**NOTE:
PLAN QUANTITY FOR CLASS "AA(AE)" CONCRETE INCLUDES 70 C.Y. FOR HAUNCHES OVER GIRDERS. THE HAUNCH HEIGHTS WILL BE SET AFTER ERECTION OF BEAMS TO PROVIDE FOR DEAD LOAD DEFLECTION AND GRADE ADJUSTMENT, BUT THE PAY QUANTITY FOR HAUNCHES WILL BE AS SHOWN ABOVE.

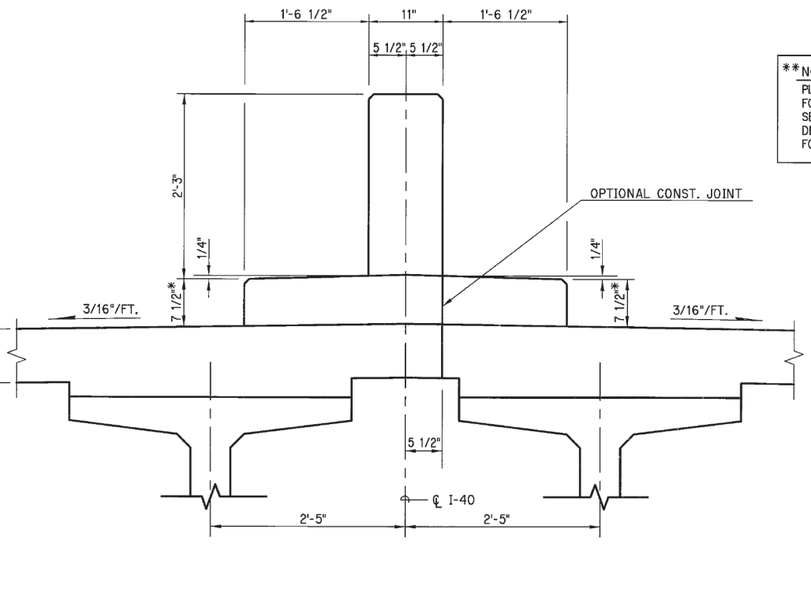


WATER REPELLENT SURFACE TREATMENT

SURFACES INDICATED WITH HEAVY LINES SHALL BE TREATED WITH A PENETRATING WATER REPELLENT SEALER.



DETAIL AT PARAPET



DETAIL AT MEDIAN BARRIER

QUANTITIES			
	ITEM	UNIT	TOTAL
	72" BULB TEE CONC. BEAMS	L.F.	4668
**	CLASS AA CONCRETE	C.Y.	986.7
	HANDRAILING	L.F.	782.8
①	STRUCTURAL STEEL A36	LB.	11,490
	EPOXY COATED REINF. STEEL	LB.	156,600
	WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	1990
	SEALED EXPANSION JOINT	L.F.	70
	MODULAR EXPANSION JOINT	L.F.	70
	HMWM CRACK PREPARATION	L.F.	525.9
	HMWM RESIN	GAL.	11
	FIXED BEARING ASSEMBLY	EA.	36
	EXPANSION BEARING ASSEMBLY	EA.	36

① INCLUDES 5190 LBS. FOR 1/4"x 4"x 6"x 5'-3" GALV. STEEL TUBING DRAINS.

JUNE 9, 2002
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MUSKOGEE-SEQUOYAH COUNTIES

Design	TRP	
Drawn	DAC	
Checked		
Approved		
Squad	POE	

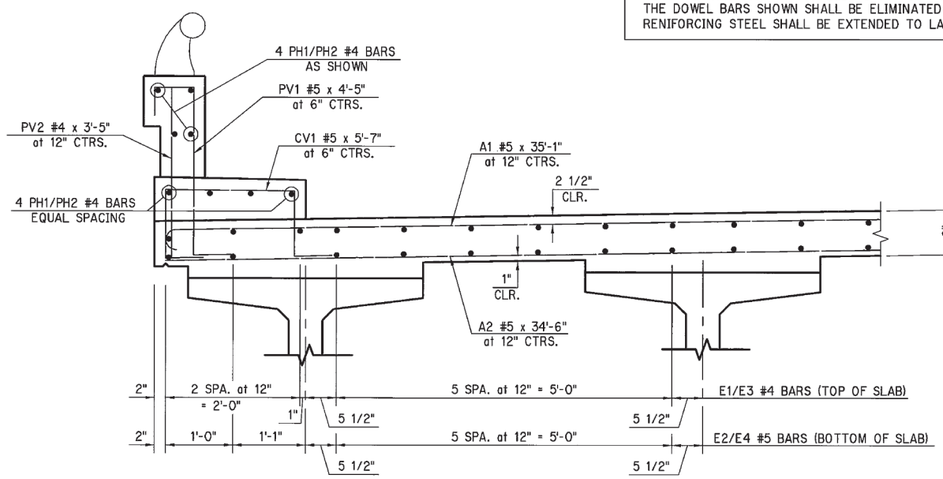
BRIDGE "A" I-40 OVER ARKANSAS RIVER

SUPERSTRUCTURE DETAILS
SPANS 1, 2 AND 3

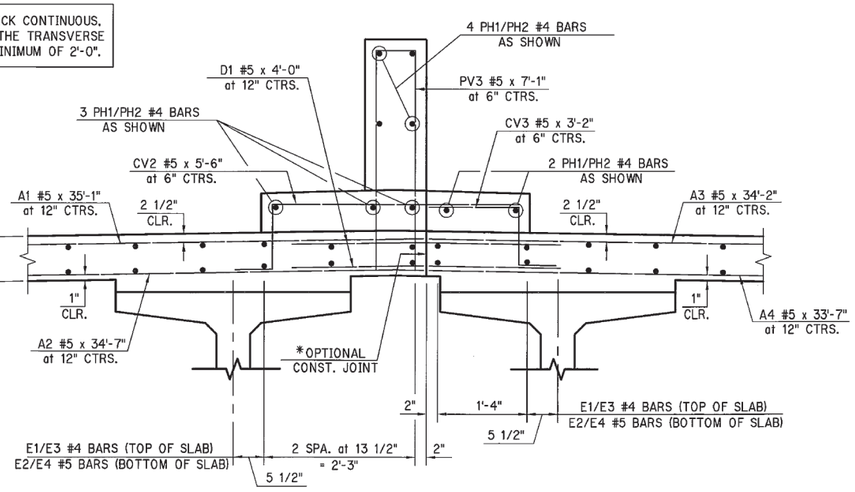
State Job No. 20029(05) Sheet No. 19

REVISIONS	
DESCRIPTION	DATE

*NOTE: IF THE CONTRACTOR ELECTS TO POUR THE DECK CONTINUOUS, THE DOWEL BARS SHOWN SHALL BE ELIMINATED AND THE TRANSVERSE RENIFORCING STEEL SHALL BE EXTENDED TO LAP A MINIMUM OF 2'-0".

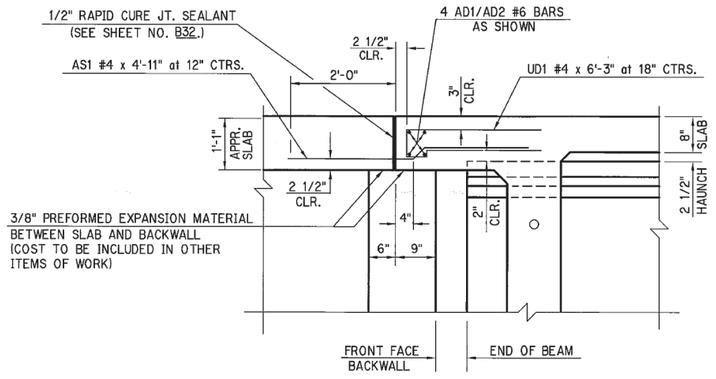


TYPICAL REINFORCING SECTION

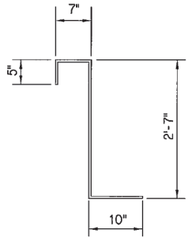


REINFORCING SECTION AT ℄

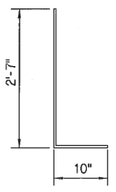
NOTE: PV1, PV2, PV3, CV1, CV2 AND CV3 BARS SHALL BE TIED IN PLACE BEFORE POURING CONCRETE FOR THE DECK SLAB.



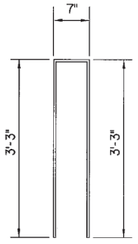
DETAIL AT ABUTMENT



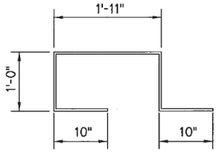
PV1 #5 x 4'-5"



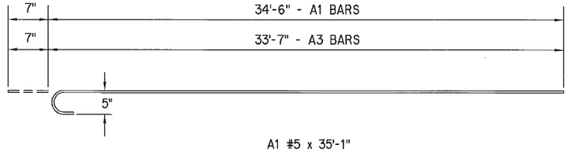
PV2 #4 x 3'-5"



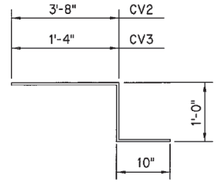
PV3 #5 x 7'-1"



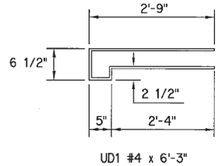
CV1 #5 x 5'-7"



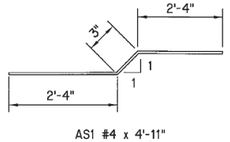
A1 #5 x 35'-1"
A3 #5 x 34'-2"



CV2 #5 x 5'-6"
CV3 #5 x 3'-2"



UD1 #4 x 6'-3"



AS1 #4 x 4'-11"

BAR LIST EPOXY COATED

	MARK	NO.	SIZE	FORM	SPACING	LENGTH
	A1	392	#5	BNT.	12" C/C	35'-1"
	A2	392	#5	STR.	12" C/C	34'-6"
	A3	392	#5	BNT.	12" C/C	34'-2"
	A4	392	#5	STR.	12" C/C	33'-7"
	AD1	4	#6	STR.	AS SHOWN	34'-6"
	AD2	4	#6	STR.	AS SHOWN	33'-7"
	AS1	69	#4	BNT.	12" C/C	4'-11"
	D1	784	#5	STR.	12" C/C	4'-0"
	D2	4	#6	STR.	AS SHOWN	4'-0"
①	E1	71	#4	STR.	AS SHOWN	134'-0"
①	E2	69	#5	STR.	AS SHOWN	135'-0"
①	E3	71	#4	STR.	AS SHOWN	265'-7"
①	E4	69	#5	STR.	AS SHOWN	267'-7"
	UD1	47	#4	BNT.	18" C/C	6'-3"
	U1	180	#4	BNT.	12" C/C	13'-4"
	U2	240	#4	BNT.	6" C/C	10'-0"
	U3	360	#4	BNT.	12" C/C	8'-10"
	F1	240	#5	STR.	AS SHOWN	5'-1"
	F2	480	#4	STR.	AS SHOWN	5'-1"
	F3	240	#5	STR.	AS SHOWN	5'-1"
	F4	360	#4	STR.	AS SHOWN	5'-1"
①	PH1	25	#4	STR.	AS SHOWN	134'-0"
①	PH2	25	#4	STR.	AS SHOWN	133'-8"
	PV1	1566	#5	BNT.	6" C/C	4'-5"
	PV2	786	#4	BNT.	12" C/C	3'-5"
	PV3	783	#5	BNT.	6" C/C	7'-1"
	CV1	1566	#5	BNT.	6" C/C	5'-7"
	CV2	783	#5	BNT.	6" C/C	5'-6"
	CV3	783	#5	BNT.	6" C/C	3'-2"

② LENGTH INCLUDES LAPS:
E1 = 2 at 1'-6"
E2 = 2 at 2'-0"
E3 = 4 at 1'-6"
E4 = 4 at 2'-0"
PH1 = 2 at 1'-6"
PH2 = 2 at 1'-6"

Design	TRP	
Drawn	DAC	
Checked		
Approved		
Squad	POE	

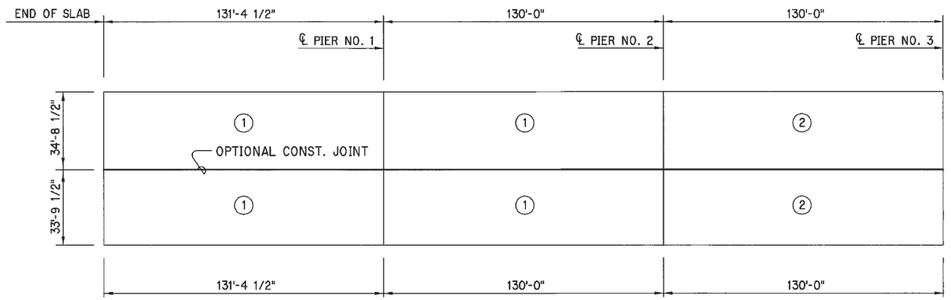
MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" I-40 OVER ARKANSAS RIVER

SUPERSTRUCTURE DETAILS
SPANS 1, 2 AND 3

State Job No. 20029(05) Sheet No. 20

JUNE 9, 2002
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REVISIONS	
DESCRIPTION	DATE



SLAB POURING SEQUENCE
SPANS 1, 2 AND 3

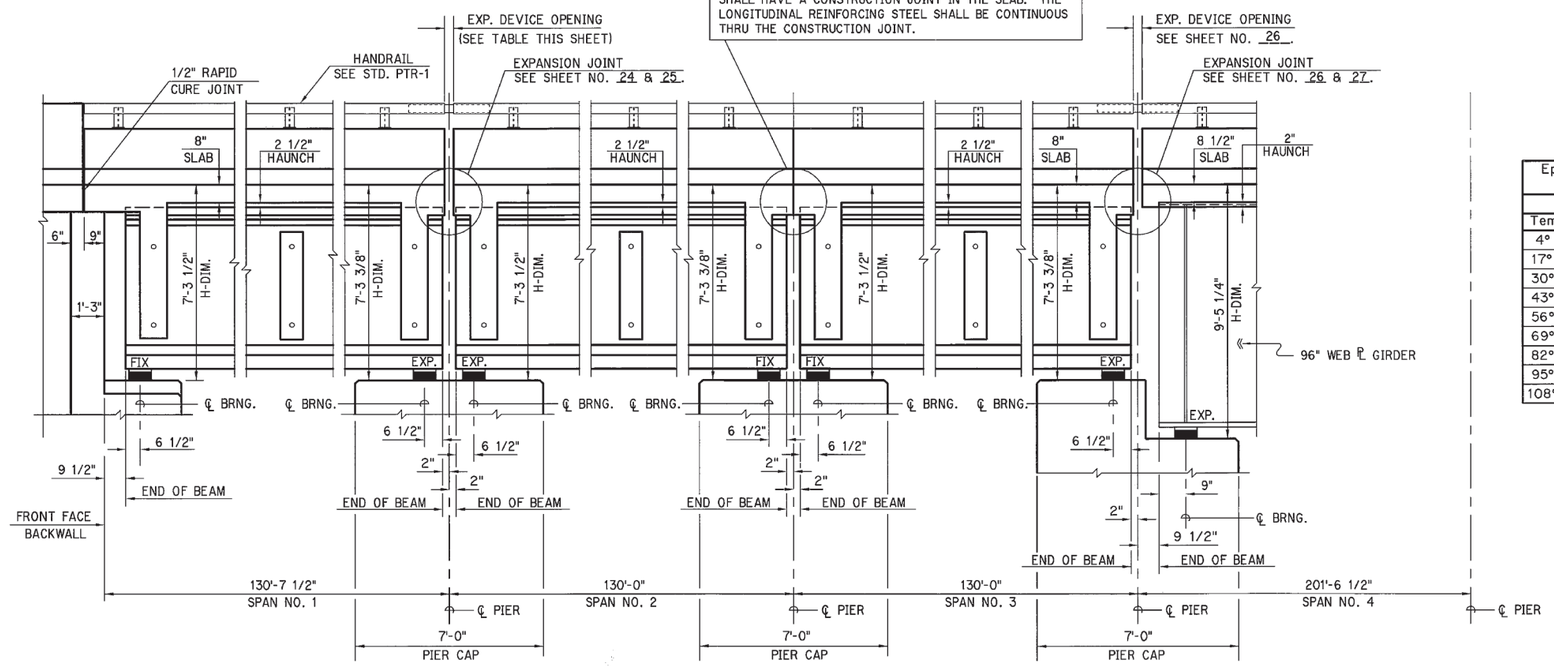
SLAB POURING SEQUENCES:
THE POURING SEQUENCE SHALL BE IN THE NUMERICAL SEQUENCE INDICATED. ALL POURS WITH THE SAME NUMBER MAY BE POURED IN ANY SEQUENCE, BUT ALL POURS WITH THE SAME NUMBER SHALL BE COMPLETED BEFORE BEGINNING WITH THE NEXT POUR NUMBER. THERE SHALL BE A LAPSE OF AT LEAST 12 HOURS BETWEEN POUR PHASES OR WHEN FIRST POUR REACHES 3000 PSI. EACH PHASE OF SUPERSTRUCTURE DECK CONCRETE PLACEMENT SHALL BE MADE IN ONE CONTINUOUS POUR*.

IN THE EVENT OF AN EMERGENCY SITUATION, A KEYED CONSTRUCTION JOINT SHALL BE MADE PERPENDICULAR TO THE DIRECTION OF TRAFFIC, AS DIRECTED BY THE ENGINEER. UNTIL THE SLAB IS IN PLACE ON BOTH SIDES OF THE CONSTRUCTION JOINT, THE SLAB IS UNSUPPORTED AND NO HEAVY EQUIPMENT WILL BE PERMITTED ON THE FINISHED SLAB WITHIN 6 FEET OF THE CONSTRUCTION JOINT.

*EACH POUR SHALL BE AT A MINIMUM RATE OF 40 C.Y. PER HOUR.

NOTE: DO NOT TINE WITHIN 6 INCHES OF ALL CONSTRUCTION JOINTS.

UNDER NO CIRCUMSTANCES SHOULD THE SLAB BE A CONTINUOUS POUR OVER THE FIXED PIER. THIS LOCATION SHALL HAVE A CONSTRUCTION JOINT IN THE SLAB. THE LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU THE CONSTRUCTION JOINT.



Epansion Device Setting	
Pier 1	
Temp.	Opening
4° F	2 3/4"
17° F	2 1/2"
30° F	2 1/4"
43° F	2"
56° F	1 3/4"
69° F	1 1/2"
82° F	1 1/4"
95° F	1"
108° F	3/4"

LONGITUDINAL SECTION

H - DIMENSION SHOWN IS MEASURED FROM TOP OF SLAB TO BOTTOM OF BEARING ASSEMBLY AT ℄ BEARING.

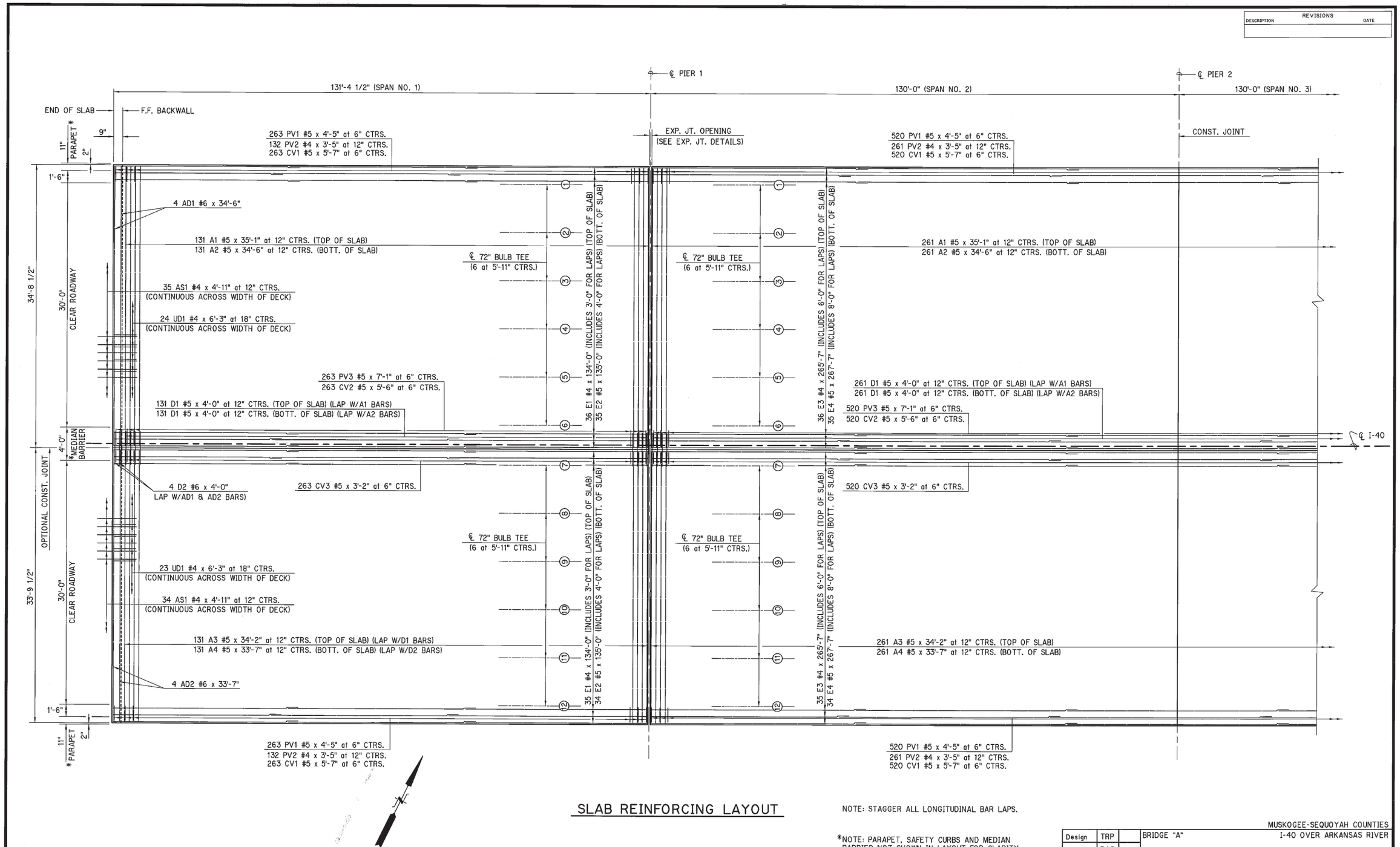
JUNE 9, 2002
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Design	TRP	
Drawn	BI	
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" I-40 OVER ARKANSAS RIVER

SUPERSTRUCTURE DETAILS SPANS 1, 2 AND 3

State Job No. 20029(05) Sheet No. 21



SLAB REINFORCING LAYOUT

NOTE: STAGGER ALL LONGITUDINAL BAR LAPS.

*NOTE: PARAPET, SAFETY CURBS AND MEDIAN BARRIER NOT SHOWN IN LAYOUT FOR CLARITY.

Design	TRP	
Drawn	DAC	
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES

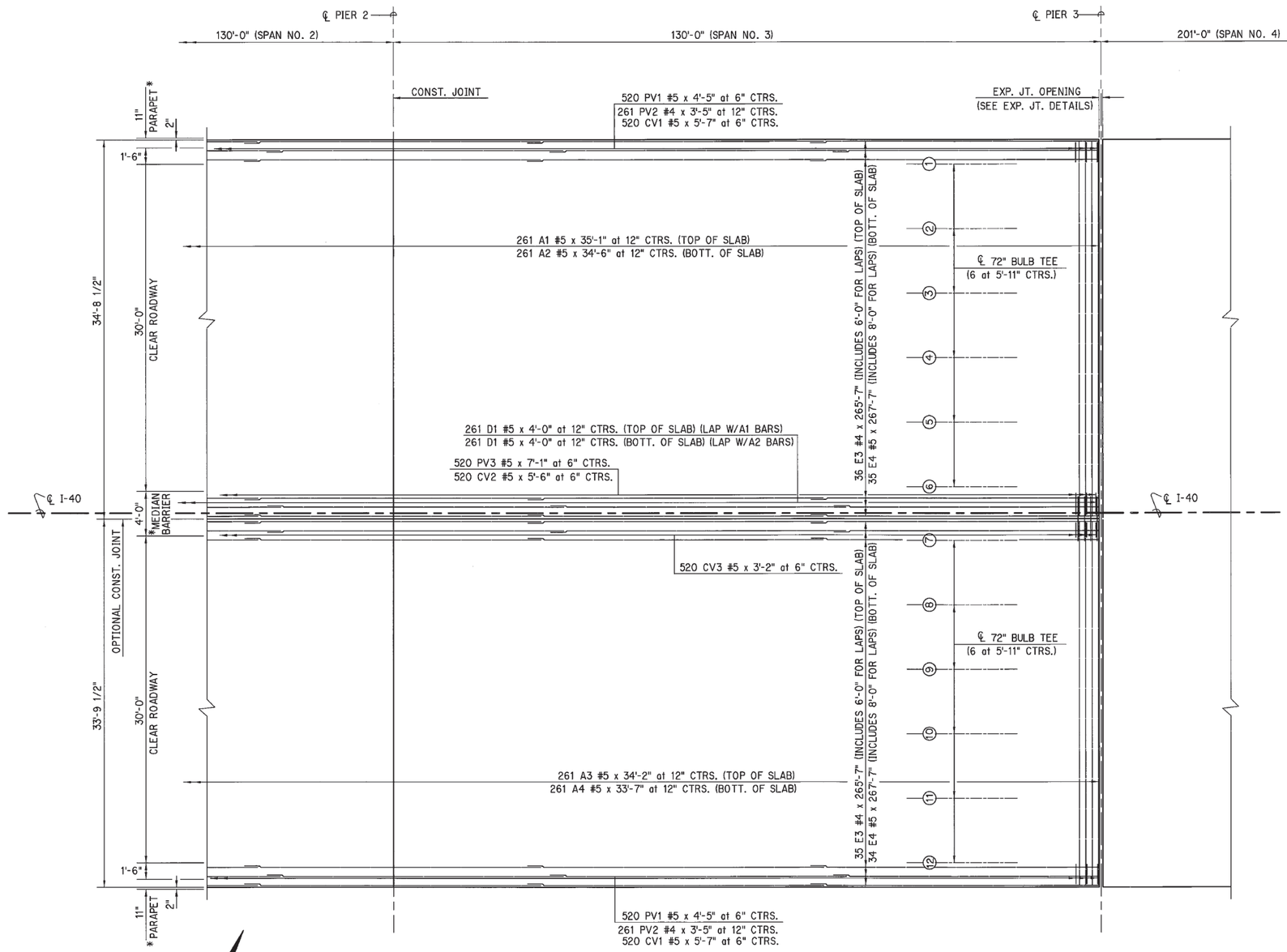
BRIDGE "A" — I-40 OVER ARKANSAS RIVER

SLAB LAYOUT
SPANS 1 AND 2

State Job No. 20029(05) Sheet No. 22

JUNE 9, 2002
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REVISIONS		
DESCRIPTION		DATE



SLAB REINFORCING LAYOUT

NOTE: STAGGER ALL LONGITUDINAL BAR LAPS.

*NOTE: PARAPET, SAFETY CURBS AND MEDIAN BARRIER NOT SHOWN IN LAYOUT FOR CLARITY.

Design	TRP	
Drawn	DAC	
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES

BRIDGE "A" I-40 OVER ARKANSAS RIVER

SLAB LAYOUT
SPAN 3

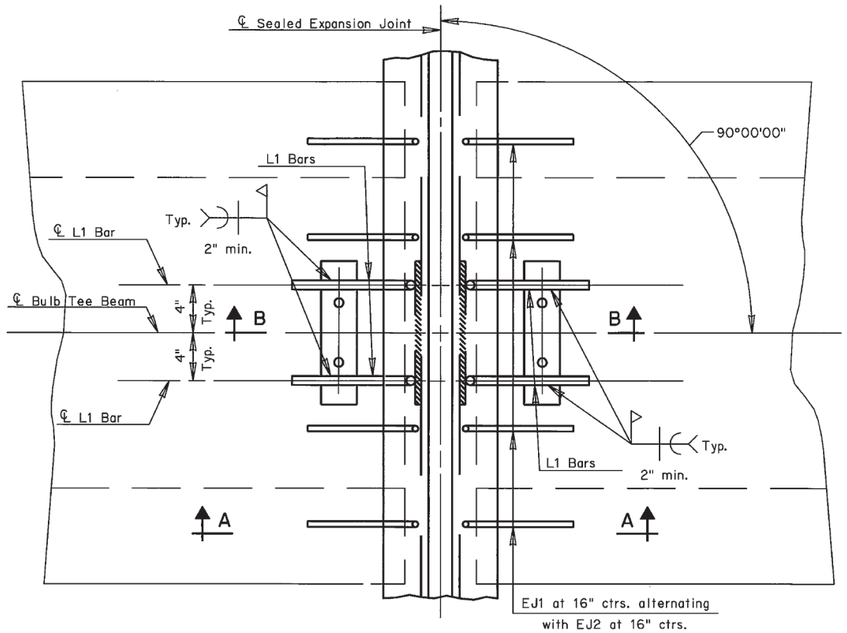
State Job No. 20029(05) Sheet No. 23

JUNE 9, 2002
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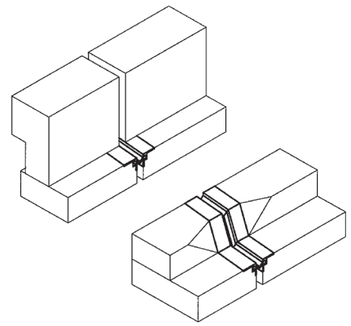
SCHEMMER

REVISIONS	
DESCRIPTION	DATE

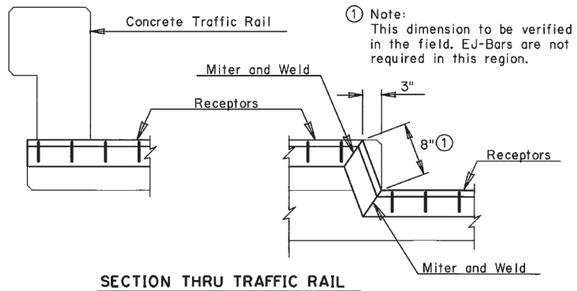
Note: Omit EJ-Bars at L-Bar locations.



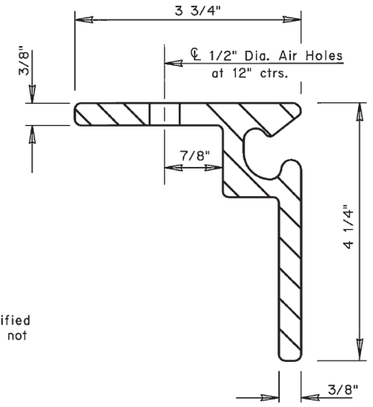
PLAN



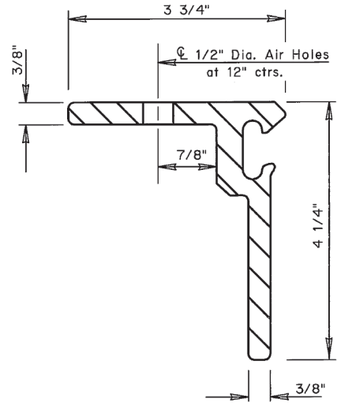
PICTORIAL VIEW SHOWING SEALED JOINT AT TRAFFIC RAIL AND SIDEWALK CURB



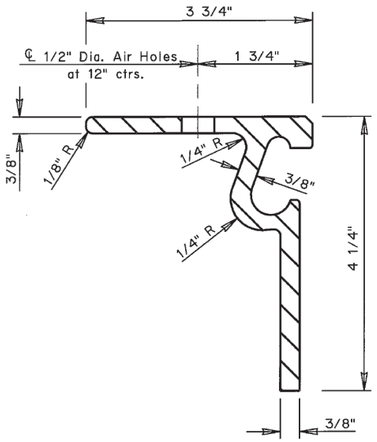
SECTION THRU TRAFFIC RAIL AND SIDEWALK CURB



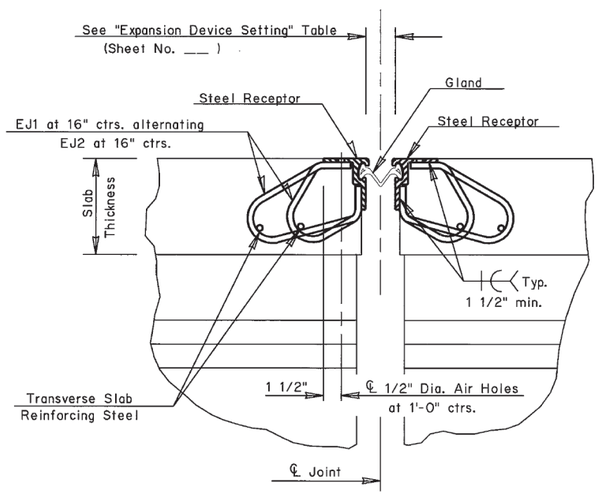
STEEL RECEPTOR
D.S. Brown
Type SSOK Steel Extrusion



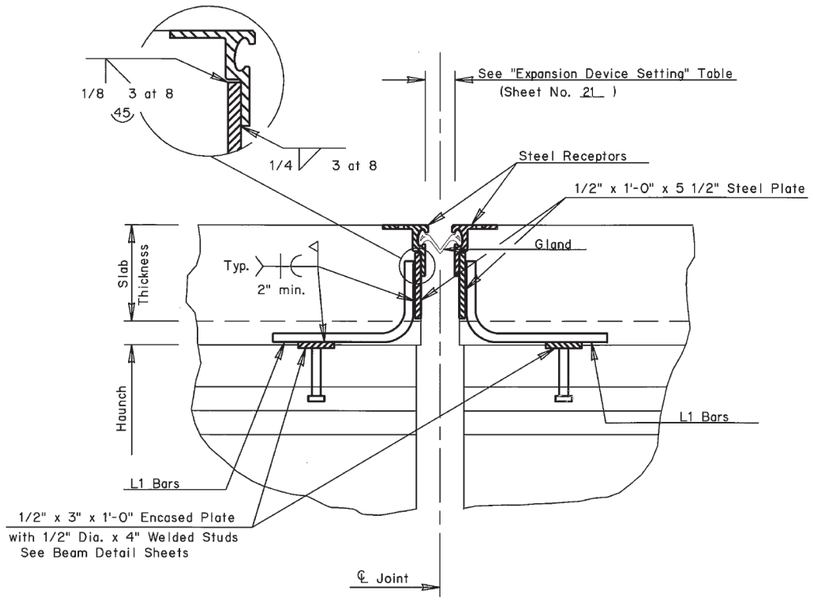
STEEL RECEPTOR
Structural Accessories
Type C-C Steel Extrusion



STEEL RECEPTOR
Watson Bowman Acme
Type Q



SECTION A-A



NOTE: For Bar Bend Details, see Sheet No. 25.

SECTION B-B

Design	TRP	
Drawn	ADS	
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" I-40 OVER ARKANSAS RIVER

DETAILS OF SEALED EXPANSION JOINT PIER 1

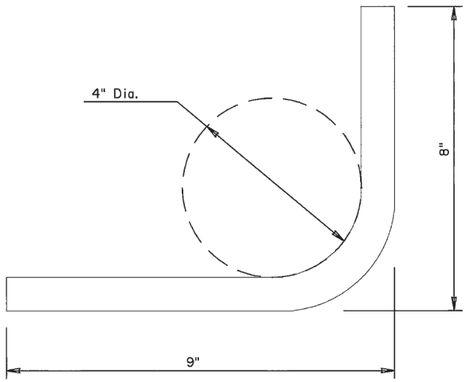
(SHEET 1 OF 2)

State Job No. 20029(05) Sheet No. 24

JUNE 9, 2002
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SCHEMMER

REVISIONS	
DESCRIPTION	DATE



L1 Bar 7/8" Dia. x 1'-3 3/4"

THE SEALED EXPANSION JOINT shall have a total movement range of 4" and seal the deck to prevent moisture or other contaminants from descending onto the lower structure components.

The steel receptor provided shall either be the Watson, Bowman, and Acme, Type Q steel extrusion or the Structural Accessories, Type C-C, steel extrusion or the D.S. Brown, Type SSOK, steel extrusion as shown on sheet no. 24.

PAINT: One shop coat of inorganic zinc rich primer will be applied to the entire surface of steel receptor, steel plates, L Bars and EJ bars. One field applicationof vinyl finish coat on all exposed surfaces after installation. All painting shall be done in accordance with Section 730 of the Standard Specifications.

MATERIALS

Steel receptors and steel plate shall be in accordance with M183 or M222.

Welding of steel receptors and steel plates shall be in accordance with ANSI/AASHTO/AWS D1.5 of the Welding Code.

Preformed Neoprene Gland and Lubricant Adhesive shall be in accordance with the manufacturer's published literature.

Paint shall be an IZ-E-U System (See Section 730.02 of the ODOT Standard Specifications).

JOINT SUPPORTS: Support bars (L1) shall conform to M-183 steel. Bar dimensions shall be included in the shop details.

Anchor bars (EJ1/EJ2) shall conform to M225 steel. Bar dimensions shall be included in the shop-details

FABRICATION OF JOINT: Shop drawings showing dimensions and details of the complete Sealed Expansion Joint shall be submitted to the Bridge Engineer for approval. Shop fabrication will be required at all intersections of cross slopes, and at break points. Corresponding sections of Sealed Expansion Joints shall be temporarily shop assembled, check for fit, and match marked for shipment. The joint system manufacturer's instructions for proper installation of the joint shall be entered on the shop drawings. Shop drawings shall show the joint opening for an ambient temperature of 43 Degrees Fahrenheit and necessary adjustment for temperature variations.

Steel receptors shall be continuous the full length of the joint including 6" extension. The individual lengths of the receptors shall be chosen so that a minimum number of splices are required. A continuous full penetration weld, ground smooth, shall be provided.

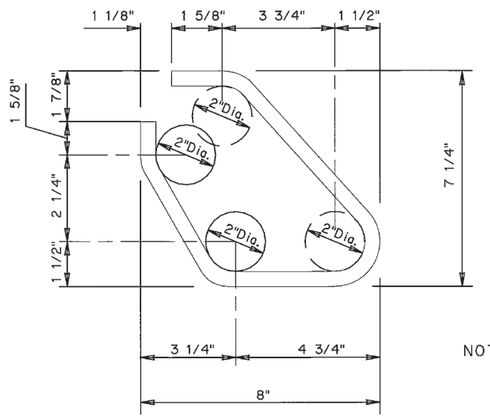
Neoprene glands shall be continuous the full length of the joint including 152mm extension. At locations where joint is shown to be mitered for skew, the material shall be shop spliced by heat vulcanizing or other method of equal effectiveness as recommended by the listed joint manufacturer or approved equal and approved by the Department. Splices shall provide a permanent watertight joint.

INSTALLATION OF JOINT: Neoprene gland and contacting steel surfaces shall be cleaned prior to assembly. The joint shall be set to its proper line, grade, and opening. The temperature at time of setting of the joint will determine the width of the opening. Unless otherwise shown on the shop drawings, refer to the Joint Opening Table on sheet no. 21 for setting the width of the joint.

The Concret Rail or Parapet opening at the joint shall have the same opening as the Sealed Expansion Joint.

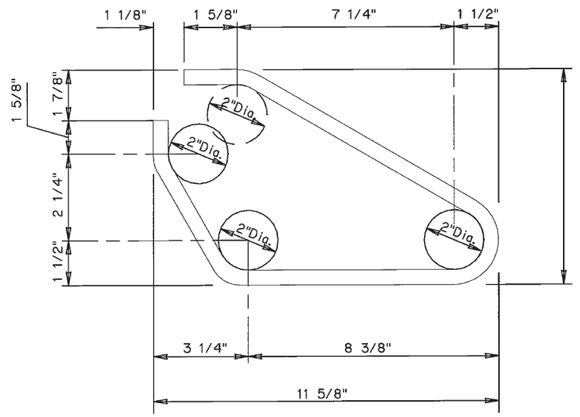
METHOD OF MEASUREMENT & BASIS OF PAYMENT: The Sealed Expansion Joint shall be measured by the linear foot along the center line of the joint from end to end of the joint and will be paid for at the contract unit price bid per linear foot of "SEALED EXPANSION JOINT".

The price bid shall be full compensation for furnishing all materials for the complete joint including Neoprene Gland, Steel Plates, Receptors, Support Bars, Welding, Equipment, Labor, and other Incidentals necessary to complete and install the Sealed Expansion Joint in place.



EJ1 Bar

NOTE: EJ1 and EJ2 shall be fabricated from deformed D-20 wire.



EJ2 Bar

MUSKOGEE-SEQUOYAH COUNTIES

Design	TRP	
Drawn	ADS	
Checked		
Approved		
Squad	POE	

BRIDGE "A" I-40 OVER ARKANSAS RIVER

DETAILS OF SEALED EXPANSION JOINT

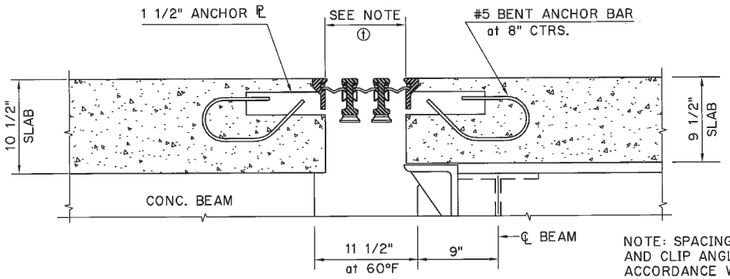
PIER 1

(SHEET 2 OF 2)

State Job No. 20029(05) Sheet No. 25

JUNE 9, 2002
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REVISIONS	
DESCRIPTION	DATE

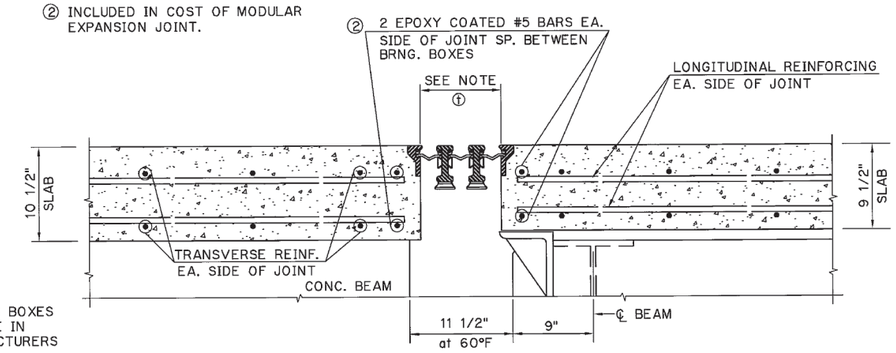


SECTION A-A

NOTE: SPACING OF BEARING BOXES AND CLIP ANGLES SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATION.

① NOTE: JOINT OPENING SHALL BE SET IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

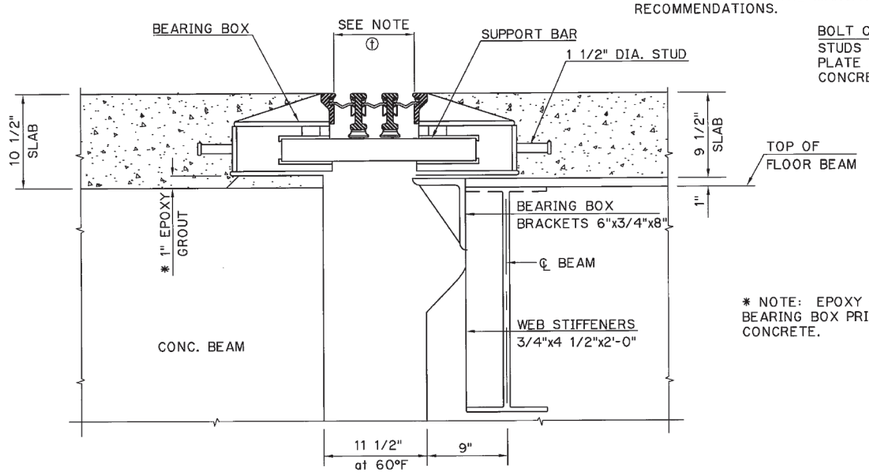
② INCLUDED IN COST OF MODULAR EXPANSION JOINT.



TYPICAL REINF. SECTION

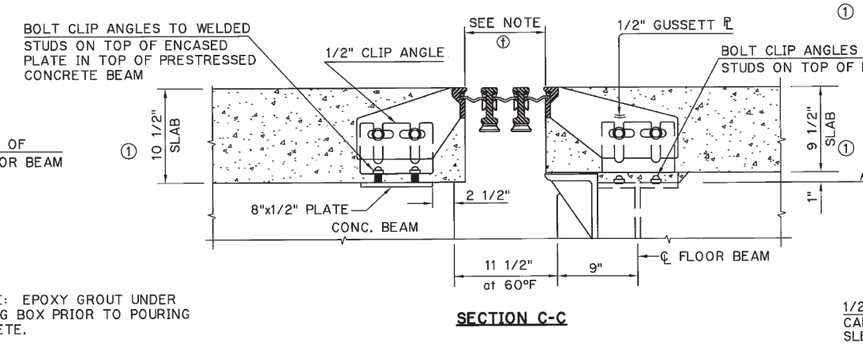
NOTE: THE MODULAR JOINT BEARING BOX SHALL BE NO DEEPER THAN 9 1/2".

NOTE:
JOINT SHALL PROVIDE FOR 6" MOVEMENT.



SECTION B-B

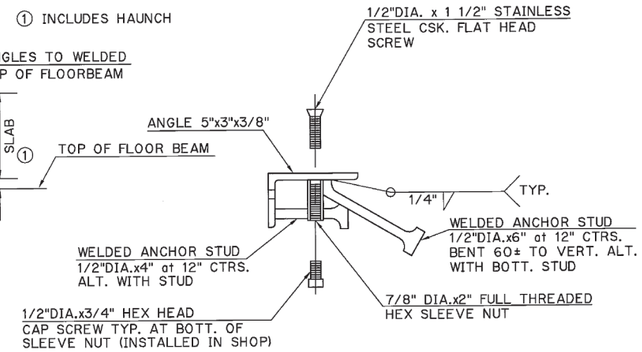
NOTE: FOR ADDITIONAL DETAILS OF BEARING BOX SUPPORT BRACKET & WEB STIFFENER SEE SHEET NO. 43



SECTION C-C

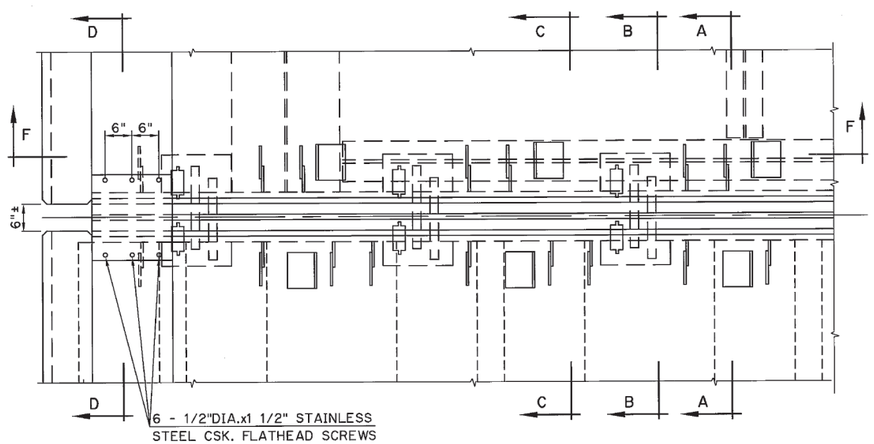
* NOTE: EPOXY GROUT UNDER BEARING BOX PRIOR TO POURING CONCRETE.

① INCLUDES HAUNCH

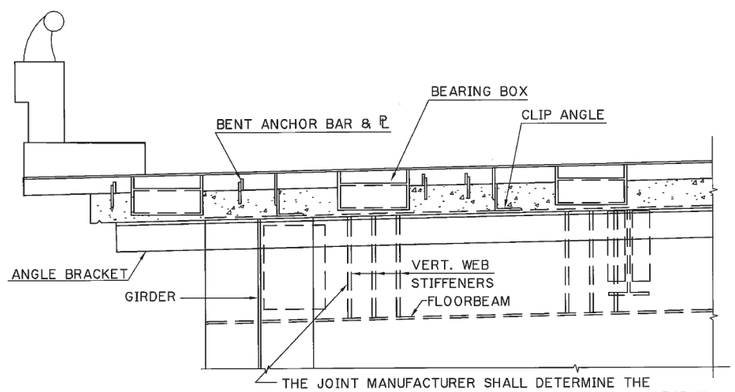


DETAIL OF ANCHOR ASSEMBLY AT CURBS

NOTE:
JOINT MANUFACTURER SHALL VERIFY THE DETAILS OF THE BEARING BOX SUPPORTS AS SHOWN FOR THE STEEL BEAM SIDE AND PROVIDE DETAILS FOR SUPPORTS ON THE P.S. CONCRETE BEAM SIDE OF THE JOINT.



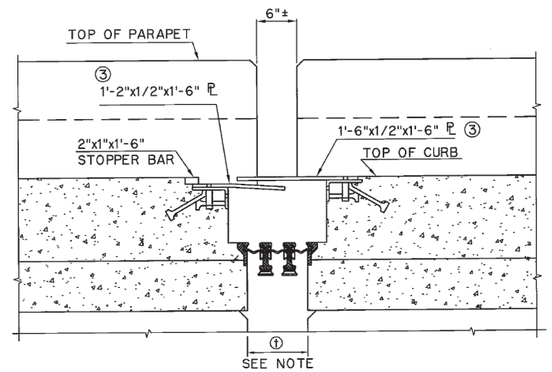
PARTIAL PLAN VIEW



THE JOINT MANUFACTURER SHALL DETERMINE THE LOCATIONS OF THE VERTICAL WEB STIFFENERS AS EARLY AS POSSIBLE. AND FURNISH DETAILS TO THE STRUCTURAL STEEL FABRICATOR.

SECTION F-F

③ WEIGHT INCLUDED IN STRUCTURAL STEEL QUANTITIES.



SECTION D-D

Design		
Drawn	JLN	
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES

BRIDGE "A" I-40 OVER ARKANSAS RIVER

DETAILS OF MODULAR EXPANSION JOINTS (PIER 3)

State Job No. 20029(05) Sheet No. 26

JUN 09, 2002
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SCHEMMER

REVISIONS	
DESCRIPTION	DATE

MODULAR EXPANSION JOINT SYSTEM

Description

This item of work shall consist of fabricating, furnishing and installing a strip seal modular expansion joint system in accordance with the details shown on the plans and the requirements of the specification and in a manner approved by the Engineer.

The modular expansion joint system shall be capable of accommodating the structure movement and shall be continuous the full length of the roadway (A joint will be permitted at the median). The modular expansion joint manufacturer shall have an AISC Simple Structure Category shop approval.

The modular expansion joint system shall be designed for HS-20 truck loading and impact in accordance with AASHTO Standard Specifications for Highway Bridges, latest edition or as required per special provisions

The design of the modular expansion joint system shall consist of a single layer preformed elastomeric joint seal mechanically held in place by steel edge and separation beams. Each elastomeric sealing element shall be continuous and be limited to a maximum three inches of movement per seal unless otherwise noted. An independent support bar welded to the center beam shall individually support each machined or extruded transverse center beam. These support bars shall be suspended over the joint opening by sliding elastomeric bearings. The modular expansion joint system shall provide equidistant control of the elastomeric seals. This equidistant control system shall be the type that develops its maximum compressive force when the joint is at its maximum opening.

Only manufacturer's and modular joint designs successfully fatigue tested and documented such testing by an independent agency in accordance with NCHRP 402 Appendix A will be allowed to design, manufacturer and supply modular expansion joints as shown on the contract plans.

Acceptable Joint Manufacturers

Watson Bowman Acme
The D.S. Brown Company

Component and Materials

The Contractor shall furnish a Type D manufacturer's certification that the materials proposed have been pre-tested and will meet the requirements as set forth in the specification. These Specifications shall be listed by number, Section reference or other appropriate identification acceptable to the Resident Engineer.

1. Steel Extrusions or Shapes

Material utilized to produce shape suitable to mechanically lock elastomeric seal shall conform to properties of ASTM A36 or A588. Profile shall have a minimum thickness of 1/4" as measured from the internal locking mechanism cavity to the top surface of the steel shape and shall be capable of accommodating various horizontal conditions and service loads including HS-20 loading.

The edge beam, which retains the elastomeric joint seal located at the outside frame of the modular system, shall consist of a steel monolithic shape with a machined or extruded retainer cavity. Multiple components welded steel shapes and rolled steel, which is bent or crimped to achieve final shape, or seal retainer cavity will not be permitted.

The center beam(s), which is full penetration welded to individual support bar(s), shall consist of a steel monolithic shape with a machined or extruded retainer cavity. Multiple components welded steel shapes and rolled steel, which is bent or crimped to achieve final shape, or seal retainer cavity will not be permitted. Center beams shall maintain a minimum weight of 24 lbs. per foot. Beams with a greater weight per foot may allow increased support bar spacing.

All shop welded connections which splice horizontal center beams and edge beams shall be full penetration weldments. All center beams to support bar welded connections shall be full penetration weldments.

2. Anchorage

Provide concrete anchor studs factory welded to steel shapes and as detailed on manufacturer's drawings for cast in-place conditions. Material shall meet the requirements of ASTM A108 with a maximum spacing of 12" o.c. unless project requirements govern otherwise. Provide alternate anchorage as recommended by manufacturer for special conditions as detailed in the contract plans.

3. Upper and Lower Bearings

The support bars shall be suspended over the joint opening by sliding elastomeric bearings. The upper and lower bearings at the support box location must be affixed in a stationary position within the support box and utilize a bonded PTFE finish at the stainless steel sliding surface of the support bar. The PTFE for the upper and lower bearings shall conform to the following physical properties:

PHYSICAL PROPERTIES	TEST METHOD	REQUIREMENT
Ultimate Tensile Strength	ASTM D638	2800 psi
Ultimate Elongation	ASTM D638	200% min
Specific Gravity	ASTM D792	2.13

4. Stainless Steel

The support bars shall incorporate stainless steel sliding surfaces and conform to ASTM 240, Type 304.

5. Elastomeric Seal

The design of the elastomeric seal shall be a strip seal type which provides the movements as specified in the contract plans. Material shall be a flexible, non-reinforced extruded neoprene compound exhibiting the physical properties listed in the table below. All elastomeric seals shall incorporate a unique locking lug that mechanically snaps into a corresponding extrusion or machined shape cavity to ensure watertightness and proper joint performance. The elastomeric seal shall be supplied and installed in one continuous length.

PHYSICAL PROPERTIES	TEST METHOD	REQUIREMENT
Tensile Strength	ASTM D412	2000psi
Elongation @ break	ASTM D412	250%, min
Hardness, Type A Durometer	ASTM D2240 Modified	55 +/-5% points
Oven Aging 70 hrs @ 212°F	ASTM D573	
Tensile Strength		20% loss max
Elongation		20% loss max
Hardness		0 to +10 points
Oil Swell, 70 hrs @ 104°F	ASTM D471	45%
Ozone Resistance, 70 hrs @ 104°F 20% strain, 300 pphm, in air	ASTM D1149 Method B	No Cracks
Low Temperature Stiffening 7 days @ 14°F Hardness (Type A durometer)	ASTM D2240	0 to +15 points
Compression Set, 70 hrs @ 212°F	ASTM D395 Method B	40%

6. Lubricant Adhesive

Elastomeric seal shall be installed utilizing a one part moisture curing polyurethane and aromatic hydrocarbon solvent mixture which complies with ASTM D4070.

7. Support Box Accessories

All miscellaneous steel plates for support box construction, fasteners or closure plates must be a minimum 3/8" thickness. All steel plates utilized to form the support boxes must be continuously welded together forming the support box. Caulking will not be permitted.

Construction Requirements

The Contractor shall submit product information and necessary shop drawings after the award of the contract. At the discretion of the Engineer, the manufacturer may be required to furnish a representative sample of material to be supplied in accordance with the project specifications

The joint shall be furnished preset to the manufacturer's recommended opening at 60 degrees F: however, when actually installed the joint system will be set to the proper width for ambient temperature at the time of setting as shown on the approved shop drawings. The device shall be accurately set and securely supported at the correct grade and elevation and the correct joint opening as shown on the approved shop drawings.

The manufacturer instructions for the proper installation of the joint system shall be entered on the shop drawings. Shop drawings, which lack manufacturer installation instruction, may be returned without approval. Modular expansion joint system shall be installed in strict accordance with the manufacturer's written instructions along with the advice of their qualified representative.

The modular expansion joint manufacturer shall shop prepare all phase construction locations to be field welded. A splice plate design for alignment of center beam(s) is required

The manufacturer shall shop prepare all field weld connections of the edge and center beams. The splice plate template shall be factory attached to the first phase of all field center beam connections

Modular expansion joint systems shall be supplied with prestressing hardware for mechanically opening or closing the assembly for ambient temperature adjustments. The manufacturer shall provide factory attached lifting devices and brackets to facilitate field handling and grade adjustments.

Payment

The accepted quantity of modular expansion joint system will be paid for at the contract unit price per lineal foot. Measurement of the modular expansion joint system will be taken horizontally and vertically along the centerline of the joint system between the outer limits indicated on the contract plans. Payment will be made under:

PAY ITEM	PAY UNIT
Modular Expansion Joint	Lineal Foot

Payment will be full compensation for all work necessary to complete the items including furnishing and installing the modular expansion joint system.

Design		
Drawn	JLN	
Checked		
Approved		
Squad	POE	

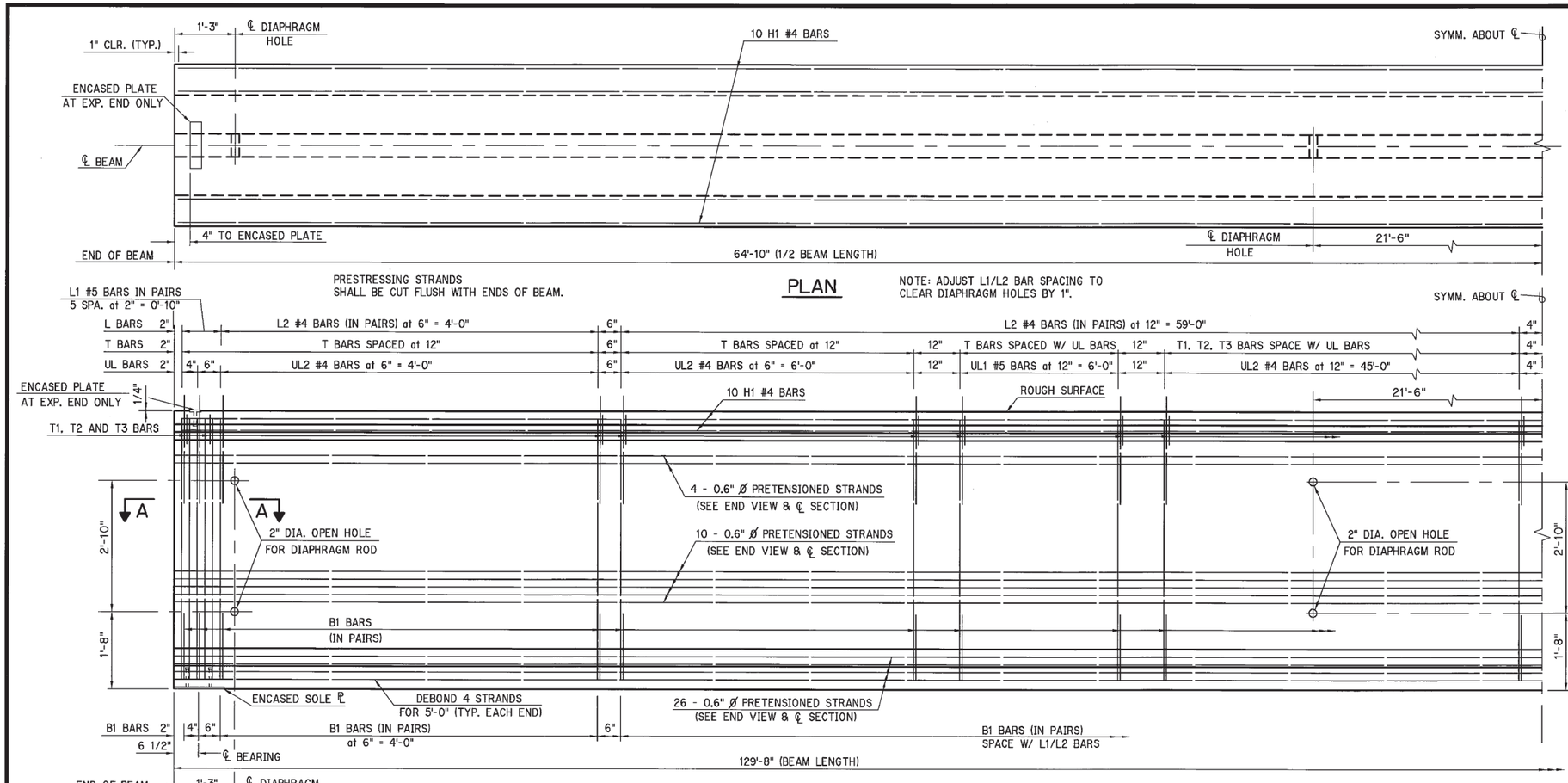
MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" I-40 OVER ARKANSAS RIVER

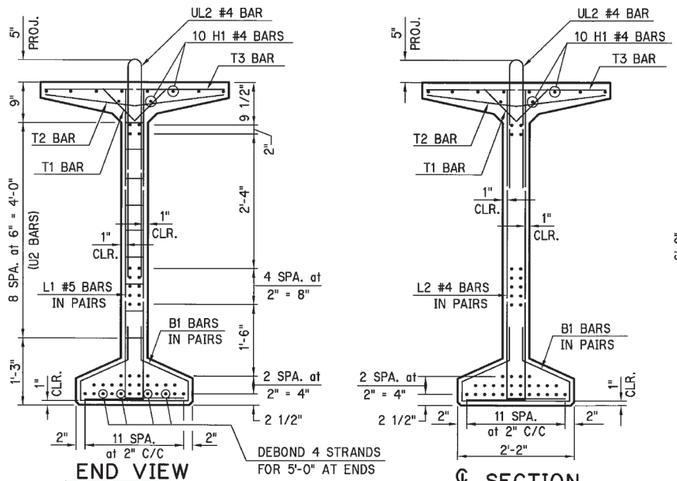
SPECIFICATIONS FOR
MODULAR EXPANSION JOINTS
(PIER 3)

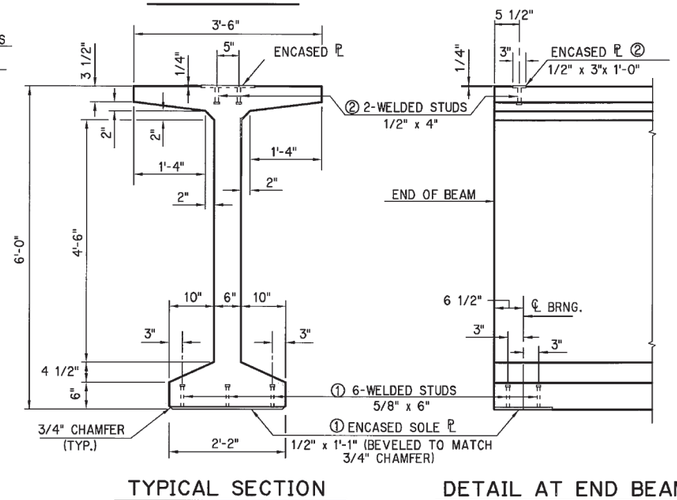
State Job No. 20029(05) Sheet No. 27

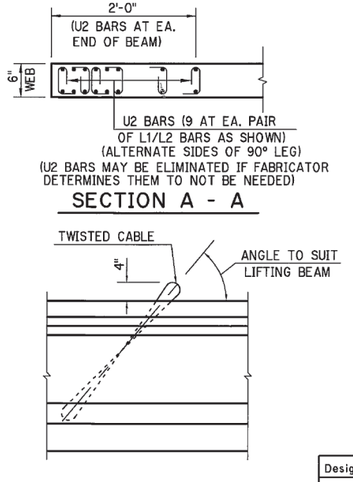
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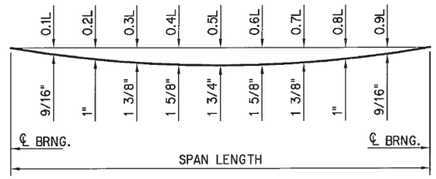
REVISIONS	
DESCRIPTION	DATE











DEAD LOAD DEFLECTION DIAGRAM

DEAD LOAD DEFLECTION DUE TO SLAB, DIAPHRAGMS, AND CONCRETE PARAPETS IS APPROXIMATE AS SHOWN ABOVE AT 1/10th POINTS.

THE DEFLECTION SHOWN ABOVE SHALL BE TAKEN INTO CONSIDERATION IN POURING SLAB.

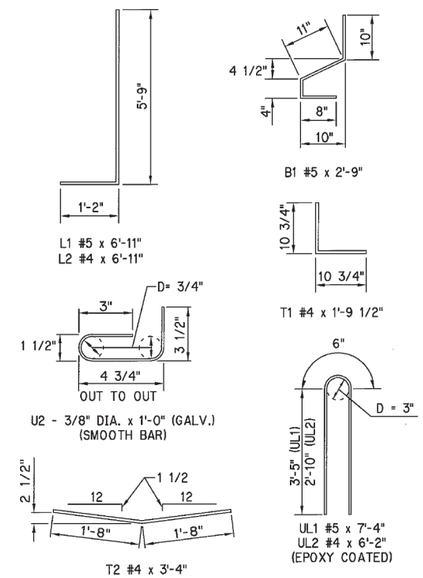
SEE HAUNCH DETAIL ON SHEET 19.

DESIGN DATA

DESIGN LOADING:
HL-93 with 20 psf for future wearing surface.
Operating Rating = HS-44

f'c = 10,000 psi
f'ci = 7,000 psi

Prestressed Strands:
0.60 in. nominal diameter Type 270 K, 7-wire uncoated, low-relaxation strand conforming to AASHTO M203 (ASTM A416) and Supplement 1.

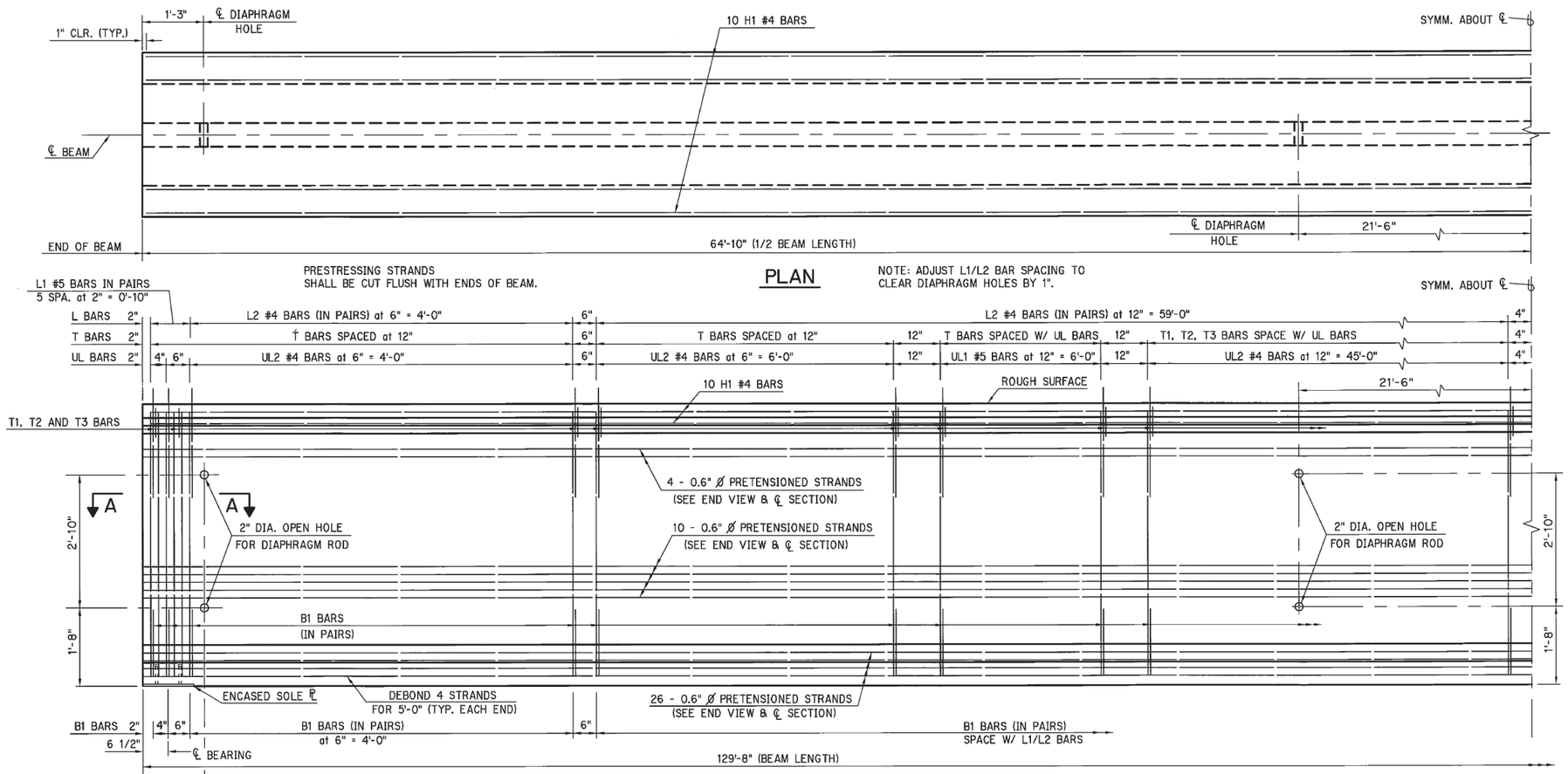


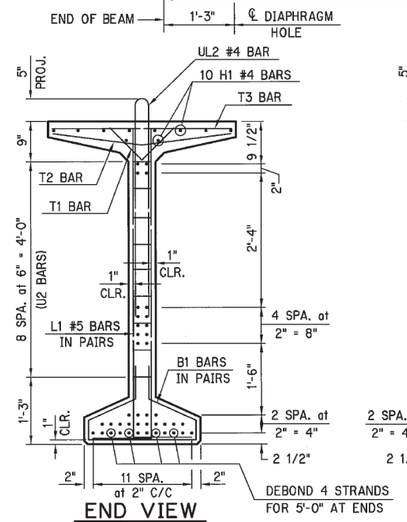
Design	TRP		MUSKOGEE-SEQUOYAH COUNTIES
Drawn	BI	5-02	BRIDGE "A" I-40 OVER ARKANSAS RIVER
Checked			BULB TEE BEAM DETAILS SPAN 1 & 2 (130'-0")
Approved			
Squad	POE		State Job No. 20029(05) Sheet No. 28

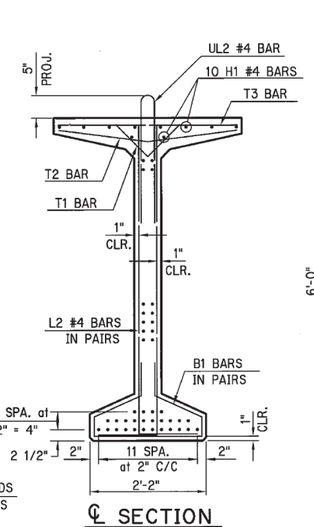
JUNE 9, 2002
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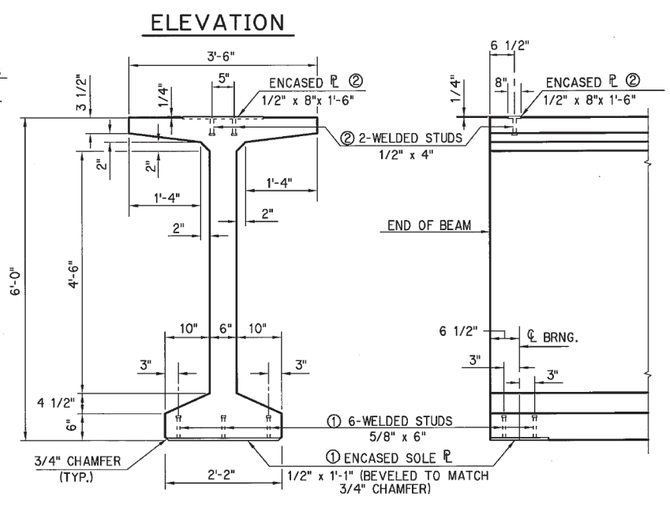
SCHEMMER

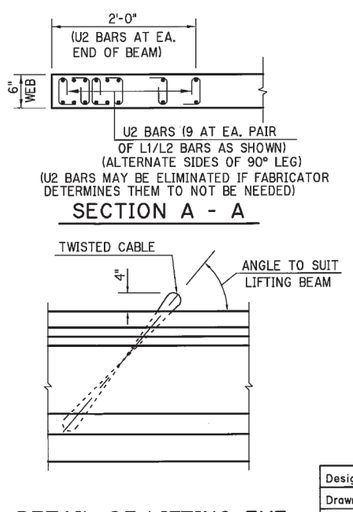
REVISIONS		
DESCRIPTION		DATE



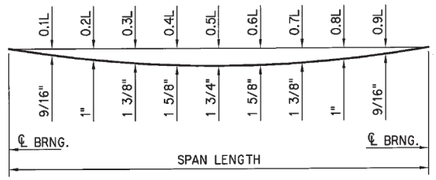








DETAIL AT END BEAM



DEAD LOAD DEFLECTION DIAGRAM

DEAD LOAD DEFLECTION DUE TO SLAB, DIAPHRAGMS, AND CONCRETE PARAPETS IS APPROXIMATE AS SHOWN ABOVE AT 1/10th POINTS.

THE DEFLECTION SHOWN ABOVE SHALL BE TAKEN INTO CONSIDERATION IN POURING SLAB.

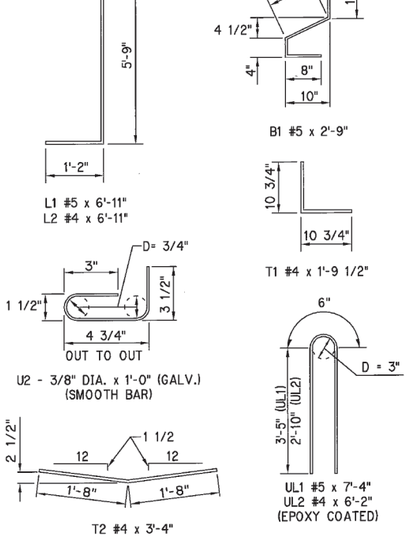
SEE HAUNCH DETAIL ON SHEET 19.

DESIGN DATA

DESIGN LOADING:
HL-93 with 20 psf for future wearing surface.
Operating Rating = HS-44

f'c = 10,000 psi
f'ci = 7,000 psi

Prestressed Strands:
0.60 in. nominal diameter Type 270 K, 7-wire uncoated, low-relaxation strand conforming to AASHTO M203 (ASTM A416) and Supplement 1.



Design	TRP	
Drawn	BI	5-02
Checked		
Approved		
Squad	POE	

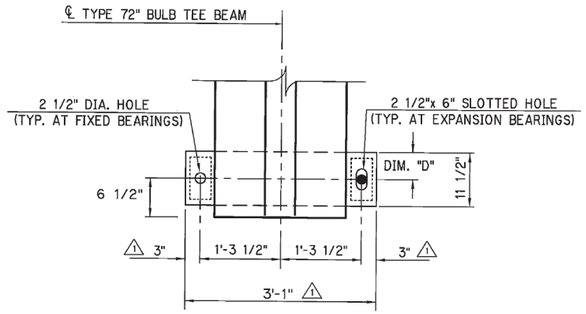
MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" I-40 OVER ARKANSAS RIVER

BULB TEE BEAM DETAILS SPAN 3 (130'-0")

State Job No. 20029(05) Sheet No. 29

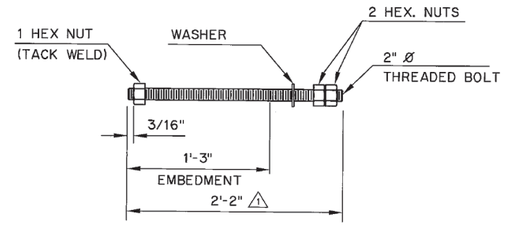
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REVISIONS		
	DESCRIPTION	DATE
1	REVISED ANCHOR BOLT LENGTH AND ANCHOR PLATE LENGTH AT CONTRACTOR'S REQUEST AFTER LETTING	7-1-02

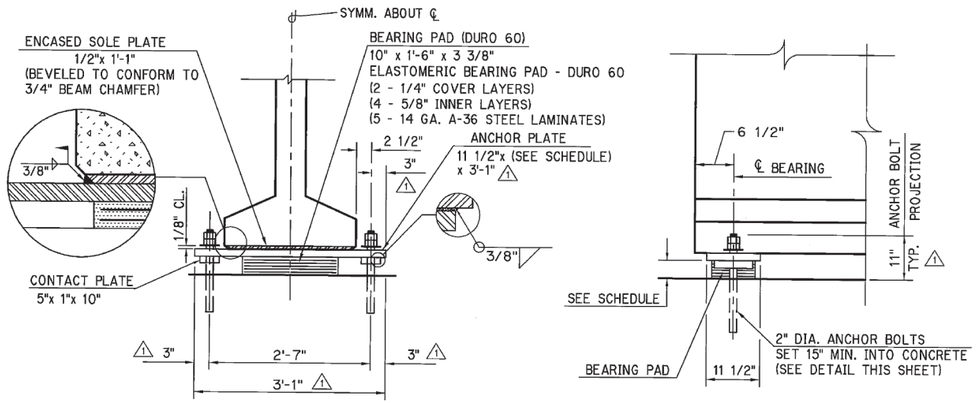


PLAN VIEW

EXPANSION ANCHOR BOLT SETTINGS PIER NO. 1	
130' SPAN	
DIM. "D"	TEMPERATURE
6 1/8"	-5°F
6"	8°F
5 7/8"	21°F
5 3/4"	34°F
5 5/8"	47°F
5 1/2"	60°F
5 3/8"	73°F
5 1/4"	86°F
5 1/8"	99°F
5"	112°F



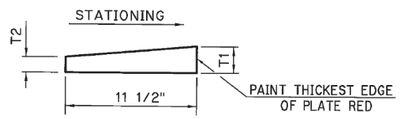
DETAIL OF BEARING ANCHOR BOLT
(SEE SEC. 724.05 OF THE STANDARD SPECIFICATIONS.)



ELEVATION VIEW

SIDE VIEW

ELASTOMERIC BEARING DEVICE ASSEMBLY DETAIL



ANCHOR PLATE

ANCHOR PLATE SCHEDULE					
LOCATION		ANCHOR PLATE 11 1/2" x 3'-0"			
		TYPE	T1	T2	Tavg
SPAN 1	ABUT. 1	FIXED	1.7500	1.5000	1.6250
	PIER 1	EXPANSION	1.5000	1.5000	1.5000
SPAN 2	PIER 1	EXPANSION	1.7500	1.5000	1.6250
	PIER 2	FIXED	1.5000	1.5000	1.5000
SPAN 3	PIER 2	FIXED	1.7500	1.5000	1.6250
	PIER 3	EXPANSION	1.5000	1.5000	1.5000

NOTE: SEE SECTION 503.04(h) OF THE STANDARD SPECIFICATIONS FOR TREATMENT OF THE ANCHOR BOLT AND BEARING ASSEMBLIES.

Design	TRP	
Drawn	BI	
Checked		
Approved		
Squad	POE	

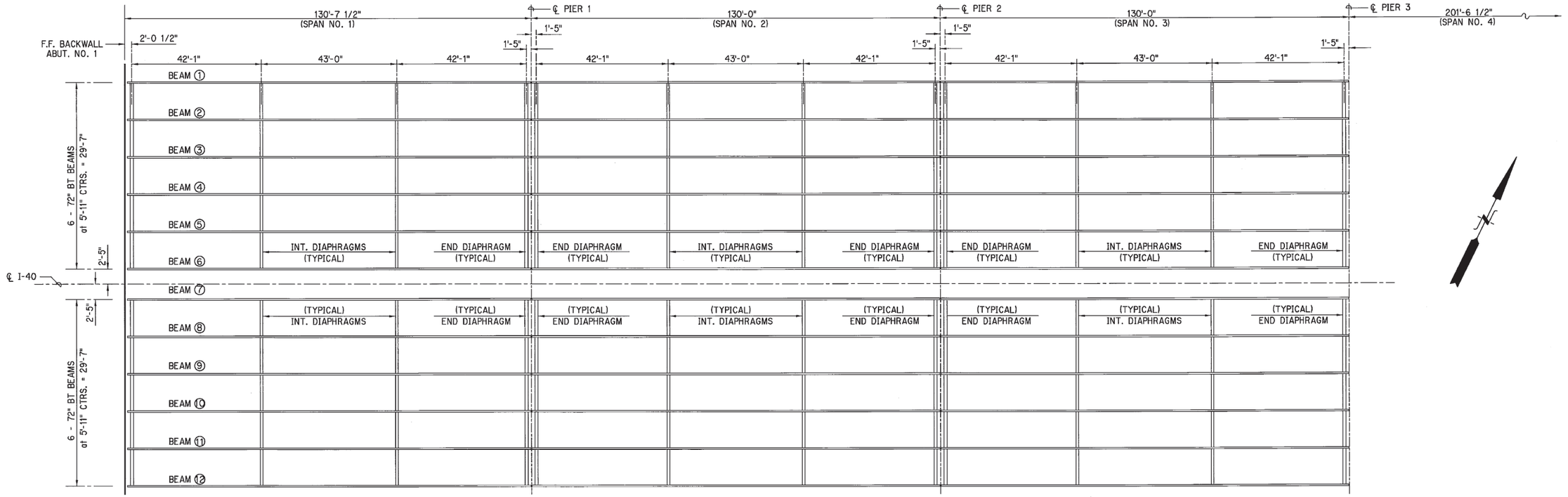
MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" I-40 OVER ARKANSAS RIVER

BEARING ASSEMBLY DETAILS
SPANS 1, 2 AND 3

State Job No. 20029(05) Sheet No. 30

JULY 1, 2002
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REVISIONS	
DESCRIPTION	DATE



LAYOUT - SPANS 1, 2 AND 3

NOTE: FOR DETAILS OF DIAPHRAGMS, SEE SHEET NO. 32.

JUNE 9, 2002
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MUSKOGEE-SEQUOYAH COUNTIES

Design		
Drawn	BI	
Checked		
Approved		
Squad	POE	

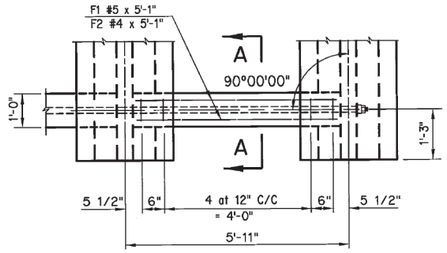
BRIDGE "A" I-40 OVER ARKANSAS RIVER

BEAM AND DIAPHRAGM LAYOUT SPANS 1, 2 AND 3

State Job No. 20029(05) Sheet No. 31

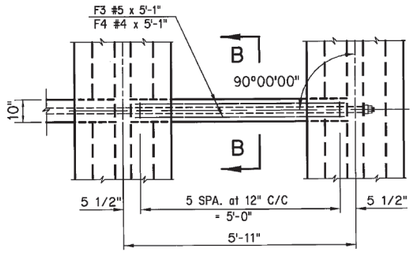
SCHEMMER

REVISIONS		
	DESCRIPTION	DATE
1	ADDED NOTE	6-11-02

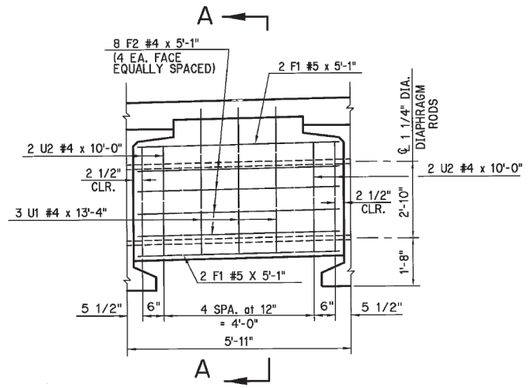


PLAN

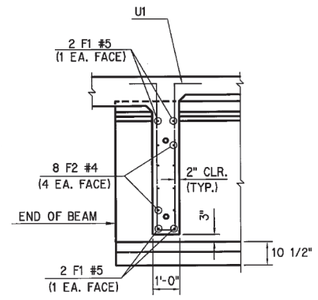
Note: All reinforcing steel in diaphragms to be epoxy coated.



PLAN

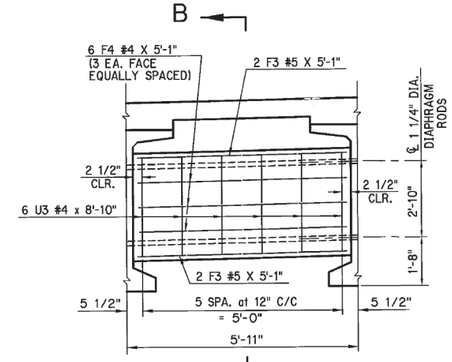


ELEVATION

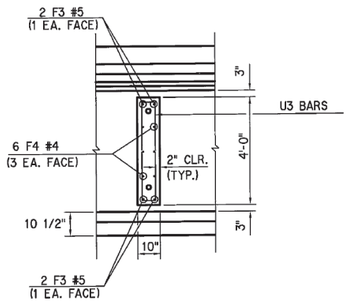


SECTION A-A

END DIAPHRAGM DETAILS

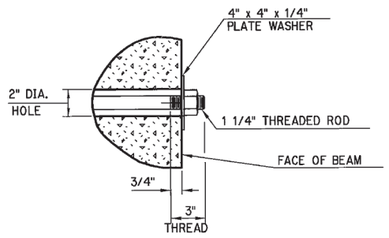


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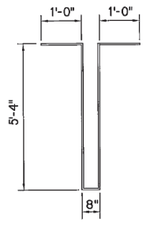
SECTION B-B

INTERMEDIATE DIAPHRAGM DETAILS

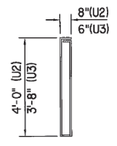


DIAPHRAGM BOLT END

NOTE:
AFTER FABRICATION, THE NUTS, SLEEVES, AND NOT LESS THAN 10" OF EACH END OF THE THREADED BAR SHALL BE PAINTED IN ACCORDANCE WITH SUBSECTIONS 512.04(b) AND 730.02(a) OF THE STANDARD SPECIFICATIONS.



U1 #4 x 13'-4"
(EPOXY COATED)



U2 #4 x 10'-0"
(EPOXY COATED)
U3 #4 x 8'-10"

⚠ NOTE: STEEL DIAPHRAGMS MAY BE SUBSTITUTED FOR CONCRETE INTERMEDIATE DIAPHRAGMS AS APPROVED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS SUBSTITUTION.

JUNE 11, 2002
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MUSKOGEE-SEQUOYAH COUNTIES

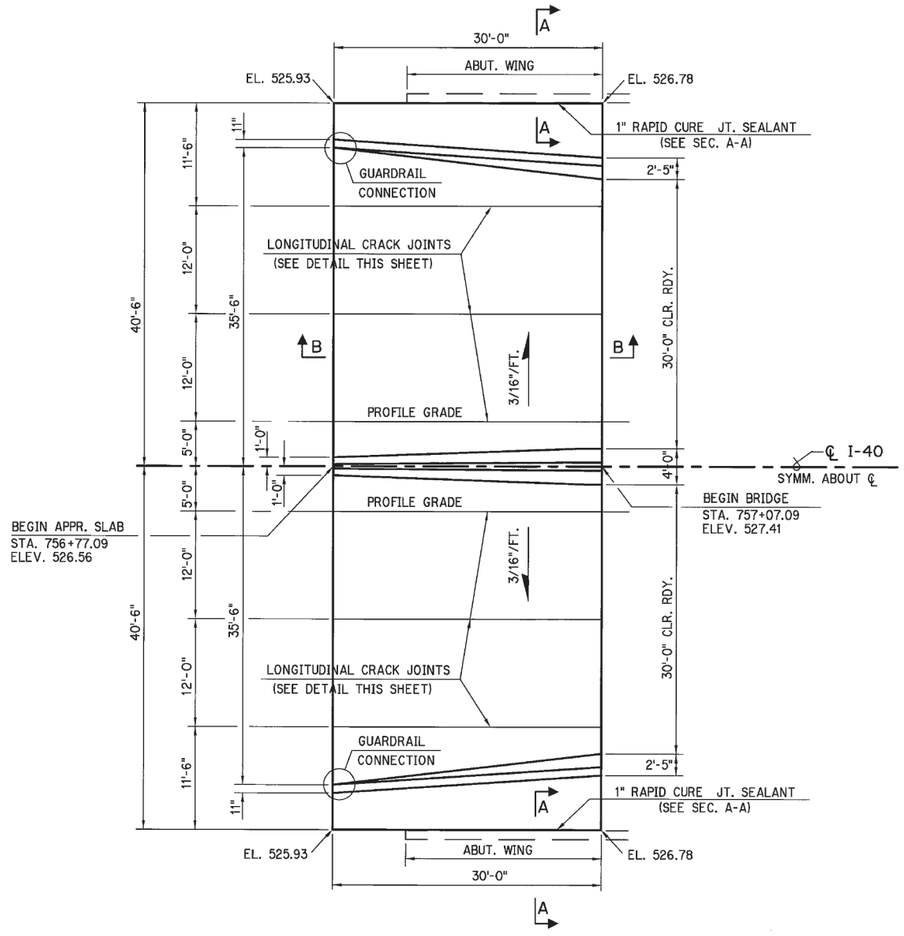
Design	SD	
Drawn	BI	
Checked		
Approved		
Squad	POE	

BRIDGE "A" — I-40 OVER ARKANSAS RIVER

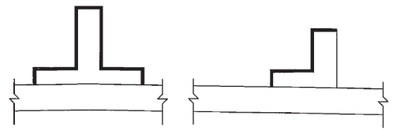
BULB TEE BEAM DIAPHRAGM DETAILS
SPANS 1, 2 AND 3

State Job No. 20029(05) Sheet No. 32

REVISIONS	
DESCRIPTION	DATE

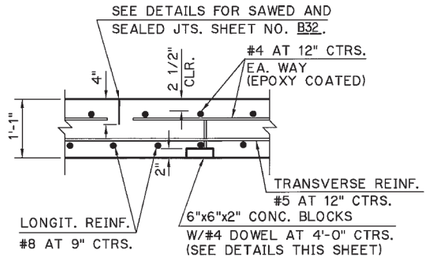


APPROACH SLAB PLAN

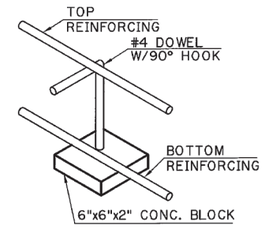


WATER REPELLENT SURFACE TREATMENT

SURFACES INDICATED WITH HEAVY LINES SHALL BE TREATED WITH A PENETRATING WATER REPELLENT SEALER.

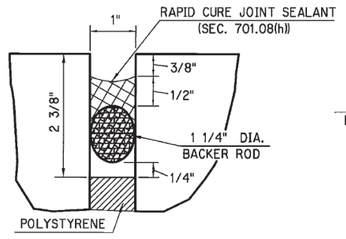


DETAIL OF SAWED JOINT AND DOWEL BLOCK

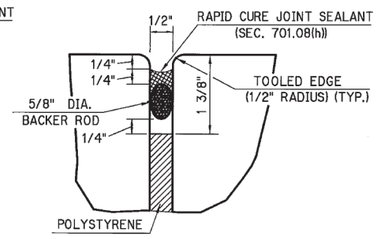


DOWEL BLOCK

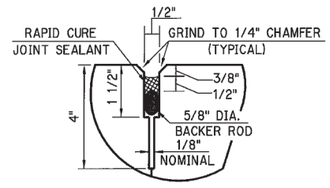
NOTE: CONTRACTOR MAY USE APPROVED HIGH CHAIRS WITH SAND PLATES (HCP) AND 6"x6"x2" PLAIN CONCRETE BLOCKS IN LIEU OF DOWEL BLOCKS SHOWN. SPACING SHALL BE 4'-0" MAX. ON CTRS.



DETAIL OF RAPID CURE JOINT AT EDGE OF SLAB



DETAIL OF RAPID CURE JOINT AND END OF BRIDGE

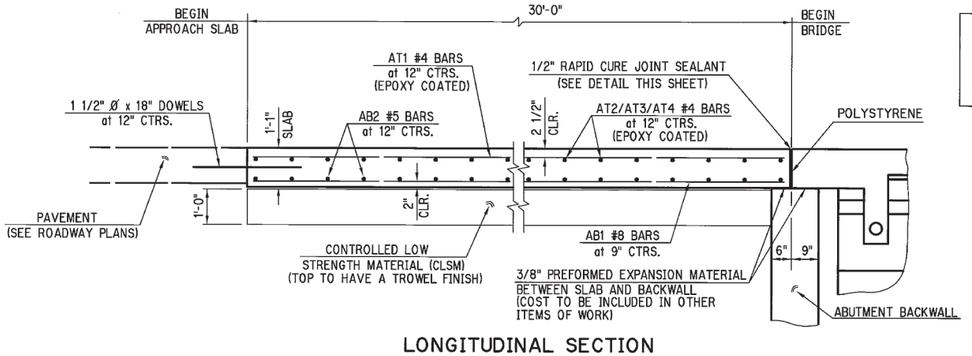


DETAIL FOR SAWED AND SEALED LONGITUDINAL JOINT

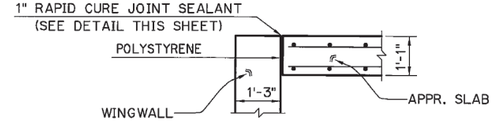
NOTE: FOR BACKER ROD AND JOINT SEALER GENERAL NOTES REFER TO STD. LECS-3.

NOTE: FOR PARAPET AND MEDIAN BARRIER TRANSITION DETAILS, SEE SHEETS 35 AND 36.

NOTE: DO NOT TINE WITHIN 6" OF THE JOINT BETWEEN THE APPROACH SLAB AND BRIDGE DECK OR WITHIN 6" OF THE SAWED JOINTS OR THE JOINTS BETWEEN THE APPROACH SLAB AND THE WINGWALLS.



LONGITUDINAL SECTION SECTION B-B



SECTION A-A

QUANTITIES			
		UNIT	TOTAL
	APPROACH SLABS	S.Y.	270
**	CLASS AA CONCRETE	L.F.	10.2
**	EPOXY COATED REINFORCING STEEL	LB.	990
	WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	56

NOTES: CONCRETE FOR APPROACH SLABS, PARAPET AND MEDIAN BARRIER SHALL BE CLASS AA. REINFORCING STEEL SHALL BE GRADE 60.

ALL COST OF MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN SHALL BE INCLUDED IN THE UNIT PRICE BID PER SQUARE YARDS OF APPROACH SLAB. THIS PRICE BID SHALL INCLUDE THE COST OF CLSM, EXCAVATION FOR CLSM, POLYSTYRENE, EXPANSION JOINT FILLER, RAPID CURE JOINT SEALANT, BACKER RODS, SAWING, 18" DOWELS, CLASS AA CONCRETE AND REINFORCING STEEL.

**THE PARAPET AND MEDIAN BARRIER TRANSITIONS SHALL BE PAID FOR AS CLASS AA CONCRETE AND EPOXY COATED REINFORCING STEEL.

Design	TRP	
Drawn	DAC	
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES

BRIDGE "A" 1-40 OVER ARKANSAS RIVER

APPROACH SLAB DETAILS

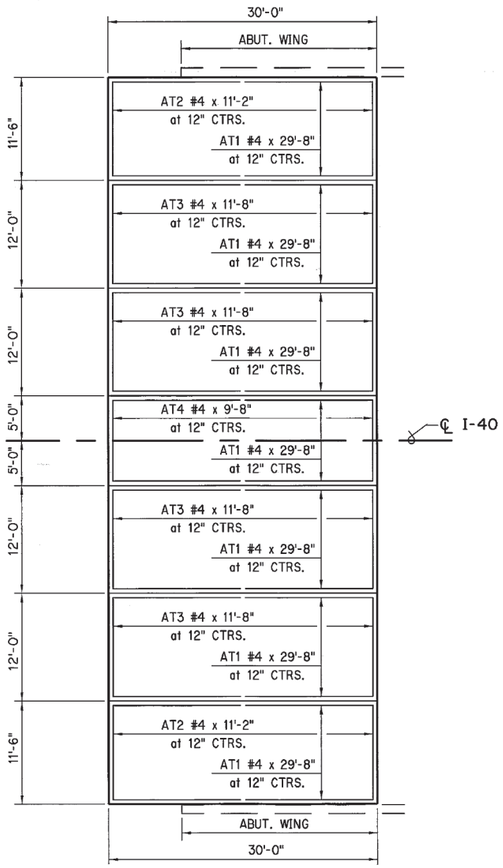
SHEET 1 OF 4-

State Job No. 20029(05) Sheet No. 33

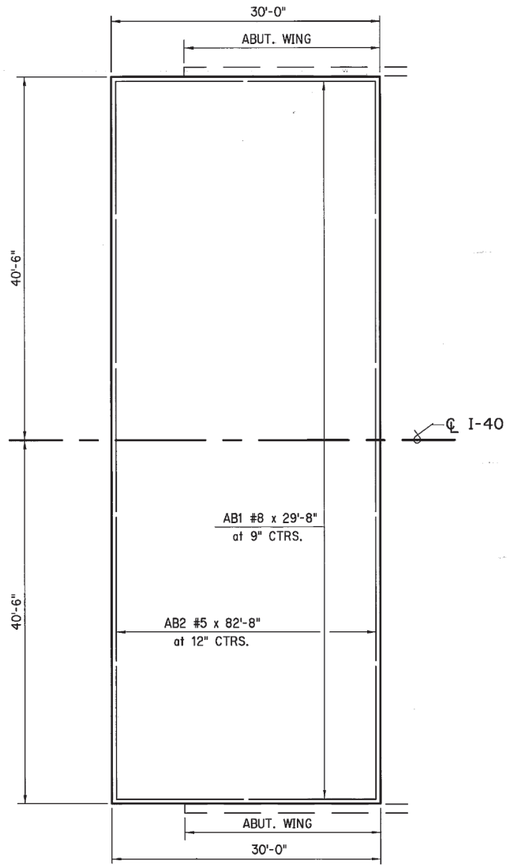
JUNE 9, 2002
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SCHEMMER

REVISIONS	
DESCRIPTION	DATE



REINFORCING PLAN
(TOP MAT OF REINFORCING SHOWN)



REINFORCING PLAN
(BOTTOM MAT OF REINFORCING SHOWN)

NOTE: PV1, PV2 AND BV2 BARS SHALL BE TIED IN PLACE BEFORE POURING THE CONCRETE FOR THE APPROACH SLAB.

APPROACH SLAB BAR LIST
(FOR INFORMATION ONLY)

	MARK	NO.	SIZE	FORM	SPACING	LENGTH
①	AT1	87	#4	STR.	12"	29'-8"
①	AT2	62	#4	STR.	12"	11'-2"
①	AT3	124	#4	STR.	12"	11'-8"
①	AT4	31	#4	STR.	12"	9'-8"
	AB1	109	#8	STR.	9"	29'-8"
②	AB2	31	#5	STR.	12"	82'-8"

① EPOXY COATED.

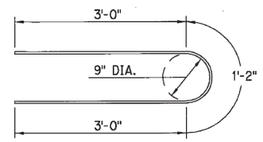
② LENGTH INCLUDES LAP:
AB2 = 1 at 2'-0"

PARAPET AND MEDIAN BARRIER BAR LIST

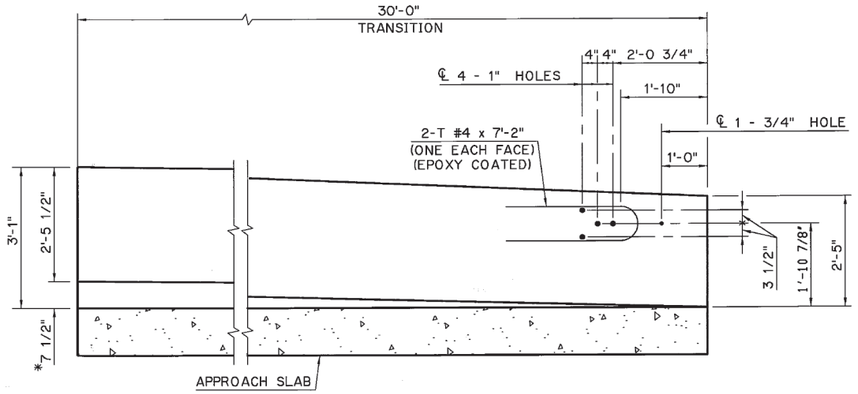
	MARK	NO.	SIZE	FORM	SPACING	LENGTH
①	BH1	7	#4	STR.	AS SHOWN	29'-8"
①②	BV1	21	#4	STR.	18"	2'-7" AVG.
①②	BV2	21	#4	BNT.	18"	7'-2" AVG.
①	PH1	16	#4	STR.	AS SHOWN	29'-8"
①	PH2	2	#4	STR.	AS SHOWN	26'-9"
①②	PV1	42	#4	BNT.	18"	9'-7" AVG.
①②	PV2	20	#4	BNT.	18"	5'-1 1/2 " AVG.
①	T	4	#4	BNT.	AS SHOWN	7'-2"

① EPOXY COATED.

② LENGTH VARIES:
BV1 = 2'-6" TO 2'-8"
BV2 = 6'-0" TO 8'-4"
PV1 = 8'-11" TO 10'-3"
PV2 = 4'-6" TO 5'-9"



T #4 x 7'-2"
(EPOXY COATED)



*NOTE: THIS DIMENSION TO BE VERIFIED IN THE FIELD.

ELEVATION - GUARDRAIL CONNECTION

GUARDRAIL CONNECTION:
FORM OR DRILL HOLES, AS SHOWN. FOR THE CONNECTION OF THE W-BEAM GUARDRAIL TERMINAL CONNECTORS (SPECIAL END SHOES) AT THE LOCATIONS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. IT IS THE RESPONSIBILITY OF THE BRIDGE CONTRACTOR TO PROVIDE THE HOLES. THE CONTRACTOR THAT INSTALLS THE GUARDRAIL WILL BE RESPONSIBLE FOR INSTALLING THE W-BEAM GUARDRAIL TERMINAL CONNECTORS.

Design	TRP	
Drawn	DAC	
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" I-40 OVER ARKANSAS RIVER

APPROACH SLAB DETAILS
SHEET 2 OF 4

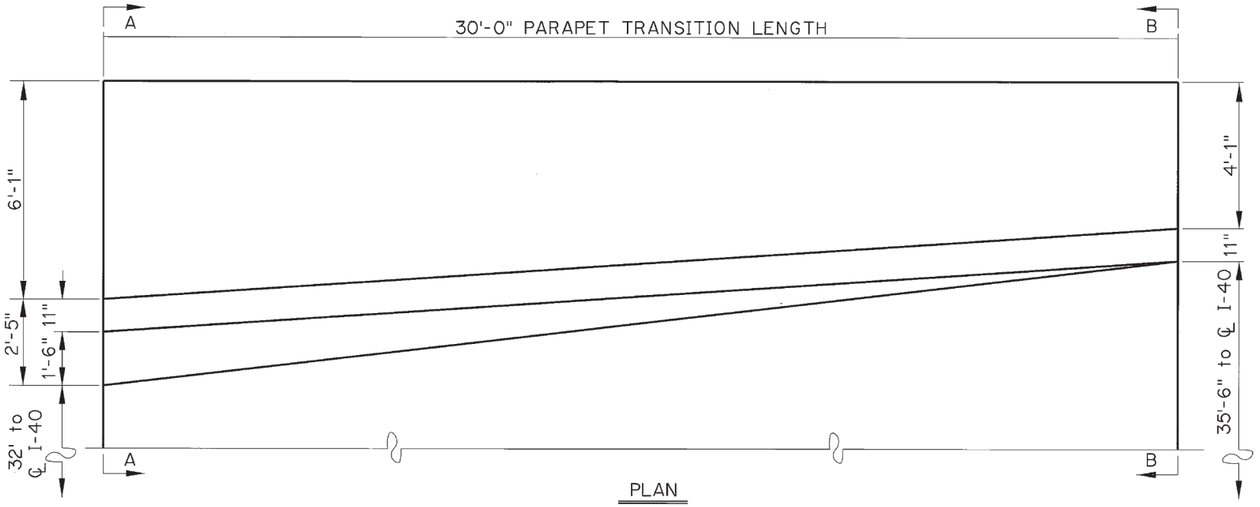
State Job No. 20029(05) Sheet No. 34

JUNE 9, 2002
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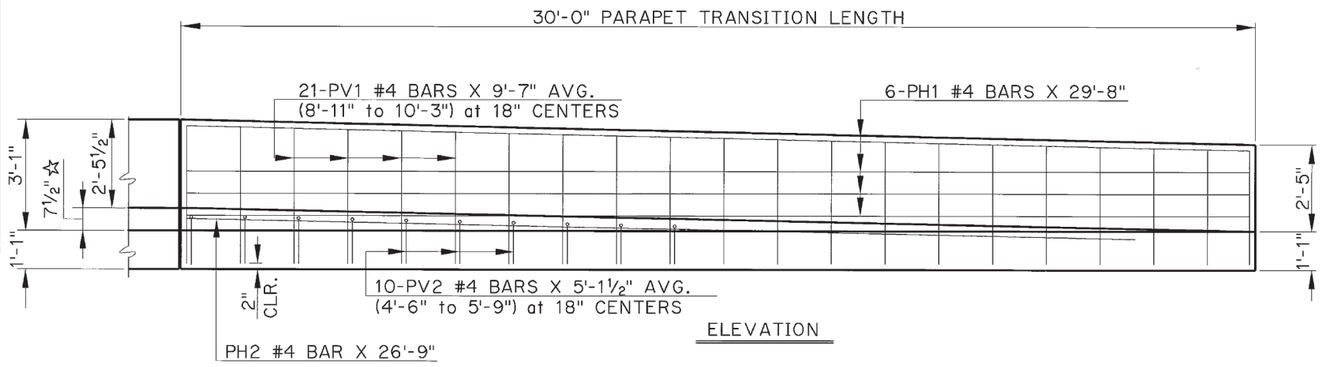
SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

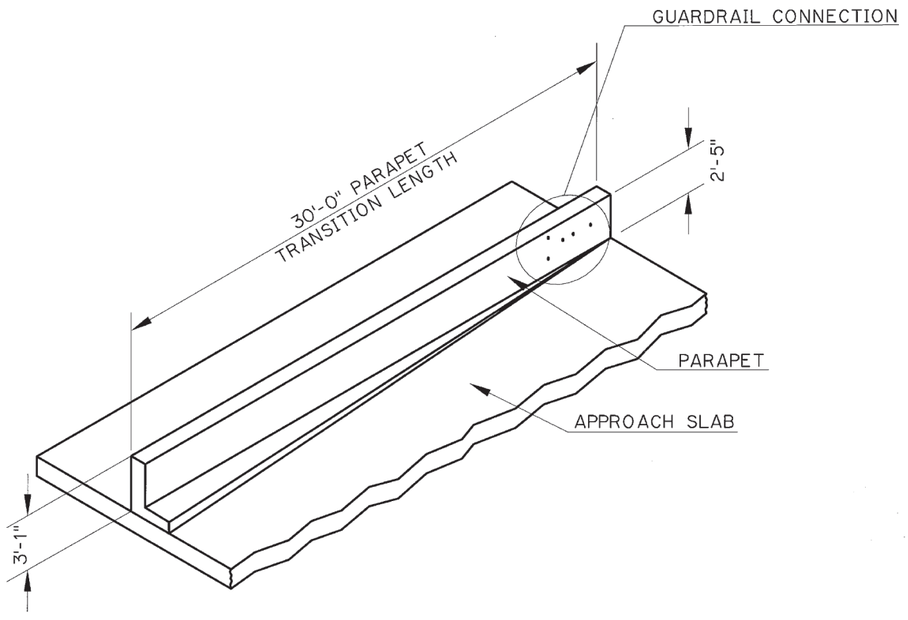
REVISIONS	
DESCRIPTION	DATE

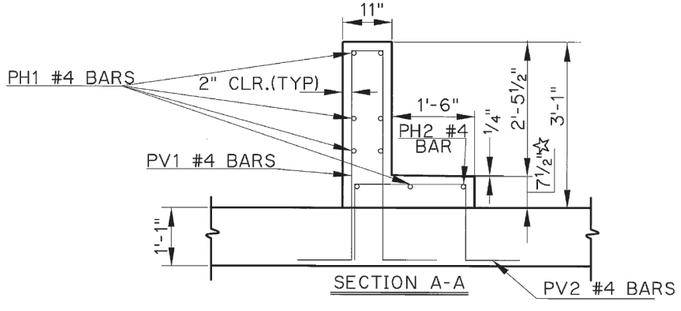


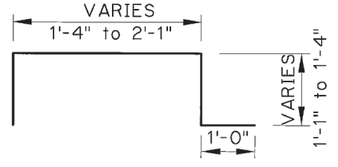
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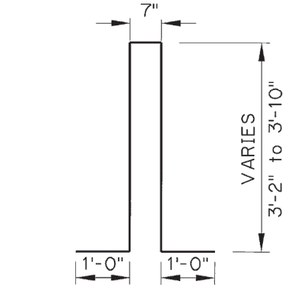
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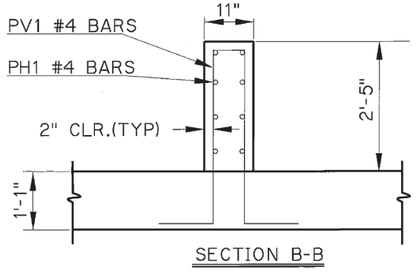




PV2 #4 BARS X 5'-1½" AVG.
(4'-6" to 5'-9")



PV1 #4 BARS X 9'-7" AVG.
(8'-11" to 10'-3")



☆NOTE: THIS DIMENSION TO BE VERIFIED IN THE FIELD.

MUSKOGEE-SEQUOYAH COUNTIES

Design	TRP	
Drawn	ADS	
Checked		
Approved		
Squad	POE	

BRIDGE "A" I-40 OVER ARKANSAS RIVER

APPROACH SLAB DETAILS

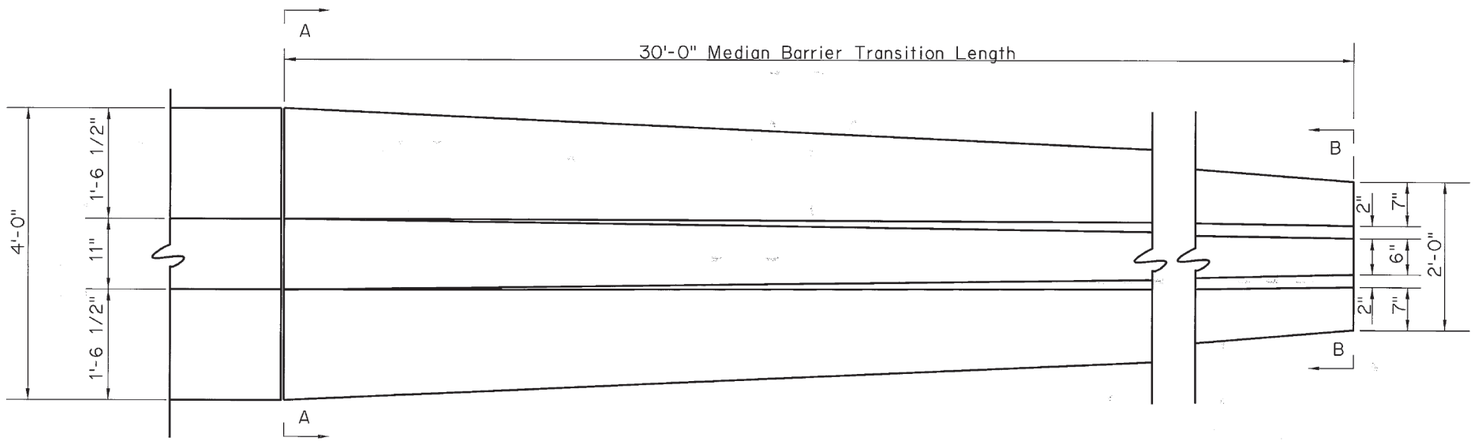
SHEET 3 OF 4

Project No. 20029(05) Sheet No. 35

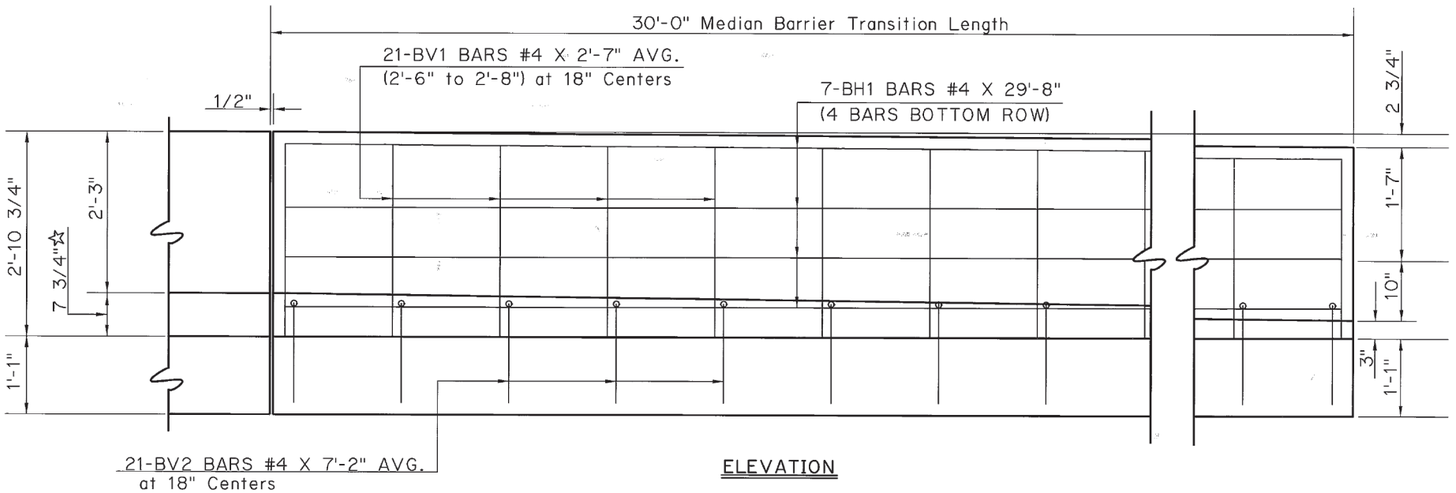
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

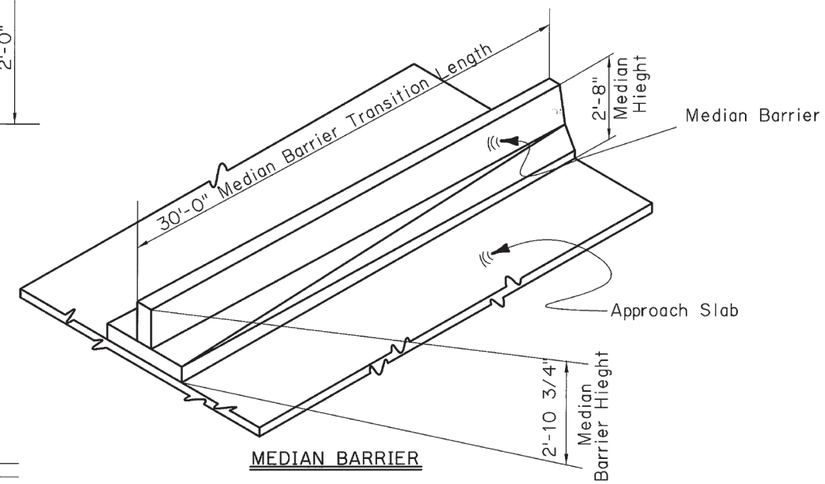
REVISIONS	
DESCRIPTION	DATE



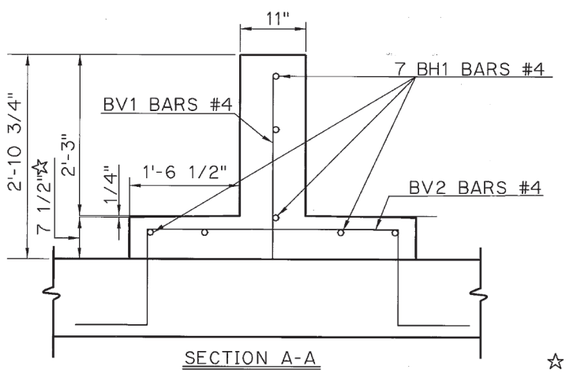
PLAN



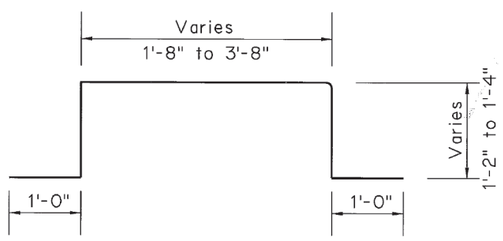
ELEVATION



MEDIAN BARRIER

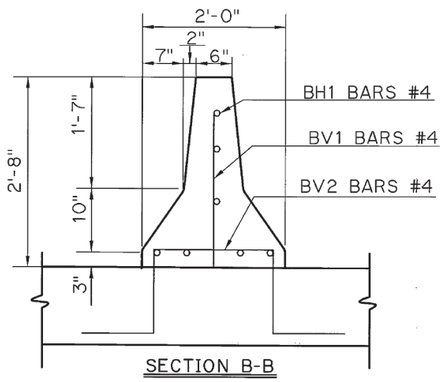


SECTION A-A



BV2 BARS #4 X 7'-2" AVG.
(6'-0" TO 8'-4")

☆ NOTE: THIS DIMENSION TO BE VERIFIED IN THE FIELD.



SECTION B-B

Design	TRP	
Drawn	MRF	
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" I-40 OVER ARKANSAS RIVER

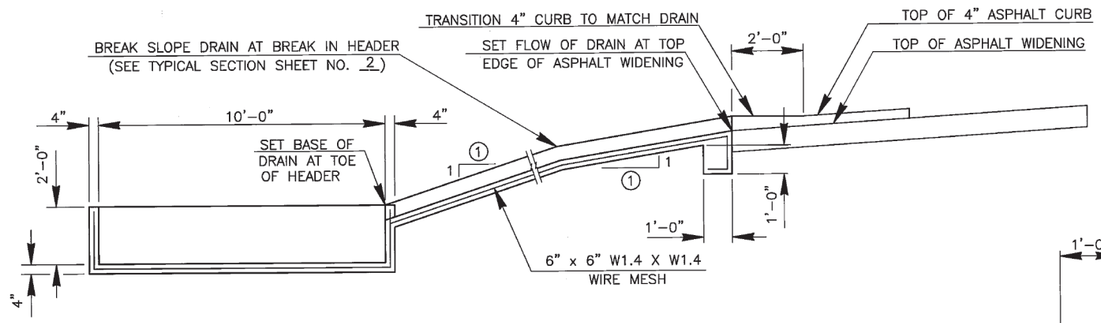
APPROACH SLAB DETAILS
SHEET 4 OF 4

Project No. 20029(05) Sheet No. 36

JUN 09, 2002 - 08:41:31
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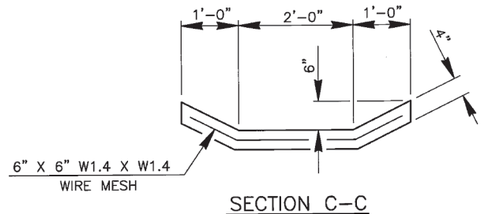
SCHEMMER

REVISIONS		
	DESCRIPTION	DATE
1	REVISED REINF. BAR SIZE AND LAP LENGTH AFTER LETTING	7-15-02



SECTION D–D

① SLOPE TO MATCH SLOPE OF HEADER
(SEE TYPICAL SECTION SHEET NO. 2)

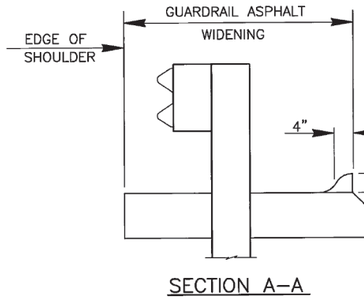


SECTION C–C

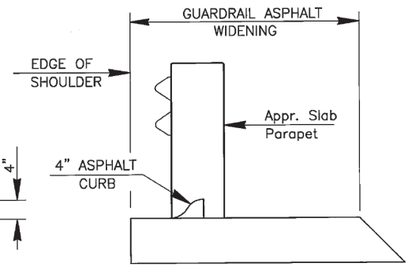
NOTE:
Asphalt Widening shall be in accordance with Standards GRAU1–1, and GRH–3 except as shown on this sheet. All costs of Asphalt Widening shall be included in Roadway Pay Items.

② Slope Drains and Splash Basins shall be constructed using Class 'C' Concrete as shown on this sheet. All costs of the Slope Drains and Splash Basins shall be included in the Roadway Pay Item for "CLASS 'C' CONCRETE".

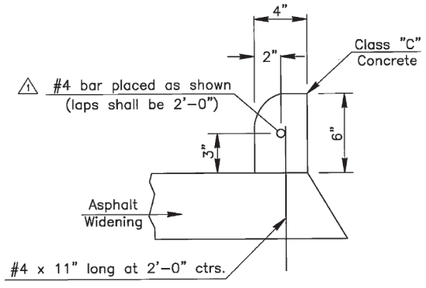
② A 4" Asphalt Curb shall be constructed as shown on this sheet. A Concrete Curb may be substituted for the 4" Asphalt Curb using Class 'C' Concrete as shown in "DETAIL OF OPTIONAL CONCRETE CURB". All costs to construct the curbs including asphalt, concrete, and reinforcing steel shall be included in the Roadway Pay Item for "BITUMINOUS CURB".



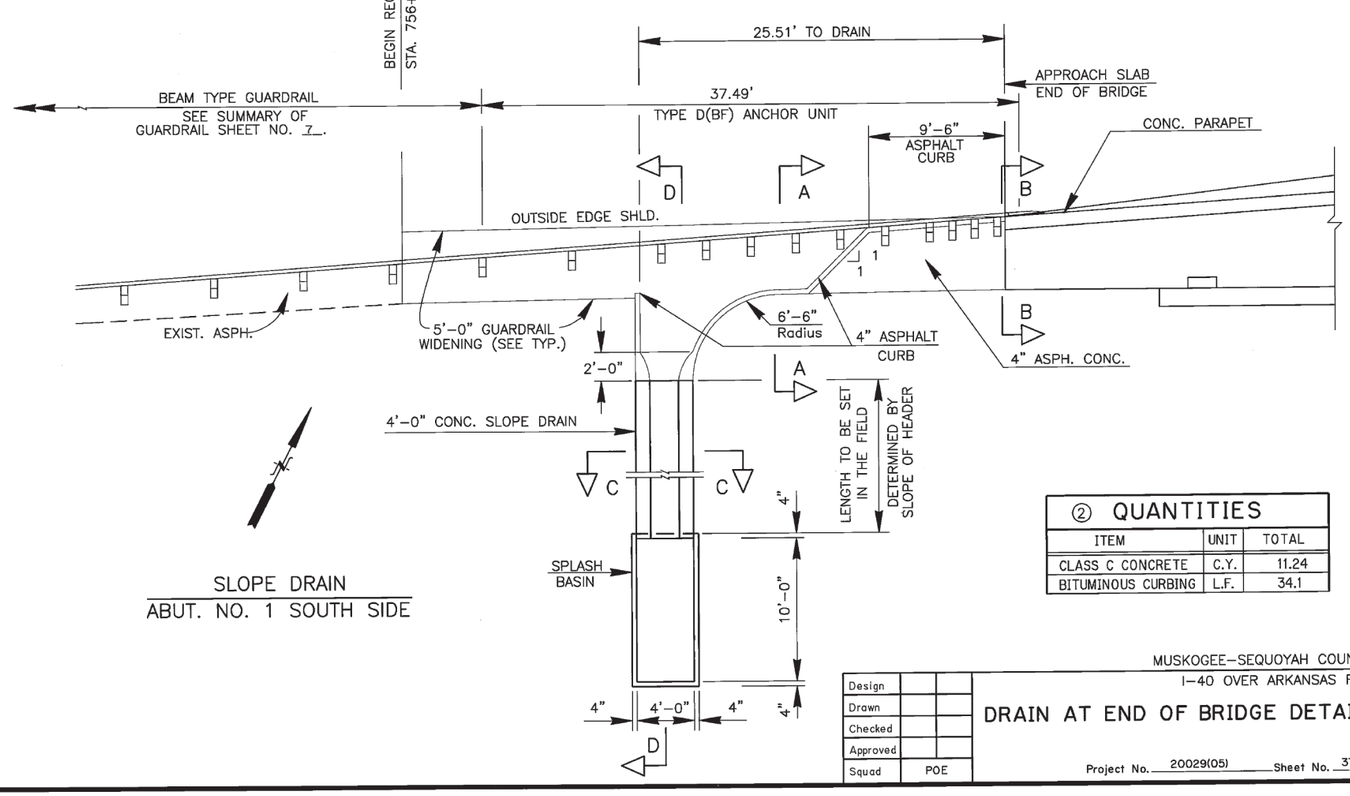
SECTION A–A



SECTION B–B



DETAIL OF OPTIONAL CONCRETE CURB



SLOPE DRAIN
ABUT. NO. 1 SOUTH SIDE

② QUANTITIES

ITEM	UNIT	TOTAL
CLASS C CONCRETE	C.Y.	11.24
BITUMINOUS CURBING	L.F.	34.1

Design		
Drawn		
Checked		
Approved		
Squad	POE	

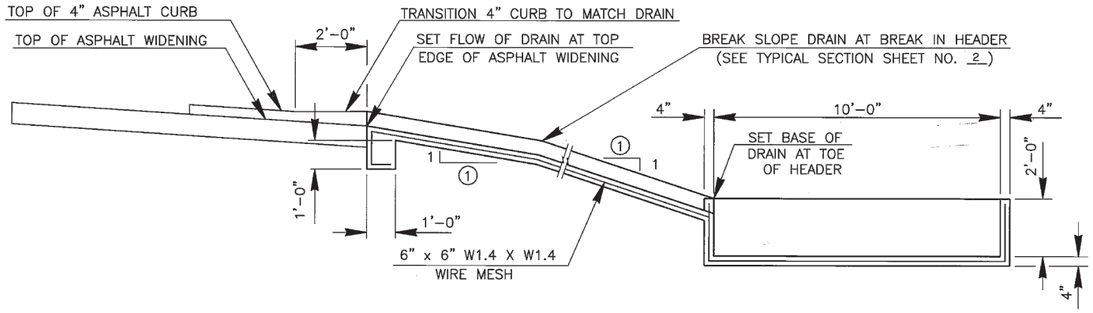
MUSKOGEE–SEQUOYAH COUNTIES
I–40 OVER ARKANSAS RIVER

DRAIN AT END OF BRIDGE DETAILS

Project No. 20029(05) Sheet No. 37

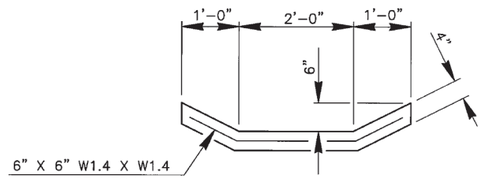
JULY 15, 2002
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REVISIONS		
	DESCRIPTION	DATE
1	REVISED REINF. BAR SIZE AND LAP LENGTH AFTER LETTING	7-15-02

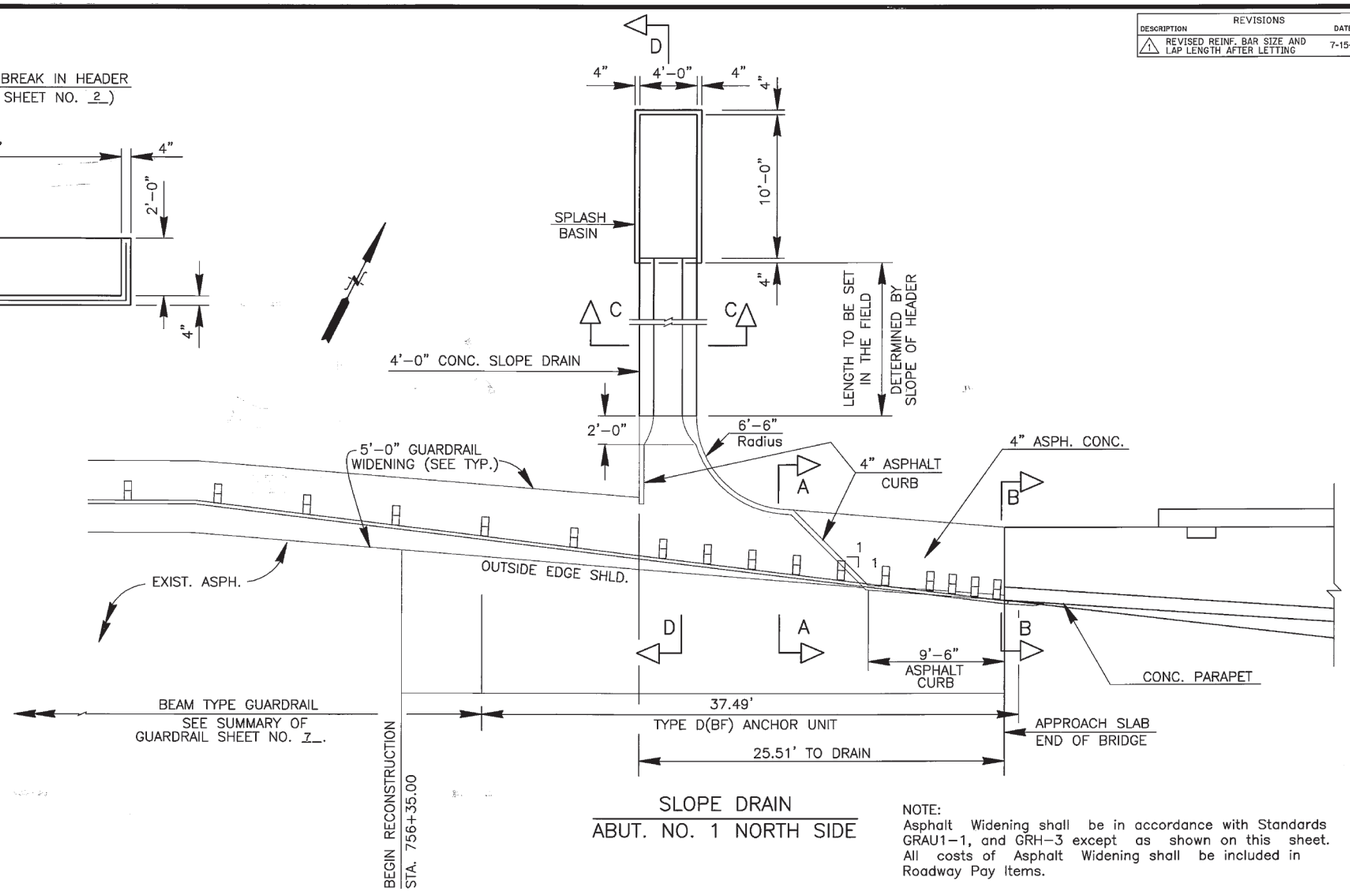


SECTION D–D

① SLOPE TO MATCH SLOPE OF HEADER (SEE TYPICAL SECTION SHEET NO. 2)



SECTION C–C

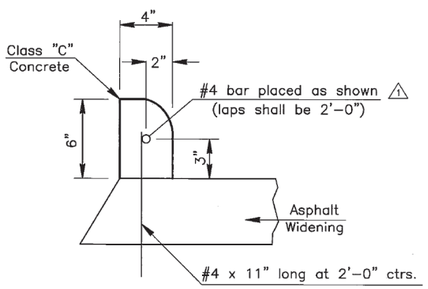


SLOPE DRAIN
ABUT. NO. 1 NORTH SIDE

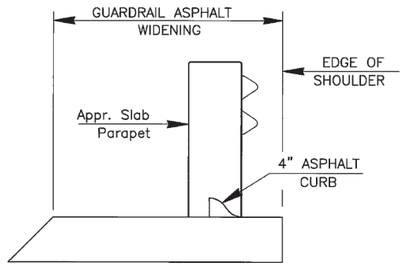
NOTE:
Asphalt Widening shall be in accordance with Standards GRAU1–1, and GRH–3 except as shown on this sheet. All costs of Asphalt Widening shall be included in Roadway Pay Items.

② Slope Drains and Splash Basins shall be constructed using Class 'C' Concrete as shown on this sheet. All costs of the Slope Drains and Splash Basins shall be included in the Roadway Pay Item for "CLASS 'C' CONCRETE".

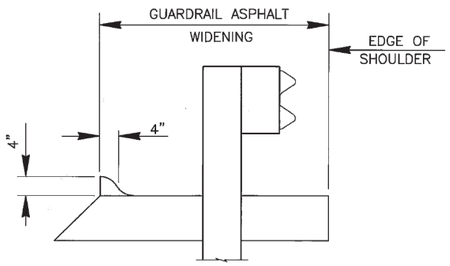
② A 4" Asphalt Curb shall be constructed as shown on this sheet. A Concrete Curb may be substituted for the 4" Asphalt Curb using Class 'C' Concrete as shown in "DETAIL OF OPTIONAL CONCRETE CURB". All costs to construct the curbs including asphalt, concrete, and reinforcing steel shall be included in the Roadway Pay Item for "BITUMINOUS CURB".



DETAIL OF OPTIONAL CONCRETE CURB



SECTION B–B



SECTION A–A

② QUANTITIES

ITEM	UNIT	TOTAL
CLASS C CONCRETE	C.Y.	11.73
BITUMINOUS CURBING	L.F.	33.8

MUSKOGEE–SEQUOYAH COUNTIES
I–40 OVER ARKANSAS RIVER

Design		
Drawn		
Checked		
Approved		
Squad	POE	

DRAIN AT END OF BRIDGE DETAILS

Project No. 20029(05) Sheet No. 38

JULY 15, 2002
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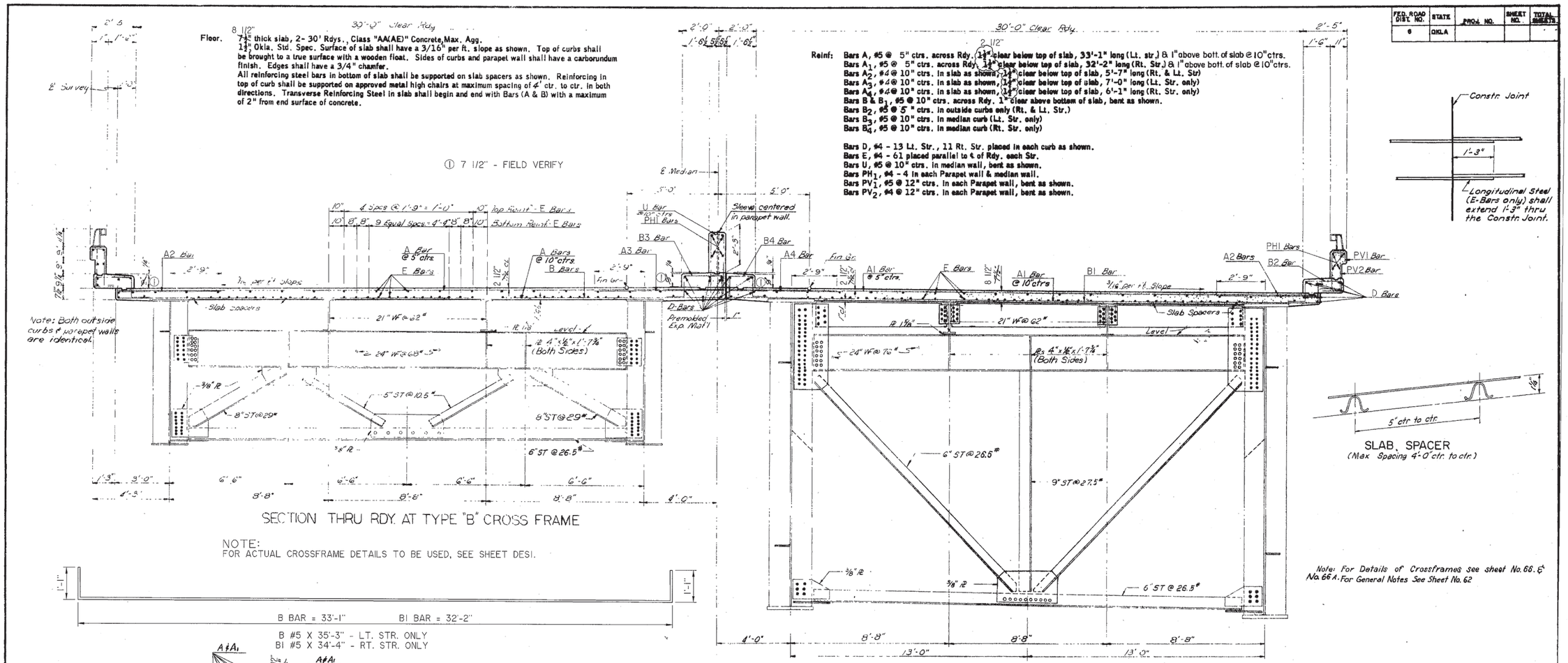
SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	OKLA			

Floor. 8 1/2" 7½" thick slab, 2- 30' Rdys., Class "AA(AE)" Concrete, Max. Agg. 1½", Okla. Std. Spec. Surface of slab shall have a 3/16" per ft. slope as shown. Top of curbs shall be brought to a true surface with a wooden float. Sides of curbs and parapet wall shall have a carborundum finish. Edges shall have a 3/4" chamfer.
All reinforcing steel bars in bottom of slab shall be supported on slab spacers as shown. Reinforcing in top of curb shall be supported on approved metal high chairs at maximum spacing of 4' ctr. to ctr. in both directions. Transverse Reinforcing Steel in slab shall begin and end with Bars (A & B) with a maximum of 2" from end surface of concrete.

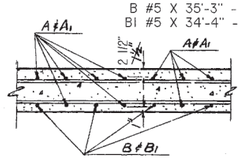
Reinf: Bars A, #5 @ 5" ctrs. across Rdy. 1½" clear below top of slab, 33'-1" long (Lt. str.) & 1" above bott. of slab @ 10" ctrs.
Bars A_1, #5 @ 5" ctrs. across Rdy. 1½" clear below top of slab, 32'-2" long (Rt. Str.) & 1" above bott. of slab @ 10" ctrs.
Bars A_2, #4 @ 10" ctrs. in slab as shown, 1½" clear below top of slab, 5'-7" long (Rt. & Lt. Str)
Bars A_3, #4 @ 10" ctrs. in slab as shown, 1½" clear below top of slab, 7'-0" long (Lt. Str. only)
Bars A_4, #4 @ 10" ctrs. in slab as shown, 1½" clear below top of slab, 6'-1" long (Rt. Str. only)
Bars B & B_1, #5 @ 10" ctrs. across Rdy. 1" clear above bottom of slab, bent as shown.
Bars B_2, #5 @ 5" ctrs. in outside curbs only (Rt. & Lt. Str.)
Bars B_3, #5 @ 10" ctrs. in median curb (Lt. Str. only)
Bars B_4, #5 @ 10" ctrs. in median curb (Rt. Str. only)

Bars D, #4 - 13 Lt. Str., 11 Rt. Str. placed in each curb as shown.
Bars E, #4 - 61 placed parallel to ℄ of Rdy. each Str.
Bars U, #5 @ 10" ctrs. in median wall, bent as shown.
Bars PH_1, #4 - 4 in each Parapet wall & median wall.
Bars PV_1, #5 @ 12" ctrs. in each Parapet wall, bent as shown.
Bars PV_2, #4 @ 12" ctrs. in each Parapet wall, bent as shown.

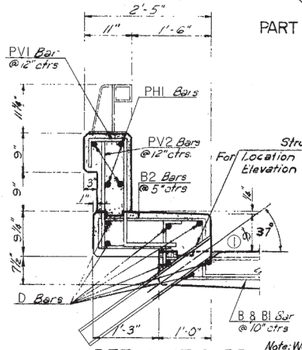


SECTION THRU RDY. AT TYPE "B" CROSS FRAME

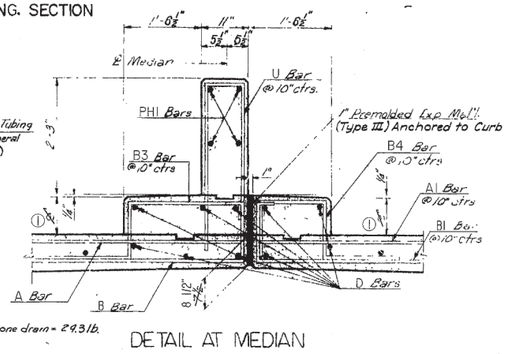
NOTE:
FOR ACTUAL CROSSFRAME DETAILS TO BE USED, SEE SHEET DES1.



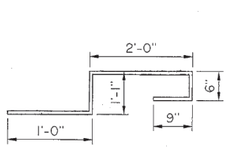
PART LONG. SECTION



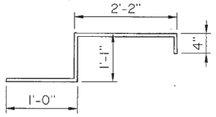
DETAIL AT CURB



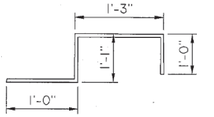
DETAIL AT MEDIAN



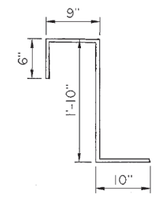
B2 #5 X 5'-4"



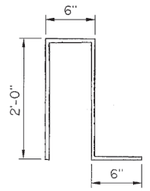
B3 #5 X 4'-7"



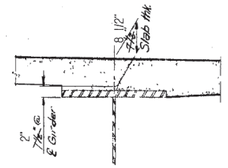
B4 #5 X 4'-4"



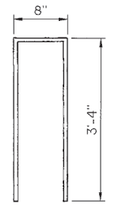
PV1 #5 X 3'-11"



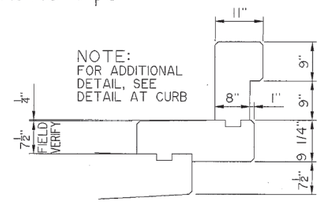
PV2 #4 X 5'-0"



DETAIL OVER GIRDER



U #5 X 7'-4"



PARAPET DETAIL

RONALD R. WHITE 8070 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA CA 1832 6-30-03
6/19/02
SEAL APPLIES TO CHANGES MADE TO ORIGINAL PLANS

REVISIONS NO.	DESCRIPTION	BY	DATE
1	Rev. Str. & Reinf. Steel	TAL	7-18-66
2	Added Steel Tube Drains Rev. Reinf. Steel	WM C PJJ	6-66 8-66
3	Rev. X Frames	WM C	1-67
4	Rev. Median Post Note	JRC	4-67

RECORD ITEM	BY	DATE
DESIGN		
DETAIL	RDB	3-65
TRACED		
CHECKED	V F.J.	4-65
APPROVED		
SQUAD: JONES		

OKLAHOMA STATE HIGHWAY COMMISSION
OKLAHOMA CITY, OKLAHOMA

INTERSTATE I-40
MUSKOGEE-SEQUOYAH COUNTY

TYPICAL CROSS SECTION
SPAN 4

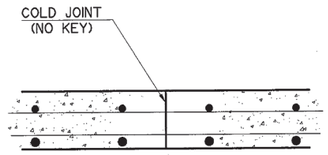
JOB PIECE NO. 20029(05) Sheet No. 40

PROJECT NO. I-40-6(89)288 SHEET NO. 61

SCHEMMER

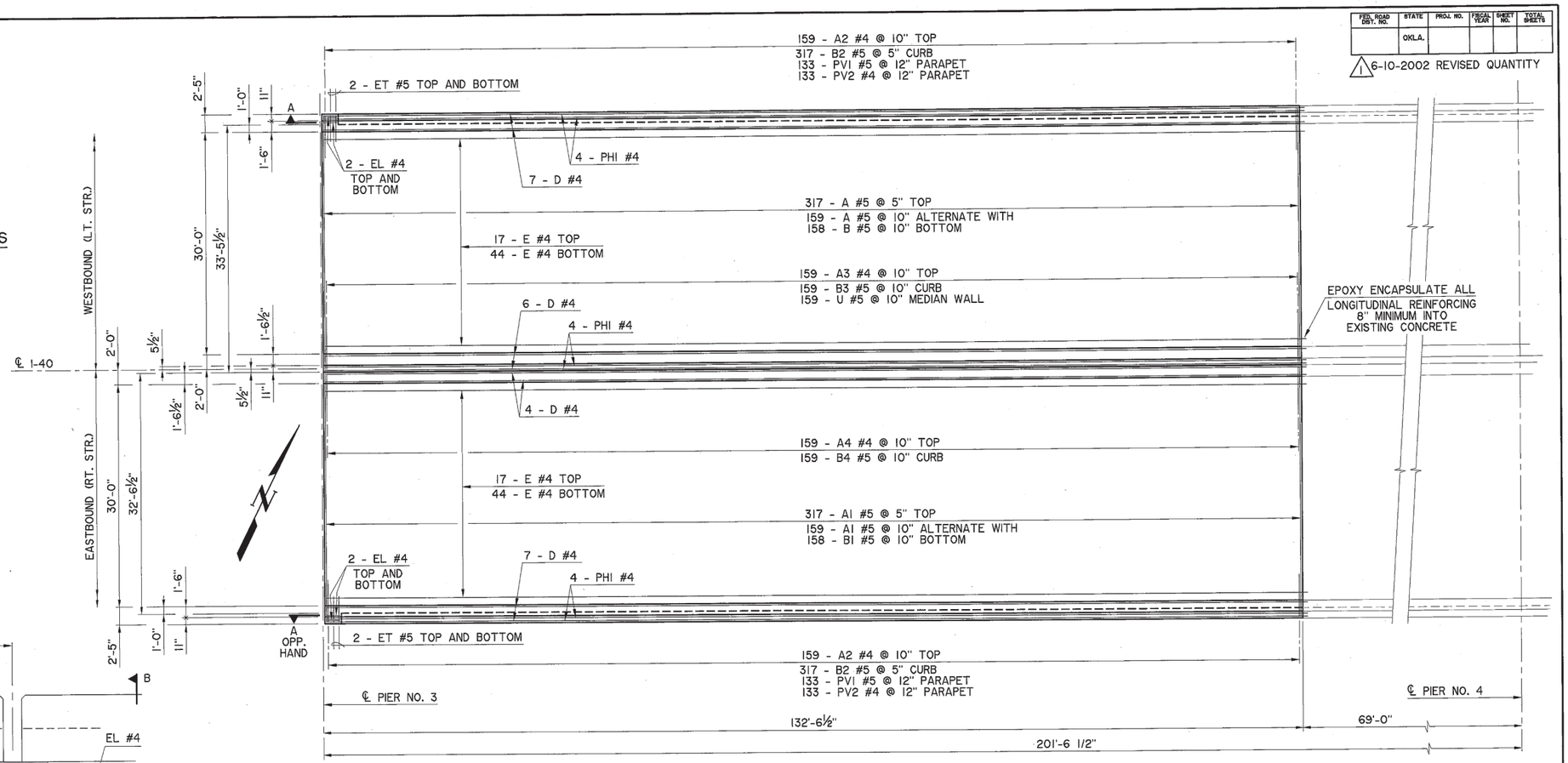
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	OKLA.				

1 6-10-2002 REVISED QUANTITY

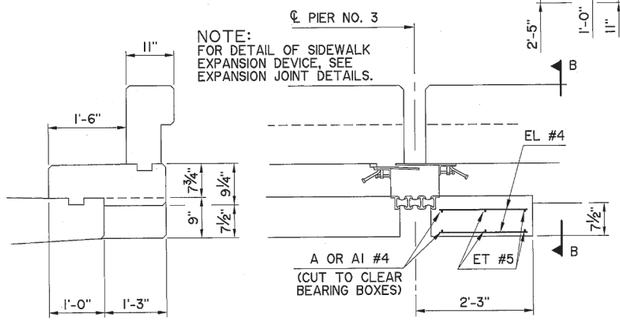


CONSTRUCTION JOINT FOR UNSCHEDULED INTERRUPTIONS

NOTE:
EACH SLAB SHALL BE POURED CONTINUOUSLY BEGINNING AT EITHER END. SHOULD SPECIAL CIRCUMSTANCES ARISE THAT REQUIRE POURING TO BE INTERRUPTED, IT SHALL BE TERMINATED WITH A CONSTRUCTION JOINT AS SHOWN ON THIS SHEET AND POURING WILL NOT BE PERMITTED TO RECOMMENCE UNTIL A PERIOD OF AT LEAST 12 HOURS HAS ELAPSED UNLESS TEST CYLINDERS INDICATE A MINIMUM CONCRETE STRENGTH OF 3,000 P.S.I. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THRU CONSTRUCTION JOINT. TO AVOID CRACKING, NO HEAVY EQUIPMENT WILL BE PERMITTED ON FINISHED SLAB WITHIN 5'-0" OF CONSTRUCTION JOINT BEFORE SLAB IS IN PLACE ON BOTH SIDES OF CONSTRUCTION JOINT.
EASTBOUND AND WESTBOUND SLABS SHALL BE POURED INDEPENDENTLY.

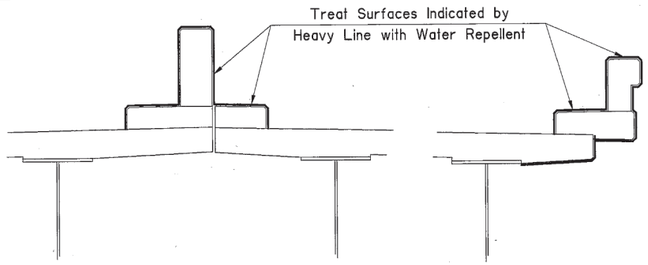


SLAB REINFORCING PLAN SPAN 4



SECTION B-B

SECTION A



WATER REPELLENT TREATMENT DETAILS

SUPERSTRUCTURE BAR LIST SPAN 4 - WESTBOUND - LT. STR.

	MARK	SIZE	NO.	FORM	LENGTH
	EPOXY COATED REINFORCING BARS				
②	A	#5	476	STR.	33'-1"
	A2	#4	159	STR.	5'-7"
	A3	#4	159	STR.	7'-0"
	B	#5	158	BNT.	35'-3"
	B2	#5	317	BNT.	5'-4"
	B3	#5	159	BNT.	4'-7"
①	D	#4	13	STR.	135'-4"
①	E	#4	61	STR.	135'-4"
	U	#5	159	BNT.	7'-4"
①	PHI	#4	8	STR.	135'-4"
	PV1	#5	133	BNT.	3'-11"
	PV2	#4	133	BNT.	5'-0"
	ET	#5	4	STR.	3'-6"
	EL	#4	4	STR.	1'-8"

SUPERSTRUCTURE BAR LIST SPAN 4 - EASTBOUND - RT. STR.

	MARK	SIZE	NO.	FORM	LENGTH
	EPOXY COATED REINFORCING BARS				
②	A1	#5	476	STR.	32'-2"
	A2	#4	159	STR.	5'-7"
	A4	#4	159	STR.	6'-1"
	B1	#5	158	BNT.	34'-4"
	B2	#5	317	BNT.	5'-4"
	B4	#5	159	BNT.	4'-4"
①	D	#4	11	STR.	135'-4"
①	E	#4	61	STR.	135'-4"
①	PHI	#4	4	STR.	135'-4"
	PV1	#5	133	BNT.	3'-11"
	PV2	#4	133	BNT.	5'-0"
	ET	#5	4	STR.	3'-6"
	EL	#4	4	STR.	1'-8"

① INCLUDES TWO LAPS AT 1'-3" MINIMUM EACH

② FIELD CUT A AND A1 BAR, TOP AND BOTTOM, AT EXPANSION JOINT TO CLEAR EXPANSION JOINT BEARING BOX

SUPERSTRUCTURE QUANTITIES - SPAN 4

DESCRIPTION	UNIT	WESTBOUND LT. STR.	EASTBOUND RT. STR.
HANDRAILING	L.F.	132.3	132.3
STRUCTURAL STEEL	LB.	205,200 1	205,200 1
CLASS AA CONCRETE	C.Y.	152.0	135.0
EPOXY COATED REINFORCING STEEL	LB.	35,730	33,230
WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	274	193
EXPANSION BEARING ASSEMBLY	EA.	2	2
LATERAL BRACING VIBRATION DAMPENER	EA.	6	6

REGISTERED PROFESSIONAL ENGINEER
RONALD R. WHITE
8070
OKLAHOMA
CA 1552
6-30-03
4/10/02

Design	CEG	
Drawn	KGL	
Checked	RRW	
Approved		
Squad	WEA	

INTERSTATE I-40
MUSKOGEE-SEQUOYAH COUNTY
SLAB REINFORCING PLAN SPAN 4

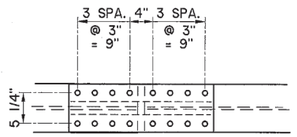
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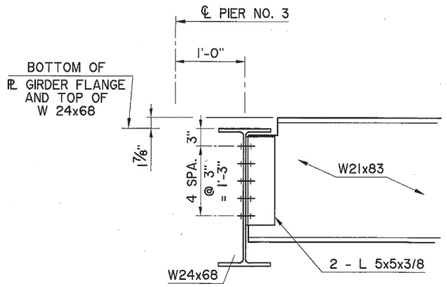
SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				

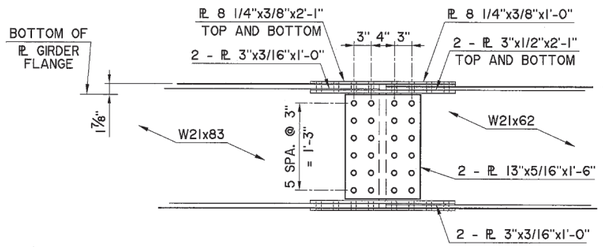
2 6-11-2002 CHANGED BEAM SIZE



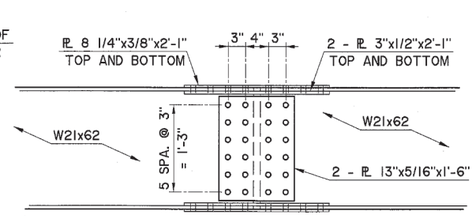
TYPICAL PLAN



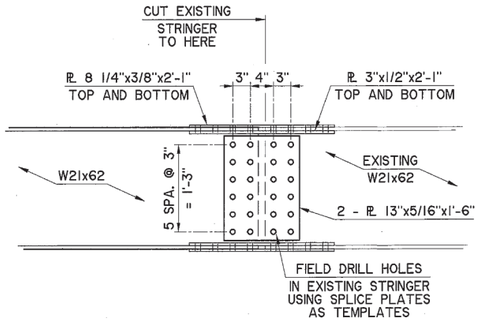
SECTION A



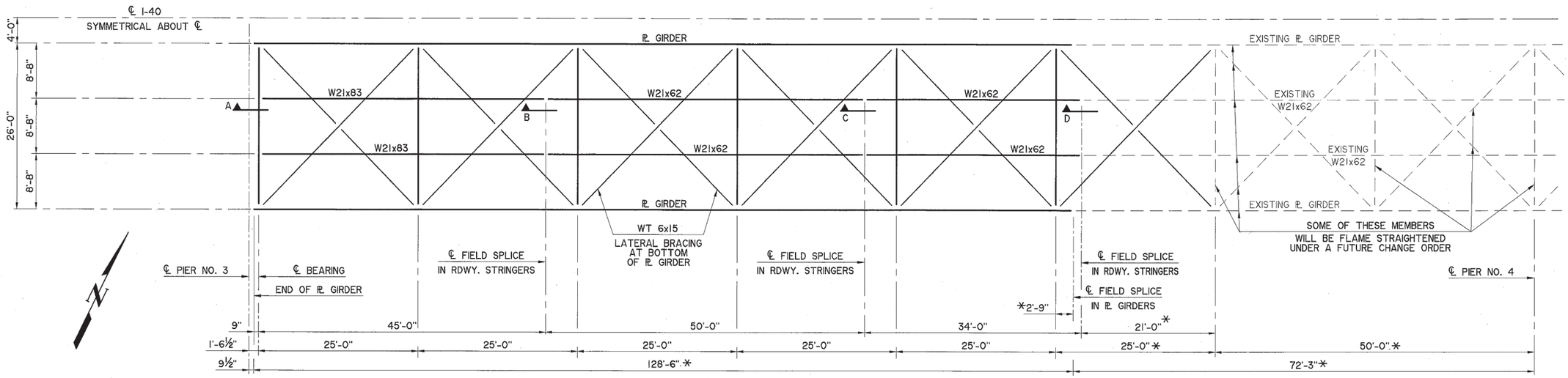
SECTION B



SECTION C

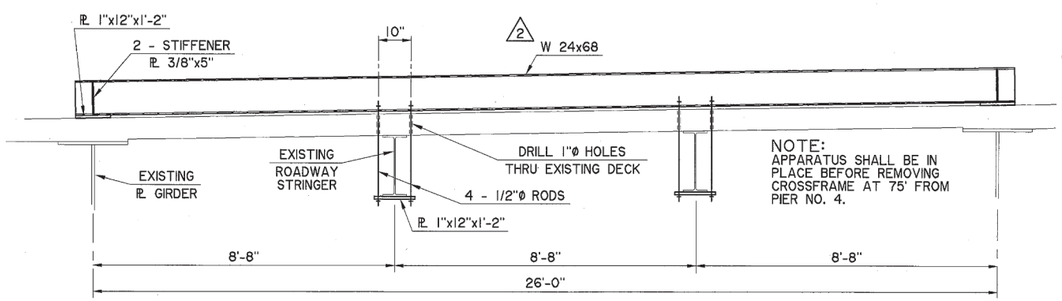


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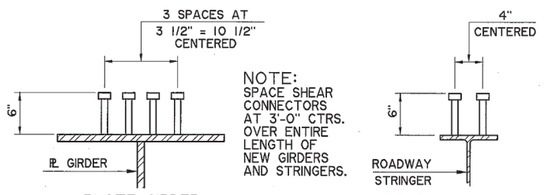


BEAM FRAMING PLAN
SPAN 4

* FIELD VERIFY



TEMPORARY ROADWAY STRINGER SUPPORT APPARATUS AT 65' FROM PIER NO. 4



STUD SHEAR CONNECTOR

RONALD R. WHITE 8070 OKLAHOMA — 4/11/02

Design	CEG	
Drawn	KGL	
Checked	RRW	
Approved		
Squad	WEA	

INTERSTATE I-40
MUSKOGEE-SEQUOYAH COUNTY
BEAM FRAMING PLAN
SPAN 4

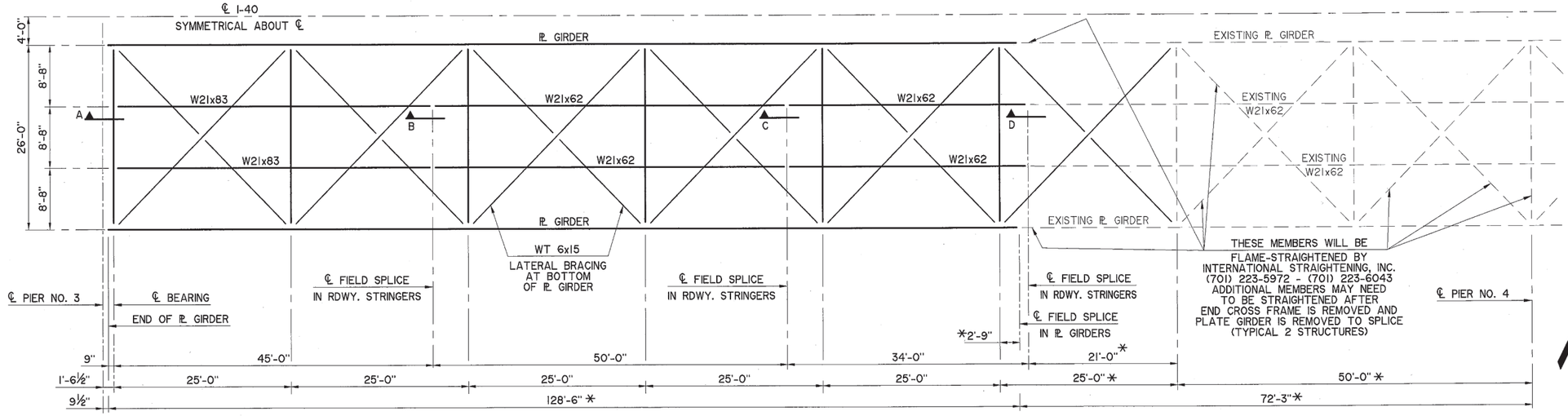
JOB PIECE NO. 20029(05) Sheet No. 42

J:\Job\021\BM FRAMING.dwg, 06/10/2002 03:42:17 PM, karyl

SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				

1 6-13-2002 REVISION AFTER LETTING - ADDED SHEET
2 6-14-2002 REVISION AFTER LETTING - ADDED NOTE
3 6-17-2002 REVISION AFTER LETTING - ADDED NOTE



BEAM FRAMING PLAN SPAN 4

* FIELD VERIFY

ROADWAY SRINGERS SHALL BE SUPPORTED AS SHOWN ON SHEET 42 AND CROSSFRAME AND GIRDER (AS WELL AS GIRDER SPLICE PLATES) SHALL BE REMOVED BEFORE FLAME-STRAIGHTENING PROCESS IS BEGUN

A LIGHT PICKUP, IN SUPPORT OF THE FLAME-STRAIGHTENING OPERATION, WILL BE ALLOWED TO TRAVEL OVER SPAN 5 AND BE PARKED ON SPAN 4 A MAXIMUM OF 40' WEST OF PIER 4

2 THIS WORK NOT INCLUDED IN ORIGINAL CONTRACT. WORK TO RESULT IN A CHANGE ORDER TO BE NEGOTIATED BY WEBBERS FALLS RESIDENCY.

3 THE PRICE BID ON THIS ITEM SHALL INCLUDE ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE FLAME-STRAIGHTENING AS PLANNED, INCLUDING CLEANING OF ALL AFFECTED STEEL MEMBERS AND TOUCH-UP PAINTING OF THE AFFECTED STEEL MEMBERS FOR THE ENTIRE SPAN.
THE COLOR OF THE TOUCH-UP PAINT TOP COAT SHALL MATCH THE EXISTING PAINT COLOR (ALUMINUM).

THE CONTRACTOR SHALL SUBMIT A PROPOSAL TO THE BRIDGE ENGINEER FOR THE CLEANING METHOD AND PAINT SYSTEM TO BE USED ON THE AFFECTED STEEL MEMBERS FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.

FLAME-STRAIGHTENING SPECIFICATIONS

Flame-straightening of the damaged steel bridge members will be performed by the carefully planned and supervised application of a limited amount of localized heat to the damaged members. Mechanical means may be used to straighten the material only in conjunction with the application of heat.

All gas fueled heating equipment, as well as mechanical straightening equipment, shall be supplied by the contractor as necessary to perform all flame straightening.

In general, the methods of construction will rely on the experience of the contractor. "National Cooperative Highway Research Program" (NCHRP) Report No. 271 contains broad guides to this type of repair.

The straightening heat should be applied as rapidly as possible to obtain the best straightening effect. Heat should be applied to small areas, usually triangular in shape. The small areas to which heat is applied and the sequence of heating different small areas shall be determined by the contractor to produce the most efficient straightening. Generally it is not advantageous to heat the same small area more than once.

The maximum temperature to which the steel shall be heated is 1200 degrees Fahrenheit (730 degrees Celsius). The contractor may visually determine that this temperature has been reached when the color of the steel becomes a dull red. The resident engineer may periodically monitor the temperature of the steel to verify the visual temperature determination. The equipment for checking the temperature shall be provided by the contractor and meet the approval of the engineer. A high temperature pyrometer is preferred for the measurement of the temperature, but temperature-indicating crayons or other means approved by the engineer may be used.

No accelerated or artificial cooling will be permitted.

The final acceptable local tolerances for straightness in the area of the damage shall be:

1. Web and Flange Plates of Girders at location of Splice - 1/8 inch in 10 feet of damaged length of girder
2. Horizontal Sweep - 1/4 inch per 10 feet of damaged length of member
3. Vertical deflection (waves) - 1/4 inch in Flanges
4. Deflection of Web (out of plane of web) - 1/4 inch (Measured by a straightedge held vertically and horizontally in the damaged areas)

Cutting, welding or applying heat to steel: Before cutting, welding or applying heat to steel coated with a lead-based paint, remove all paint on all sides within 3 inches of the cut, weld or heated area. Clean the surfaces to SSPC-SP2, hand Tool Cleaning, or to SSPC-SP3, conventional Power Tool Cleaning, in accordance with CFR 1962.62. All costs for this cleaning will be included in other items of work.



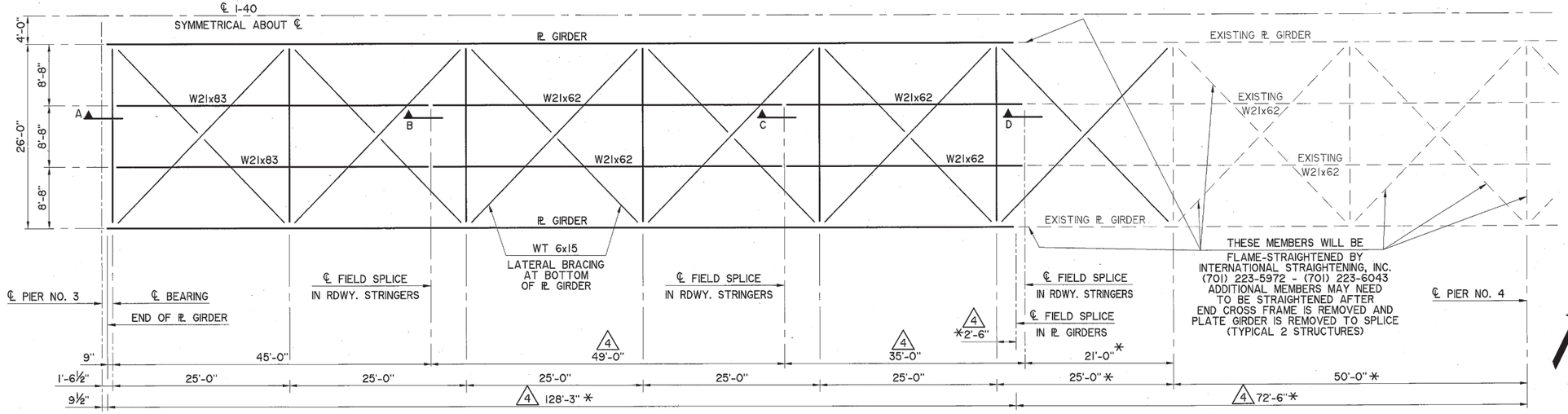
Design		
Drawn	KGL	
Checked	RRW	
Approved		
Squad	WEA	

INTERSTATE I-40
MUSKOGEE-SEQUOYAH COUNTY
FLAME-STRAIGHTENING SPAN 4 RAL 1

JOB PIECE NO. 20029(05) Sheet No. 42A

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SCHEMMER



BEAM FRAMING PLAN
SPAN 4

* FIELD VERIFY

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				

1 6-13-2002 REVISION AFTER LETTING - ADDED SHEET
2 6-14-2002 REVISION AFTER LETTING - ADDED NOTE
3 6-17-2002 REVISION AFTER LETTING - ADDED NOTE
4 7-1-2002 REVISION AFTER LETTING - MOVED GDR & STRINGER SPLICES

ROADWAY SRINGERS SHALL BE SUPPORTED AS SHOWN ON SHEET 42 AND CROSSFRAME AND GIRDER (AS WELL AS GIRDER SPLICE PLATES) SHALL BE REMOVED BEFORE FLAME-STRAIGHTENING PROCESS IS BEGUN

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PROFESSIONAL ENGINEER RONALD R. WHITE 8070 OKLAHOMA
Ca. 1832 6-30-03

Design		
Drawn	KGL	
Checked	RRW	
Approved		
Squad	WEA	

INTERSTATE I-40
MUSKOGEE-SEQUOYAH COUNTY
FLAME-STRAIGHTENING
SPAN 4
RAL 2

JOB PIECE NO. 20029(05) Sheet No. 42A

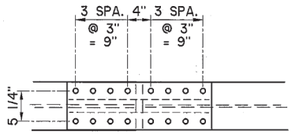
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SCHEMMER

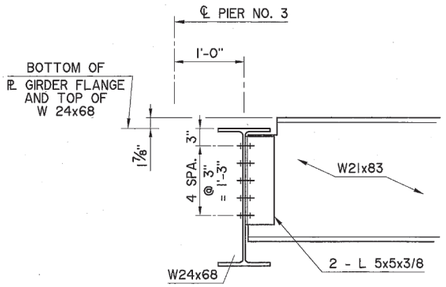
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				

2 6-11-2002 CHANGED BEAM SIZE

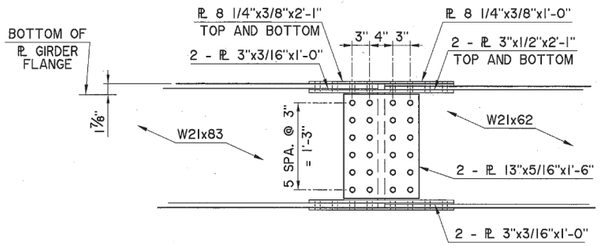
3 7-1-2002 REVISION AFTER LETTING - MOVED GDR & STRINGER SPLICES



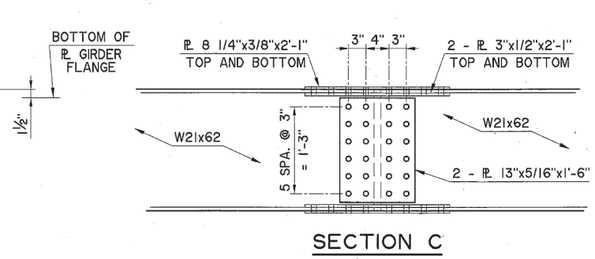
TYPICAL PLAN



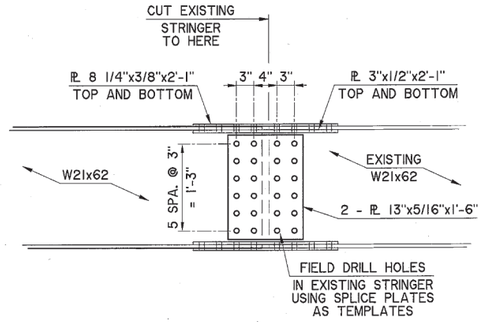
SECTION A



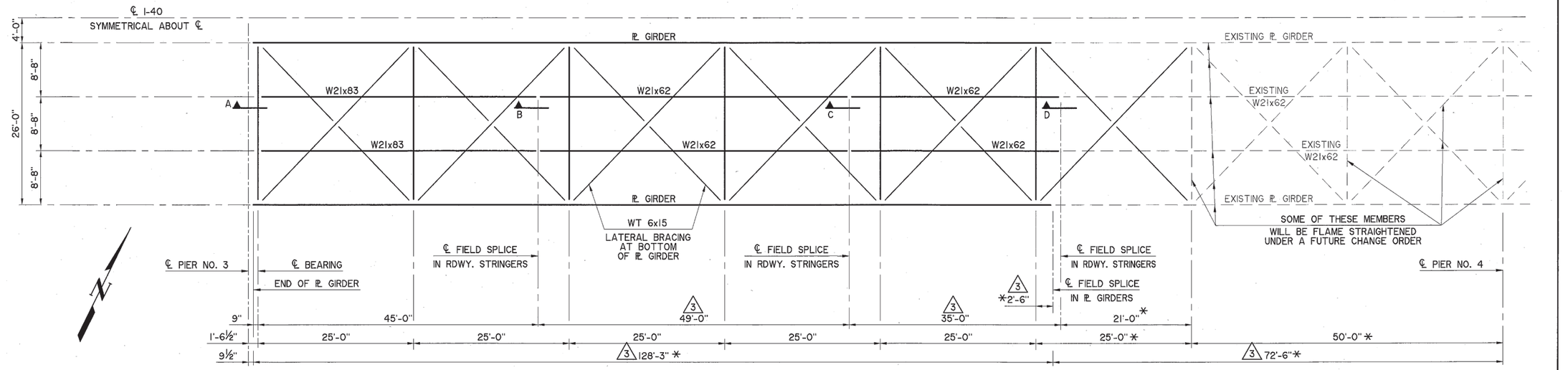
SECTION B



SECTION C

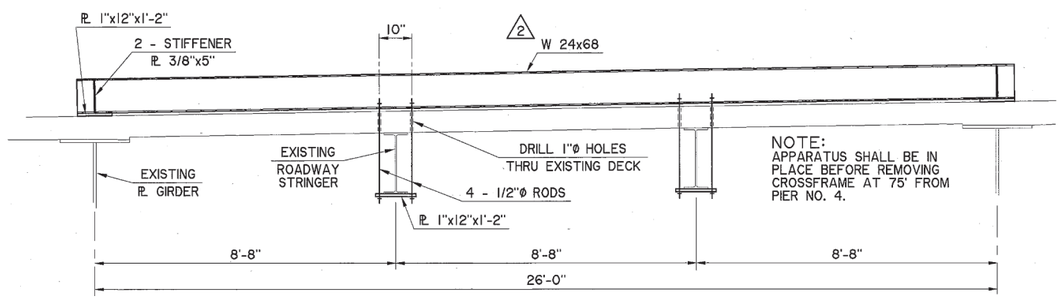


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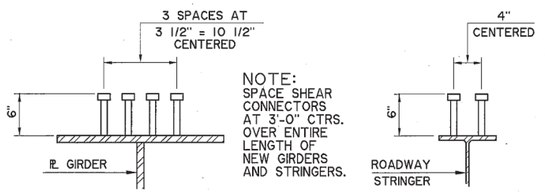


BEAM FRAMING PLAN
SPAN 4

* FIELD VERIFY



TEMPORARY ROADWAY STRINGER SUPPORT APPARATUS AT 65' FROM PIER NO. 4



STUD SHEAR CONNECTOR

RONALD R. WHITE 8070 OKLAHOMA REGISTERED ENGINEERING
7/2/02
CA 1832 6-30-03

Design	CEG	
Drawn	KGL	
Checked	RRW	
Approved		
Squad	WEA	

INTERSTATE I-40
MUSKOGEE-SEQUOYAH COUNTY
BEAM FRAMING PLAN
SPAN 4

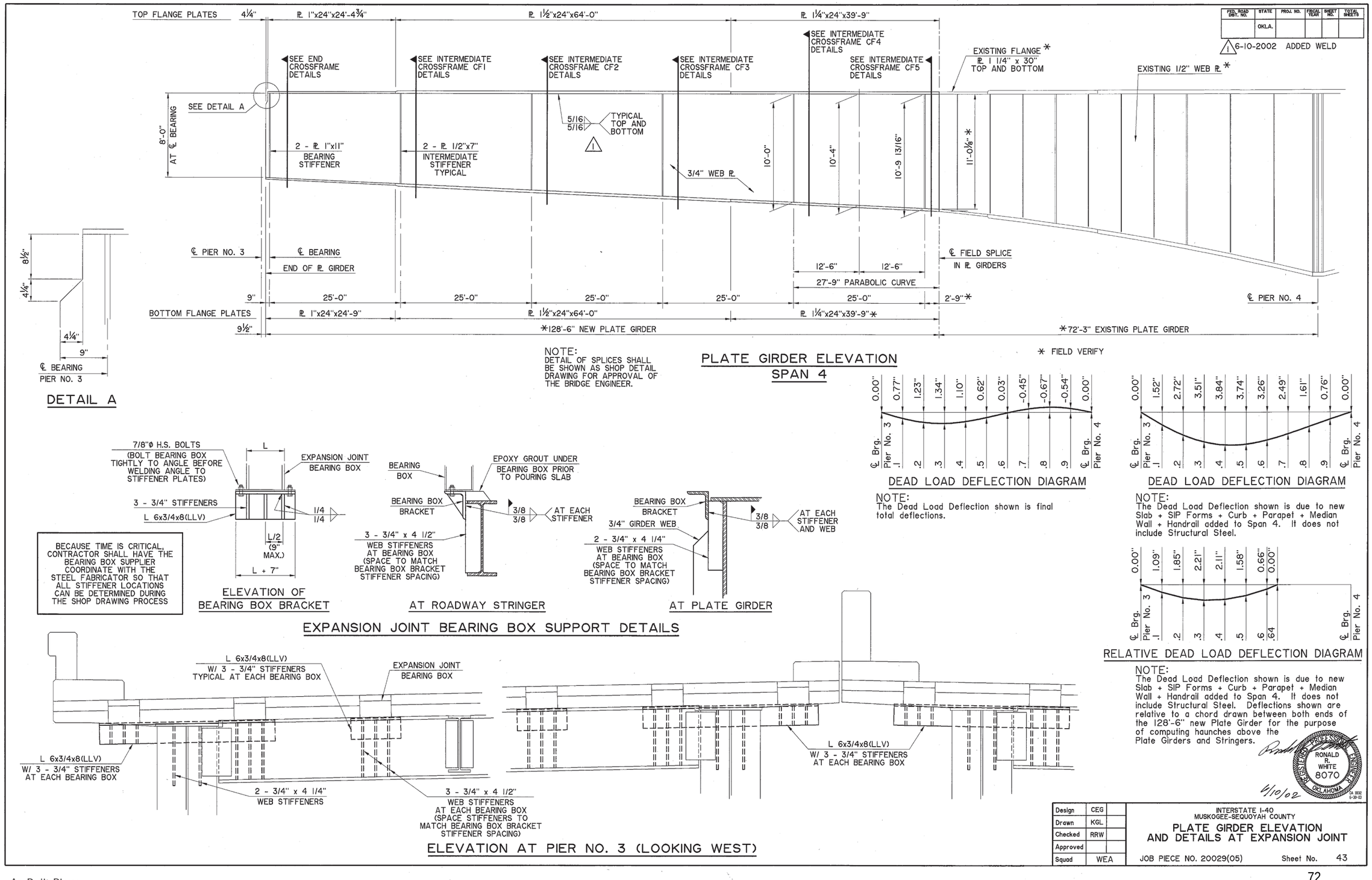
JOB PIECE NO. 20029(05) Sheet No. 42 RAL

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SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				

1 6-10-2002 ADDED WELD



* FIELD VERIFY

DETAIL A

NOTE:
DETAIL OF SPLICES SHALL BE SHOWN AS SHOP DETAIL DRAWING FOR APPROVAL OF THE BRIDGE ENGINEER.

PLATE GIRDER ELEVATION SPAN 4

DEAD LOAD DEFLECTION DIAGRAM

NOTE:
The Dead Load Deflection shown is final total deflections.

DEAD LOAD DEFLECTION DIAGRAM

NOTE:
The Dead Load Deflection shown is due to new Slab + SIP Forms + Curb + Parapet + Median Wall + Handrail added to Span 4. It does not include Structural Steel.

RELATIVE DEAD LOAD DEFLECTION DIAGRAM

NOTE:
The Dead Load Deflection shown is due to new Slab + SIP Forms + Curb + Parapet + Median Wall + Handrail added to Span 4. It does not include Structural Steel. Deflections shown are relative to a chord drawn between both ends of the 128'-6" new Plate Girder for the purpose of computing haunches above the Plate Girders and Stringers.

4/10/02

ELEVATION OF BEARING BOX BRACKET

BECAUSE TIME IS CRITICAL, CONTRACTOR SHALL HAVE THE BEARING BOX SUPPLIER COORDINATE WITH THE STEEL FABRICATOR SO THAT ALL STIFFENER LOCATIONS CAN BE DETERMINED DURING THE SHOP DRAWING PROCESS

AT ROADWAY STRINGER

AT PLATE GIRDER

EXPANSION JOINT BEARING BOX SUPPORT DETAILS

ELEVATION AT PIER NO. 3 (LOOKING WEST)

Design	CEG	
Drawn	KGL	
Checked	RRW	
Approved		
Squad	WEA	

INTERSTATE I-40
MUSKOGEE-SEQUOYAH COUNTY
PLATE GIRDER ELEVATION AND DETAILS AT EXPANSION JOINT

JOB PIECE NO. 20029(05) Sheet No. 43

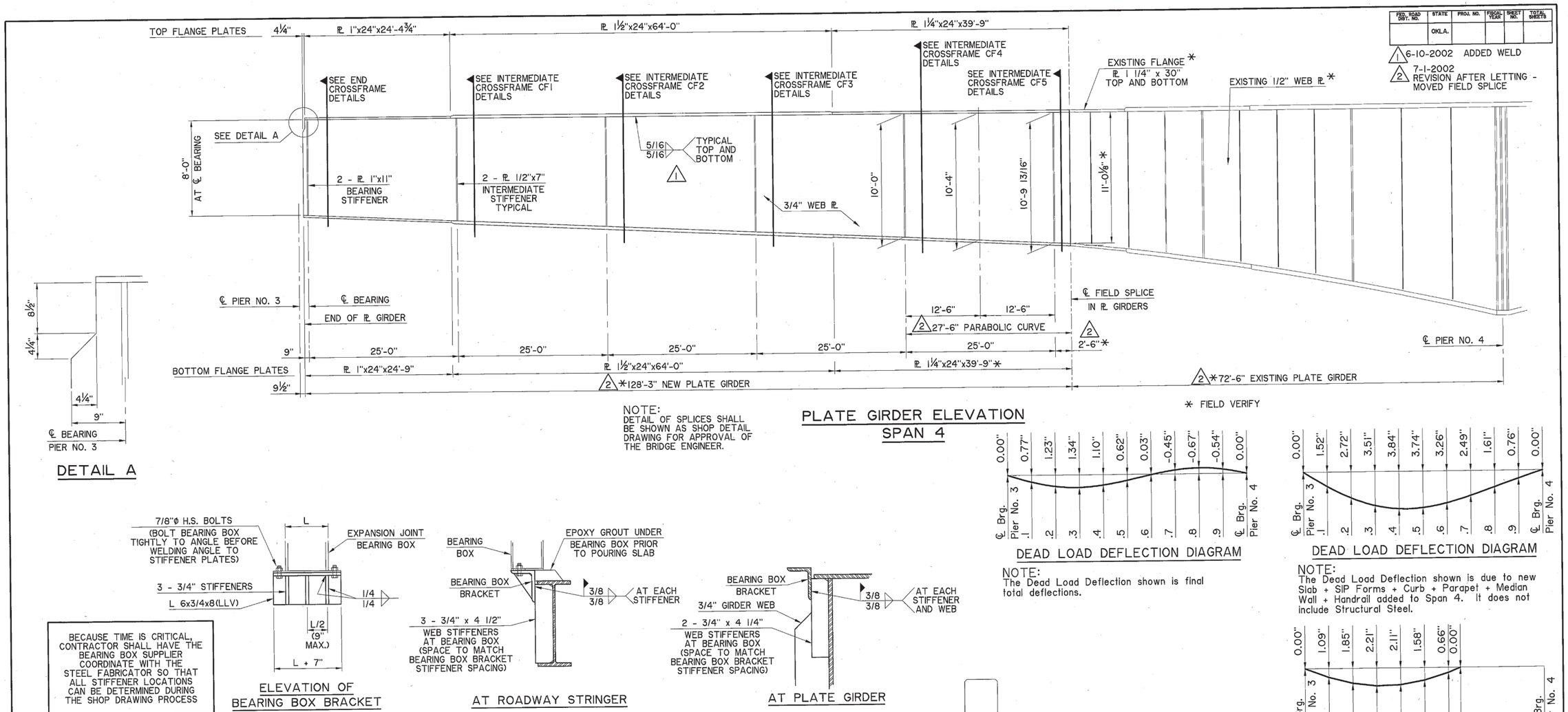
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SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				

1 6-10-2002 ADDED WELD

2 7-1-2002 REVISION AFTER LETTING - MOVED FIELD SPLICE



NOTE:
DETAIL OF SPLICES SHALL BE SHOWN AS SHOP DETAIL DRAWING FOR APPROVAL OF THE BRIDGE ENGINEER.

DETAIL A

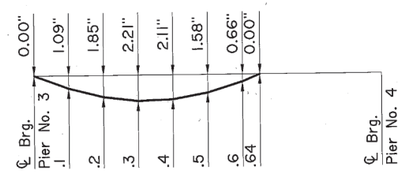
PLATE GIRDER ELEVATION SPAN 4

DEAD LOAD DEFLECTION DIAGRAM

NOTE:
The Dead Load Deflection shown is final total deflections.

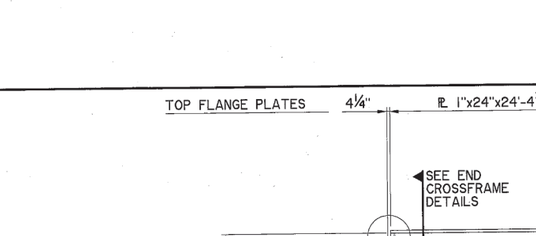
DEAD LOAD DEFLECTION DIAGRAM

NOTE:
The Dead Load Deflection shown is due to new Slab + SIP Forms + Curb + Parapet + Median Wall + Handrail added to Span 4. It does not include Structural Steel.

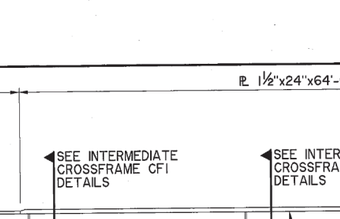


RELATIVE DEAD LOAD DEFLECTION DIAGRAM

NOTE:
The Dead Load Deflection shown is due to new Slab + SIP Forms + Curb + Parapet + Median Wall + Handrail added to Span 4. It does not include Structural Steel. Deflections shown are relative to a chord drawn between both ends of the 128'-6" new Plate Girder for the purpose of computing haunches above the Plate Girders and Stringers.



ELEVATION OF BEARING BOX BRACKET

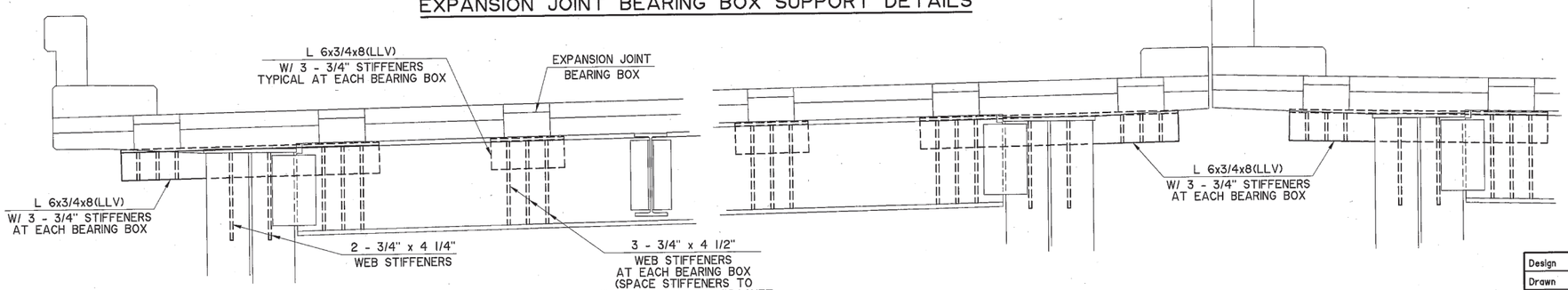


AT ROADWAY STRINGER

AT PLATE GIRDER

BECAUSE TIME IS CRITICAL, CONTRACTOR SHALL HAVE THE BEARING BOX SUPPLIER COORDINATE WITH THE STEEL FABRICATOR SO THAT ALL STIFFENER LOCATIONS CAN BE DETERMINED DURING THE SHOP DRAWING PROCESS

EXPANSION JOINT BEARING BOX SUPPORT DETAILS



ELEVATION AT PIER NO. 3 (LOOKING WEST)

STATE OF OKLAHOMA RONALD R. WHITE 8070 REGISTERED PROFESSIONAL ENGINEER CA 1932 EXP. 6-30-03
7/2/02

Design	CEG	
Drawn	KGL	
Checked	RRW	
Approved		
Squad	WEA	

INTERSTATE I-40
MUSKOGEE-SEQUOYAH COUNTY
PLATE GIRDER ELEVATION AND DETAILS AT EXPANSION JOINT

JOB PIECE NO. 20029(05) Sheet No. 43RAL

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SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				

1 6-10-2002 ADDED NOTE

STRUCTURAL STEEL NOTES

SHOP DRAWINGS

THE GIRDER DETAIL IS DRAWN, AND DIMENSIONS SHOWN, AS IF THE TOP FLANGE OF GIRDERS WERE IN A TRULY HORIZONTAL POSITION. NO ACCOUNTING HAS BEEN MADE IN THE DRAWING FOR GRADE OR CAMBER. SHOP DRAWINGS WILL INCLUDE SUCH ADJUSTMENTS AS ARE NECESSARY TO PROVIDE FOR VERTICAL CURVATURE AND DEAD LOAD DEFLECTION.

STRUCTURAL STEEL

ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M-270, GRADE 36 OR GRADE 50, AND DOES NOT NEED TO COMPLY WITH FRACTURE CRITICAL CRITERIA.

CHARPY V-NOTCH

CHARPY V-NOTCH TESTS REQUIRED UNDER THE SPECIFICATION FOR STRUCTURAL STEEL SHALL CONFIRM A V-NOTCH TOUGHNESS OF 26 FT-LB AT 40° F. CHARPY V-NOTCH TESTING SHALL BE "H" HEAT FREQUENCY TESTING N ACCORDANCE WITH AASHTO SPECIFICATIONS T243. THIS REQUIREMENT ONLY APPLIES TO THE PLATE GIRDERS AND W 24x68 FLOOR BEAMS.

HIGH STRENGTH BOLTS

HIGH STRENGTH STEEL BOLTS SHALL BE USED FOR ALL FIELD AND SHOP CONNECTIONS. THE "CALIBRATED WRENCH" METHOD SHALL NOT BE USED.
DIRECT TENSION INDICATOR WASHERS ARE REQUIRED AND SHALL BE GALVANIZED AND EPOXY COATED.

WELDING

ALL WELDING FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH SECTION 724.03 OF THE STANDARD SPECIFICATIONS.
NO FIELD WELDING TO BEAM OR GIRDER WILL BE ALLOWED EXCEPT AS SHOWN ON THE PLANS.
METAL USED IN SHOP WELDS AND FIELD WELDS WILL NOT BE MEASURED FOR PAYMENT.

INSPECTION REQUIREMENTS

RADIOGRAPHIC AND ULTRASONIC, OR MAGNETIC PARTICLE INSPECTIONS WILL BE REQUIRED AS APPROPRIATE.

BEARING ASSEMBLIES AND STIFFENERS

ANCHOR PLATES (WITH CONTACT ANGLES SHOP WELDED) FOR EXPANSION ASSEMBLIES SHALL BE MATCH MARKED, SHIPPED LOOSE, AND FIELD WELDED IN ORDER THAT ANY NECESSARY MINOR HORIZONTAL ADJUSTMENT OF THE ASSEMBLY LOCATION CAN BE MADE. ALL BEARING STIFFENERS SHALL BE VERTICAL. IF ACTUAL CENTERLINE BEARING OF THE ASSEMBLY DOES NOT LINE UP HORIZONTALLY WITHIN ±2" OF THE VERTICAL BEARING STIFFENER PLATES, ADDITIONAL VERTICAL STIFFENERS SHALL BE WELDED TO THE BEAM OR GIRDER. ALL COSTS OF MATERIAL, LABOR, WELDING, AND INCIDENTALS NECESSARY TO INSTALL THE ADDITIONAL STIFFENER PLATES SHALL BE AT THE CONTRACTOR'S EXPENSE.

MEASUREMENT FOR PAYMENT

PAYMENT FOR WEB AND FLANGE PLATES FOR GIRDERS WILL BE BASED ON THE NOMINAL SIZES SPECIFIED ON THE PLANS. NO ALLOWANCE WILL BE MADE FOR WASTE NECESSITATED BY GIRDER CAMBER OR CURVE.

VIBRATION DAMPENERS

VIBRATION DAMPENERS SHALL NOT BE INSTALLED UNTIL FIELD PAINTING IS COMPLETED.

CONSTRUCTION OPERATIONS LIMITATIONS

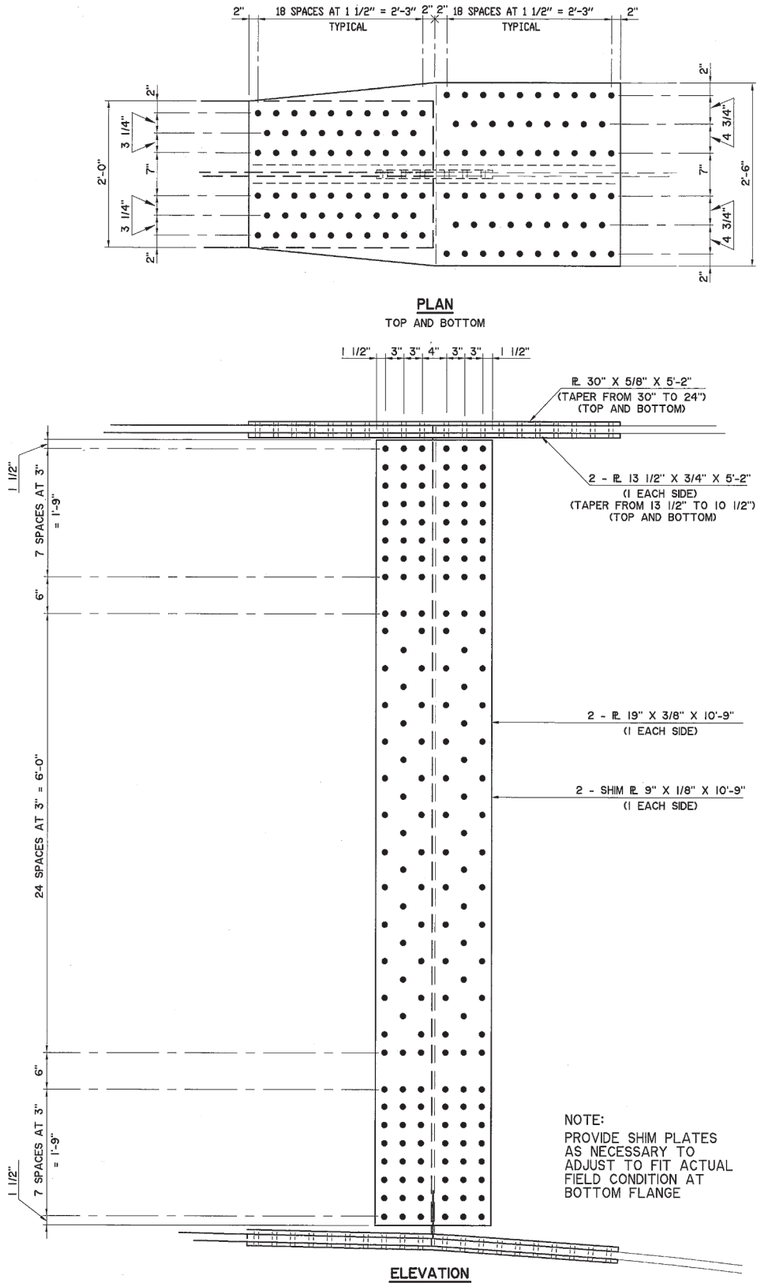
NO CONSTRUCTION OPERATIONS SHALL OCCUR ON SPAN 5 UNTIL SPAN 4 DECK IS POURED. THE BALLAST (PORTABLE MEDIAN BARRIERS) PLACED ON SPAN 4 SHALL REMAIN IN PLACE UNTIL AFTER SPAN 4 IS POURED.
FLAME STRAIGHTENING OF EXISTING MEMBERS SHALL BE DONE BEFORE NEW STEEL ERECTION. NO TIME EXTENSIONS WILL BE ALLOWED FOR THE WORK OF THIS ITEM.

SHOP DRAWING PREPARER

WALTER J. GATTI
TENSOR ENGINEERING CO.
2060 SOUTH PATRICK DRIVE
INDIAN HARBOUR BEACH, FL 32937
PHONE 321-773-3036

BEAM HAUNCH TURN-AROUND TIME 1

FROM THE TIME TOP OF BEAM ELEVATON DATA IS RECEIVED BY THE ENGINEER, THE CONTRACTOR SHOULD ALLOW 24 HOURS DURING THE WEEK AND 48 HOURS ON WEEKENDS, BEGINNING AT 5:00 P.M. ON FRIDAY, FOR A TURN-AROUND TIME TO RECEIVE HAUNCH DIMENSIONS FOR FORMING THE DECK SLAB.



BOLTED FIELD SPLICE

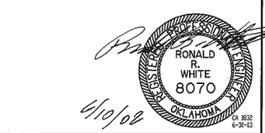
7/8"ø H.S. STEEL BOLTS (A325)
116 BOLTS TOP
178 BOLTS WEB
116 BOLTS BOTTOM

SUGGESTED FIELD SPLICE PROCEDURES

1. REMOVE EXISTING SPLICE PLATES CAREFULLY MARKING POSITIONS RELATIVE TO END OF NEW FABRICATED GIRDER.
2. USE EAST END OF FLANGE SPLICES AS TEMPLATES TO DRILL 15/16"ø HOLES IN NEW FLANGE SPLICE PLATES AND SHIM PLATES.
3. REUSE WEB SPLICE PLATES AND REAM HOLES TO 15/16"ø.
4. REAM 40 HOLES IN EACH FLANGE AND 11 HOLES IN WEB OF EXISTING GIRDER TO 15/16"ø.
5. HOLDING NEW GIRDER IN POSITION, BLOCKING THE WEST END UP ON PIER 3 AND USING DRIFT PINS AS NECESSARY, INSTALL A MINIMUM OF 40 BOLTS IN EACH FLANGE SPLICE ON EACH SIDE OF SPLICE AND A MINIMUM OF 11 BOLTS IN WEB SPLICE ON EACH SIDE OF SPLICE. FOUR WEB BOLTS SHALL BE LOCATED WITHIN 1'-0" OF EACH FLANGE WITH THE OTHER THREE BOLTS EQUALLY SPACED IN THE BALANCE OF THE WEB.
6. LOWER WEST END OF GIRDER SUCH THAT THE FREE END RESTS ON PIER NO. 3, TAKING CARE TO LATERALLY STABILIZE THE GIRDER.
7. REAM BALANCE OF SPLICE HOLES IN EXISTING GIRDER TO 15/16"ø AND INSTALL 7/8"ø BOLTS.

THE ABOVE SUGGESTED PROCEDURE IS SIMPLY ONE METHOD OF MAKING THE SPLICE. THE CONTRACTOR IS RESPONSIBLE FOR HIS MEANS AND METHODS AND MAY SUBMIT ANOTHER PROCEDURE FOR APPROVAL BY THE BRIDGE ENGINEER.

NOTE:
CONTRACTOR SHALL VERIFY WHETHER EXISTING FIELD SPLICE IS VERTICAL OR PERPENDICULAR TO TOP FLANGE.



Design	CEG	
Drawn	KGL	
Checked	RRW	
Approved		
Squad	WEA	

INTERSTATE I-40
MUSKOGEE-SEQUOYAH COUNTY
PLATE GIRDER FIELD SPLICE
SPAN 4
AND NOTES
JOB PIECE NO. 20029(05) Sheet No. 44

J:\Job\0211\SPLICE.dwg, 06/10/2002 01:24:21 PM, karyl

SCHEMMER

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				

1 6-10-2002 ADDED NOTE

2 7-1-2002 REVISION AFTER LETTING - REVISED FIELD SPLICE

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VIBRATION DAMPENERS

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CONSTRUCTION OPERATIONS LIMITATIONS

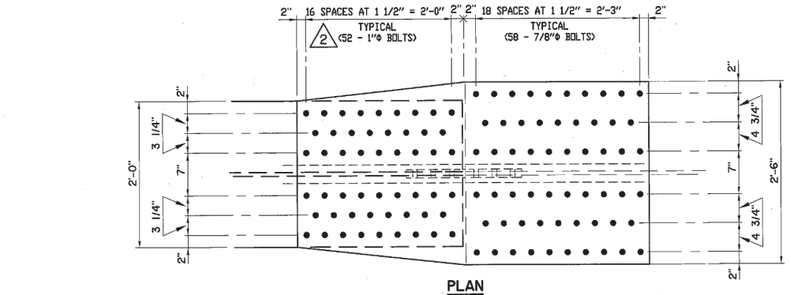
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SHOP DRAWING PREPARER

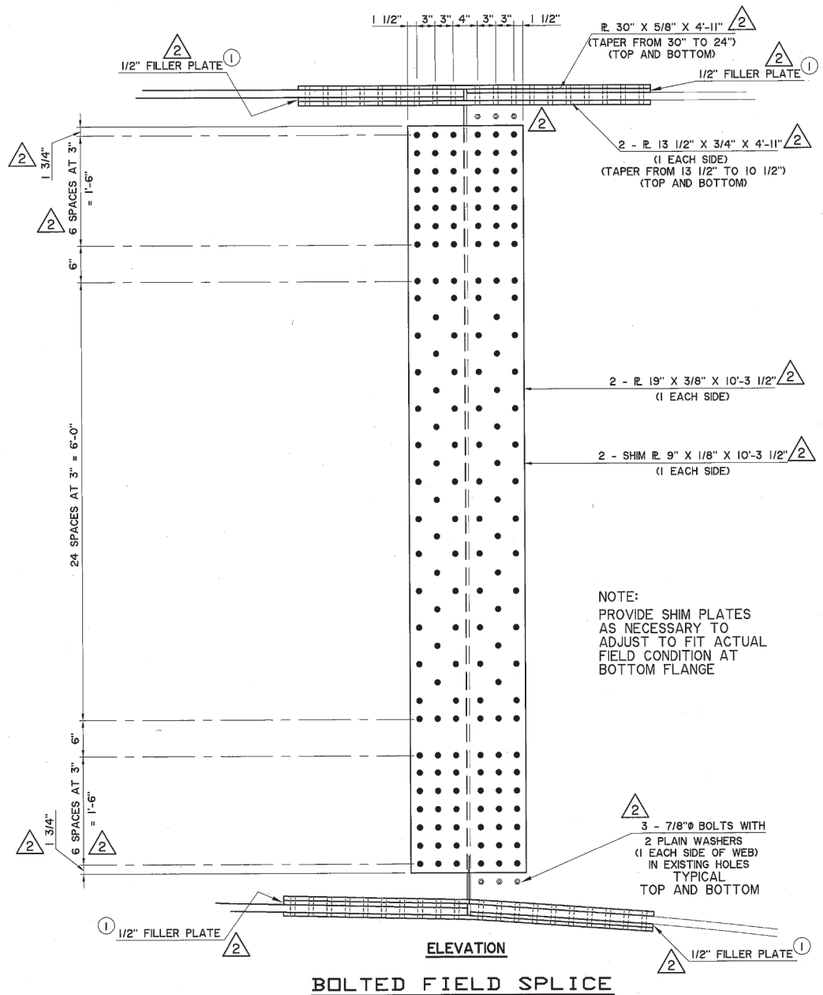
WALTER J. GATTI
TENSOR ENGINEERING CO.
2060 SOUTH PATRICK DRIVE
INDIAN HARBOUR BEACH, FL 32937
PHONE 321-773-3036

BEAM HAUNCH TURN-AROUND TIME 1

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PLAN
TOP AND BOTTOM



ELEVATION

BOLTED FIELD SPLICE

1"ø AND 7/8"ø ø H.S. STEEL BOLTS (A325)
2 52 - 1"ø AND 58 - 7/8"ø BOLTS TOP
172 - 7/8"ø BOLTS WEB
52 - 1"ø AND 58 - 7/8"ø BOLTS TOP

NOTE:
PROVIDE SHIM PLATES AS NECESSARY TO ADJUST TO FIT ACTUAL FIELD CONDITION AT BOTTOM FLANGE

SUGGESTED FIELD SPLICE PROCEDURES

1. REMOVE EXISTING SPLICE PLATES CAREFULLY MARKING POSITIONS RELATIVE TO END OF NEW FABRICATED GIRDER.
2. USE EAST END OF FLANGE SPLICES AS TEMPLATES TO DRILL 15/16"ø HOLES IN NEW FLANGE SPLICE PLATES AND SHIM PLATES.
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2
1 FILLER PLATE THICKNESS MAY VARY IN ACCORDANCE WITH ACTUAL DEPTH OF WEB ON EACH GIRDER

NOTE:
CONTRACTOR SHALL VERIFY WHETHER EXISTING FIELD SPLICE IS VERTICAL OR PERPENDICULAR TO TOP FLANGE.

STATE OF OKLAHOMA RONALD R. WHITE 8070 REGISTERED PROFESSIONAL ENGINEER
7/1/02
CA 1832 6-30-03

Design	CEG	
Drawn	KGL	
Checked	RRW	
Approved		
Squad	WEA	

INTERSTATE I-40
MUSKOGEE-SEQUOYAH COUNTY
PLATE GIRDER FIELD SPLICE SPAN 4 AND NOTES
JOB PIECE NO. 20029(05) Sheet No. 44

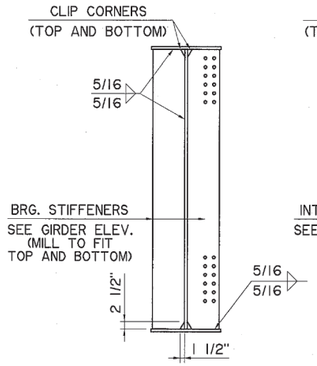
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SCHEMMER

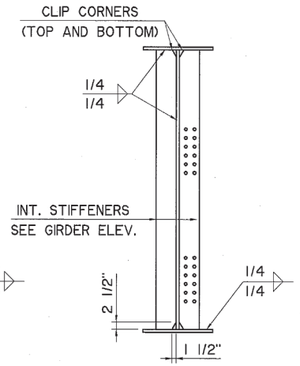
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				

1 6-13-2002 REVISION AFTER LETTING - REVISED DIMENSION

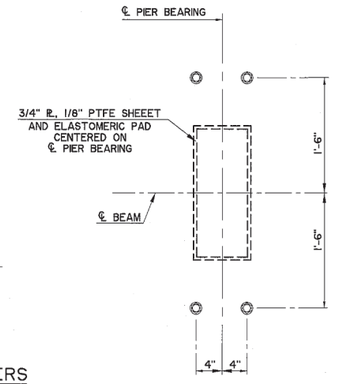
2 6-20-2002 REVISION AFTER LETTING - REVISED BEARING



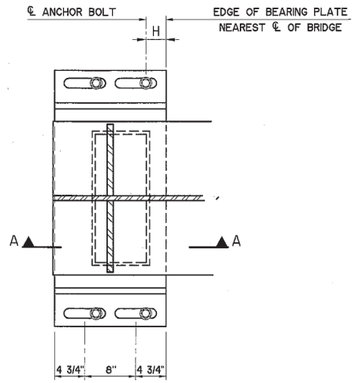
BEARING STIFFENERS



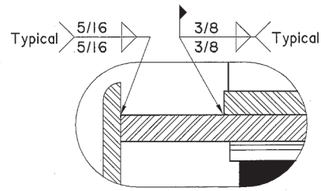
INTERMEDIATE STIFFENERS AT CROSSFRAME



ANCHOR BOLT AND BEARING PLAN



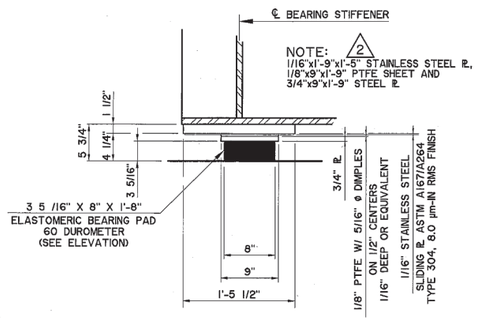
ANCHOR PLATE PLAN



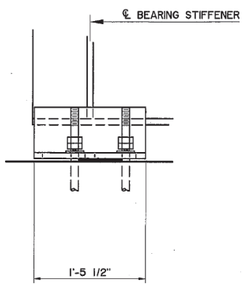
DETAIL A

NOTE:
WEB AND STIFFENER MUST BE AT 90°

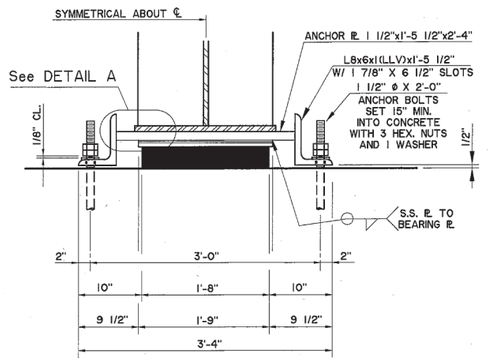
2 VULCANIZE ELASTOMERIC BEARING PAD TO 3/4" STEEL PLATE



SECTION A-A

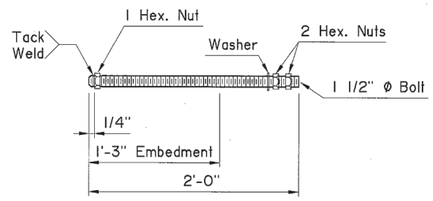


SIDE ELEVATION



FRONT ELEVATION

PTFE ELASTOMERIC (TYPE II) EXPANSION BEARING



ANCHOR BOLT DETAIL

SCHEDULE OF ANCHOR PLATE SETTINGS	
TEMPERATURE	H
0° F.	7 1/4"
6° F.	7"
12° F.	6 3/4"
18° F.	6 1/2"
24° F.	6 1/4"
30° F.	6"
36° F.	5 3/4"
42° F.	5 1/2"
48° F.	5 1/4"
54° F.	5"
60° F.	4 3/4"
66° F.	4 1/2"
72° F.	4 1/4"
78° F.	4"
84° F.	3 3/4"
90° F.	3 1/2"
96° F.	3 1/4"
102° F.	3"
108° F.	2 3/4"
114° F.	2 1/2"
120° F.	2 1/4"

NOTE:

THE PTFE SHEET SHALL BE MADE FROM PURE, UNFILLED VIRGIN PTFE RESIN SATISFYING THE REQUIREMENTS OF ASTM-D1457.

THE PTFE SHEET SHALL BE BONDED DIRECTLY TO THE 3/4" STEEL ℝ WITH A TWO-COMPONENT, MEDIUM VISCOSITY EPOXY RESIN CONFORMING TO THE REQUIREMENTS OF THE FEDERAL SPECIFICATION MMM-A134, TYPE I. THE BOND AGENT SHALL BE APPLIED ON THE FULL AREA OF THE CONTACT SURFACE.

CONTRACTOR SHALL PROVIDE ENGINEER WITH PRODUCTION LOT CERTIFICATION TESTING RESULTS FOR THE PTFE SHEET SHOWING THE FRICTION COEFFICIENT DOES NOT EXCEED A VALUE OF 0.06.

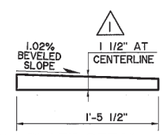
ALL COST OF MATERIALS AND INSTALLATION OF ELASTOMERIC PAD, 1/16"m STAINLESS STEEL ℝ AND 1/8" PTFE SHEET SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

DURING FIELD WELDING OF ANCHOR PLATE TO GIRDER FLANGE, THE TEMPERATURE OF THE BOTTOM FACE OF ANCHOR PLATE SHALL BE MAINTAINED BELOW 400° F.

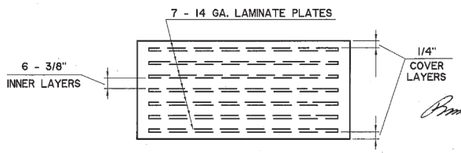
DETAILS ARE DRAWN AS IF THE TEMPERATURE IS 60° F.

PAINT ANCHOR PLATES, ANGLES, AND 3/4" PLATE WITH TWO (2) COATS OF AN APPROVED ZINC-RICH PAINT (MIN. 6 MIL).

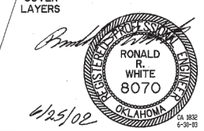
NOTE:
PAINT THICK EDGE RED. PLACE THICK EDGE TOWARD ABUT. NO. 1, AT PIER NO. 3.



BEVELED ANCHOR PLATE DETAIL



BEARING PAD ELEVATION



Design	CEG	
Drawn	KGL	
Checked	RRW	
Approved		
Squad	WEA	

INTERSTATE I-40
MUSKOGEE-SEQUOYAH COUNTY

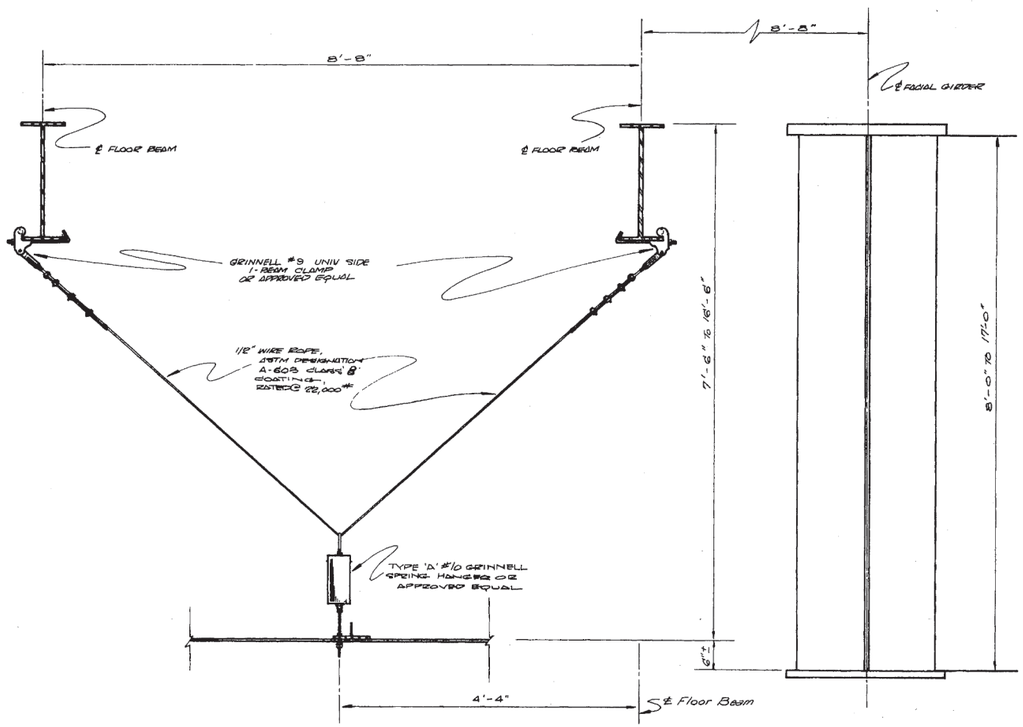
BEARING DETAILS
PIER NO. 3, SPAN 4
AND STIFFENER DETAILS

JOB PIECE NO. 20029(05) Sheet No. 45

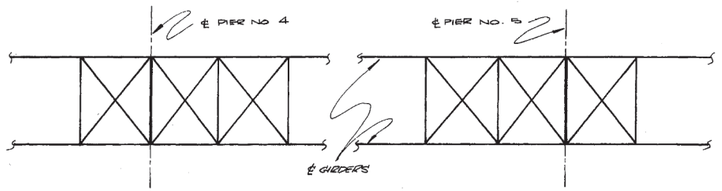
J:\Job\0211\BRG.dwg, 06/24/2002 02:26:58 PM, kary.l

SCHEMMER

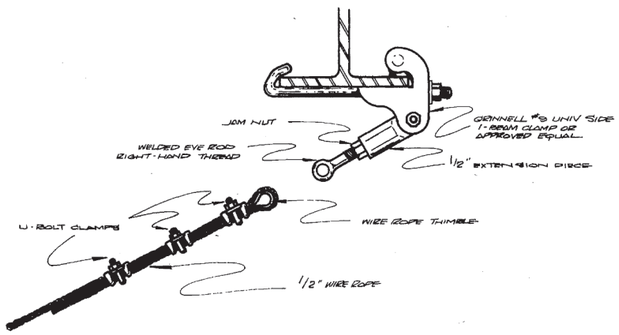
REVISIONS		
REV NO	DESCRIPTION	DATE



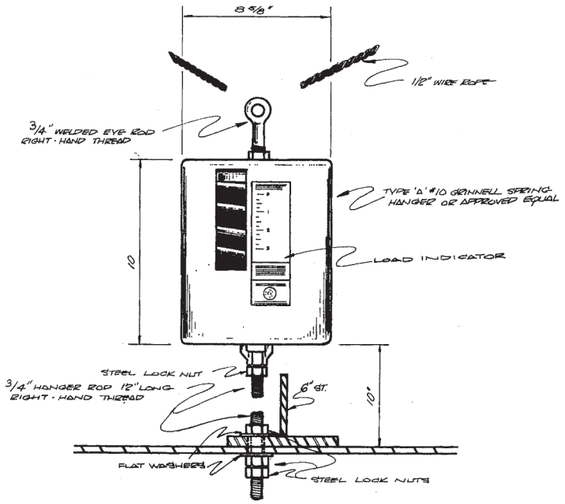
LATERAL BRACING VIBRATION DAMPNER



LAYOUT OF LATERAL BRACING AT PIER NO.s 4 & 5
(SEE LOAD INDICATOR SETTING NOTE BELOW)



DETAIL OF UNIVERSAL I-BEAM CLAMP



DETAIL OF SPRING HANGER

LOAD INDICATOR SETTING FOR SPRING HANGER:

After the complete vibration dampener assembly is in place, the load indicator on the spring hanger shall be adjusted to show a setting as follows:

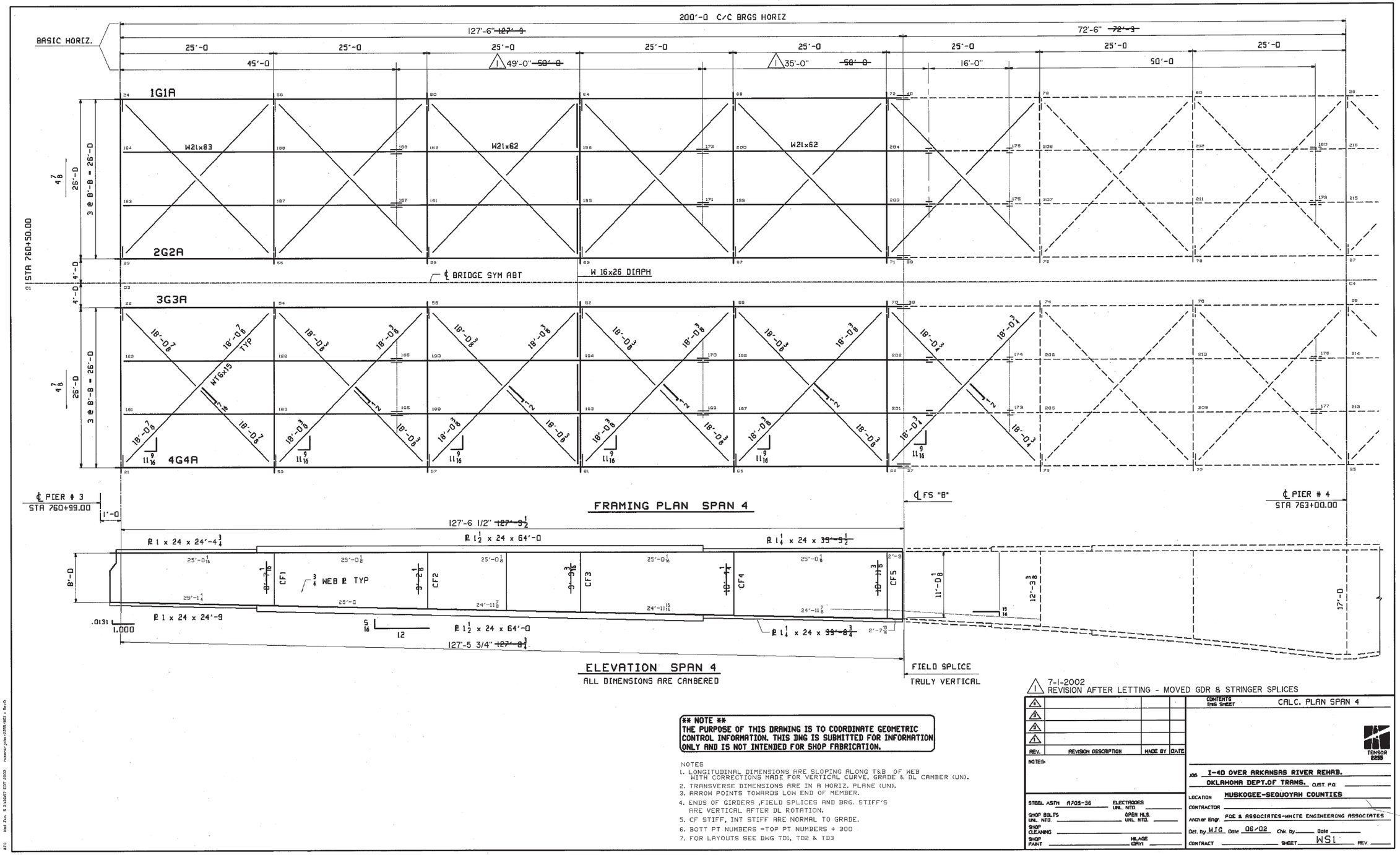
1 1/2"- Lateral bracing panels adjacent to Pier No. 4 & Pier No. 5 as shown in "Layout of Lateral Bracing at Pier Nos 4 & 5" (12 panels total).

1/2" – All remaining lateral bracing panels

NOTE: DO NOT PAINT SPRING HANGER

I-40 OVER ARKANSAS RIVER	MUSKOGEE & SEQUOYAH CO	Design	
DETAILS OF LATERAL BRACING VIBRATION DAMPNER		Detail	9/82
		Check	9-82
		Squad: HILL	
		Engr.: Mc COLLOM	
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION	PROJ. NO. IR-40-6(187)291	SHEET NO. 27

SCHEMMER



7-1-2002
REVISION AFTER LETTING - MOVED GDR & STRINGER SPLICES

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG T&B OF WEB WITH CORRECTIONS MADE FOR VERTICAL CURVE, GRADE & DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ARROW POINTS TOWARDS LOW END OF MEMBER.
4. ENDS OF GIRDERS ,FIELD SPLICES AND BRG. STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. CF STIFF, INT STIFF ARE NORMAL TO GRADE.
6. BOTT PT NUMBERS =TOP PT NUMBERS + 300
7. FOR LAYOUTS SEE DWG TD1, TD2 & TD3

REV.	REVISION DESCRIPTION	MADE BY	DATE
4			
3			
2			
1			

NOTES:

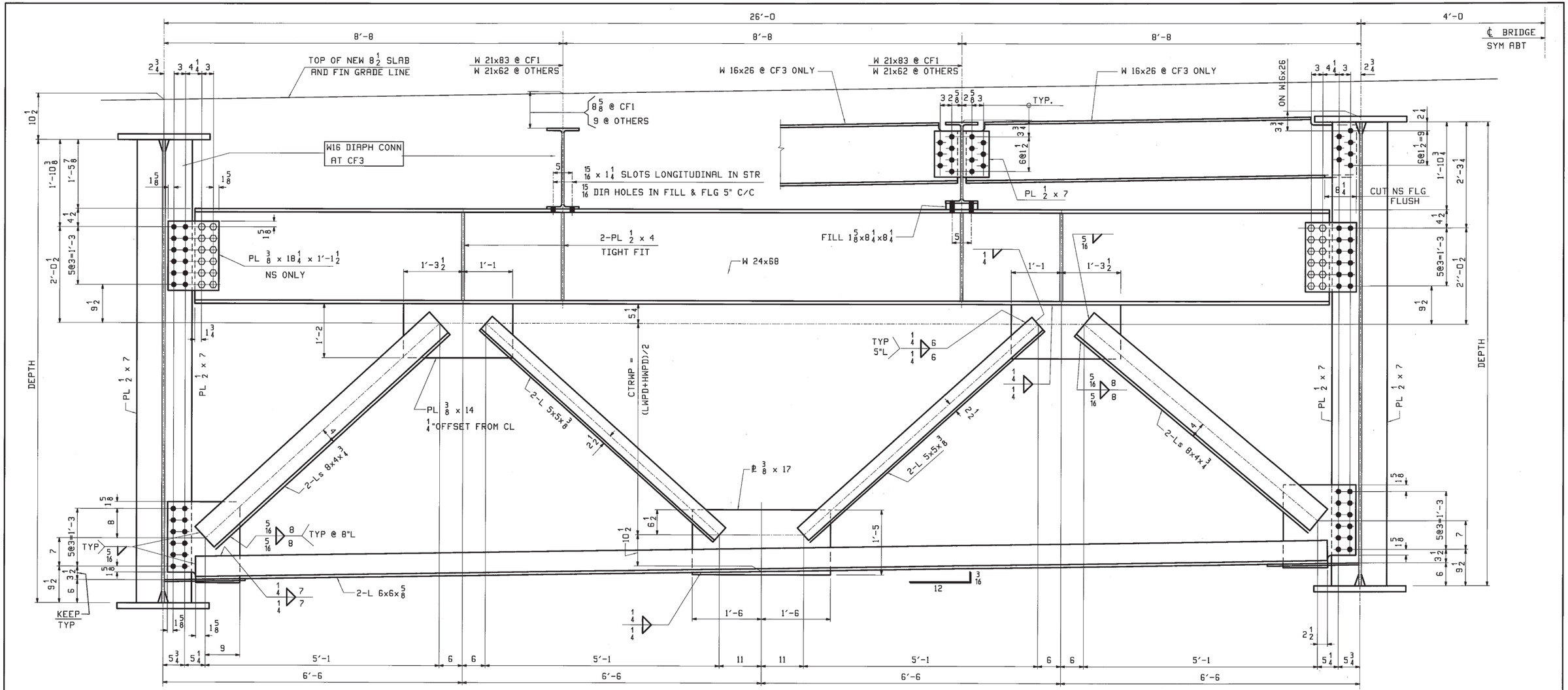
STEEL ASTM A709-36 — ELECTRODES UNL. NTD.
SHOP BOLTS UNL. NTD. — OPEN HLS UNL. NTD.
SHOP CLEANING
SHOP PAINT — MILAGE ODOT

CONTENTS THIS SHEET: CALC. PLAN SPAN 4

TENSOR 2255

JOB I-40 OVER ARKANSAS RIVER REHAB.
OKLAHOMA DEPT.OF TRANS. CUST. P.O.
LOCATION MUSKOGEE-SEQUOYAH COUNTIES
CONTRACTOR
Anchor Engr. FOE & ASSOCIATES-WHITE ENGINEERING ASSOCIATES
Det. by WJG Date 06/02 Chk. by Date
CONTRACT SHEET WS1 REV

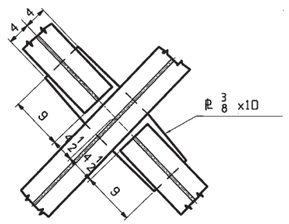
SCHEMMER



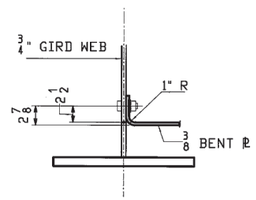
TYP.INT. CROSSFRAME

LOOKING TOWARD PIER 3
EB ROADWAY AS SHOWN
WB ROADWAY OPP. HAND

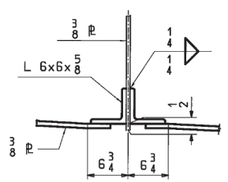
MARK	DEPTH
CF1	8'-6
CF2	9'-0
CF3	9'-6
CF4	10'-0
CF5	10'-9 13/16



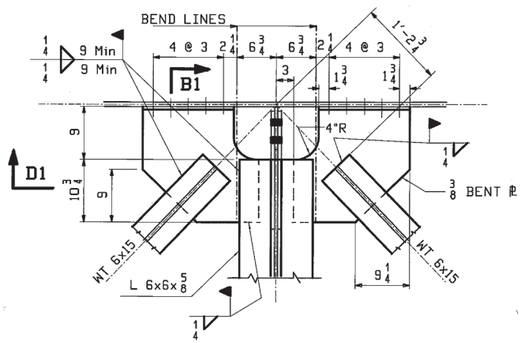
DETAIL C1



SECTION B1



SECTION D1



TYP LATERAL CONN TO GIRDER

STEEL ASTM A709-36 & A992
BOLTS ⅞ DIA A325 OPEN HLS. 15/16 DIA

INTERMEDIATE CROSS FRAME LAYOUTS

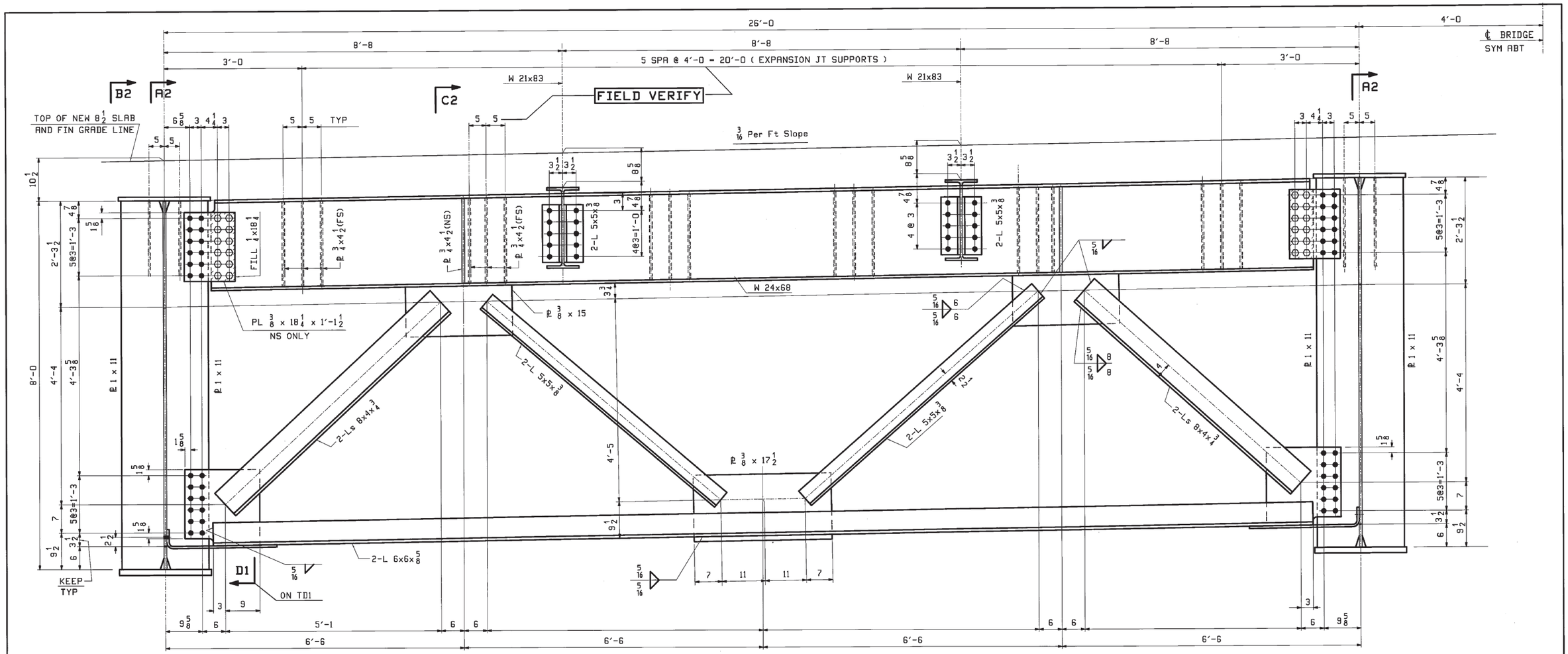
TENSOR 2255

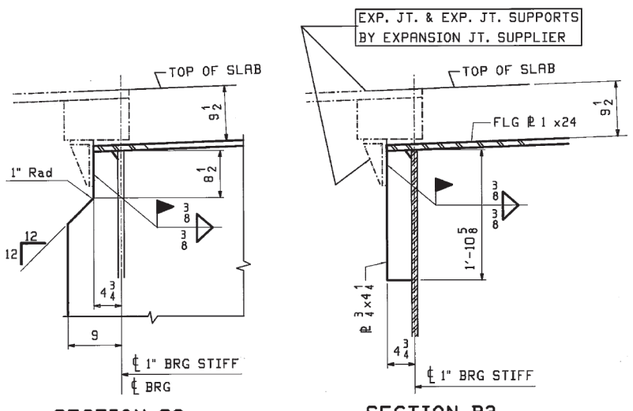
REV A ..6/10/02 GIRDER DEPTHS

JOB I-40 OVER ARKANSAS RIVER REHAB.
OKLAHOMA DEPT.OF TRANS. CUST. P.O.
LOCATION MUSKOGEE-SEQUOYAH COUNTIES
CONTRACTOR
Arch.or Engr. POE & ASSOCIATES-WHITE ENGINEERING ASSOCIATES
Det. by WJG Date 06/02 Chk. by Date
CONTRACT SHEET DES1 REV. A

JOB PIECE NO. 20029(05) Sheet No. 48

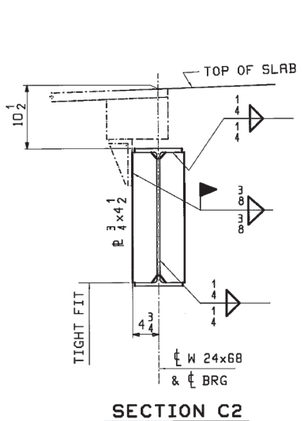
SCHEMMER





SECTION A2

SECTION B2



SECTION C2

END CROSSFRAME

LOOKING TOWARD PIER 3
EB ROADWAY AS SHOWN
WB ROADWAY OPP. HAND

REV A ..6/10/02 FLRBM DROPPED 1⅞

REV.	REVISION DESCRIPTION	MADE BY	DATE
4			
3			
2			
1			

NOTES:

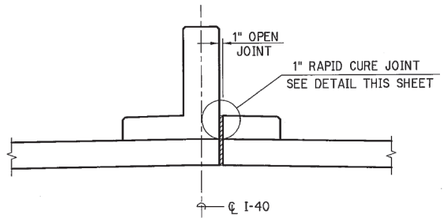
STEEL ASTM A709-36 & 992
BOLTS ⅞ DIA A325 OPEN HLS. 15/16 DIA

END CROSS FRAME LAYOUTS

TENSOR 2255

JOB I-40 OVER ARKANSAS RIVER REHAB.
OKLAHOMA DEPT.OF TRANS. CUST. P.O.
LOCATION MUSKOGEE-SEQUOYAH COUNTIES
CONTRACTOR
Archur Engr. POE & ASSOCIATES-WHITE ENGINEERING ASSOCIATES
Det. by WJG Date 06/03 Chk. by Date
CONTRACT SHEET DES2 REV. A

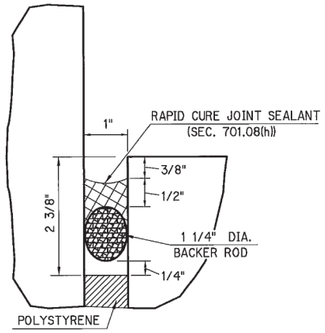
JOB PIECE NO. 20029(05) Sheet No. 49



JOINT AT MEDIAN BARRIER

QUANTITIES			
	ITEM	UNIT	TOTAL
①	RAPID CURE JOINT SEALANT	L.F.	200

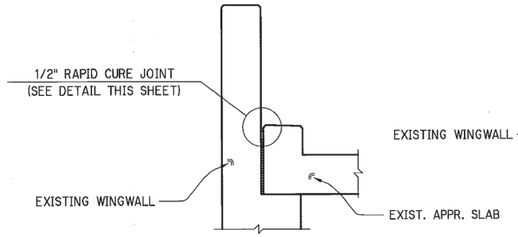
① A 1" RAPID CURE JOINT AS SHOWN IN THE DETAIL SHALL BE PLACED 10 FEET LONGITUDINALLY EITHER SIDE OF CENTERLINE PIER AT PIERS 4 THRU 12, 10 FEET LONGITUDINALLY EAST OF CENTERLINE OF PIER 3 AND 10 FEET LONGITUDINALLY WEST FROM ABUTMENT NO. 2. THE EXISTING JOINTS SHALL BE CLEANED OF DEBRIS AND OLD JOINT MATERIAL PRIOR TO PLACING NEW JOINT SEALANT AS APPROVED BY THE ENGINEER.



DETAIL OF 1" RAPID CURE JOINT

JOINT REPAIR DECK SLAB

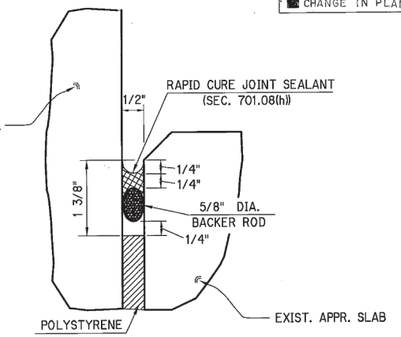
REVISIONS		
DESCRIPTION		DATE
■ CHANGE IN PLAN		9-16-2002



JOINT AT WINGWALL

QUANTITIES			
	ITEM	UNIT	TOTAL
①	RAPID CURE JOINT SEALANT	L.F.	42

① A 1/2" RAPID CURE JOINT AS SHOWN IN THE DETAIL SHALL BE PLACED BETWEEN THE APROACH SLAB AND WINGWALL ON BOTH SIDES OF THE APPROACH SLAB. THE EXISTING JOINTS SHALL BE CLEANED OF DEBRIS AND OLD JOINT MATERIAL PRIOR TO PLACING NEW JOINT SEALANT AS APPROVED BY THE ENGINEER.



DETAIL OF 1/2" RAPID CURE JOINT

JOINT REPAIR APPROACH SLAB NO. 2

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION		UNIT	QUANTITY
504(H)	RAPID CURE JOINT SEALANT	(BR-1) (BR-2)	L.F.	242.0
512(A)	PAINT EXISTING STRUCTURES	(BR-3)	L.SUM	1
512(B)	COLLECTION AND HANDLING OF WASTE	(BR-3)	L.SUM	1
520(A)	PREPARATION OF CRACKS, ABOVE WATER	(BR-4)	L.F.	70.0
520(C)	EPOXY RESIN, ABOVE WATER	BR-4)	GAL.	35.0
540	(PL) REPAIR BRIDGE ITEMS	(BR-4)	S.Y.	4.0
540	(PL) REPAIR BRIDGE ITEM (TYPE A)	(BR-4)	L.SUM	1
540	(PL) REPAIR BRIDGE ITEM (TYPE B)	(BR-4)	L.SUM	1
540	(PL) REPAIR BRIDGE ITEM (TYPE C)	(BR-5)	EA.	8
540	(PL) REPAIR BRIDGE ITEM (TYPE D)	(BR-6)	L.SUM	1

(BR-1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITY. SEE THE 1999 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION - "PLAN QUANTITIES", SECTION 109.01(b).

(BR-2) FOR DETAILS AND DESCRIPTION OF THE WORK TO BE PREFORMED, SEE THE DETAILS ABOVE.

(BR-3) PAINTING EXISTING STRUCTURES AND COLLECTION AND HANDLING OF WASTE: THIS WORK CONSISTS OF CLEANING THE EXISTING STRUCTURAL STEEL TO A NEAR WHITE CONDITION AND PAINTING WITH THE IZ-E-U PAINT SYSTEM. THE PORTIONS OF STRUCTURAL STEEL TO BE CLEANED AND PAINTED SHALL BE THE TOP AND BOTTOM FLANGE SPLICE PLATES AND 1 FOOT OF THE WEB SPLICE PLATES MEASURED FROM THE TOP OF THE BOTTOM FLANGE. THE TOTAL NUMBER OF SPLICES TO BE CLEANED AND PAINTED IS 52. ALSO, INCLUDED IN THE PAINTING ITEM IS SEALING THE JOINTS BETWEEN THE TOP AND BOTTOM FLANGE SPLICE PLATES WITH AN APPROVED SEALANT.

(BR-4) FOR DETAILS AND DESCRIPTION OF THE WORK TO BE PREFORMED, SEE THE SHEET NO. B49B.

(BR-5) FOR DETAILS AND DESCRIPTION OF THE WORK TO BE PREFORMED, SEE THE SHEET NO. B49C.

(BR-6) REPAIR BRIDGE ITEM (TYPE D): (RESET BEARINGS)
THIS WORK CONSISTS OF RESETTING 4 BEARING SHOES ON THE SOUTH HALF OF THE BRIDGE, WEST SIDE OF PIER NO. 6 AND 10. TO AN UPRIGHT POSITION. SUPPLYING, WELDING AND PAINTING 1"x 8" FULL HEIGHT JACKING STIFFENER PLATES AT EACH LOCATION.

SPECIFICATIONS:
All construction and materials shall be in accordance with the 1999 Oklahoma Standard Specifications for Highway Construction and Special Provisions. (See Proposal for Special Provisions).

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
B49A	DECK AND APPROACH SLAB JOINT REPAIR AND SUMMARY OF QUANTITIES
B49B	PIER CONCRETE REPAIR, ABUTMENT BRIDGE SEAT & BACKWALL REPAIR AND FIXED SHOE REPAIR
B49C	DETAILS OF SEISMIC RESTRAINER

CHANGE-IN-PLAN NO. ____.

Design	TRP	
Drawn	DAC	
Checked		
Approved		
Squad	POE	

MUSKOGEE-SEQUOYAH COUNTIES
BRIDGE "A" I-40 OVER ARKANSAS RIVER

DECK AND APPR. SLAB JOINT REPAIR AND SUMMARY OF QUANTITIES

State Job No. 20029(05) Sheet No. B49A

AUGUST 23, 2002
G:\BRIDGE\2682\CHANGE-IN-PLAN\JOINT-REPAIR.DWG

SUBSTRUCTURE REPAIR NOTES

A. GENERAL

1. SUBSTRUCTURE REPAIRS SHALL CONSIST OF REMOVING ALL UNSATISFACTORY CONCRETE SPECIFICALLY DESCRIBED AS FOLLOWS: ANY LOOSE, DELAMINATED, UNSOUND, SEVERLY SPALLED, CRACKED OR DETERIORATED CONCRETE FROM THE EXISTING SUBSTRUCTURE AND REPLACING WITH PATCHING MATERIAL SPECIFIED BELOW. ALL REMOVED MATERIAL SHALL BE PROPERLY DISPOSED OF OFF SITE.

B. CONSTRUCTION PROCEDURES

1. CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF DAMAGED REBAR DURING CONCRETE REMOVAL FOR SUBSTRUCTURE REPAIR.

   SUBSTRUCTURE SHALL BE CLEANED AND FREE OF ANY DEBRIS.

2. REMOVAL OF UNSATISFACTORY MATERIAL:
   SAW CUT AROUND THE DAMAGED AREAS. EXERCISE CAUTION DURING THE SAW CUTTING PROCEDURE. ANY REINFORCEMENT DAMAGED DUE TO SAW CUTTING SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER. THE REINFORCING STEEL IS SHOWN FOR GENERAL INFORMATION ONLY. WHERE THE BOND WITH THE REINFORCING STEEL HAS BEEN BROKEN, REMOVE CONCRETE TO A MINIMUM OF 1 1/2" BEHIND THE EXTERIOR REINFORCING STEEL, OR TO SOUND CONCRETE AS DETERMINED BY THE ENGINEER. CLEAN THE REINFORCING STEEL BY SANDBLASTING. SUPPLEMENT WITH A REINFORCING BAR OF EQUAL OR GREATER SIZE ANY CORRODED REINFORCING STEEL WITH MORE THAN 25% SECTION LOSS AS DETERMINED BY THE ENGINEER. LAP SPLICES OF NEW BARS 30 BAR DIAMETERS WITH EXISTING BARS.

3. SURFACE PREPARATION:
   IMMEDIATELY PRIOR TO THE APPLICATIONS, CLEAN THE SURFACE BY SANDBLASTING AND A FILTERED AIR BLAST.

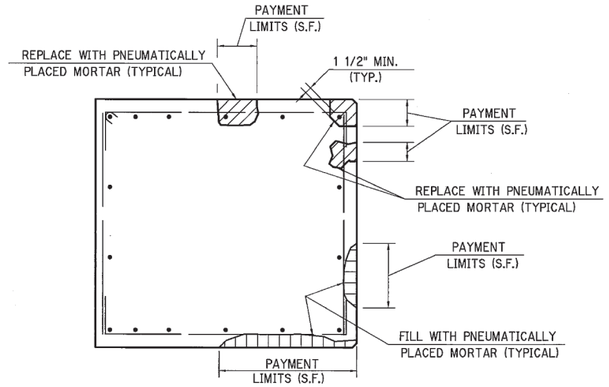
C. SUBSTRUCTURE REPAIR:

1. APPLY A COMBINATION OF ORGANIC AND INORGANIC BASED WATER-BORNE CORROSION INHIBITOR WITH A VISCOSITY OF 15 CPS OR LESS. FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR NUMBER OF COATINGS, TEMPERATURE RESTRICTIONS, ETC.

2. COAT THE EXPOSED REINFORCING STEEL WITH A MODIFIED EPOXY CEMENT SLURRY INTENDED FOR USE AS A STEEL PRIMER. APPLY IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

3. APPLY PNEUMATICALLY PLACED MORTAR IN ACCORDANCE WITH SECTION 521S OF OF THE SUPPLEMENT TO THE STANDARD SPECIFICATIONS TO REPLACE DETERIORATED CONCRETE TO MATCH THE DIMENSIONS AS SHOWN IN THE ORIGINAL PLANS, PROJECT NO. I-40-5(261)156 AND REHABILITATION PROJECT NO. IR-40-5(152)156.

   THE PRICE BID ON THIS ITEM SHALL INCLUDE ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHOWN IN THE PLANS.



SUBSTRUCTURE REPAIR
NOT TO SCALE

SUBSTRUCTURE CONCRETE REPAIR TABLE	
PIER NO. 6	AREA S.Y.
South Cantilever - End Face	1.0
South Cantilever - East Face	1.0
TOTAL - PIER NO. 6	2.0
PIER NO. 10	AREA S.Y.
South Cantilever - West Edge	0.5
South Cantilever - End Face	0.5
North Cantilever - End Face	0.5
North Cantilever - Bottom Face	0.5
TOTAL - PIER NO. 10	2.0

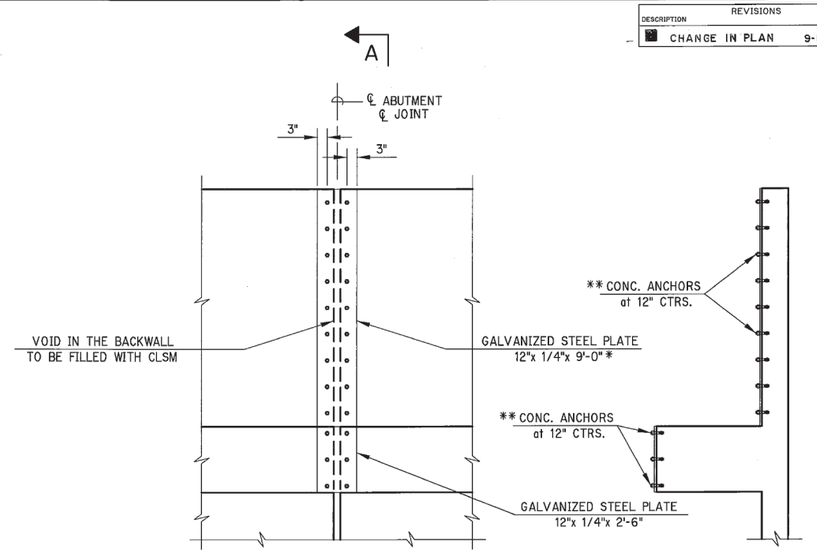
QUANTITIES			
	ITEM	UNIT	TOTAL
①	REPAIR BRIDGE ITEMS	S.Y.	4.0
②	PREPARATION OF CRACKS, ABOVE WATER	L.F.	10.0
②	EPOXY RESIN, ABOVE WATER	GAL.	1.0

① THIS QUANTITIY IS FOR SUBSTRUCTURE REPAIR IN ACCORDANCE WITH THE NOTES AND DETAILS SHOWN. SEE TABLE FOR LOCATIONS AND APPROXIMATE AREAS OF REPAIR. THE QUANTITY SHOWN IS FOR ESTIMATING PURPOSES ONLY.

② THIS QUANTITIY IS FOR THE REPAIR OF CRACKS AT THE SOUTH CANTILEVER ENDS OF PIER 6 AND 10. THESE CRACKS SHALL BE CLEANED AND SEALED WITH EPOXY IN ACCORDANCE WITH SECTION 520 OF THE STANDARD SPECIFICATIONS. THE QUANTITY SHOWN IS FOR ESTIMATING PURPOSES ONLY. THE ACTUAL LOCATION AND EXTENT OF THE CRACKS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. ALL COST INCLUDING MATERIAL, EQUPMENT, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED ABOVE SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF "PREPARATION OF CRACKS, ABOVE WATER" AND THE PRICE BID PER GALLON OF "EPOXY RESIN, ABOVE WATER".

SUBSTRUCTURE REPAIR PIER NO. 6 AND 10

REVISIONS		
DESCRIPTION		DATE
1	CHANGE IN PLAN	9-16-2002



ELEVATION — SECTION A-A

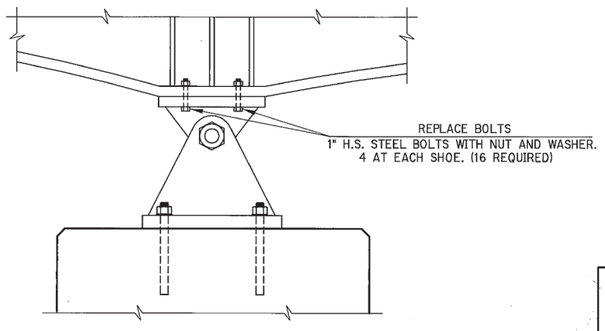
*LENGTH OF PLATE TO BE DETERMINED IN THE FIELD.

**CONTRACTOR SHALL SUBMIT THE TYPE OF CONCRETE ANCHOR TO THE ENGINEER FOR HIS APPROVAL PRIOR TO INSTALLATION.

QUANTITIES			
	ITEM	UNIT	TOTAL
①	REPAIR BRIDGE ITEM (TYPE A)	LSUM	1

① THIS QUANTITIY IS FOR ABUMENT BRIDGE SEAT AND BACKWALL REPAIR IN ACCORDANCE WITH THE NOTES AND DETAILS SHOWN. THE PRICE BID FOR THIS ITEM SHALL INCLUDE ALL COST OF MATERIAL, EQUIPMENT, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

BRIDGE SEAT AND BACKWALL REPAIR ABUTMENT NO. 2



ELEVATION

QUANTITIES			
	ITEM	UNIT	TOTAL
①	REPAIR BRIDGE ITEM (TYPE B)	LSUM	1

① THIS QUANTITIY IS FOR FIXED SHOE REPAIR (BOLT REPLACEMENT) IN ACCORDANCE WITH THE DETAIL SHOWN. THE PRICE BID FOR THIS ITEM SHALL INCLUDE ALL COST OF MATERIAL, EQUIPMENT, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

FIXED SHOE REPAIR PIER NO. 5

CHANGE-IN-PLAN NO. ____.

MUSKOGEE-SEQUOYAH COUNTIES

Design	TRP	
Drawn	DAC	
Checked		
Approved		
Squad	POE	

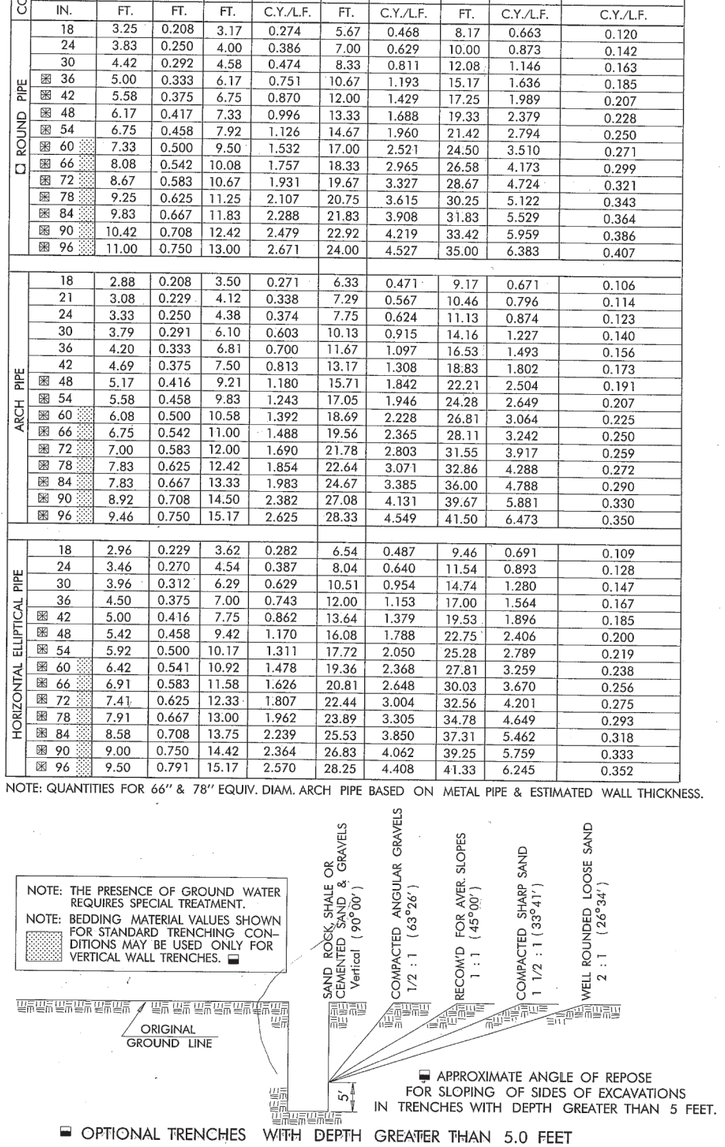
BRIDGE "A" I-40 OVER ARKANSAS RIVER
PIER CONCRETE REPAIR
ABUT. SEAT & BACKWALL REPAIR
AND FIXED SHOE REPAIR
State Job No. 20029(05) Sheet No. B49B

AUGUST 23, 2002
G:\BRIDGE\2682\CHANGE-IN-PLAN\SUBREP

TABLE OF TRENCHING AND STANDARD BEDDING MATERIAL QUANTITIES

CONCRETE / METAL	PIPE DIAM. OR DESIGN EQUIV.	H	T	SINGLE PIPE STANDARD TRENCHING W	SINGLE PIPE STANDARD TRENCHING STANDARD BEDDING MATERIAL	DOUBLE PIPE STANDARD TRENCHING W	DOUBLE PIPE STANDARD TRENCHING STANDARD BEDDING MATERIAL	TRIPLE PIPE STANDARD TRENCHING W	TRIPLE PIPE STANDARD TRENCHING STANDARD BEDDING MATERIAL	SPECIAL TRENCHING SINGLE, DOUBLE & TRIPLE PIPE OPTIONS W+12" ADD'L STANDARD BEDDING MATERIAL
	IN.	FT.	FT.	FT.	C.Y./L.F.	FT.	C.Y./L.F.	FT.	C.Y./L.F.	C.Y./L.F.
☐ ROUND PIPE	18	3.25	0.208	3.17	0.274	5.67	0.468	8.17	0.663	0.120
	24	3.83	0.250	4.00	0.386	7.00	0.629	10.00	0.873	0.142
	30	4.42	0.292	4.58	0.474	8.33	0.811	12.08	1.146	0.163
	☒ 36	5.00	0.333	6.17	0.751	10.67	1.193	15.17	1.636	0.185
	☒ 42	5.58	0.375	6.75	0.870	12.00	1.429	17.25	1.989	0.207
	☒ 48	6.17	0.417	7.33	0.996	13.33	1.688	19.33	2.379	0.228
	☒ 54	6.75	0.458	7.92	1.126	14.67	1.960	21.42	2.794	0.250
	☒ 60	7.33	0.500	9.50	1.532	17.00	2.521	24.50	3.510	0.271
	☒ 66	8.08	0.542	10.08	1.757	18.33	2.965	26.58	4.173	0.299
	☒ 72	8.67	0.583	10.67	1.931	19.67	3.327	28.67	4.724	0.321
	☒ 78	9.25	0.625	11.25	2.107	20.75	3.615	30.25	5.122	0.343
	☒ 84	9.83	0.667	11.83	2.288	21.83	3.908	31.83	5.529	0.364
	☒ 90	10.42	0.708	12.42	2.479	22.92	4.219	33.42	5.959	0.386
	☒ 96	11.00	0.750	13.00	2.671	24.00	4.527	35.00	6.383	0.407
ARCH PIPE	18	2.88	0.208	3.50	0.271	6.33	0.471	9.17	0.671	0.106
	21	3.08	0.229	4.12	0.338	7.29	0.567	10.46	0.796	0.114
	24	3.33	0.250	4.38	0.374	7.75	0.624	11.13	0.874	0.123
	30	3.79	0.291	6.10	0.603	10.13	0.915	14.16	1.227	0.140
	36	4.20	0.333	6.81	0.700	11.67	1.097	16.53	1.493	0.156
	42	4.69	0.375	7.50	0.813	13.17	1.308	18.83	1.802	0.173
	☒ 48	5.17	0.416	9.21	1.180	15.71	1.842	22.21	2.504	0.191
	☒ 54	5.58	0.458	9.83	1.243	17.05	1.946	24.28	2.649	0.207
	☒ 60	6.08	0.500	10.58	1.392	18.69	2.228	26.81	3.064	0.225
	☒ 66	6.75	0.542	11.00	1.488	19.56	2.365	28.11	3.242	0.250
	☒ 72	7.00	0.583	12.00	1.690	21.78	2.803	31.55	3.917	0.259
	☒ 78	7.83	0.625	12.42	1.854	22.64	3.071	32.86	4.288	0.272
	☒ 84	7.83	0.667	13.33	1.983	24.67	3.385	36.00	4.788	0.290
	☒ 90	8.92	0.708	14.50	2.382	27.08	4.131	39.67	5.881	0.330
	☒ 96	9.46	0.750	15.17	2.625	28.33	4.549	41.50	6.473	0.350
HORIZONTAL ELLIPTICAL PIPE	18	2.96	0.229	3.62	0.282	6.54	0.487	9.46	0.691	0.109
	24	3.46	0.270	4.54	0.387	8.04	0.640	11.54	0.893	0.128
	30	3.96	0.312	6.29	0.629	10.51	0.954	14.74	1.280	0.147
	36	4.50	0.375	7.00	0.743	12.00	1.153	17.00	1.564	0.167
	☒ 42	5.00	0.416	7.75	0.862	13.64	1.379	19.53	1.896	0.185
	☒ 48	5.42	0.458	9.42	1.170	16.08	1.788	22.75	2.406	0.200
	☒ 54	5.92	0.500	10.17	1.311	17.72	2.050	25.28	2.789	0.219
	☒ 60	6.42	0.541	10.92	1.478	19.36	2.368	27.81	3.259	0.238
	☒ 66	6.91	0.583	11.58	1.626	20.81	2.648	30.03	3.670	0.256
	☒ 72	7.41	0.625	12.33	1.807	22.44	3.004	32.56	4.201	0.275
	☒ 78	7.91	0.667	13.00	1.962	23.89	3.305	34.78	4.649	0.293
	☒ 84	8.58	0.708	13.75	2.239	25.53	3.850	37.31	5.462	0.318
	☒ 90	9.00	0.750	14.42	2.364	26.83	4.062	39.25	5.759	0.333
	☒ 96	9.50	0.791	15.17	2.570	28.25	4.408	41.33	6.245	0.352

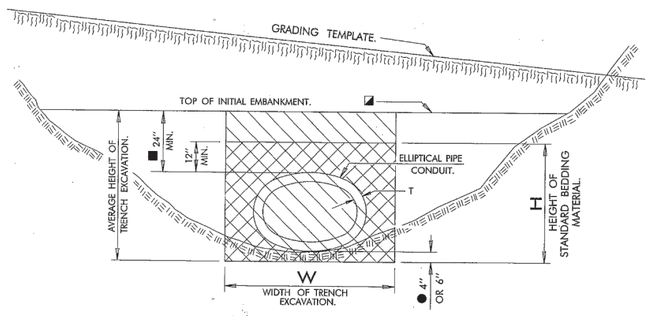
NOTE: QUANTITIES FOR 66" & 78" EQUIV. DIAM. ARCH PIPE BASED ON METAL PIPE & ESTIMATED WALL THICKNESS.



⬓ APPROXIMATE ANGLE OF REPOSE FOR SLOPING OF SIDES OF EXCAVATIONS IN TRENCHES WITH DEPTH GREATER THAN 5 FEET.

⬓ OPTIONAL TRENCHES WITH DEPTH GREATER THAN 5.0 FEET

EXCAVATION AND BEDDING MATERIAL WILL BE MEASURED AND PAID FOR AS IF SHEETING & SHORING WAS USED. (SPECIAL TRENCHING = STD. WIDTH TRENCH + 12")

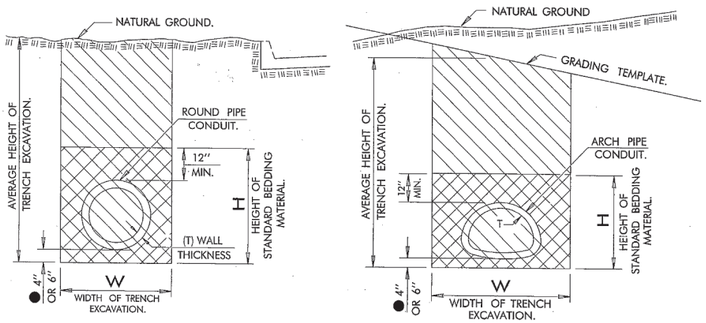


METHOD NO. 1

TRENCH EXCAVATION IN EMBANKMENT SECTIONS

LIMITS OF STANDARD BEDDING MATERIAL. QUANTITIES FOR BEDDING MATERIAL DO NOT INCLUDE THE SPACE WITHIN AND BOUNDED BY THE OUTER SURFACE OF THE PIPE CONDUIT.

LIMITS OF TRENCH EXCAVATION.

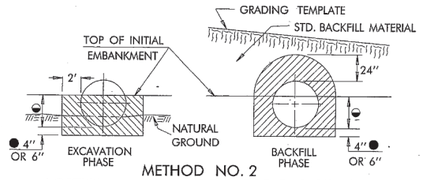


TRENCH EXCAVATION IN CUT SECTIONS

TABLE OF EQUIVALENT PIPES

EQ. DIAM.	REINF. CONC. ARCH PIPE	STEEL ARCH PIPE	ALUMINUM ARCH PIPE	REINF. CONC. ELLIPTICAL PIPE
IN.	INCHES	INCHES	INCHES	◑ INCHES
18	22 X 13 1/2	21 X 15	21 X 15	14 X 23
21	26 X 15 1/2	24 X 18	24 X 18	
24	28 1/2 X 18	28 X 20	28 X 20	19 X 30
27				22 X 34
30	36 1/4 X 22 1/2	35 X 24	35 X 24	24 X 38
36	43 3/4 X 26 5/8	42 X 29	42 X 29	29 X 45
42	51 1/8 X 31 5/16	49 X 33	49 X 33	34 X 53
48	58 1/2 X 36	57 X 38	57 X 38	38 X 60
54	65 X 40	64 X 43	64 X 43	43 X 68
60	73 X 45	71 X 47	71 X 47	48 X 76
66		77 X 52	77 X 52	53 X 83
72	88 X 54	83 X 57	83 X 57	58 X 91
78		87 X 63	92 X 65 ▲	63 X 98
84	102 X 62	95 X 67	95 X 67 ▲	68 X 106
90	115 X 72	103 X 71	103 X 71 ▲	72 X 113
96	122 X 77 1/2	112 X 75	112 X 75 ▲	77 X 121

▲ STRUCTURAL PLATE ARCH.



METHOD NO. 2

(OPTIONAL INSTALLATION FOR R. C. PIPE)

TRENCH EXCAVATION IN EMBANKMENT SECTIONS

◒ EMBANKMENT HEIGHT PRIOR TO EXCAVATION

PIPE SIZES FROM 18" TO 42" = 30"
PIPE SIZES FROM 48" TO 84" = 2/3 DIAM.
PIPE SIZES LARGER THAN 84" = 60"
METHOD NO. 1 PAY QUANTITIES WILL BE CALCULATED AND PAID FOR WHEN METHOD NO. 2 IS USED.

	CONDUIT SHAPE			DIST. G
	ROUND	ARCH	ELLIPTICAL	
FOR DIAM. OR SPAN	UP TO 24"	UP TO 36"	UP TO 36"	12"
	25" TO 72"	-		D/2"
		37" TO 108"	37" TO 108"	D/3"
	OVER 73"	OVER 108"	OVER 108"	36"



DOUBLE PIPE INSTALLATION

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL CONFORM TO THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. TRENCH EXCAVATION AND BEDDING MATERIAL WILL NOT BE REQUIRED FOR PIPE INSTALLATIONS OF SIDE DRAINS UNLESS OTHERWISE NOTED ON THE PLANS.
3. TRENCH EXCAVATION WILL BE PAID FOR ON PIPE UNDERDRAIN. SEE 1999 ENGLISH ROADWAY STANDARD DRAWING PIPE UNDERDRAIN INSTALLATION, PUD-3.
- ⬓ 4. SPECIAL TRENCHING CONDITIONS ARE THOSE AS DEFINED BY O.S.H.A. REGULATIONS, TITLE 29 CFR CHAPTER XVII, PART 1926.650, 1926.651 & 1926.652, SO DEFINED WILL APPLY UNTIL THEY ARE IN CONFLICT WITH CURRENT SPECIFICATIONS, FOR TRENCH DEPTHS OVER FIVE FEET. WHERE O.S.H.A. REGULATIONS FOR SPECIAL TRENCHING ARE APPLIED, QUANTITIES AND DIMENSIONS FOR SPECIAL TRENCHING WILL BE USED FOR COMPUTING QUANTITIES. SEE TABLE OF TRENCHING DIMENSIONS AND STANDARD BEDDING MATERIAL QUANTITIES.
5. NORMAL BACKFILLING OPERATIONS SHALL FOLLOW BEDDING AND PIPE INSTALLATION AS CLOSELY AS PRACTICAL. IN NO CASE SHALL A PIPE INSTALLATION SUBJECT TO SUDDEN FLOW DEVELOPMENT BE LEFT WITHOUT SUFFICIENT BACKFILL TO RESTRAIN THE CONDUIT AND PREVENT JOINT SEPARATION AND/OR PIPING SCOUR. PHYSICALLY RESTRAINING THE CONDUIT MAY BE USED TO AUGMENT OR REPLACE THIS IMMEDIATE BACKFILL REQUIREMENT.
6. ANY EXCESS EXCAVATION NOT USED FOR BACKFILL WILL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF, BY HIM, IN A MANNER APPROVED BY THE ENGINEER.
- ☐ 7. STANDARD BEDDING QUANTITIES FOR ROUND PIPE ARE BASED ON AASHTO DESIGNATED CLASS III (WALL B) REINFORCED CONCRETE PIPE.
- ■ 8. THIS METHOD PRODUCES A GUARANTEED NEGATIVE PROJECTION CONDITION. THE ONLY EXCEPTION TO THIS IS FOR INSTALLATION OF SHALLOWLY COVERED SIDE DRAINS OF LESS THAN 10.0 FEET OF DEPTH, INCLUDING SURFACING.
- ◪ 9. TO BE COMPACTED IN ACCORDANCE WITH SUBSECTION 202.04(C) OF 1999 ENGLISH STANDARD SPECIFICATIONS.
- ⬓ 10. WHEN REQUIRED, THE SIDES OF THE TRENCHES SHALL BE SHEETED AND SHORED OR OTHERWISE SUPPORTED WHEN THE TRENCH IS MORE THAN 5.0 FEET IN DEPTH. IN LIEU OF SHEETING, THE SIDES OF THE TRENCH ABOVE THE 5.0 FOOT LEVEL MAY BE SLOPED TO PRECLUDE COLLAPSE, SEE OPTIONAL TRENCHES DETAIL THIS SHEET.
- ☒ 11. PROPER COMPACTION OF BACKFILL REQUIRES A VERTICAL WALLED TRENCH TO 24 INCHES ABOVE TOP OF PIPE, REGARDLESS OF EXCAVATION ABOVE THAT ELEVATION.
- ● 12. EQUIVALENT PIPE SIZES 66 INCHES AND LARGER REQUIRE 6 INCHES OF BEDDING MATERIAL BELOW PIPE CONDUIT.
- ◑ 13. ELLIPTICAL PIPE DIMENSIONS CONFORM TO AASHTO M 207, AS DESIGNATED RISE BY SPAN.

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
613.06(S)	TRENCH EXCAVATION	C.Y.
613.06(T)	STANDARD BEDDING MATERIAL	C.Y.

REVISIONS		
DESCRIPTION		DATE
RE-ISSUE W/ENGLISH 1999 SPECS.		
Recalc. Std. Bed. Dims., Quants., Table	lgc	7/99

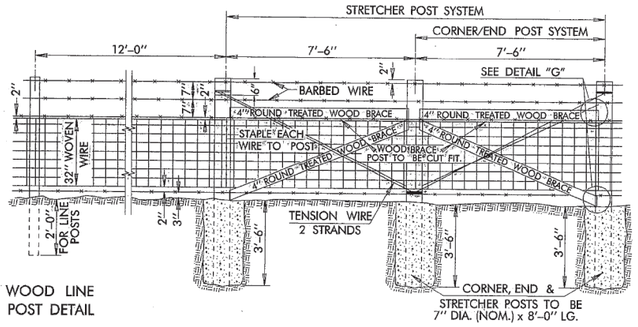
APPROVED BY ROADWAY ENGINEER C. M. Senkowski DATE 9/1/99

OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)

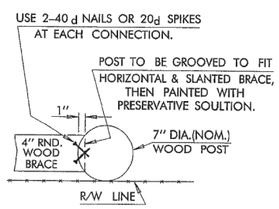
PIPE INSTALLATION

1999 SPECIFICATIONS | SPI-3 | 00E | R-74AE

SCHEMMER



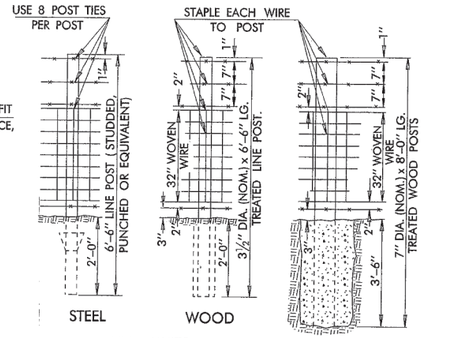
WOOD LINE POST DETAIL



DETAIL "G"

END, CORNER AND STRETCHER POST DETAIL

USE STRETCHER DETAILS AT ALL CORNERS, BENDS IN R/W, HILLTOPS, IN VALLEYS OR DEEP DEPRESSIONS AND AT 500'–0" MAXIMUM SPACING USE END POSTS FOR CROSS FENCE CONNECTIONS.



STEEL WOOD

LINE POSTS

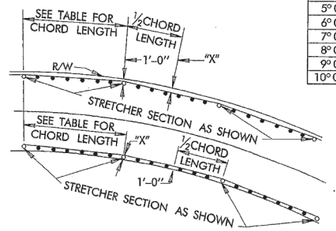
HOLES FOR WOOD LINE POSTS SHALL BE DRILLED WITH 8" DIAMETER OR MAY BE DRIVEN.

CORNER, STRETCHER, GATE, OR END POST

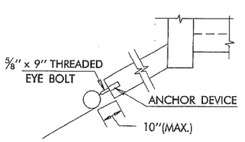
HOLE SHALL BE 18" DIA. (MIN.) REQUIRES CONCRETE FOOTING

SPACING FOR STRETCHER SECTION	
UP TO 1°00' CURVE	STD. FENCE
1°00' TO 3°00'	96' CHORDS
3°00' TO 6°00'	60' CHORDS
OVER 6°00'	36' CHORDS

SPACING FROM R/W TO FENCE	
DEGREE	"X"
1°00'	1.20'
2°00'	1.40'
3°00'	1.60'
4°00'	1.31'
5°00'	1.39'
6°00'	1.47'
7°00'	1.20'
8°00'	1.23'
9°00'	1.25'
10°00'	1.28'

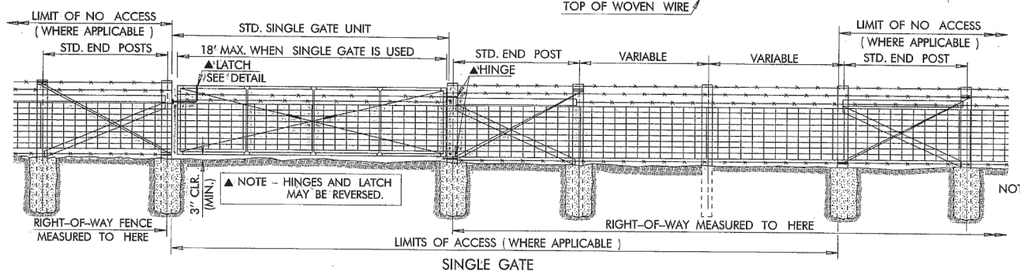


TYPICAL PLACEMENT FOR CURVES

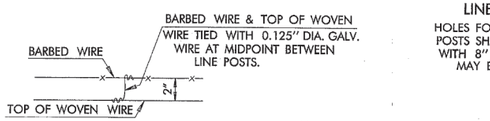


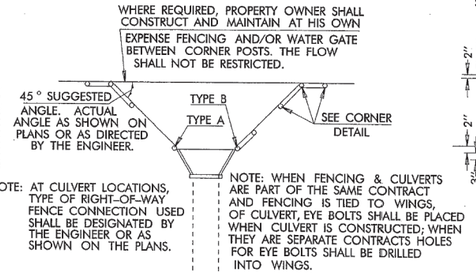
SUSPENSION DETAIL

REVISIONS		
DESCRIPTION		DATE
RE-ISSUE W/ENGLISH 1999 SPECS.		7/99
End/Corner/Stretcher Det.,Post Notch	lgc	8/00



SINGLE GATE

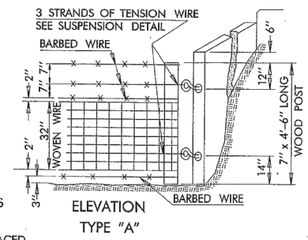




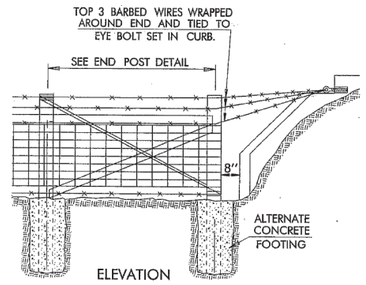
NOTE: AT CULVERT LOCATIONS, TYPE OF RIGHT–OF–WAY FENCE CONNECTION USED SHALL BE DESIGNATED BY THE ENGINEER OR AS SHOWN ON THE PLANS.

NOTE: WHEN FENCING & CULVERTS ARE PART OF THE SAME CONTRACT AND FENCING IS TIED TO WINGS, OF CULVERT, EYE BOLTS SHALL BE PLACED WHEN CULVERT IS CONSTRUCTED; WHEN THEY ARE SEPARATE CONTRACTS HOLES FOR EYE BOLTS SHALL BE DRILLED INTO WINGS.

PLAN

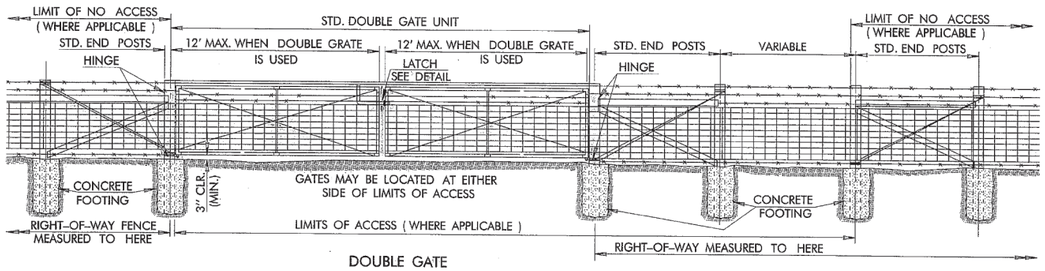


ELEVATION TYPE "A"



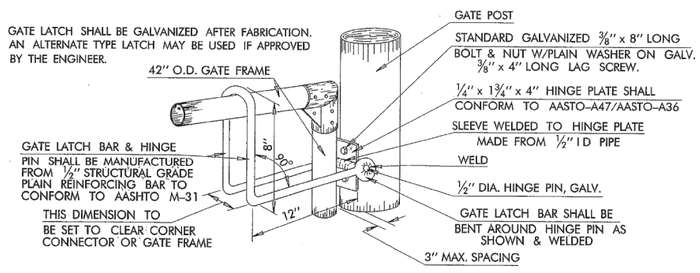
ELEVATION TYPE "B"

CONNECTIONS AT CULVERTS

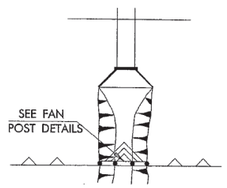


DOUBLE GATE

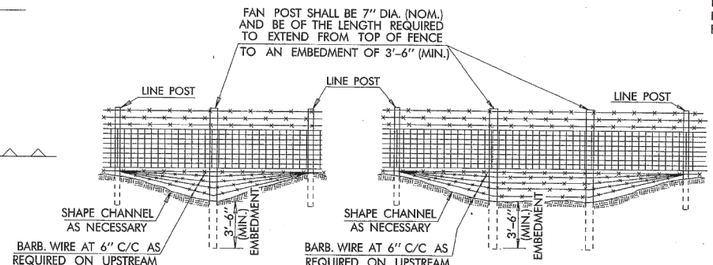
GATE DETAILS



TYPICAL GATE LATCH DETAIL

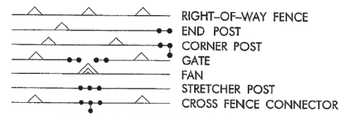


PLAN



TYPICAL FAN DETAILS

FOR SMALL DRAINS AND IRREGULAR TERRAIN



FENCING SYMBOLS ON PLANS

SEE PLAN AND PROFILE SHEETS FOR LOCATION

CONCRETE FOOTING FOR POSTS

FENCING SYMBOLS THIS SHEET

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. SEE PLANS FOR SIZE AND LOCATION OF GATES. USE DOUBLE GATES WHERE WIDTH IS GREATER THAN 18 FEET. ALL DOUBLE GATES SHALL BE PAID FOR AS TWO SINGLE GATES AND SHALL INCLUDE ALL HINGES, LATCHES, AND INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION.
3. FENCE, IN GENERAL, SHALL BE ON OUTSIDE OF POSTS. AWAY FROM CENTERLINE OF HIGHWAYS AND CONSTRUCTED ON THE PERMANENT RIGHT–OF–WAY LINE (EXCEPTIONS ARE ON CURVES AND CORNERS).
4. ALL WIRES SHALL MAKE ONE WRAP AROUND EACH END POST, THEN AROUND THEMSELVES TWO TURNS. USE EXTRA STAPLES ON END POST.
5. STRETCHER POST TO BE USED IN GENERAL AT HILL TOPS AND AT BOTTOM OF VALLEYS AND AT A MAXIMUM 500 FEET APART.
6. ALL MISCELLANEOUS HARDWARE SHALL BE FURNISHED GALVANIZED OR ALUMINUM COATED.
7. ALL POSTS WITH THE EXCEPTION OF LINE POSTS, FAN POSTS AND HEADWALL CONNECTION STRETCHER POSTS SHALL BE EMBEDDED IN CONCRETE WHEN FENCE IS BEING ERECTED ON EARTHEN FOUNDATIONS. OTHER POSTS MAY BE EMBEDDED IN CONCRETE IF AND AS DIRECTED BY THE ENGINEER TO SATISFY SPECIFIC FOOTING REQUIREMENTS.

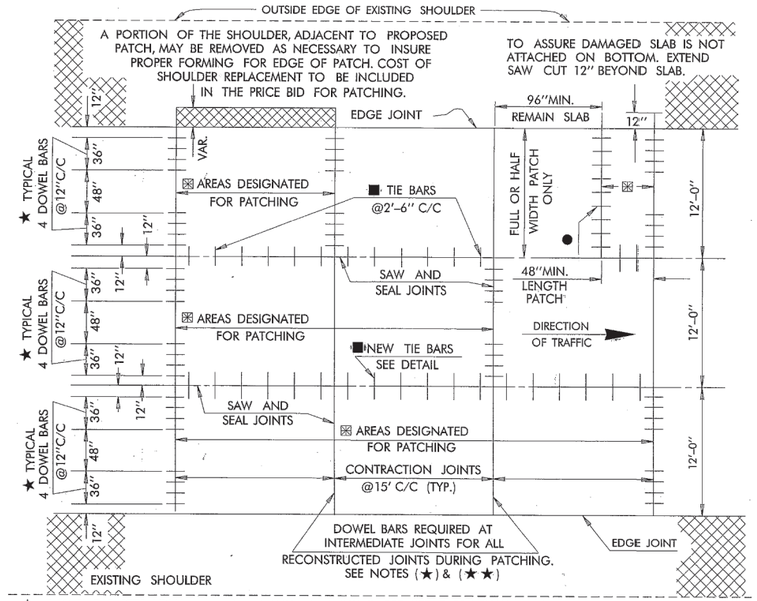
BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
624.06(A)	FENCE – STYLE WWF	L.F.
624.06(B)	GATES – STYLE WWF	EA.

APPROVED BY ROADWAY ENGINEER C. M. Senkowski DATE 8/15/00

OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)
RIGHT–OF–WAY FENCE
STYLE–WWF
(WOVEN WIRE FENCE)

1999 SPECIFICATIONS | RWF1–1 | 01E | R–111E

REVISIONS		
DESCRIPTION		DATE
RE-ISSUE W/ENGLISH 1999 SPECS.		7/99



★ DOWEL BAR SETS (FOUR BARS AT 12"C/C WITH BOND BREAKER CAPS) SHALL BE USED WHEN RECONSTRUCTED FULL WIDTH JOINT FALLS WITHIN FOUR FEET OF THE ORIGINAL JOINT. WHEN MORE THAN ONE RECONSTRUCTED JOINT FALLS WITHIN FOUR FEET OF THE ORIGINAL JOINT (I.E., PATCH SPANS ORIGINAL JOINT), THEN THE RECONSTRUCTED FULL WIDTH JOINT NEAREST TO THE ORIGINAL JOINT WILL BE CONSTRUCTED USING THE FOUR DOWEL DESIGN PATTERN AS SHOWN THIS SHEET.

★★ IF PATCH EXTENDS BEYOND FOUR FEET, IN BOTH DIRECTIONS, FROM AN ORIGINAL FULL WIDTH TRANSVERSE JOINT, THEN THE ORIGINAL FULL WIDTH JOINT WILL BE RECONSTRUCTED USING THE FOUR DOWEL PATTERN DESCRIBED IN NOTE (★), OR APRROVED LOAD TRANSFER DEVICES MEETING REQUIREMENTS OF SECTION 414.04 (STD. SPECS.) AND STD. DRAWINGS.

★★★ FULL WIDTH RECONSTRUCTED JOINTS LOCATED FOUR FEET OR MORE FROM AN ORIGINAL JOINT AND NOT COVERED BY PREVIOUS TWO NOTES SHALL BE RECONSTRUCTED USING TRANSVERSE TIE BAR JOINT. SEE NOTE (●). OVERALL PATCH LENGTH SHALL NOT EXCEED 7 FEET (15' JOINTED PAVEMENT) & 15 FEET (62' JOINTED PAVEMENT), UNLESS OTHERWISE SHOWN ON PLANS.

FULL DEPTH PATCHING DETAIL

STEP 1
CONCRETE PATCHING

(1) AREAS TO BE PATCHED WILL BE DESIGNATED BY THE ENGINEER.
(2) FOR REMOVAL OF FULL DEPTH PATCHES, SAWING IS TO BE FULL DEPTH. LIFT OUT DAMAGED PAVEMENT WHENEVER PRACTICAL.
(3) THE FLOW OF TRAFFIC MAY BE RESTRICTED TO ONE LANE DUE TO PATCHING OPERATION FOR A MAXIMUM DISTANCE OF ONE MILE.
(4) FOR ADDITIONAL INFORMATION SEE P & P SHEETS.

STEP 2
SLAB STABILIZATION

(1) CORE 2" DIAMETER (2½" MAX.) HOLES IN A MANNER APPROVED BY THE ENGINEER.
(2) PRESSURE GROUT SLAB IN ACCORDANCE WITH PLANS OR APPLICABLE SPECIAL PROVISIONS.

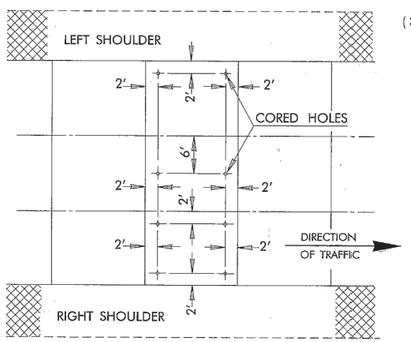
STEP 3
DIAMOND GRINDING

(1) AFTER SLAB STABILIZATION & APPROPRIATE CURE TIME HAS BEEN DETERMINED, GRINDING OPERATIONS MAY BEGIN.
(2) SEE PLANS OR APPLICABLE SPECIAL PROVISIONS.

STEP 4
JOINT REHABILITATION

(INITIAL)

(1) INITIAL CUT AND SUBSEQUENT SEALING SHALL BEGIN AT THE HIGH EDGE OF THE DRIVING LANES AND MOVE TOWARD THE LOW EDGE.
(2) SEE SEQUENCE OF OPERATIONS FOR JOINT REHABILITATION THIS SHEET AND APPLICABLE SPECIAL PROVISIONS.

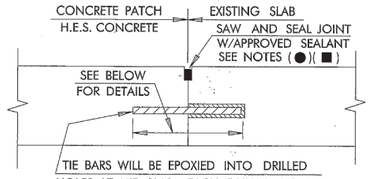


DETAIL OF UNDERSEALING

STEP 5
JOINT REHABILITATION

(FINAL)

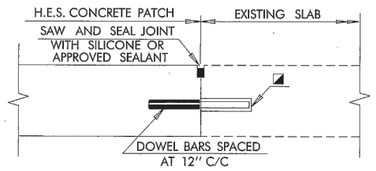
(1) FINAL JOINT CUT SHALL BEGIN AT THE LOW EDGE OF THE DRIVING LANES AND MOVE TOWARD THE INITIAL JOINT.
(2) INSTALLATION OF BOND BREAKER AND SILICONE JOINT SEALANT SHALL BE FROM THE END OF THE INITIAL JOINT TO THE LOW EDGE OF THE DRIVING LANES.
(3) SEE SEQUENCE OF OPERATIONS FOR JOINT REHABILITATION THIS SHEET AND APPLICABLE SPECIAL PROVISIONS.



DETAIL OF TIE BAR JOINT

■ LONGITUDINAL JOINT – TIE BARS – NO. 5 DEFORMED REINFORCING STEEL BARS, 30" LONG, SHALL BE EPOXIED INTO ¾" DIA. (MAX.) DRILLED HOLES AT 30" C/C TIED LONGITUDINALLY. JOINT SHALL BE SAWED AND SEALED.

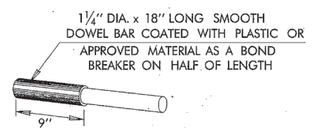
● TRANSVERSE JOINT – TIE BARS – NO. 10 DEFORMED REINFORCING STEEL BARS, 18" LONG, SHALL BE EPOXIED INTO 1⅛" DIA. (MAX.) DRILLED HOLES AT 18" C/C. FULL WIDTH, TRANSVERSE, TIED JOINTS SHALL NOT BE SAWED OR SEALED. SEE NOTE (★ ★ ★)



DETAIL OF TRANSVERSE JOINT
(DOWEL BAR WITH CAP)

◪ DOWEL BARS SHALL BE EPOXIED (NON-CAPPED END) INTO 1⅛" DIA. (MAX.) BY 9" DEEP DRILLED HOLES, PLACED AT MID-SLAB. DRILLED HOLES AND DOWEL BARS SHALL BE PLACED PARALLEL TO THE DRIVING SURFACE. SUFFICIENT EPOXY SHALL BE USED TO COMPLETELY FILL THE VOID BETWEEN THE DOWEL BAR AND THE HOLE.

DOWEL BAR SHALL BE COVERED WITH BOND BREAKER CAP OR APPROVED PLASTIC-LIKE MATERIAL OVER ONE HALF THE LENGTH TO INSURE THAT THE BOND BETWEEN DOWEL BAR AND CONCRETE PATCH IS BROKEN. PAINT WILL NOT BE ACCEPTABLE.



DETAIL OF DOWEL BAR W/CAP
1½" DIA. DOWELS FOR 11" PAVEMENTS OR THICKER.

BASE REPAIR AND PREPARATION

IN AREAS WHERE PATCHING IS REQUIRED, THE REMOVAL OF THE DAMAGED PAVEMENT SHALL BE PERFORMED IN A MANNER THAT WOULD MINIMIZE FURTHER DAMAGE TO THE UNDERLYING SUBBASE(S), SUBGRADE OR ADJACENT PAVEMENT(S). NO COMPENSATION WILL BE MADE TO CONTRACTOR FOR REPAIRING DAMAGE SUSTAINED DURING THE REMOVAL PROCESS.

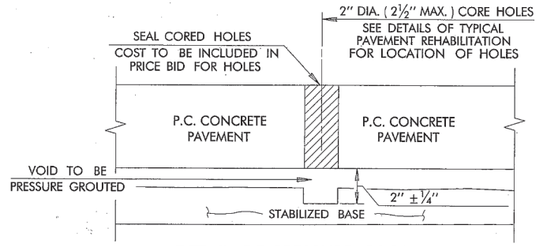
COST OF ANY INCIDENTAL BASE REPAIR, LEVELLING OR BACKFILLING, UP TO 2", WILL BE INCLUDED IN H.E.S. CONCRETE (FULL DEPTH PATCHING) PAY ITEM. INCIDENTAL REPAIR, LEVELING AND BACKFILLING MATERIAL SHALL CONSIST OF SAME MATERIAL ENCOUNTERED, CRUSHED LIMESTONE OR BY THICKENING H.E.S. FULL DEPTH PATCH.

BASE REPAIR, LEVELING AND RELATED BACKFILLING OF SUBBASE(S) OR SUBGRADE IN EXCESS OF 2" SHALL BE PAID FOR AS UNCLASSIFIED EXCAVATION WITH QUANTITIES COMPUTED FROM BOTTOM OF SLAB DOWNWARD TO LIMITS OF REMOVAL.

SUGGESTED SEQUENCE OF OPERATIONS FOR JOINT REHABILITATION

(INITIAL AND FINAL)

(1) SAW EXISTING LONGITUDINAL AND CONTRACTION JOINTS TO WIDTH AND DEPTH REQUIRED. SEE ROADWAY STANDARD LECS-3 FOR DETAILS.
(2) BLOW OUT JOINT WITH COMPRESSED AIR IMMEDIATELY AFTER SAWING.
(3) SAND BLAST JOINT, BLOW CLEAN AND IMMEDIATELY PLACE BACKER ROD.
(4) BLOW JOINT CLEAN WITH COMPRESSED AIR AND FILL CLEAN JOINT WITH SEALANT WITHIN 2 MINUTES.
(5) ALLOW CURING TIME FOR SILICONE SEALANT.
(6) BID ITEM FOR JOINT REHABILITATION WILL INCLUDE SAWING, CLEANING OF JOINT, BACKER ROD, SILICONE SEALANT AND ANY INCIDENTALS REQUIRED TO COMPLETE THE WORK.



DETAIL OF PRESSURE GROUTING

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. COST OF SAWING AND REMOVAL OF PAVEMENT FOR FULL OR PARTIAL DEPTH PATCHING TO BE INCLUDED IN THE PRICE BID FOR H.E.S. CONCRETE PATCHING UNLESS OTHERWISE SHOWN ON THE PLANS.
3. A PORTION OF THE SHOULDER, ADJACENT TO PROPOSED PATCH MAY BE REMOVED AS NECESSARY TO INSURE PROPER FORMING FOR EDGE OF PATCH. COST OF SHOULDER REPLACEMENT TO BE INCLUDED IN THE PRICE BID FOR THE PATCH.
3. COST OF DOWEL BARS, TIE BARS, EPOXY AND ANY INCIDENTALS REQUIRED FOR INSTALLATION TO BE INCLUDED IN THE PRICE BID. FOR THE H.E.S. CONCRETE FULL DEPTH PATCHING.

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
202.06(C)	UNCLASSIFIED EXCAVATION	CU.YD.
414.06(B)	H.E.S. CONCRETE (FULL DEPTH PATCHING)	SQ.YD.
419.06	CONCRETE JOINT REHABILITATION	L.F.
425.06	DIAMOND GRINDING CONCRETE PAVEMENT	SQ.YD.
426.06(A)	CORED HOLES	EA.
426.06(B)	PORTLAND CEMENT	TON
426.06(C)	FLY ASH	TON

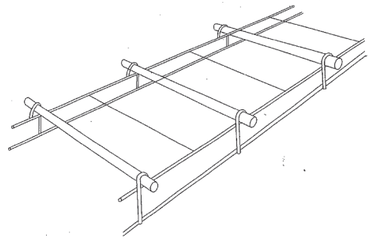
APPROVED BY ROADWAY ENGINEER C. M. Sankoulis DATE 9/1/99

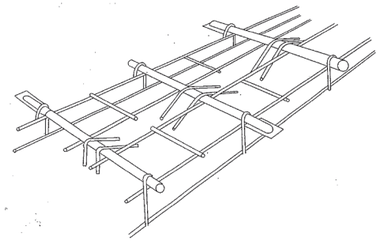
OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)

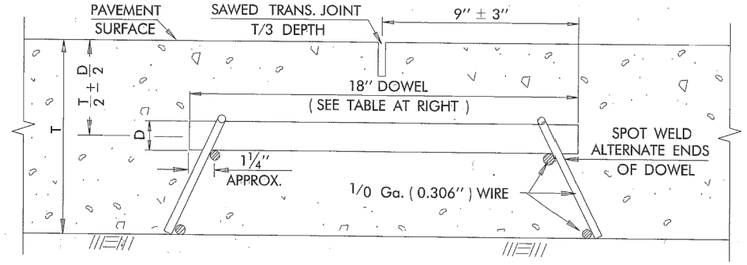
PORTLAND CEMENT CONCRETE PAVEMENT REPAIR

1999 SPECIFICATIONS	PCPR-2	00E
		R-118E

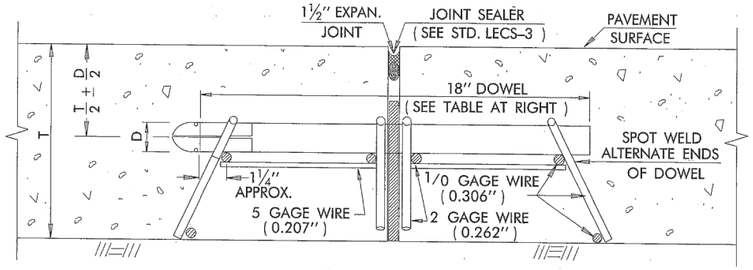
REVISIONS	
DESCRIPTION	DATE
RE-ISSUE W/ENGLISH 1999 SPECS.	7/99







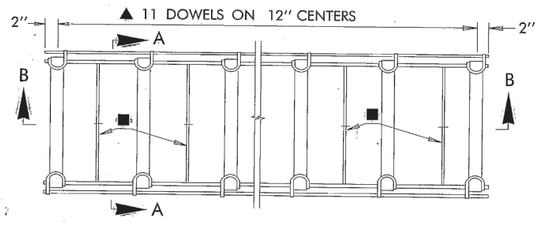
SECTION A–A



SECTION A–A

SECTION B–B

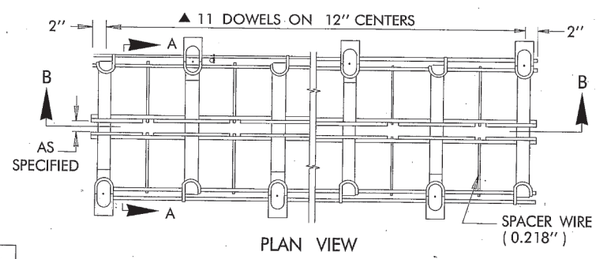
SECTION B–B



PLAN VIEW

WELDED CONTRACTION JOINT ASSEMBLY

■ SPACER: FOUR EA. 7 GAGE (0.177") WIRES PER UNIT, NOTCHED @ MIDPOINT OF WIRE SPACER IN FIELD AFTER PLACEMENT



PLAN VIEW

WELDED EXPANSION JOINT ASSEMBLY

DOWEL BARS			
▲ SPACING & SIZE DATA			
(T) SLAB DEPTH	DOWEL DIA.	TOTAL DOWEL LENGTH	C/C DOWEL SPACING
8"–11"	1¼"	18"	12"
12"–16"	1½"	18"	12"

GENERAL NOTES

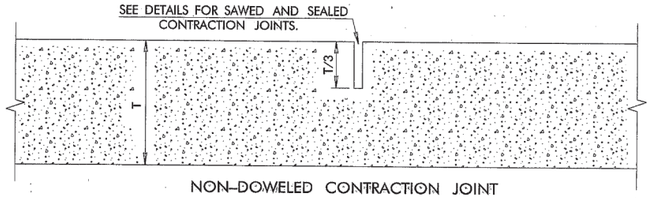
1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. ANY DEVICE USED FOR SUPPORTING DOWELS SHALL HAVE SUFFICIENT RIGIDITY AND BE HELD IN PLACE DURING CONCRETE PLACEMENT SO THAT DOWELS WILL BE IN SPECIFIED POSITION IN THE FINISHED PAVEMENT. ANY DEVICE NOT PRODUCING THE SPECIFIED RESULTS SHALL BE REJECTED.
3. PRODUCER AND CONTRACTOR SHALL AVOID PATENT INFRINGEMENT OF THE BASKET AND SHALL SAVE THE STATE HARMLESS IN THE USE OF ANY BASKET.
4. THE CONTRACTOR MAY SELECT THE TYPE OF BASKET TO BE USED. AFTER THE SELECTION IS MADE, THE SAME TYPE BASKET SHALL BE USED THROUGHOUT THE PROJECT, UNLESS APPROVED OTHERWISE BY THE ENGINEER.
5. COLD–DRAWN STEEL WIRE FOR CONCRETE REINFORCEMENT MEETING THE REQUIREMENTS OF AASHTO M 32 SHALL BE USED FOR ALL BASKETS AND SPACERS.
6. ▲ DOWEL BARS SHALL CONFORM TO MATERIAL REQUIREMENTS OF AASHTO SECTION M 31, M 42, OR M 53; GRADE 60. DOWEL BARS SHALL BE CENTERED ON THE BASKET REGARDLESS OF THE WIDTH OF THE BASKET OR THE LENGTH OF THE DOWEL BAR. SEE TABLE THIS SHEET.
7. THE HEIGHT OF THE LOAD TRANSFER UNIT (MEASURED TO THE CENTER OF THE DOWEL BAR FROM THE PAVEMENT SURFACE) SHALL BE 1/2 THE THICKNESS OF THE PAVEMENT, PLUS OR MINUS 1/2 THE DIAMETER OF DOWEL BAR OF THE UNIT.
8. DOWEL BARS SHALL HAVE A SHOP APPLIED EPOXY COATING OVER THEIR ENTIRE LENGTH (ENDS EXCEPTED). ADDITIONALLY, DOWELS SHALL BE COMPLETELY COATED WITH A FORM RELEASE AGENT (OR APPROVED EQUIVALENT BOND BREAKER) APPLIED IN THE FIELD, IMMEDIATELY PRIOR TO PAVING. THE FORM RELEASE AGENT SHALL NOT BE ALLOWED TO EVAPORATE FROM THE BARS PRIOR TO PAVING.
9. FOR EXPANSION JOINTS, THE DOWEL BARS SHALL HAVE EXPANSION CAPS WITH A MINIMUM 1" AND A MAXIMUM 2" AIR SPACE IN THE END OF THE EXPANSION CAPS (EXPANSION JOINT ASSEMBLIES).
10. THE CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER A STAKING PATTERN THAT SHALL SECURE ALL DOWEL BASKETS SUCH THAT THE FINAL DOWEL POSITION IS WITHIN SPECIFICATION LIMITS.
11. FOR EXPANSION JOINTS, IN ADDITION TO THE SUPPORTS INDICATED, THE CONTRACTOR SHALL PROVIDE SUITABLE INSTALLING DEVICES AND SUCH ADDITIONAL STAKES AS MAY BE REQUIRED TO HOLD THE JOINT FILLER VERTICAL AND SECURELY IN LINE AND POSITION. THE CONTRACTOR WILL ALSO BE REQUIRED TO SATISFACTORILY FORM THE UPPER PORTION OF THE JOINT FOR RECEIVING THE SEAL. SEE 1999 ENGLISH ROADWAY STD. LECS-3 FOR DETAILS.

APPROVED BY ROADWAY ENGINEER C. M. Sankoski DATE 9/1/99

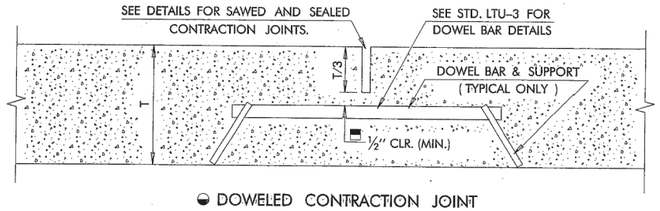
OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)
LOAD TRANSFER UNITS FOR CONCRETE PAVEMENT JOINTS

1999 SPECIFICATIONS	LTU–3	00E
		R–120E

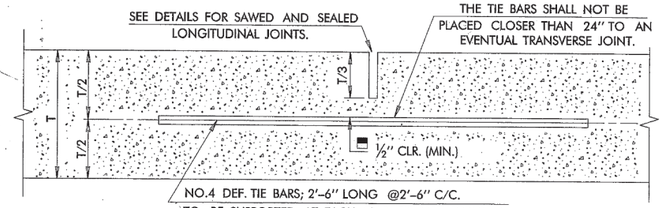
REVISIONS	
DESCRIPTION	DATE
RE-ISSUE W/ENGLISH 1999 SPECS., Rem. T&G Jnt. Rem. Alt. Joint Det., Modify Notch Shape	lgc 7/99
Tie Bars Specs.@Butt Joints	lgc 8/00



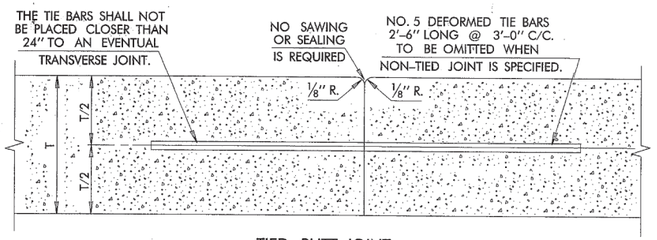
NON–DOWELED CONTRACTION JOINT



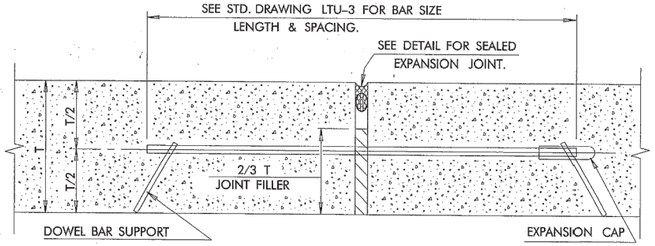
◒ DOWELED CONTRACTION JOINT



LONGITUDINAL JOINT

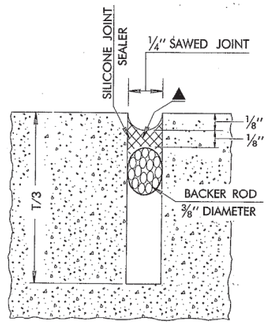


TIED BUTT JOINT
LONGITUDINAL CONSTRUCTION JOINT

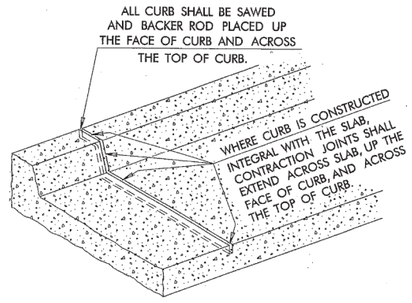


EXPANSION JOINT / ISOLATION JOINT ■

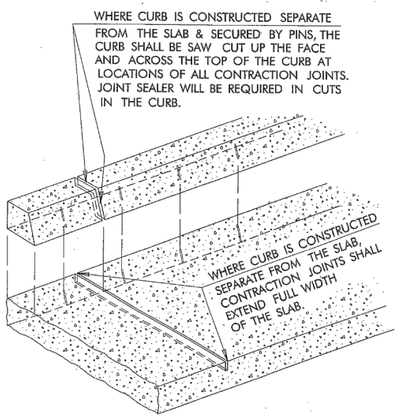
■ OMIT DOWEL BARS, CAPS & SUPPORTS FOR ISOLATION JOINTS SEE STANDARD DRAWING LTU–3 FOR DETAILS OF ALTERNATE TYPES OF DOWEL BAR SUPPORTS.



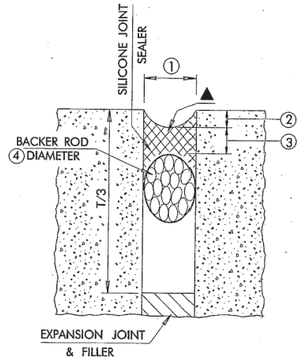
ALTERNATE DETAILS
SAWED AND SEALED CONTRACTION, AND LONGITUDINAL JOINTS



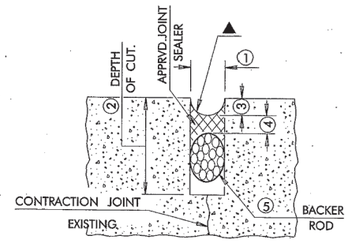
CONTRACTION JOINT WITH INTEGRAL CURB



CONTRACTION JOINT WITH SEPARATE CURB



SEALED EXPANSION JOINT



JOINT REHABILITATION DETAILS

JOINT REHABILITATION TREATMENT TABLE

JOINT WIDTH	DEPTH OF CUT	SEALANT RECESS DEPTH	SEALANT THICKNESS	BACKER ROD DIAMETER
INCHES ①	INCHES ②	INCHES ③	INCHES ④	INCHES ⑤
¼"	1⅛"	⅛" (MIN.)	¼"	⅜"
⅜"	1¼"	⅛" (MIN.)	⅜"	½"
½"	1¾"	⅛" (MIN.)	½"	⅝"
¾"	1¾"	⅛" (MIN.)	¾"	⅞"
⅞"	1¾"	⅛" (MIN.)	⅞"	1"
1"	2"	—	—	1⅛"
OVER 1"	OVER 2"	—	—	1¼" +

SEE SEC. 701.08(D) OF THE STD. SPECIFICATIONS
JOINT REHABILITATION – POLYMER SEALANT

JOINT REHABILITATION TREATMENT TABLE

JOINT WIDTH	DEPTH OF CUT	SEALANT RECESS DEPTH	SILICONE SEALANT THICKNESS	BACKER ROD DIAMETER
INCHES ①	INCHES ②	INCHES ③	INCHES ④	INCHES ⑤
⅜"	1¼"	¼"	3/16"	½"
½"	1¾"	¼"	¼"	⅝"
¾"	1¾"	¼"	⅜"	⅞"
⅞"	1¾"	½"	7/16"	1"
1"	2"	½"	½"	1⅛"
OVER 1"	OVER 2"	½"	½"	1¼"

SEE SEC. 701.08(F) OF THE STANDARD SPECIFICATIONS
JOINT REHABILTIATION – SILICONE SEALANT

EXPANSION JOINT / ISOLATION JOINT TREATMENT TABLE

JOINT WIDTH ①	SEALANT RECESS DEPTH ②	SILICONE SEALANT THICKNESS ③	BACKER ROD DIAMETER ④
INCHES	INCHES	INCHES	INCHES
½"	¼"	¼"	⅝"
¾"	¼"	⅜"	⅞"
1"	⅜"	½"	1¼"
1½"	½"	½"	2"
2"	½"	¾"	2½"

DETAILS FOR SEALED EXPANSION / ISOLATION JOINT

EXPANSION OR ISOLATION JOINT WIDTH SHALL BE 1/2", UNLESS OTHERWISE SPECIFIED ON THE PLANS. TABLE VALUES, AS SHOWN THIS TABLE , SHALL BE USED IN THOSE SPECIFIED CASES.

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. ONLY SILICONE SEALANT MEETING REQUIREMENTS OF THE 1999 ENGLISH STANDARD SPECIFICATIONS SHALL BE ACCEPTABLE FOR USE.
3. ALL JOINTS SHALL BE CLEANED IN ACCORDANCE WITH 1999 ENGLISH STANDARD SPECIFICATIONS 414.04(0) AND 419.04. WATER FLUSHING AND AIR CLEANING OF JOINT SHALL BE IN ONLY ONE DIRECTION–FORWARD. SANDBLASTING SHALL BE PERFORMED IN TWO PASSES, ONE FOR EACH FACE OF THE JOINT.
4. THE SHAPE FACTOR COMBINED WITH JOINT CLEANNESS IS THE CRITICAL COMBINATION NECESSARY TO GUARANTEE DESIRED BONDING AND FUNCTION OF SEALED JOINTS. NO TOLERANCE EXCEPT THOSE SHOWN HERE WILL BE ALLOWED.

▲ 5. THE JOINT SHAPE FACTOR IS DEFINED AS THE FINAL PRESSED SHAPE OF THE SILICONE MATERIAL. THE TOOLING OPERATION WILL FIRMLY PRESS THE FRESHLY APPLIED MATERIAL INTIMATELY AGAINST THE CUT SIDES OF THE RECESS AND THE BACKER ROD SURFACES. THE ROUNDED SHAPE ON TOP AND BOTTOM OF THE SILICONE ALLOWS THE SEALANT TO PROPERLY FLEX BUT MAINTAIN ADHERANCE TO THE PAVING.

◒ 6. ON JOINTED PORTLAND CEMENT CONCRETE PAVEMENTS, DOWELLED CONTRACTION JOINTS SHALL BE USED ON DRIVING LANES ONLY. CONCRETE SHOULDERS SHALL NOT BE DOWELLED UNLESS SPECIFIED ON THE PLANS.

7. LONGITUDINAL JOINTS BETWEEN PAVEMENT AND TIED CONCRETE SHOULDERS SHALL NOT BE SAWED OR SEALED UNLESS OTHERWISE SHOWN ON THE PLANS.

■ 8. ON ALL SAWED JOINTS, THE KERF DEPTH SHALL CLEAR DOWEL BARS, TIE BARS AND/OR REINFORCING STEEL BY A MINIMUM OF 1/2".

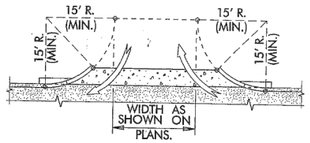
9. CONTRACTION JOINTS IN JOINTED P. C. PAVEMENT SHALL BE AT APPROXIMATELY 15'–0" CENTERS, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

APPROVED BY ROADWAY ENGINEER C. M. Senkowski DATE 8/15/00

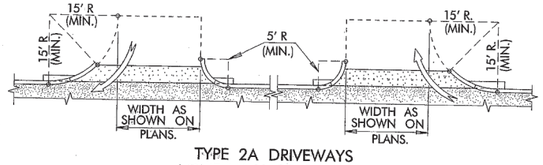
OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)

LONGITUDINAL JOINTS – EXPANSION JOINTS
CONTRACTION JOINTS & SEALERS

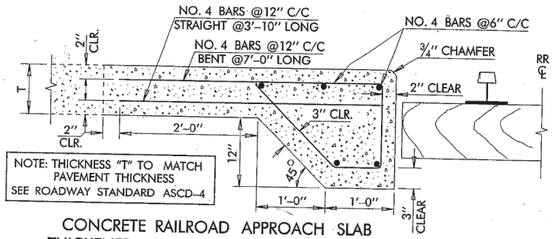
1999 SPECIFICATIONS	LECS–3	01E
		R–119E



TYPE 2 DRIVEWAY
(TWO–WAY OPERATION)

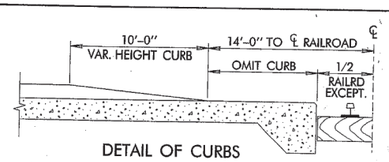


TYPE 2A DRIVEWAYS
(ONE–WAY OPERATION)



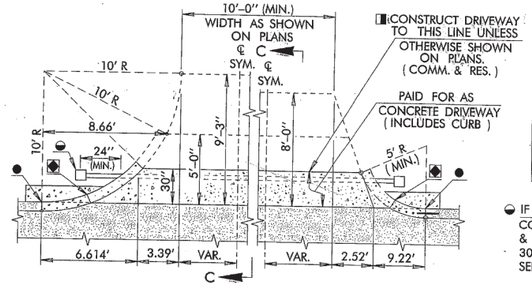
NOTE: THICKNESS "T" TO MATCH PAVEMENT THICKNESS SEE ROADWAY STANDARD ASCD–4

CONCRETE RAILROAD APPROACH SLAB
THICKENED EDGE @ RAILROAD CROSSING

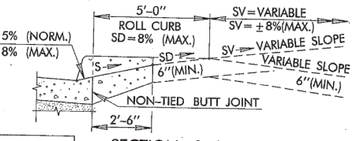


DETAIL OF CURBS
ADJACENT TO RAILROAD CROSSINGS

DESCRIPTION	REVISIONS	DATE
RE-ISSUE W/ENGLISH 1999 SPECS., Add Butt Joint Sidewalk/Curb Note, R/R Label & Ap. Slab Pay Item Remove T & G Joints & Refs. (All)		lgc 7/99
Add Apron Behind Curb At Driveways, Add Tie Bar Note & Clarify Tie Bar Specs. @Butt Joints		lgc 8/00

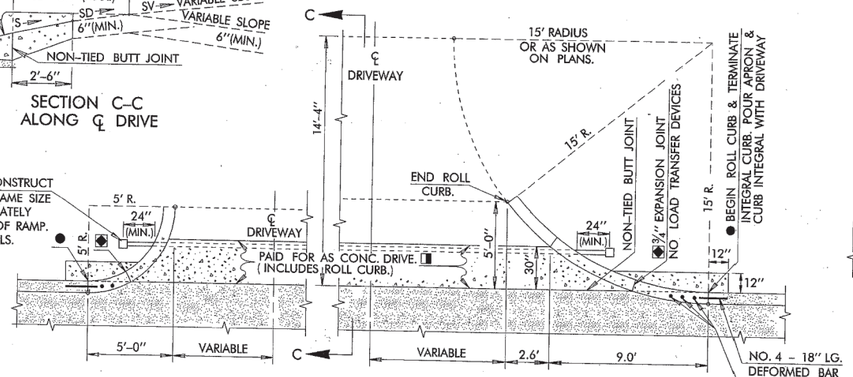


TYPE 1 DRIVEWAYS
(PRIVATE OR RESIDENTIAL)



SECTION C–C
ALONG ℄ DRIVE

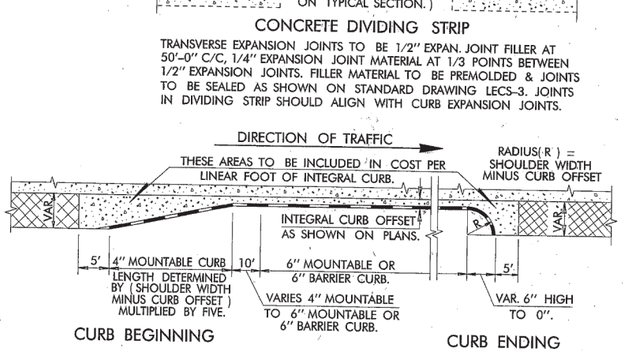
FOR ADDITIONAL DETAILS SEE POLICY ON DRIVEWAY REGULATIONS FOR OKLA. HIGHWAYS

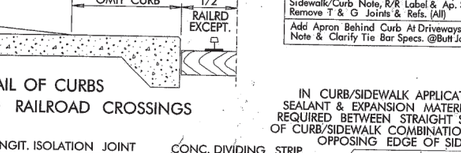


FOR STREET RETURN DETAILS SEE ROADWAY STD. ASCD–4.

TYPE 2 & 2A COMMERCIAL DRIVEWAYS

◨ WHEN SIDEWALK IS BUILT DIRECTLY BEHIND THE CURB, THE CONCRETE DRIVEWAY SHOULD BE CONSTRUCTED & EXTENDED TO THE BACK EDGE OF SIDEWALK

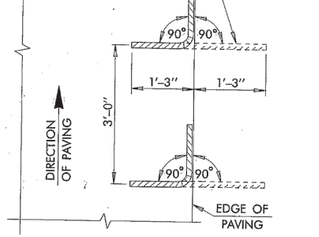




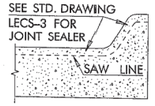
IN CURB/SIDEWALK APPLICATIONS SEALANT & EXPANSION MATERIAL NOT REQUIRED BETWEEN STRAIGHT SECTIONS OF CURB/SIDEWALK COMBINATIONS WHEN OPPOSING EDGE OF SIDEWALK IS UNCONSTRAINED

CONCRETE DIVIDING STRIP

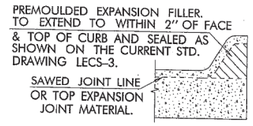
TRANSVERSE EXPANSION JOINTS TO BE 1/2" EXPAN. JOINT FILLER AT 50'–0" C/C, 1/4" EXPANSION JOINT MATERIAL AT 1/3 POINTS BETWEEN 1/2" EXPANSION JOINTS. FILLER MATERIAL TO BE PREMOLDED & JOINTS TO BE SEALED AS SHOWN ON STANDARD DRAWING LECS–3. JOINTS IN DIVIDING STRIP SHOULD ALIGN WITH CURB EXPANSION JOINTS.



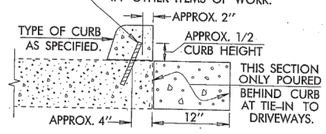
SECTION B–B



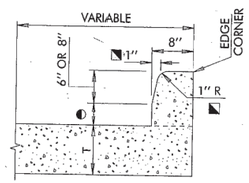
ALTERNATE
CURB JOINT



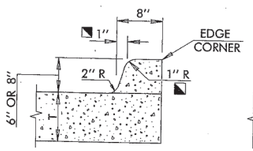
CURB JOINT WITH
EXPANSION MATERIAL



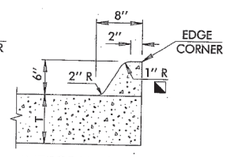
OPTIONAL CURB CONSTRUCTION
FOR SLIP FORM PAVING



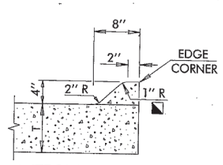
INTEGRAL CURB
(NOTCHED 6" & 8" BARRIER)



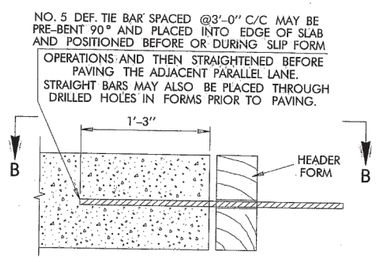
INTEGRAL CURB
(6" & 8" BARRIER)



INTEGRAL CURB
(6" MOUNTABLE)



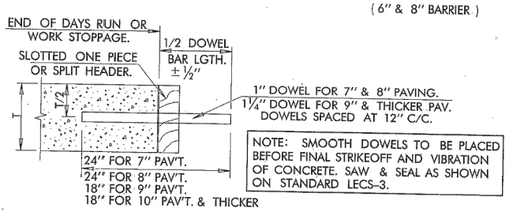
INTEGRAL CURB
(4" MOUNTABLE)



SECTION
TIED LONGITUDINAL BUTT JOINT

(TO BE USED BETWEEN ADJACENT PAVING LANES)

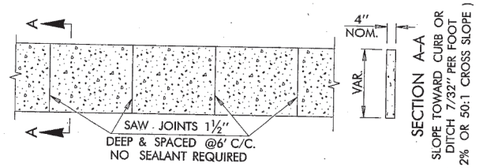
NOTE: LONGITUDINAL BUTT JOINT TIE BAR STEEL AND PLACEMENT METHOD NOT COVERED ON THIS STANDARD SHALL BE APPROVED BY THE ENGINEER.



NOTE: SMOOTH DOWELS TO BE PLACED BEFORE FINAL STRIKEOFF AND VIBRATION OF CONCRETE. SAW & SEAL AS SHOWN ON STANDARD LECS–3.

TRANSVERSE CONSTRUCTION JOINT

(TO BE USED AT END OF DAYS PLACEMENT OF CONCRETE OR ANY STOPPAGE OF 30 MINUTES OR MORE.)



PLAN DETAIL OF CONCRETE SIDEWALK

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. ALL COST OF CLASS A CONCRETE & REINFORCING STEEL IN THICKENED EDGE AT RAILROAD CROSSINGS SHALL BE INCLUDED IN THE PRICE BID FOR CONCRETE RAILROAD APPROACH SLAB.
3. COST OF JOINT FILLERS, SEALING AND REINFORCING STEEL SHALL BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.
4. CONTRACTION JOINTS IN JOINTED P.C. PAVEMENT SHALL BE AT APPROXIMATELY 15'–0" CENTERS, UNLESS OTHERWISE SHOWN ON THE PLANS.
5. CURB & GUTTER SHALL BE PLACED INTEGRAL WITH THE PAVING SLAB UNLESS OTHERWISE SHOWN IN THE PLANS. TRANSVERSE JOINTS SHALL BE EXTENDED THE FULL WIDTH OF SLAB.
6. ALL CONDUIT CROSSINGS ARE TO BE TRENCHED, PLACED, BACKFILLED, AND COMPACTED PRIOR TO SURFACING. BORING OR PUSHING PROCEDURES MAY BE USED WHERE SURFACING IS ALREADY IN PLACE AND IF APPROVED BY THE ENGINEER.
7. IF CONDUIT IS NOT CONTINUOUS BETWEEN DRIVEWAYS/RAMPS, CAP BOTH ENDS OF EACH CONDUIT CROSSING AND PLACE MARKER TO PREVENT DAMAGE DURING CONSTRUCTION.
8. CONDUIT SHALL NOT TERMINATE BELOW A SURFACED AREA, BUT SHALL EXTEND MINIMUM OF 24" PAST EDGE OF PAVING.
9. FOR PULL BOX INSTALLATION DETAILS, SEE TRAFFIC STANDARD DRAWING PBD.
10. ◥ RADIUS OF 2" MAY BE USED IF APPROVED BY THE ENGINEER.
11. ◥ BATTER OF 2" MAY BE USED IF APPROVED BY THE ENGINEER.
12. ◐ DIMENSION EQUALS THICKNESS OF ASPHALT CONCRETE SHOWN ON TYPICAL SECTION ASPHALT CONCRETE THICKNESS (2" MIN. ; 4" MAX.)

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
414.06(C)	CONCRETE RAILROAD APPROACH SLAB	S.Y.
609.06(A)	■ CONCRETE CURB (INTEGRAL)	L.F.
610.06(A)	▼ CONCRETE SIDEWALK	S.Y.
610.06(B)	▼ CONCRETE DRIVEWAY	S.Y.
610.06(B)	▼ CONCRETE DRIVEWAY (H. E. S.)	S.Y.
610.06(C)	▼ CONCRETE DIVIDING STRIP	S.Y.

■ HEIGHT & SHAPE OF CURB SHALL BE SPECIFIED.
▼ THICKNESS SHALL BE SPECIFIED IN INCHES.

APPROVED BY ROADWAY ENGINEER C. M. Senkowski DATE 8/15/00

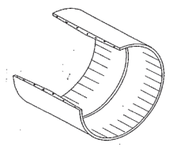
OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)

CONCRETE SURFACING
CONSTRUCTION DETAILS

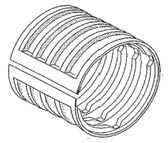
1999 SPECIFICATIONS

CSCD–4 | 01E
R–117E

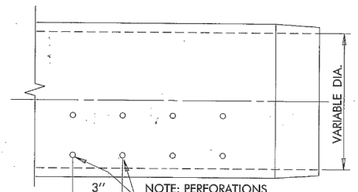
REVISIONS		
DESCRIPTION		DATE
RE-ISSUE W/ENGLISH 1999 SPECS.		
Course Aggr. Mat. Table, Wire Specs.		lgc 7/99

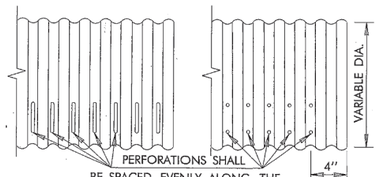


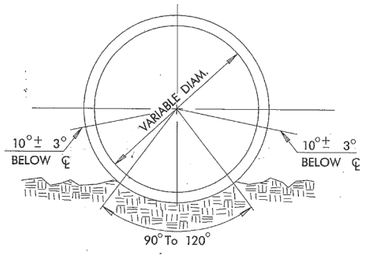
TYPICAL COUPLING FOR PVC PIPE UNDERDRAIN 1/4 SECTION REMOVED



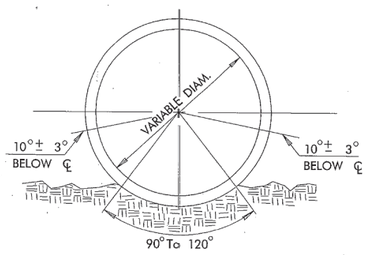
TYPICAL CORRUGATED COUPLING OR AN APPROVED EQUAL



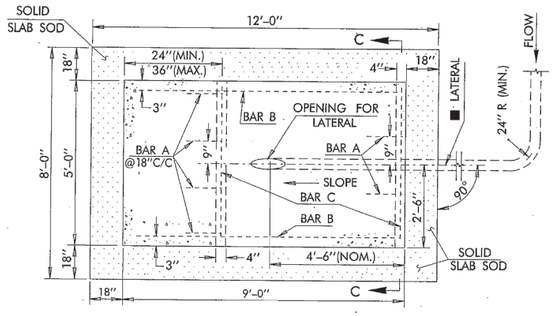




POLYVINYL (PVC) PIPE UNDERDRAIN

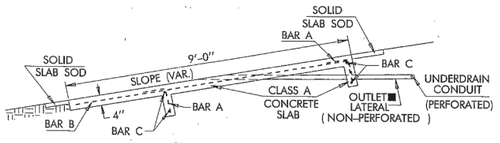


CORRUGATED POLYETHYLENE PIPE UNDERDRAIN



TOP VIEW

NOTE: OPENING FOR OUTLET LATERAL PIPE WILL VARY IN SIZE AND SHAPE, DEPENDING ON THE SIZE OF THE OUTLET LATERAL PIPE AND THE SLOPE OF THE STRUCTURE. THE OUTLET LATERAL PIPE SHALL BE CUT TO CONFORM TO THE TOP SURFACE OF THE OUTLET HEADWALL.



TYPICAL SECTION
OUTLET LATERAL & OUTLET LATERAL HEADWALL

PRICE BID FOR CAST-IN-PLACE OUTLET LATERAL HEADWALL INCLUDES SURFACE PREPARATION, CLASS A CONCRETE, REINFORCING STEEL, LABOR AND ANY INCIDENTALS NECESSARY FOR CONSTRUCTION.

CLASS A CONCRETE SHALL MEET REQUIREMENTS OF SECTION 509 OF THE 1999 ENGLISH STANDARD SPECIFICATIONS AND HAVE A ROUGHENED OR BRUSHED SURFACE TEXTURE.

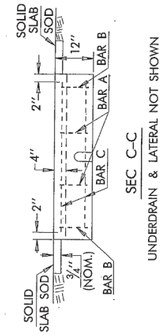
CONSTRUCTION QUANTITIES FOR ONE CONCRETE HEADWALL WITH CURTAIN WALLS EQUALS 0.65 CUBIC YARDS OF CLASS A CONCRETE AND 28.7 LBS. OF STEEL.

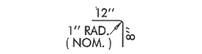
ALL REINFORCING STEEL SHALL BE #4 DEFORMED BARS AND MEET MINIMUM REQUIREMENTS OF SECTION 511 OF THE 1999 STANDARD SPECIFICATIONS.

PAYMENT FOR SOLID SLAB SODDING, ESTIMATED AT 5.7 SQ. YARDS PER MAT LOCATION, SHALL BE INCLUDED IN THE PRICE BID FOR THE OUTLET LATERAL HEADWALL.

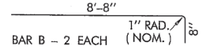
OUTLET OPENING SHALL HAVE INSTALLED A REMOVABLE RODENT SCREEN HAVING A WIRE MESH DESIGN & 0.23" to 0.50" (NOM.) SQUARE OPENINGS. SCREEN MATERIAL MAY BE STAINLESS STEEL OR GALVANIZED WITH WIRE THICKNESS OF BETWEEN 0.023" & 0.038", AFTER SHAPING AND FABRICATION. RODENT SCREEN DESIGN SHALL BE APPROVED BY THE ENGINEER.

THE FINAL SECTION OF THE OUTLET LATERAL CONDUIT SHALL BE NON-PERFORATED, SCHEDULE 40 OR TYPE S HIGH DENSITY POLYETHYLENE AND A MINIMUM 20'-0" IN LENGTH, INCLUDING COUPLINGS.



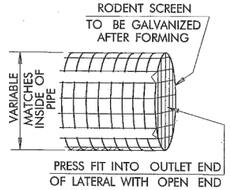


BAR A – 6 EACH



BAR B – 2 EACH

BAR C – 4 EACH @4'-6" STRAIGHT



TYPICAL RODENT SCREEN

COARSE AGGREGATE COVER MATERIAL GRADATION REQUIREMENTS

U.S. STANDARD SIEVE SIZE (IN.)	1/2"	3/8"	#4	#8	#16	#50
PERCENT PASSING	100	90–100	20–55	0–25	0–5	0–2

THE COARSE AGGREGATE COVER MATERIAL SHALL MEET ALL OTHER REQUIREMENTS OF SECTION 703.04.

THE FINE AGGREGATE COVER MATERIAL SHALL MEET ALL THE REQUIREMENTS OF SECTION 703.04.

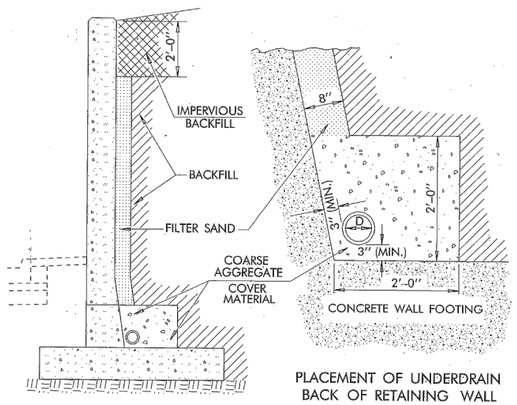
INSTALLLATION TECHNIQUE:

PERFORATED PIPE UNDERDRAIN, WHEN INSTALLED IN A TRENCH, SHALL BE BEDDED ON 4" OF COARSE AGGREGATE COVER MATERIAL. THE INSTALLED PIPE SHALL THEN BE CAREFULLY BACKFILLED WITH THE REMAINING COARSE AGGREGATE COVER MATERIAL TO 6" ABOVE THE TOP OF THE PIPE. FILTER SAND SHALL BE INSTALLED TO APPROXIMATELY 6" BELOW THE ORIGINAL NATURAL GROUND AS APPROVED BY THE ENGINEER.

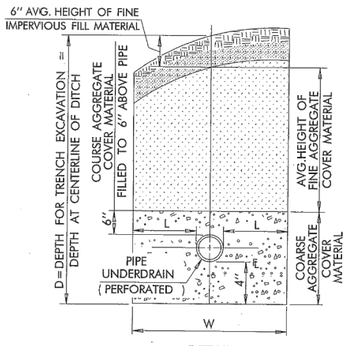
NON-PERFORATED PIPE UNDERDRAIN, WHEN INSTALLED IN A TRENCH, SHALL BE BEDDED IN A 4" LAYER CONSISTING OF COARSE AGGREGATE COVER MATERIAL OR A 50–50 MIX OF COARSE AGGREGATE COVER MATERIAL AND FILTER SAND. BEDDING MATERIAL LAYER SHALL CONFORM TO THE REQUIREMENTS OF SECTION 703.04. COST OF NON-PERFORATED PIPE UNDERDRAIN BEDDING LAYER TO BE INCLUDED WITH PIPE UNDERDRAIN COVER MATERIAL. THE REMAINING BACKFILL MAY BE NATIVE SOIL REMOVED IN THE TRENCHING OPERATION, FILTER SAND OR BACKFILLED REQUIRED BY THE ENGINEER, WITH COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

GENERAL NOTES

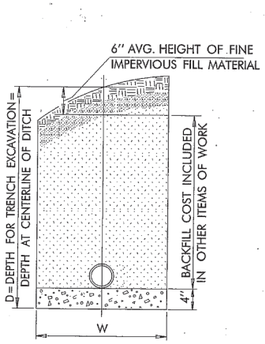
1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. THE EXTENT, LOCATION AND DEPTH OF DRAINS MAY BE ADJUSTED BY THE ENGINEER TO SUIT CONDITIONS FOUND DURING CONSTRUCTION.
3. COST OF ALL FITTINGS TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF PIPE UNDERDRAIN.
4. FOR PIPE UNDERDRAIN OF UP TO 12" IN DIAMETER, W = 24" WITHOUT SHEETING AND SHORING: W = 36" WHEN SHEETING AND SHORING IS USED. SEE 1999 ENGLISH STANDARD SPI-3 FOR SHEETING & SHORING NOTES.
5. FOR PIPE UNDERDRAIN LARGER THAN 12" IN DIAMETER, SEE 1999 ENGLISH STANDARD DRAWING SPI-3 FOR ADDITIONAL TRENCH EXCAVATION DETAILS.
6. NON-PERFORATED PIPE UNDERDRAIN PIPES SHALL BE TREATED AS PIPE CONDUITS: I.E., PAY ITEMS SHALL CONSIST OF TRENCH EXCAVATION AND BEDDING MATERIAL.
7. MATERIALS SHOWN HERE ARE TYPICAL ONLY AND ARE NOT THE ONLY CHOICE FOR SUBSURFACE DRAINAGE PURPOSES.



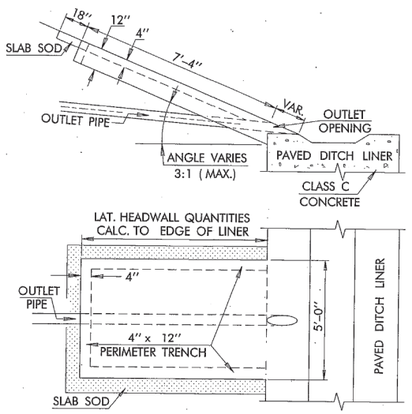
PLACEMENT OF UNDERDRAIN BACK OF RETAINING WALL



DETAIL
TRENCH EXCAVATION
PERFORATED PIPE
UNDERDRAIN INSTALLATIONS



DETAIL
TRENCH EXCAVATION
NON-PERFORATED PIPE
UNDERDRAIN INSTALLATIONS



TYPICAL SECTION
VARIATION FOR PAVED DITCH
W/ OUTLET LATERAL & HEADWALL

ESTIMATED VOLUME = 0.52 CUBIC YARDS
(PAVED DITCH LINER NOT INCLUDED)

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
613.06(P)	■ PERFORATED PIPE UNDERDRAIN–ROUND	L.F.
613.06(Q)	■ NON–PERFORATED PIPE UNDERDRAIN–ROUND	L.F.
613.06(R)	PIPE UNDERDRAIN COVER MATERIAL	C.Y.
613.06(S)	TRENCH EXCAVATION	C.Y.
613.06(T)	STANDARD BEDDING MATERIAL	C.Y.
653.06(C)	OUTLET LATERAL HEADWALL	EA.

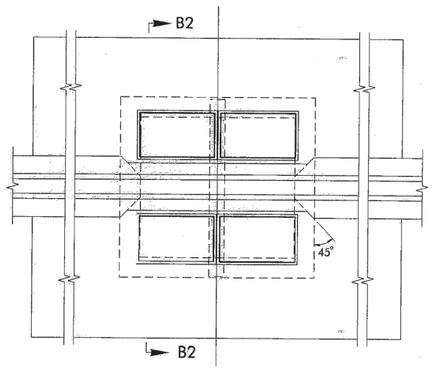
■ DIMENSION TO BE SPECIFIED IN INCHES

APPROVED BY ROADWAY ENGINEER C. M. Stenkowski DATE 9/1/99

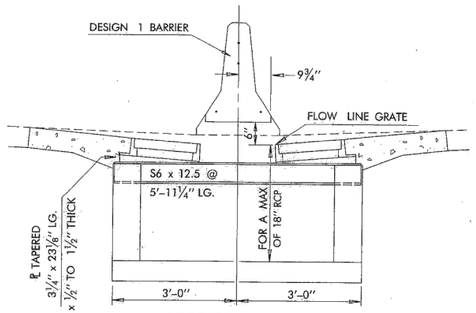
OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)

PIPE UNDERDRAIN INSTALLATIONS

1999 SPECIFICATIONS	PUD–2	00E
		R–124E

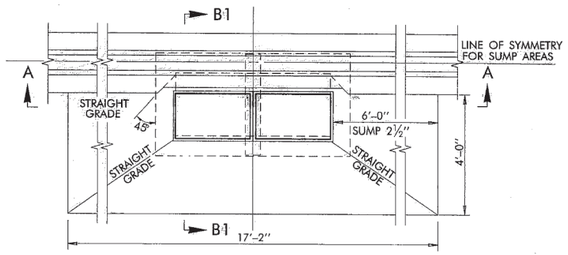


PLAN OF DOUBLE SIDED INLET (TYPE II)
IN MEDIAN BARRIER

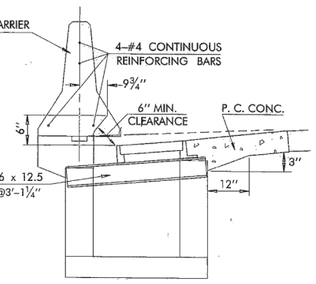


SECTION B2–B2

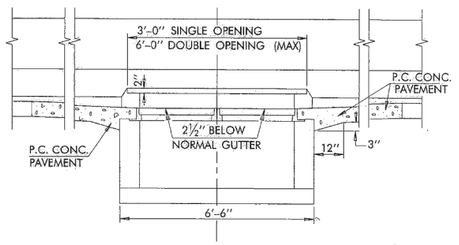
NOTE: SEE ROADWAY STDS. SSIF–3 & CIG–2 FOR AVAILABLE INLET FRAME & GRATES TO BE USED ON SINGLE (TYPE I) OR DOUBLE (TYPE II) SIDED INLETS.



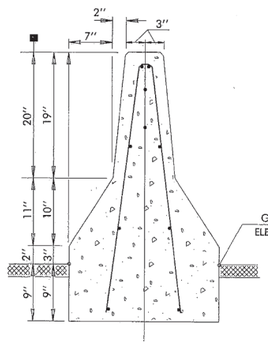
PLAN OF SINGLE SIDED INLET (TYPE I)
IN MEDIAN BARRIER



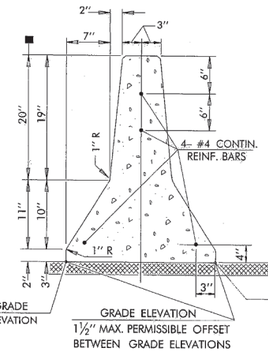
SECTION B1–B1



SECTION A–A



SECTION E–E

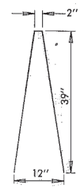


GRADE ELEVATION
1½″ MAX. PERMISSIBLE OFFSET BETWEEN GRADE ELEVATIONS

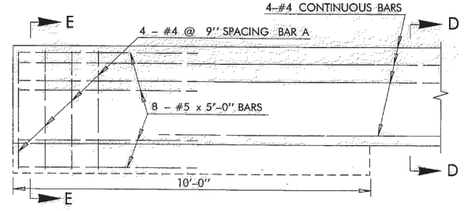
DESIGN 1
SECTION D–D

DES. 1 QUANTITIES / FT.	
CONC. (C.Y.)	STEEL (Lbs.)
0.101	2.67

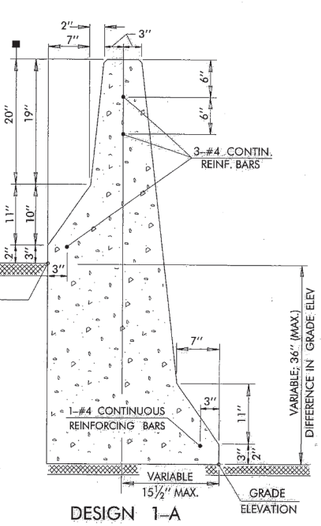
■ ALTERNATE DIMENSIONS FOR MEDIAN BARRIER WHEN SPECIFIED ON THE PLANS.



BENDING DIAGRAM
BAR A



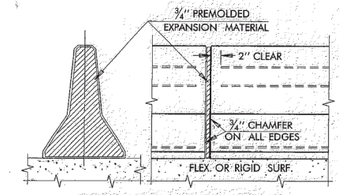
MEDIAN BARRIER ANCHOR END SECTION
(TO BE PLACED AT BEGINNING AND END OF MEDIAN BARRIER RUNS WITH COST TO BE INCLUDED IN PAYMENT FOR DES. 1 BARRIER WALL)



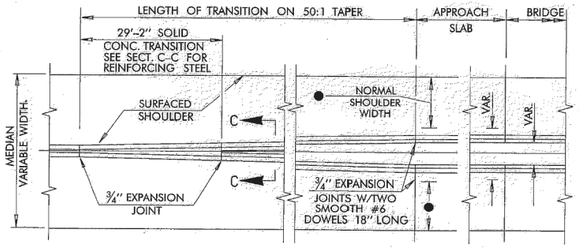
DESIGN 1–A

DES. 1–A QUANT. TRANSITION SECTION (TS)	
GRADE DIFF.*	CU.YDS. PER L.F.
1″	0.119
2″	0.124
3″	0.128
4″	0.133
5″	0.137
6″	0.141
7″	0.146
8″	0.150
9″	0.154
10″	0.159
11″	0.163
12″	0.168
13″	0.172
14″	0.177
15″	0.182
16″	0.187
17″	0.192
18″	0.197
19″	0.202
20″	0.207
21″	0.212
22″	0.216
23″	0.221
24″	0.226
25″	0.231
26″	0.236
27″	0.241
28″	0.246
29″	0.251
30″	0.256
31″	0.261
32″	0.266
33″	0.271
34″	0.276
35″	0.281
36″	0.286

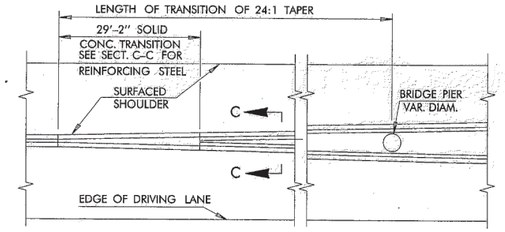
REVISIONS		
DESCRIPTION		DATE
RE–ISSUE W/ENGLISH 1999 SPECS.		lgc 7/99
Add Gen. Note #6		lgc 8/00
Amend/Add Inlet Types I &II Details/Nos.		lgc 8/00



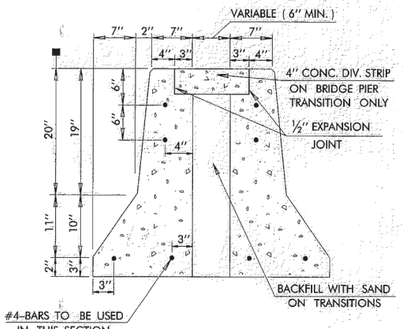
DETAIL EXPANSION JOINT



DETAIL OF TRANSITION SECTION AT BRIDGE ENDS



DETAIL OF TRANSITION SECTION AT BRIDGE PIERS



SECTION C–C

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. PRICE BID SHALL INCLUDE PAYMENT FOR MATERIALS, LABOR, PIPE SLEEVES, EXPANSION JOINTS AND ALL INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION.
3. SEE 1999 TRAFFIC STD. DRAWING BMF1–1 (TRAFFIC T–220E) FOR DETAILS OF MEDIAN BARRIER MOUNTED LIGHT POLE BASES AND INSTALLATIONS.
4. MEDIAN BARRIER SHALL BE MEASURED FOR PAYMENT AS CONTINUOUS BARRIER. PAYMENT FOR LIGHT POLE FOOTINGS TO BE INCLUDED IN OTHER ITEMS OF WORK.
5. WHEN BARRIER IS PLACED ON FLEXIBLE BASE OR SURFACING, CONTRACTION JOINTS OR CHAMFERS ARE REQUIRED AT MAX. 20 FT. C/C SPACING AND EXPANSION JOINTS ARE REQUIRED AT MAX. 200 FT. C/C SPACING. WHEN THE BARRIER IS PLACED ON P.C. CONCRETE SURFACING, THE ONLY JOINTS REQUIRED ARE THOSE THAT SHALL MATCH THE JOINTS ON THE RIGID SURFACING.
6. WHEN MEDIAN BARRIER IS CONSTRUCTED OR EXISTS PRIOR TO CONSTRUCTION OF ADJACENT SHOULDERS OR OVERLAYS, THE SHOULDER LAYERING SHALL NOT ALTER THE ORIGINAL TRAFFIC SIDE GEOMETRY OF THE MEDIAN BARRIER.

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
627.06(I)	CONCRETE MEDIAN BARRIER DESIGN 1	L.F.
509.06(B)	CLASS A CONCRETE (MED. BAR. DES 1–A)	C.Y.
511.06	REINFORCING STEEL	LBS.
611.06(E)	INLET MEDIAN BARRIER – TYPE I, DESIGN 1	EA.
611.06(E)	INLET MEDIAN BARRIER – TYPE II, DESIGN 1	EA.

APPROVED BY ROADWAY ENGINEER C. M. Senkowski DATE 8/15/00

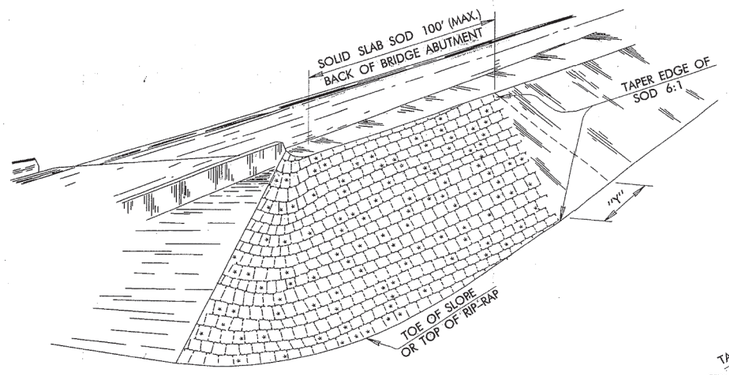
OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)

CAST–IN–PLACE MEDIAN BARRIER

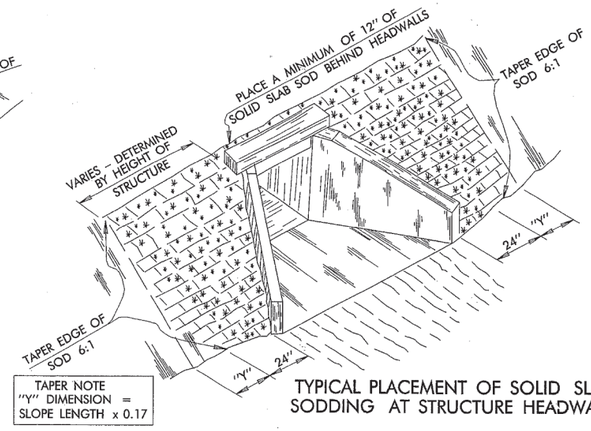
1999 SPECIFICATIONS

MB–3 | 01E
R–126E

REVISIONS	
DESCRIPTION	DATE
RE-ISSUE W/ENGLISH 1999 SPECS.	7/99
Amend Excel. Mat BOP Item No. lgc	8/00

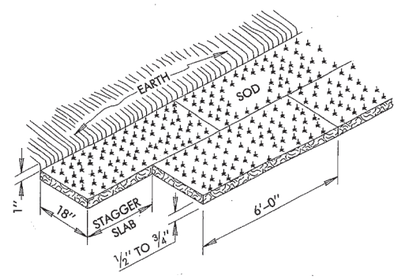


TYPICAL PLACEMENT OF SOLID SLAB SODDING
ON FILL SLOPES, APPROACHES TO OVERPASSES AND BRIDGES.

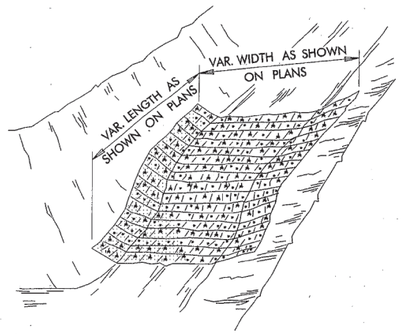


TAPER NOTE
"Y" DIMENSION = SLOPE LENGTH x 0.17

TYPICAL PLACEMENT OF SOLID SLAB
SODDING AT STRUCTURE HEADWALLS

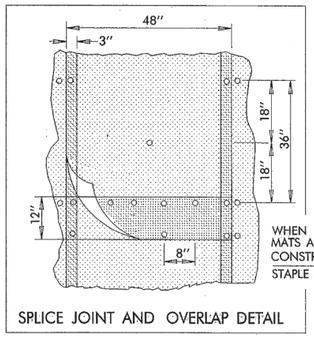


SOLID SLAB SOD
(MARCH 1 THRU AUGUST 31)

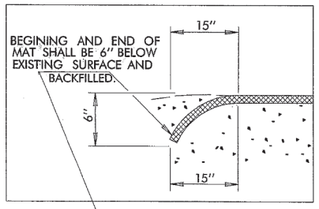


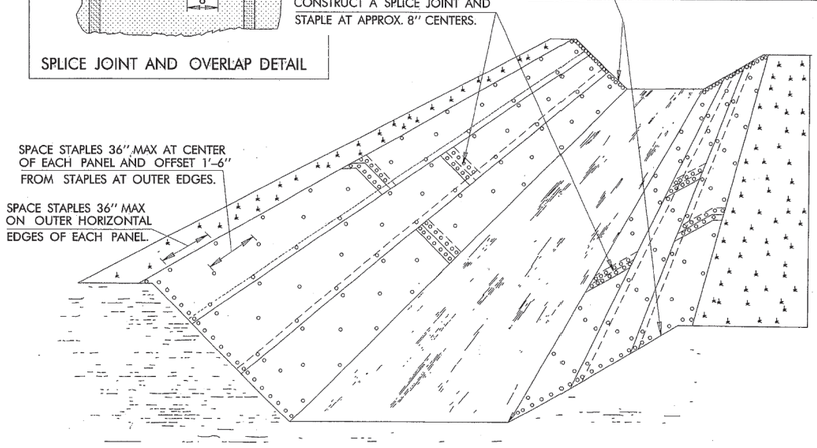
TYPICAL PLACEMENT OF
SOLID SLAB SOD IN DITCHES

SOLID SLAB SODDING

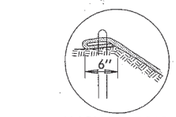


SPLICE JOINT AND OVERLAP DETAIL

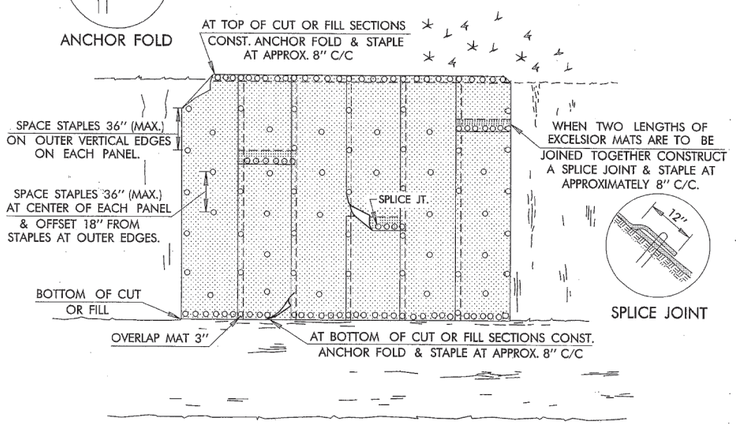




EXCELSIOR MAT
CHANNEL PLACEMENT



ANCHOR FOLD



SPLICE JOINT

EXCELSIOR MAT
BACKSLOPE AND FILLSLOPE PLACEMENT

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. SOLID SLAB SOD SHALL BE PLACED IN HORIZONTAL ROWS WITH THE LONGEST SIDE OF EACH SLAB RUNNING PARALLEL TO THE DIRECTION OF THE ROW AND THE SLABS IN ALTERNATE ROWS STAGGERED HALF THE LENGTH OF EACH INDIVIDUAL SLAB.
3. SLABS SHALL BE CUT AND HARVESTED WITH A COMMERCIAL SOD CUTTER TO THE DIMENSIONS SHOWN, THEN LOADED, TRANSPORTED AND HANDLED ON PALLETS.
4. AFTER PLACEMENT OF SOLID SLAB SOD, EARTH AT THE OUTER EDGES OF THE PLACEMENT SHALL BE BACKFILLED AND LOOSELY COMPACTED TO AT LEAST 1" ABOVE THE TOP OF THE SOLID SLAB SODDING.
5. SEE ROADWAY STANDARD ECM1-2 FOR ADDITIONAL DETAILS.

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
230.06(A)	SOLID SLAB SODDING	S.Y.
233.06(E)	EXCELSIOR MAT	S.Y.

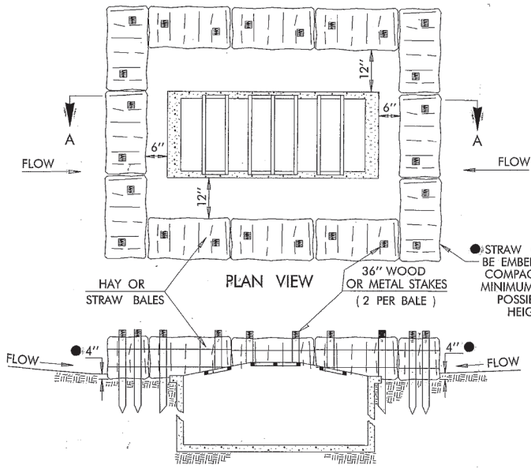
APPROVED BY ROADWAY ENGINEER C. M. Senkowski DATE 8/15/00

OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)

EROSION CONTROL MATS

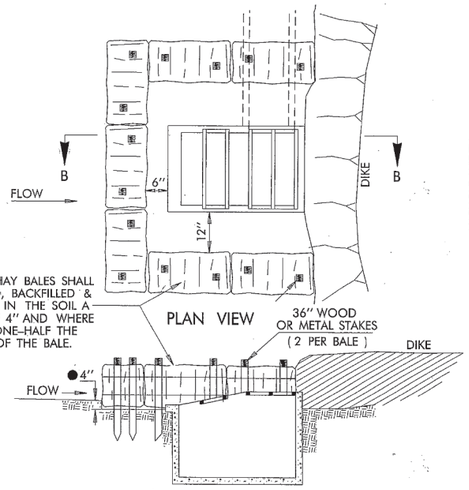
1999 SPECIFICATIONS	(SOD / EXCELSIOR)	ECM2-2	01E
			R-128E

REVISIONS		
DESCRIPTION		DATE
RE-ISSUE W/ENGLISH 1999 SPECS.		
Add Type 1-C Sediment Filter	lgc 7/99	



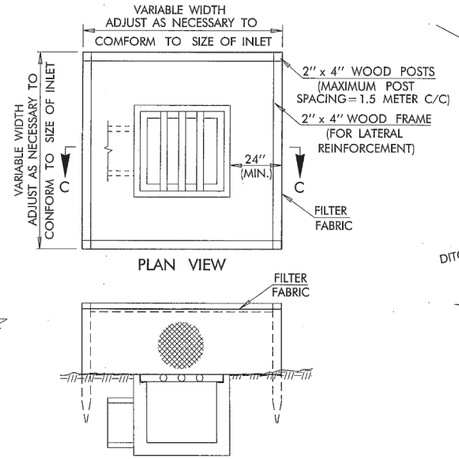
SECTION A–A

SEDIMENT FILTER (TYPE 1–A)



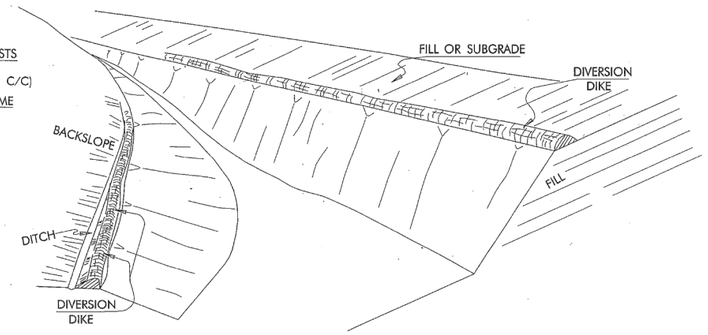
SECTION B–B

SEDIMENT FILTER (TYPE 1–B)

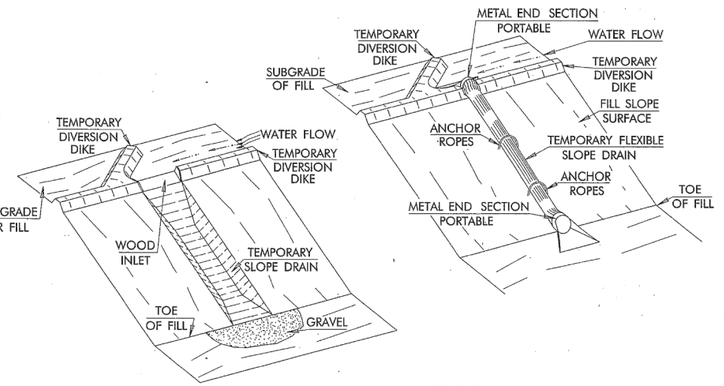


SEC. C–C

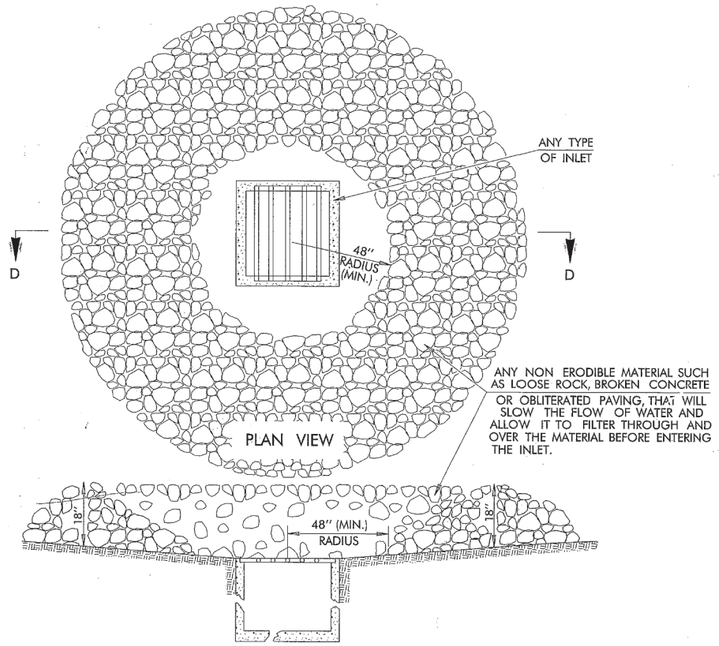
SEDIMENT FILTER (TYPE 1–C)



DIVERSION DIKES

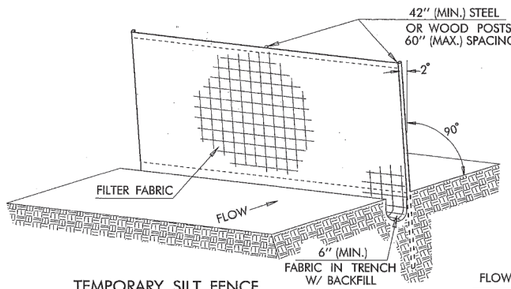


SLOPE DRAINS



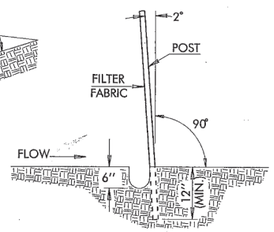
SECTION D–D

SEDIMENT FILTER (TYPE II)



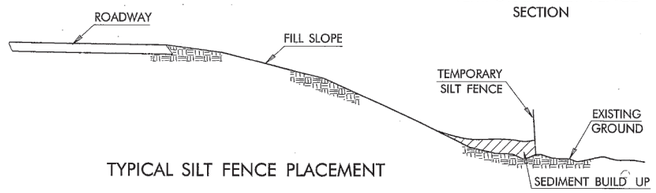
TEMPORARY SILT FENCE

RECOMMENDED TOE-IN METHOD



TEMPORARY SILT FENCE

SECTION



TYPICAL SILT FENCE PLACEMENT

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. COST OF TEMPORARY DIVERSION DIKES TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
221.06	TEMPORARY SLOPE DRAIN	L.F.
223.06	TEMPORARY SILT FENCE	L.F.
224.06	TEMPORARY SEDIMENT FILTER	EA.
226.06	TEMPORARY SEDIMENT REMOVAL	CU. FT.

APPROVED BY ROADWAY ENGINEER C. M. Senkowski DATE 9/1/99

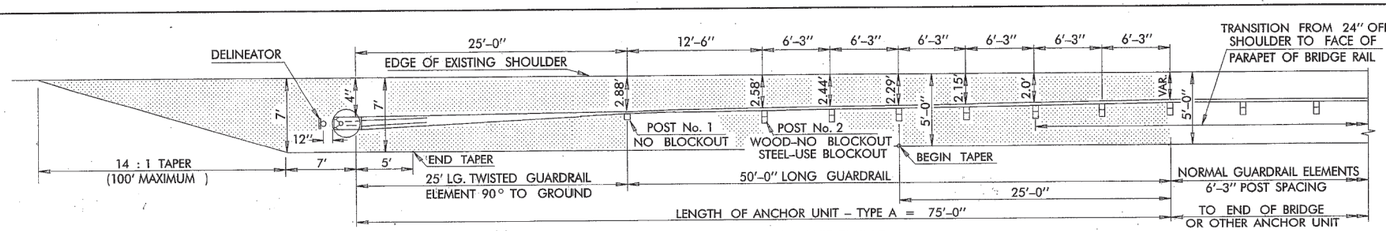
OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)

TEMPORARY SEDIMENT CONTROLS

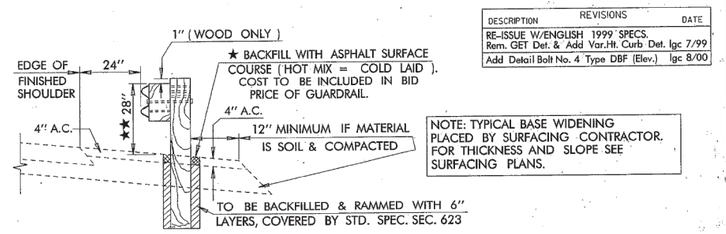
1999 SPECIFICATIONS	TSC2-2	00E
		R-131E

SCHEMMER

REVISIONS	
DESCRIPTION	DATE
RE-ISSUE W/ENGLISH 1999 SPECS. Rem. GET Det. & Add Var.Ht. Curb Det. lgc 7/99	
Add Detail Bolt No. 4 Type DBF (Elev.)	lgc 8/00



GUARDRAIL WIDENING



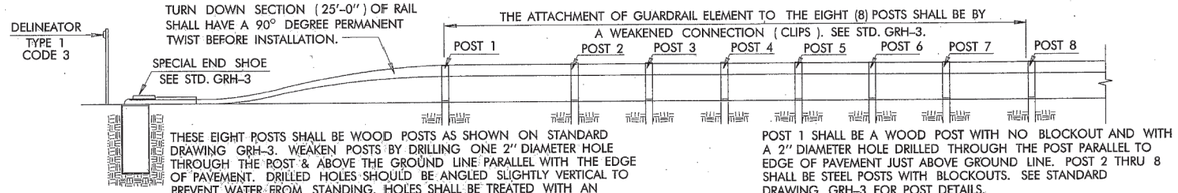
NOTE: TYPICAL BASE WIDENING PLACED BY SURFACING CONTRACTOR. FOR THICKNESS AND SLOPE SEE SURFACING PLANS.

DETAIL OF GUARDRAIL POST IN SHOULDER BASE WIDENING

★ SEE 1999 STD. SPECIFICATIONS–SEC. 405, ASPH SURFACE COURSE (HOT MIX–COLD LAID)

★★ MEASURE DIRECTLY BELOW RAIL, GUARDRAIL TO BE INSTALLED THIS DIMENSION + 1". WHEN INSTALLING GUARDRAIL IN AN AREA WITH NO SHOULDER WIDENING THE RAIL HEIGHT SHALL BE MEASURED AS FOLLOWS:
FOR NEGATIVE GRADE SHOULDERS, MEASURE TO A LINE FROM THE SHOULDER ON THE SAME SLOPE AS THE SHOULDER.
FOR POSITIVE GRADE & LEVEL SHLDRS, MEASURE FROM A LINE LEVEL WITH THE EDGE OF SHOULDER.

POST NO.	DIMENSION ● A
1	26"
2	27"
3	27½"
4 – 8	28"

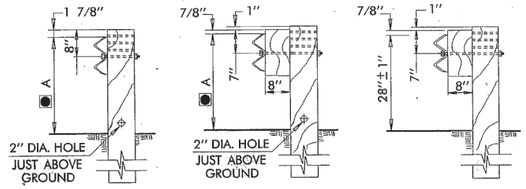


WOOD POSTS OPTION

ELEVATION

STEEL POSTS OPTION

ANCHOR UNIT – TYPE A



POST 1 & 2
NO BLOCKOUT CLIPPED CONNECTIONS (STEEL POST WITH BLOCKOUT MAY BE USED FOR POST 2)

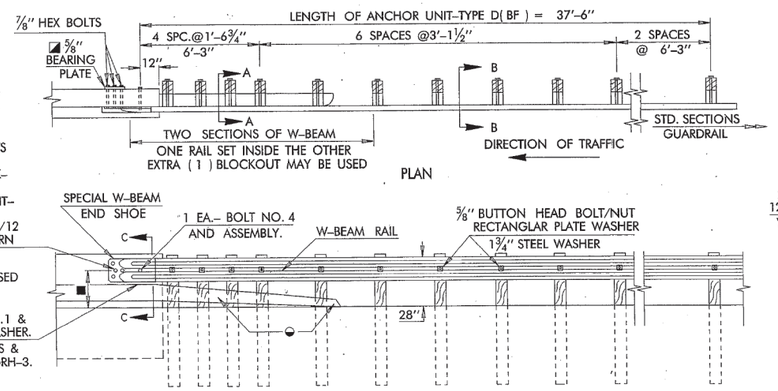
POST 3 THRU 8
BLOCKOUT WITH CLIPPED CONNECTIONS (STEEL POSTS & BLOCKOUTS MAY BE USED)

STANDARD POSTS FORWARD
(STEEL POSTS & BLOCKOUTS MAY BE USED)

WOOD POST DETAIL
RECTANGULAR POSTS SHOWN
SEE RDY. STD. DRAWING GRH–3

4 EA.– BOLT NO. 7 AND ASSEMBLY AN EXTRA WASHER SHALL BE USED UNDER THE BOLT HEAD. SEE TABLE OF BOLTS, NUTS & WASHERS ON STANDARD DRAWING GRH–3. BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXTEND THRU THE FULL THICKNESS OF THE NUT AND AT LEAST 1/2" BEYOND. THEY SHALL BE TIGHTENED BY THE TURN–OF–THE–NUT METHOD WITH A MINIMUM OF 1/12 TURN AND MAXIMUM OF 1/4 TURN OVER SNUG TIGHT CONDITION.

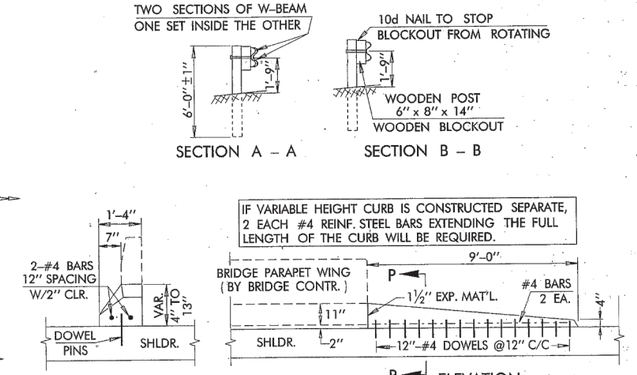
◪ 5/8" BEARING PLATE SHALL BE USED



PLAN

ELEVATION

ANCHOR UNIT – TYPE D(BF)



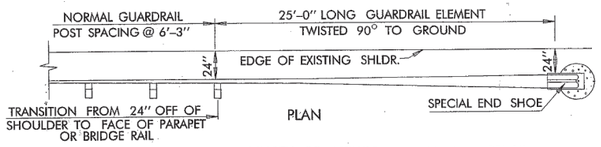
SECTION A – A

SECTION B – B

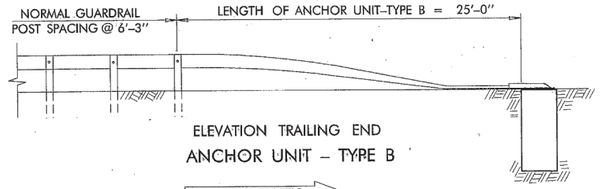
SECTION P–P

P ELEVATION

◒ VARIABLE HEIGHT CURB

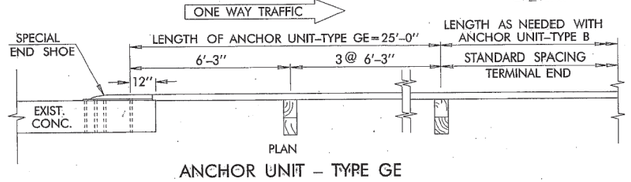


PLAN



ELEVATION TRAILING END

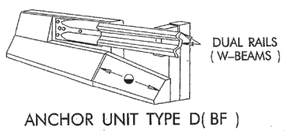
ANCHOR UNIT – TYPE B



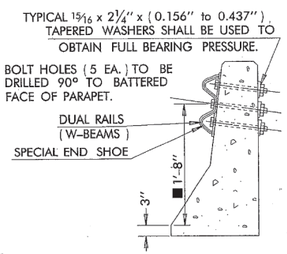
PLAN

ANCHOR UNIT – TYPE GE

ONLY TO BE USED AT EXITING ENDS OF ONE WAY BRIDGES



ANCHOR UNIT TYPE D(BF) SLOPED FACE PARAPET (NOTCHED)

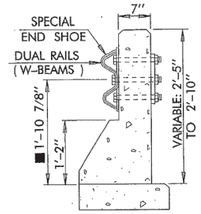


SECTION THRU WING PARAPET FOR RETROFIT ANCHOR UNITS TYPES D(BF), G, GE

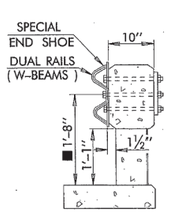
■ ANCHOR UNIT TYPE D(BF) SHALL BE USED ON SLOPED FACE PARAPET W/BLOCKOUT FOR SPECIAL END SHOE (NOTCHED) OR RETROFIT AND WITH BRIDGE TRAFFIC RAILS TYPES TR–1 & TR–3. ADJUST RAIL HEIGHT FOR SMOOTH TRANSITION FROM SPECIAL END SHOE TO FIRST SPLICE CONNECTION (12'–6").

SPLICE CONNECTION BOLTS/NUTS FOR TYPE A & D(BF) ANCHOR UNITS SHALL BE TORQUED TO A MINIMUM OF 75 ft–lbs.

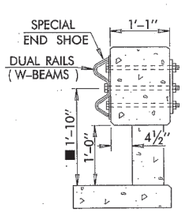
◒ CURB (TAPERING SECTION SHOWN HERE) TO BE USED ONLY WITH SLOPED FACE PARAPET (NOTCHED).



SFP–1
SECTION C–C



TR–1
SECTION C–C



TR–3
SECTION C–C

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. THE BRIDGE CONTRACTOR SHALL PROVIDE HOLES FOR THE CONNECTION OF W–BEAM TERMINAL CONNECTOR (SPECIAL END SHOE) TO BRIDGE RAIL AND SLOPED FACE PARAPET. RETROFIT CONNECTIONS FOR GUARDRAIL (SPECIAL END SHOE) SHALL BE FIELD DRILLED BY THE SURFACING CONTRACTOR.
3. GUARDRAIL COMPONENTS SHALL MEET THE APPLICABLE STANDARDS OF "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE" PREPARED AND APPROVED BY THE AASHTO–ARTBA–AGC JOINT COMMITTEE, TECHNICAL BULLETIN NO. 268 B.
4. STEEL POST AND BLOCKOUT MAY BE USED IN LIEU OF WOOD POST AND BLOCKOUT FOR ANCHOR UNIT TYPE D(BF).
5. POST SPACING AND FACE OF RAIL ALIGNMENT REMAINS THE SAME.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
623.06(F)	GUARDRAIL ANCHOR UNIT (TYPE ▲)	EA.

▲ TYPE OF GUARDRAIL ANCHOR UNIT TO BE SPECIFIED.

APPROVED BY ROADWAY ENGINEER C. M. Senkowski DATE 8/15/00

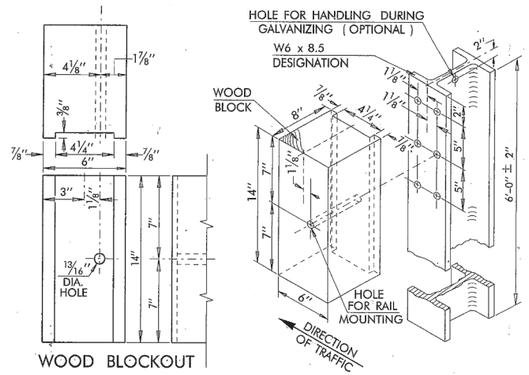
OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)

GUARDRAIL ANCHOR UNIT

1999 SPECIFICATIONS	GRAU1–1	01E
		R–132E

SCHEMMER

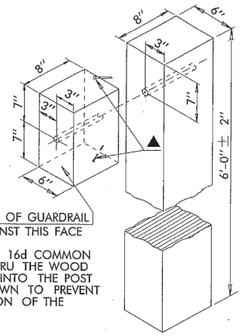
REVISIONS	
DESCRIPTION	DATE
RE-ISSUE W/ENGLISH 1999 SPECS. Replace Metal Blockout W/Wood, Delete Beam Washer & & Add NCHRP 350 Note lgc	7/99



WOOD BLOCKOUT

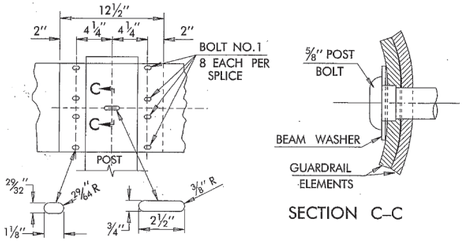
STEEL POST & WOOD BLOCKOUT

FABRICATED STEEL BEAMS OF THE SAME BASIC DIMENSIONS AND BENDING PERFORMANCE WILL BE AN ACCEPTABLE ALTERNATE. ALL HOLES IN STEEL TO BE 13/16" DIAMETER AND SHALL BE PUNCHED OR DRILLED BEFORE GALVANIZING. USE BOLT NO. 5 TO MOUNT RAIL AND BLOCKOUT TO POST. SEE TABLE OF BOLTS ON THIS SHEET FOR DETAILS. POST UNIT TO BE GALVANIZED AFTER FABRICATION. ON INITIAL INSTALLATION, THE BLOCKOUT AND RAIL ELEMENT SHALL BE ATTACHED TO THE POST USING THE SINGLE HOLE IN THE POST AND BLOCKOUT (ONE BOLT IS REQUIRED). OTHER HOLES IN POST ARE FOR FUTURE VERTICAL ADJUSTMENT. BEAM WASHERS ARE NO LONGER USED.



WOOD POSTS & BLOCKOUT

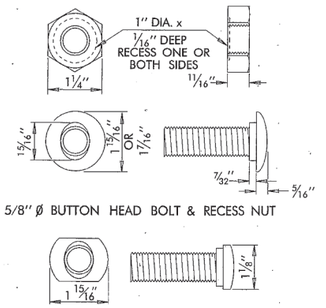
ALL HOLES IN WOOD TO BE 3/4" IN DIAMETER AND DRILLED, AS SHOWN ON THE LONGITUDINAL CENTER OF THE 6" FACE AND TREATED WITH AN APPROVED PRESERVATIVE. ON INITIAL INSTALLATIONS, THE RAIL AND BLOCKOUT SHALL BE ATTACHED TO THE POST USING ONE BOLT NO. 2 THROUGH THE RAIL, THE CENTER HOLE IN THE BLOCKOUT AND THE BOTTOM HOLE IN THE POST.



SECTION C–C

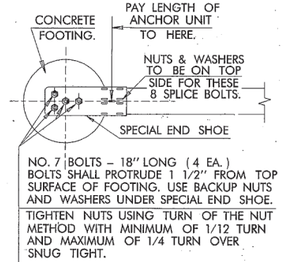
GUARDRAIL SHALL BE LAPPED IN THE DIRECTION OF NEAREST TRAFFIC AT ALL LOCATIONS WHERE SPLICES OCCUR (EXCEPT AT NARROW OR ONE LANE BRIDGE APPROACHES, WHERE LAPS SHALL BE TOWARD THE BRIDGE ON BOTH SIDES OF THE APPROACH ROADWAY).

RAIL SPLICE



5/8" Ø BUTTON HEAD BOLT & RECESS NUT

ALTERNATE BUTTON HEAD BOLT



NO. 7 BOLTS – 18" LONG (4 EA.) BOLTS SHALL PROTRUDE 1 1/2" FROM TOP SURFACE OF FOOTING. USE BACKUP NUTS AND WASHERS UNDER SPECIAL END SHOE. TIGHTEN NUTS USING TURN OF THE NUT METHOD WITH MINIMUM OF 1/12 TURN AND MAXIMUM OF 1/4 TURN OVER SNUG TIGHT.

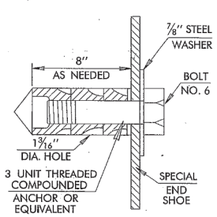
CLASS A CONCRETE TO BE PLACED INTO 18" DIA. HOLE TO A DEPTH OF APPROX. 4'–6", SHAPE CONCRETE TO DRAIN OR FIT SLOPES. END SHOE MUST REMAIN LEVEL. CLASS A CONCRETE = 0.26 C.Y.

DETAIL OF CONCRETE & BOLTS USED IN ANCHOR

NOTE: PRECAST FOOTING (EQUIV. SIZE & DESIGN) MAY BE SUBSTITUTED FOR CAST–IN–PLACE FOOTING, IF APPROVED BY THE ENGINEER.

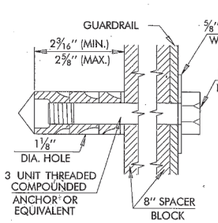
OPTIONAL TYPE POSTS FOR GUARDRAIL

THE CONTRACTOR MAY, AT HIS OPTION, SELECT AND USE ONE OF THE TYPE POSTS SHOWN ABOVE. THIS POST & BLOCKOUT CHOICE MUST BE USED ON THE ENTIRE PROJECT. THE ONLY OBLIGATORY USE OF WOODPOST IS FOR POST NO. 1, AS SHOWN ON ANCHOR UNIT TYPE A. ALL POST & BLOCKOUT (INCLUDING RECYCLED MATERIAL) COMBINATIONS MUST BE OF A TYPE WHICH PASSES NCHRP 350, TESTING LEVEL 3.



ANCHOR DEVICE (7/8" BOLT)

USE TO ANCHOR SPECIAL END SHOE TO BRIDGE PIER, BRIDGE CURB, OR TO CONCRETE PARAPET IN LIEU OF BOLTS THROUGH THE PARAPET.



ANCHOR DEVICE (5/8" BOLT)

USE WHERE CONNECTION IS MADE TO ROUND PIERS, AS IN TYPE C, G, OR GE UNIT.

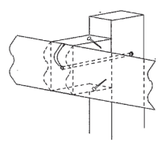
EQUIVALENT ANCHOR SYSTEM SPECIFICATIONS & DATA

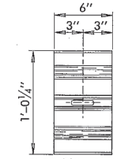
ANCHOR BOLT SIZE	BAR SIZE #	BAR DIA. (d) in.	BOND STRESS (u) psi	BOND CAPACITY (U) lb/in
1/2"	4	0.500	667	1048
5/8"	5	0.626	667	1310
3/4"	6	0.750	581	1369
	7	0.875	498	1369
	8	1.000	436	1369
1"	9	1.128	386	1369
	10	1.270	343	1369
1 1/4"	11	1.410	309	1369
1 1/2"	14	1.693	274	1457

ALTERNATIVE ANCHOR BOLT SYSTEMS MEETING THE MINIMUM STRENGTH REQUIREMENTS, AS SHOWN IN THE SPEC. & DATA TABLE ABOVE, MAY BE USED IN ATTACHMENT APPLICATIONS IN LIEU OF COMPOUND OR THROUGH BOLT ANCHORS IF APPROVED BY THE ENGINEER.
WHERE, T = U x L = PULL–OUT STRENGTH
U = BOND CAPACITY PER INCH
L = EMBEDMENT DEPTH IN INCHES

TABLE OF BOLTS, NUTS, & WASHERS			
	ITEM	ASSEMBLY	NOMENCLATURE & DIMENSIONS
②	BOLT 1	RECESS NUT & SPECIFIED WASHER	5/8–11 UNC – 2A x 1 1/4" LONG BUTTON HEAD W/ OVAL SHOULDER.
②	BOLT 2	RECESS NUT & STEEL WASHER	5/8–11 UNC – 2A x 18" LONG BUTTON W/ OVAL SHOULDER.
②	BOLT 3	HEX NUT & LOCK WASHER	5/8–11 UNC – 2A x 1 1/2" LONG HEX–HEAD BOLT.
②	BOLT 4	RECESS NUT & 5/8" STEEL WASHER	5/8–11 UNC – 2A x ___" LONG BUTTON HEAD W/OVAL SHOULDER.
②	BOLT 5	5/8" STEEL WASHER & ANCHOR DEVICE	5/8–11 UNC – 2A x 10 1/2" LONG HEX–HEAD BOLT.
①②	BOLT 6	7/8" STEEL WASHER & ANCHOR DEVICE	7/8– 9 UNC – 2A x 8" LONG HEX–HEAD BOLT.
①③	BOLT 7	7/8" STEEL WASHER & 7/8" HEX NUT	7/8– 9 UNC – 2A x ___" LONG HIGH STRENGTH STL. HEX–HEAD BOLT
⑥	RECESS NUT		5/8–11 UNC – 2B SEMI–FINISHED.
⑥	5/8" HEX NUT		5/8–11 UNC – 2B SEMI–FINISHED.
①④	7/8"HEX NUT		7/8– 9 UNC – 2B SEMI–FINISHED.
⑤	5/8"STEEL WSHR.		11/16" x 1 3/4" x 0.141" TYPE A PLAIN WASHER.
⑤	7/8"STEEL WSHR.		15/16" x 2 1/4" x 0.156" TYPE A PLAIN WASHER.
①	LOCK WASHER		11/16" I.D. GALVANIZED STANDARD HARDWARE ITEM.

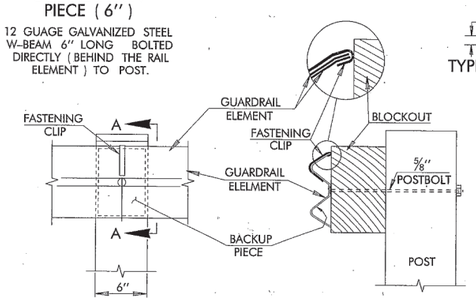
① NOT A STANDARD ITEM IN "A GUIDE TO STANDARIZED HIGHWAY BARRIER RAIL HARDWARE".TECHNICAL BULLETIN #268–B.
② SHALL MEET REQUIREMENTS OF A.S.T.M. A307 & A153.
③ SHALL MEET REQUIREMENTS OF A.S.T.M. A325 OR A449 & A153.
④ SHALL MEET REQUIREMENTS OF A.S.T.M. A153 & A563 GRADE B OR BETTER.
⑤ SHALL MEET REQUIREMENTS OF A.S.T.M. A153 & A.N.S.I. B27.2.
⑥ SHALL MEET REQUIREMENTS OF A.S.T.M. A153 & A563. GRADE A OR BETTER.





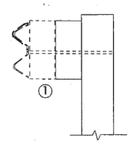
BACKUP CONNECTION PIECE (6")

12 GUAGE GALVANIZED STEEL W–BEAM 6" LONG BOLTED DIRECTLY (BEHIND THE RAIL ELEMENT) TO POST.



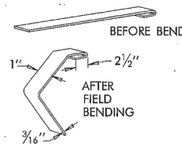
SECTION A–A

DETAIL OF WEAKENED CONNECTION



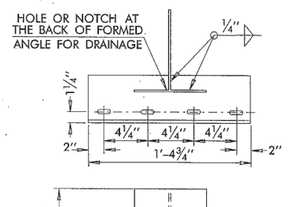
DETAIL ADDITIONAL BLOCKOUTS

① ONE ADDITIONAL BLOCKOUT MAY BE ADDED AND ATTACHED USING EXTENDED BOLT.



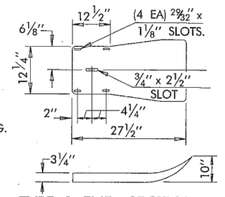
FASTENING CLIP

3/16" x 12" A36 (MILD) GALVANIZED STEEL PLATE FIELD SHAPED WITH A HAMMER FOR A TIGHT FIT. HOOK FITS OVER BACKUP CONNECTION PIECE AND GUARDRAIL ELEMENT TO FORM A WEAKENED CONNECTION. COAT WITH A ZINC–RICH GALVANIZATING PAINT AFTER BENDING.

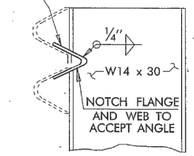


BRIDGE SPECIAL STEEL ANCHOR POST DETAIL

UNIT TO BE GALVANIZED AFTER FABRICATION



TYPE 1 END SECTION



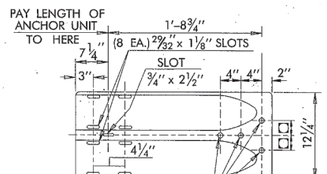
NOTE: GUARDRAIL COMPONENTS SHALL MEET THE APPLICABLE STD'S OF "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE" PREPARED AND APPROVED BY THE AASHTO–ARTBA–AGC JOINT COOPERATIVE COMMITTEE, TECHNICAL BULLETION NO. 268 B.

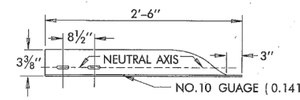
MATERIALS SHALL MEET THE REQUIREMENTS OF THE FOLLOWING SUBSECTIONS OF THE 1999 STD. SPEC'S.

PORTLAND CEMENT CONCRETE	701
REINFORCING STEEL	723
◀ G. RAIL POSTS & SPACER BLOCKS	727 & 732
METAL PLATE STEEL BEAM	732
FITTINGS	732
GALVANIZATION	732

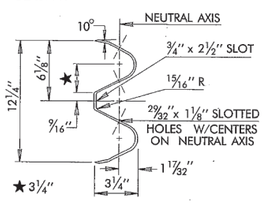
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCE.

◀ WOOD POSTS SHALL MEET THE REQUIREMENTS OF STRESS GRADE 1200F OF SECTION 727.





SPECIAL END SHOE



SECTION THRU 12 GAUGE STEEL RAIL ELEMENT

MAY VARY DUE TO TOLERANCES. NOMINAL THICKNESS OF 0.105", EXCLUSIVE OF PROTECTIVE COATING.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
623.06 (B)	BEAM GUARDRAIL (W–BEAM) SINGLE	L. F.

APPROVED BY ROADWAY ENGINEER C. M. Senkowski DATE 9/1/99

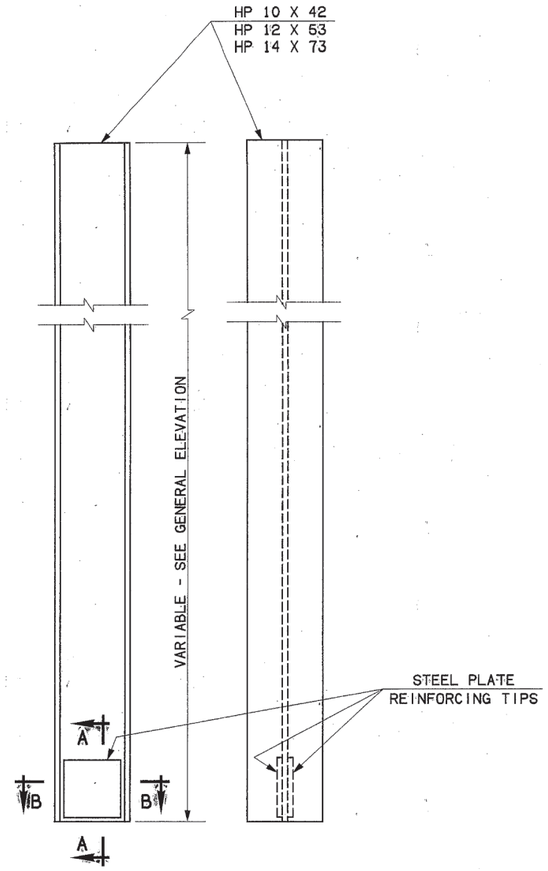
OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)

GUARDRAIL HARDWARE

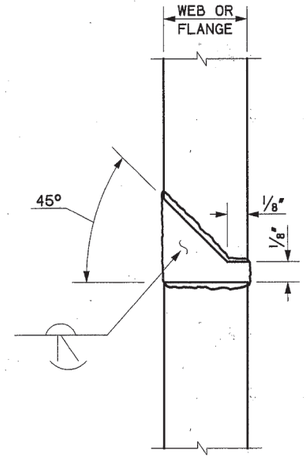
1999 SPECIFICATIONS	GRH–3	00E
		R–134E

SCHEMMER

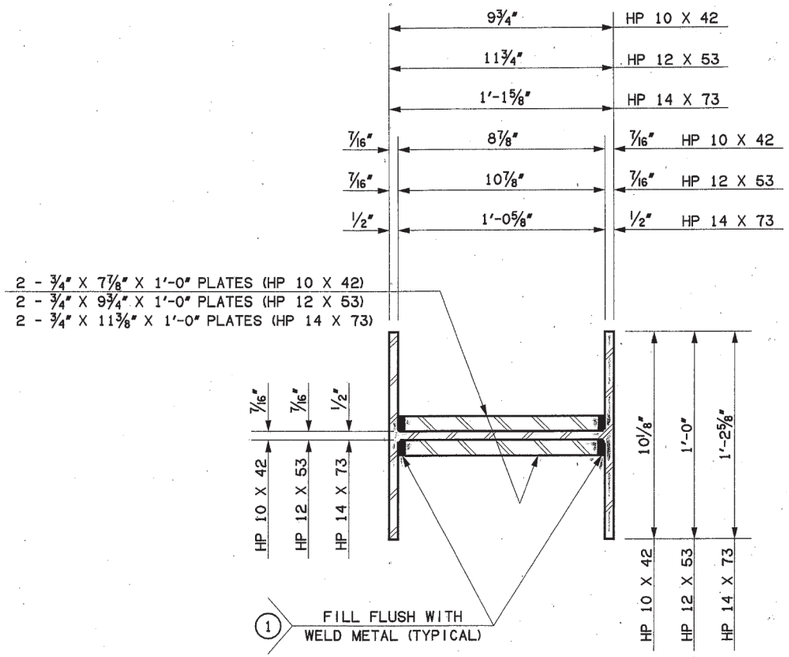
REVISIONS		
DESCRIPTION		DATE
1	REVISED NOTE	KDB 3/23/00



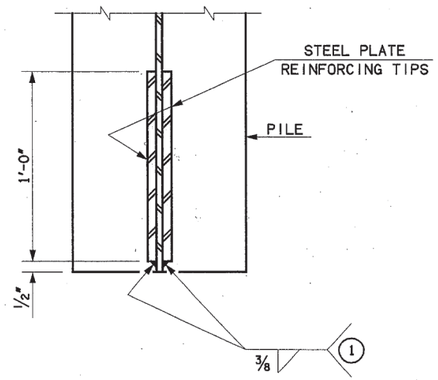
DETAIL OF PILING



DETAIL OF WELDED SPLICE
(TYPICAL SECTION THRU FLANGE & WEB)



SECTION "B-B"



SECTION "A-A"

1 STEEL PLATE REINFORCING TIPS MAY BE WELDED IN THE SHOP OR IN THE FIELD

ALL STEEL PILING SHALL HAVE STEEL PLATE REINFORCING TIPS UNLESS SPECIFICALLY DELETED BY NOTES IN THE PROJECT PLANS AND SPECIFICATIONS.

1 THE CONTRACTOR MAY USE MANUFACTURED DRIVING TIPS AS AN ALTERNATIVE TO THE STEEL PLATE REINFORCING TIPS SHOWN, WITH THE APPROVAL BY THE BRIDGE ENGINEER. ALL COSTS OF PILE TIPS SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF "STEEL PILING FURNISHED".

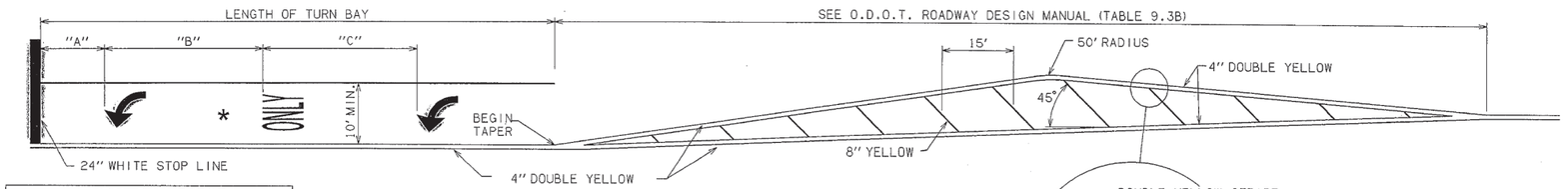
APPROVED BY BRIDGE ENGINEER [signature] DATE 7/23/00

OKLAHOMA DEPT. OF TRANSPORTATION
BRIDGE STANDARD (ENGLISH)

STEEL PILING

1999 SPECIFICATIONS	HP1-1	0'1E
		B-1'1E

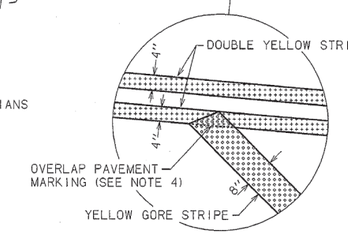
REVISIONS	
DESCRIPTION	DATE
DBL. WHITE LANE LINE & YEILD LINE	12/19/01

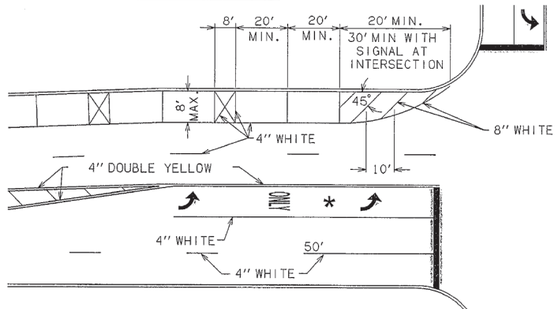


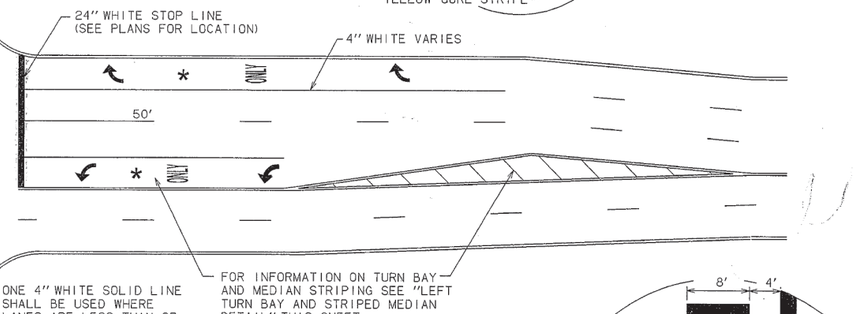
TURN BAY TABLE			
LENGTH OF BAY	"A"	"B"	"C"
FT.	FT.	FT.	FT.
75 TO 99	20	35	--
100 TO 149	20	35	35
150 TO 200	30	55	55

LEFT TURN BAY AND STRIPED MEDIAN DETAIL

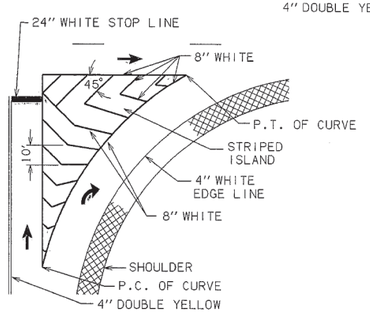
SEE PLANS FOR LENGTH OF LEFT TURN BAYS AND TAPERS ON STRIPED MEDIANS

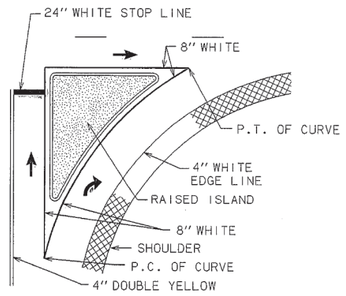






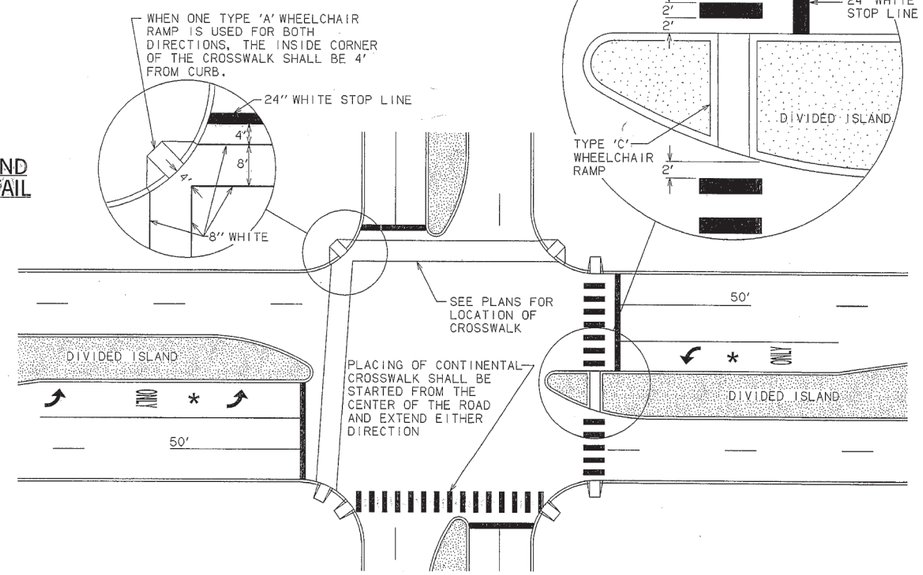
TURN BAY AND PARKING DETAIL





SUGGESTED STRIPING FOR ISLANDS

PAVEMENT MARKING FOR TRAFFIC CHANNELIZING ISLANDS SHALL BE APPLIED FROM P.C. TO P.T. OF CURVE.



CROSSWALK INSTALLATIONS

MATERIAL SPECIFICATIONS

A. UNLESS OTHERWISE SPECIFIED, RETROREFLECTIVE PAVEMENT MARKING SHALL BE APPLIED BY THE EXTRUSION METHOD.

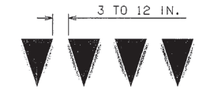
B. THE THICKNESS OF THE PLASTIC PAVEMENT MARKING SHALL BE MEASURED FROM THE PLANE OF THE PAVEMENT SURFACE WITH A DEVICE SUPPLIED BY CONTRACTOR AND SUITABLE TO THE ENGINEER. THICKNESSES ARE AS FOLLOWS:

LANE LINES, STOP LINES, WORDS, ARROWS AND SYMBOLS.....0.120" MIN. & 0.188" MAX.
EDGE, GORE AND DIAGONAL LINES.... 0.090" MIN. & 0.188" MAX.

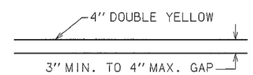
GENERAL NOTES

1. LANE WIDTH IS THE DISTANCE BETWEEN PAVEMENT MARKINGS, OR PAVEMENT MARKING AND EDGE OF PAVEMENT.
2. LANE LINES SHALL BE PLACED LEFT OF THE LONGITUDINAL PAVEMENT JOINTS.
3. OTHER PARALLEL PARKING METHODS CAN BE USED. SEE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST REVISION).
4. ALL PAVEMENT MARKING SHALL OVERLAP WHERE IT MEETS OTHER PAVEMENT MARKING.

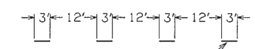
*FOR SPACING OF ARROWS AND WORDS SEE "TURN BAY TABLE"



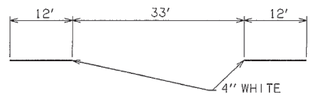
YIELD LINE



BARRIER LINE



DOTTED LANE LINE



DASHED LANE LINE

TYPICAL PAVEMENT MARKING DETAILS

APPROVED BY TRAFFIC ENGINEER Harold Smith DATE 12-28-2001

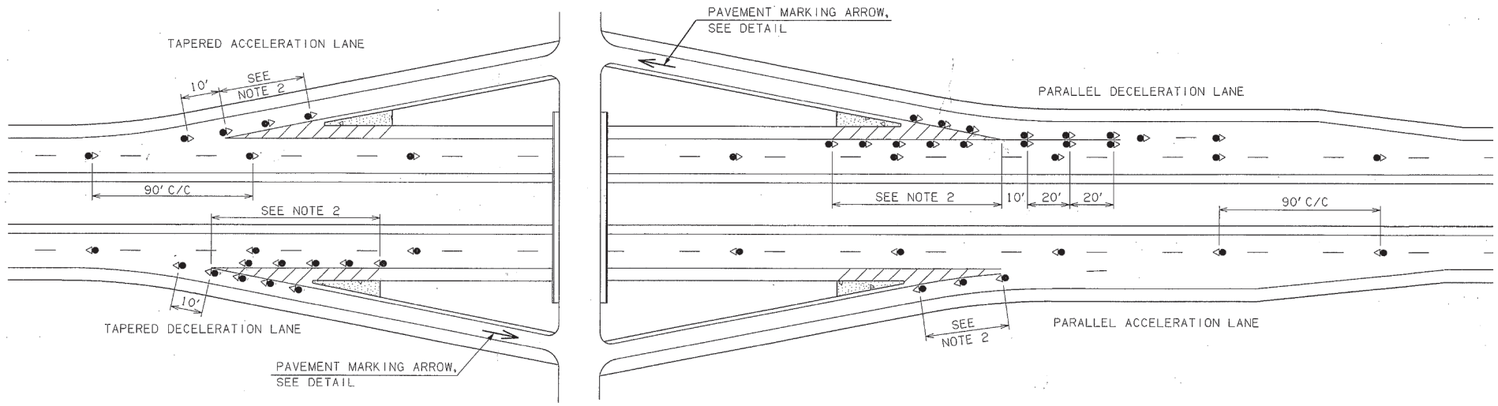
OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)

PAVEMENT MARKING

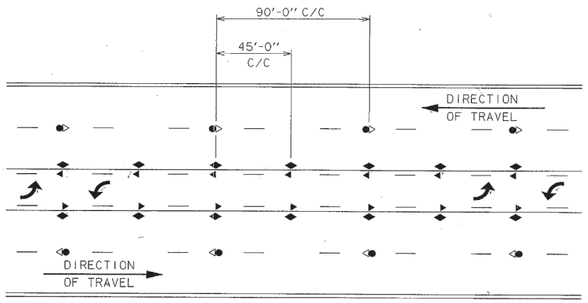
1999 SPECIFICATIONS	PM1-1	01E
		T-1E

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DESCRIPTION	REVISIONS	DATE

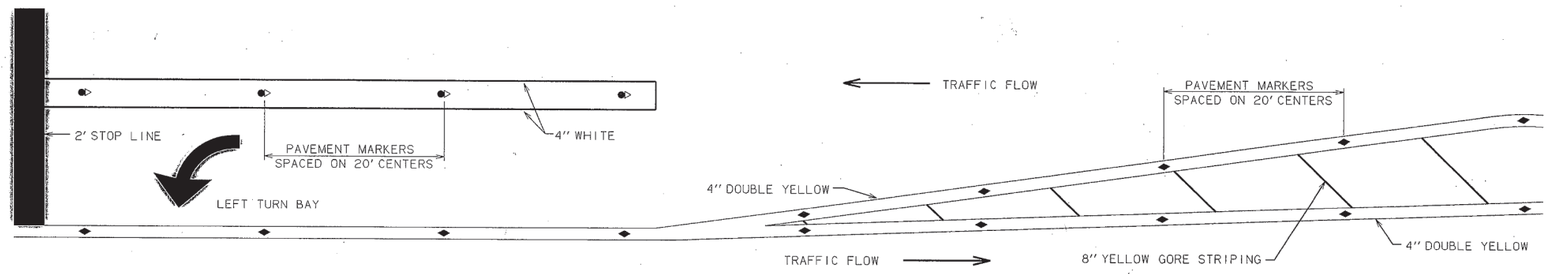


RAISED PAVEMENT MARKING INSTALLATION ON FREEWAYS, EXPRESSWAYS, AND RAMP GORE AREAS



RAISED PAVEMENT MARKING INSTALLATION ON "FIFTH LANE" ROADWAY

RAISED PAVEMENT MARKING ARROW INSTALLATION



RAISED PAVEMENT MARKING INSTALLATION ON GORE AREAS, PAINTED ISLANDS, AND LEFT TURN BAYS

GENERAL NOTES

1. FOR RAISED PAVEMENT MARKER DESIGN AND CONSTRUCTION INFORMATION, SEE STD. PM6-1-(LATEST REVISION).
2. PLACEMENT OF RAISED PAVEMENT MARKERS AT PAINTED ISLANDS AND GORE AREAS, ENTRANCE AND EXITS, SHALL BE DETERMINED BY THE DIAGONAL STRIPING. RAISED PAVEMENT MARKERS SHALL BE PLACED AT 20' C/C, SEE STANDARD PM4-1-(LATEST REVISION) FOR GORE STRIPING.
3. RAISED PAVEMENT MARKERS ADJACENT TO EDGE LINES AND/OR GORE MARKINGS SHALL BE PLACED ON "TRAFFIC SIDE". WHERE DOUBLE YELLOW STRIPING IS PRESENT, RAISED PAVEMENT MARKERS SHALL BE PLACED BETWEEN THE TWO STRIPES.
4. RAISED PAVEMENT MARKERS SHALL NOT BE PLACED ON OR NEARER THAN 1" TO AN EXISTING OR PROPOSED PAVEMENT MARKING.
5. CLASS C PAVEMENT MARKERS SHALL BE INSTALLED ON BRIDGE DECKS PROVIDED THAT NO SAW CUTS SHALL BE MADE INTO REINFORCING STEEL. WHEN STEEL IS ENCOUNTERED, THE CONTRACTOR SHALL STOP WORK, CLEAN THE CUT, REPAIR THE DECK SURFACE WITH A DEPARTMENT APPROVED MATERIAL AND MOVE TO AN ADJACENT AREA TO CONTINUE INSTALLATION. DECK REPAIRS SHALL BE AT THE EXPENSE OF THE CONTRACTOR. IF REINFORCING STEEL IS CONTINUOUSLY ENCOUNTERED, THE ENGINEER MAY SUBSTITUTE CLASS A PAVEMENT MARKERS.

LEGEND

TYPE	COLOR	DESCRIPTION
1	B	MONO-DIRECTIONAL - AMBER (YELLOW)
2	A	BI-DIRECTIONAL - CRYSTAL/CRYSTAL (WHITE)
2	C	BI-DIRECTIONAL - CRYSTAL/ RED
2	D	BI-DIRECTIONAL - AMBER/AMBER

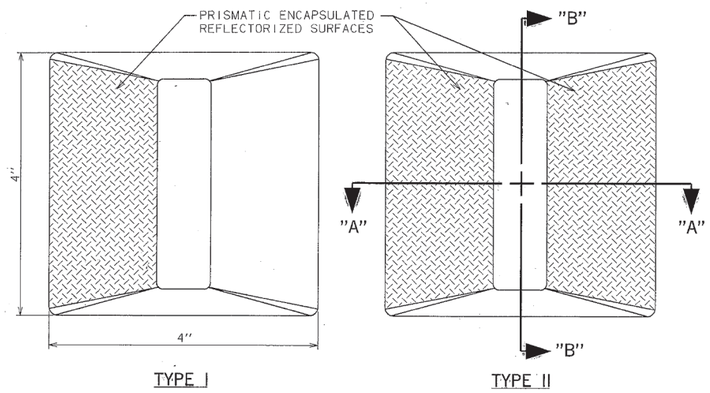
APPROVED BY TRAFFIC ENGINEER Harold Smad DATE 10.1.99

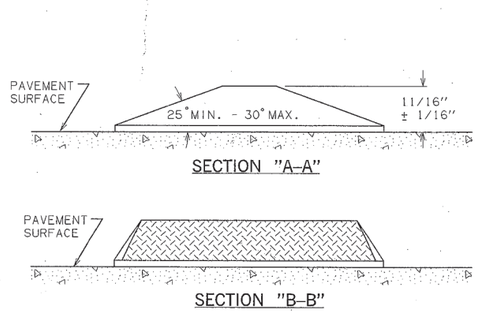
OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)

PAVEMENT MARKING

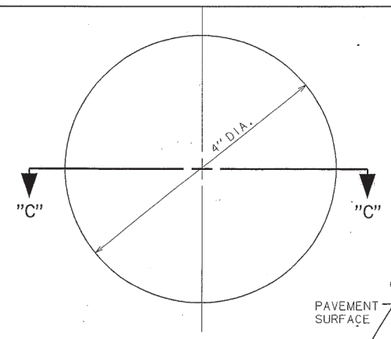
1999 SPECIFICATIONS	PM5-1	00E
		T-5E

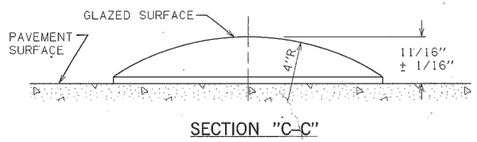
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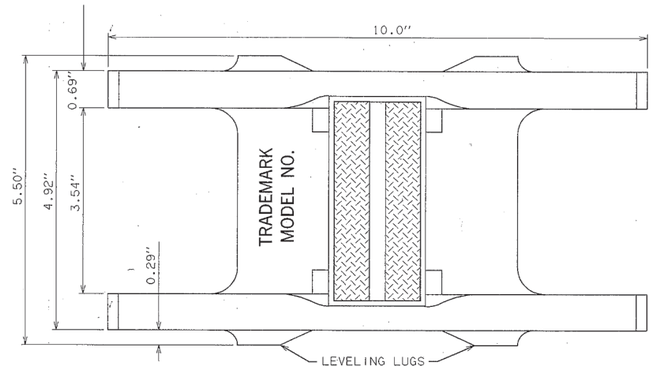
TYPE I AND TYPE II, CLASS A PAVEMENT MARKERS (REFLECTIVE)





CLASS B PAVEMENT MARKER (CERAMIC, NON–REFLECTIVE)

DESCRIPTION	REVISIONS	DATE



PLAN VIEW

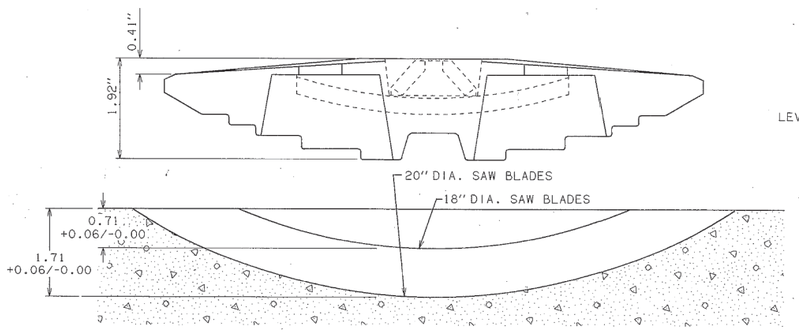
INSTALLATION NOTES:

1. THE PAVEMENT SHALL BE SAW CUT TO THE DIMENSIONS SHOWN.
2. A 65 HP CONCRETE SAW IS RECOMMENDED FOR MAKING THE REQUIRED SAW CUT.
3. THE CONCRETE SAW SHALL BE FITTED WITH A GANG OF 18" DIAMETER CONCRETE SAW BLADES, BORERED BY 20.0" DIAMETER BLADES AT EACH END.
4. EACH CUT SHOULD BE INSPECTED FOR PROPER FIT OF THE MARKER:

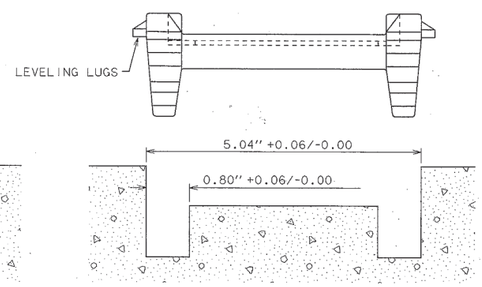
   THE CASTING SHOULD HAVE APPROXIMATELY 1/8" MOVEMENT CLEARANCE FROM SIDE TO SIDE WHEN INSERTEDINTO THE CUT.

   ALL FOUR LEVELING LUGS MUST CONTACT THE PAVEMENT.

   THE LEADING EDGES OF THE CASTING MUST LIE BELOW THE PAVEMENT SURFACE.
5. THE SAW CUT AREA MUST BE DRY AND FREE OF DUST, DIRT OR ANY MATERIAL WHICH WILL ADVERSELY AFFECT THE BOND OF THE ADHESIVE.
6. INSTALL THE MARKER WITH AN APPROVED TWO COMPONENT EPOXY ADHESIVE BY FIRST FILLING THE SAW CUT TO WITHIN APPROXIMATELY 3/8" FROM PAVEMENT SURFACE. THEN PLACE THE MARKER INTO THE EPOXY FILLED SAW CUT. AFTER PLACEMENT OF MARKER, THE EPOXY SHOULD BE FLUSH WITH THE PAVEMENT SURFACE. THE EPOXY SHOULD NOT BE ALLOWED TO BUILD UP IN FRONT OF THE MARKER LENS.



SIDE VIEW



END VIEW

CLASS C REFLECTIVE ALL WEATHER DOUBLE RAMP CASTING

GENERAL NOTES

1. TRADEMARK AND MODEL NO. SHALL BE AN INTEGRAL PART OF THE CASTING ON CLASS C PAVEMENT MARKERS.
2. PLACEMENT OF TYPE OF REFLECTOR UNITS SHALL BE AS SHOWN ON STANDARD PM5-1-(LATEST REVISION).
3. ALL DIMENSIONS SHOWN FOR CLASS C PAVEMENT MARKERS ARE APPROXIMATE AND SUBJECT TO MINOR MANUFACTURERS TOLERANCES.
4. MARKERS SHALL NOT BE PLACED WITHIN 2" OF PAVEMENT JOINTS ON PAVEMENT EDGE.
5. ALL LENS SHALL HAVE A THIN, UNTEMPERED GLASS COATING BONDED TO THE REFLECTOR FACE TO PROVIDE A DURABLE, ABRASION RESISTANT SURFACE.
6. MINIMUM AREA OF CLASS A AND B PAVEMENT MARKERS SHALL BE NOT LESS THAN 12.5 SQUARE INCHES.
7. ALL MARKERS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY AND IS NOT INTENDED TO SPECIFY ANY PARTICULAR PRODUCT.
8. ALL CLASS A AND B PAVEMENT MARKERS SHALL BE A NOMINAL SIZE OF 4" WITH A TOLERANCE OF 1/8".

APPROVED BY TRAFFIC ENGINEER Harold Smith DATE 12-1-99

OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)

PAVEMENT MARKING
(MARKERS–CLASS)

1999 SPECIFICATIONS	PM6–1	00E
		T–6E

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REVISIONS	
DESCRIPTION	DATE
NCHRP REPORT 350 CRASHWORTHY REQ.	8-9-00
NCHRP REPORT 350 CRASHWORTHY REQ.	10-17-00

ALL GENERAL NOTES SHOWN BELOW SHALL APPLY TO ALL OF THE STANDARD DRAWINGS IN TCS SERIES

CONTRACTOR

ON CONSTRUCTION PROJECTS IT WILL BE THE CONTRACTORS RESPONSIBILITY TO INSTALL THE NECESSARY TRAFFIC CONTROL BEFORE CONSTRUCTION BEGINS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL DEVICES TO ASSURE A HIGH DEGREE OF BOTH DAY AND NIGHT VISIBILITY, WHICH WILL INCLUDE ANY WASHING, REPLACEMENT AND/OR REPOSITIONING WHERE DEEMED NECESSARY BY THE ENGINEER.

THE CONTRACTOR SHALL REPAIR OR REPLACE ANY NEW OR EXISTING PERMANENT STATE OWNED SIGNS WHICH ARE DAMAGED DUE TO HIS NEGLIGENCE OR CARELESS HANDLING DURING THE CONSTRUCTION OF THIS PROJECT. THIS SHALL BE DONE AT THE CONTRACTORS EXPENSE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TEMPORARY TRAFFIC CONTROL ZONE AND EXISTING PAVEMENT MARKINGS ON ALL ROADWAYS OPEN TO TRAFFIC WITHIN THE PROJECT. SUFFICIENT QUANTITIES HAVE BEEN PROVIDED FOR MAINTAINING PAVEMENT MARKINGS FOR PRESCRIBED DETOUR ROUTES WHEN DEEMED NECESSARY BY THE ENGINEER.

SIGN MATERIALS

ALL SIGN BLANK MATERIALS SHALL BE THE OPTION OF THE CONTRACTOR BUT SHALL BE OF SUCH MATERIAL THAT WILL RETAIN A SATISFACTORY APPEARANCE THROUGHOUT THE LIFE OF THE PROJECT.

ALL SIGNS, LIGHTS, FLAGS, ETC. SHALL CONFORM IN SIZE, SHAPE, COLOR, LEGENDS AND APPLICATIONS TO THE STANDARDS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND/OR OKLAHOMA STATE STANDARD DRAWINGS FOR SIGNS. STANDARD DRAWINGS ARE AVAILABLE FROM THE DEPARTMENT OF TRANSPORTATION. INTERPRETATIONS THAT MAY BE NECESSARY SHALL BE REFERRED TO THE ENGINEER.

SIGN SHEETING

REFLECTORIZATION OF TRAFFIC CONTROL DEVICES SHALL BE BY MEANS OF WIDE ANGLE, FLAT TOP REFLECTIVE SHEETING MEETING THE REQUIREMENTS OF 1999, OKLAHOMA STANDARD SPECIFICATIONS.

SHEETING ON ALL SIGNS AND BARRICADES USED FOR CONSTRUCTION TRAFFIC CONTROL SHALL BE TYPE II UNLESS OTHERWISE NOTED IN THE PLANS.

SIGN INSTALLATION

ALL SIGNS SHALL BE SECURELY PLACED OR WEIGHTED TO PREVENT BLOWING OVER. ROCKS, BROKEN CONCRETE OR OTHER SUCH OBJECTS SHALL NOT BE CONSIDERED AN ACCEPTABLE SUBSTITUTE FOR SAND BAGS WHEN USED TO OBTAIN ADDED STABILITY FOR MOVABLE SIGNS AND BARRICADES.

SPACING OF SIGNING, ON THE PLANS OR TCS STANDARDS, SHOULD BE NO LESS THAN THE DISTANCES SHOWN. THE DISTANCE BETWEEN SIGNS SHOULD BE INCREASED ON HIGH SPEED OR MORE HEAVILY TRAVELED HIGHWAYS, OR WHERE SIGHT DISTANCE IS RESTRICTED.

IN ALL CONSTRUCTION ZONES, THE 48 INCH X 48 INCH WARNING SIGNS SHALL HAVE ATTACHED THERETO FLORESCENT FLAGS AND TYPE "A" WARNING LIGHTS. THIS SHALL ALSO APPLY WHEN SIGNS ARE USED ON BOTH SIDES OF THE ROADWAY. ADDITIONAL FLASHING LIGHTS MAY BE REQUIRED WHEN SO DESIRED BY THE ENGINEER.

ALL DIAMOND SHAPED CONSTRUCTION WARNING SIGNS ON EXPRESSWAYS OR FREEWAYS SHALL BE 48 INCH X 48 INCH, WITH THE APPROPRATE ADVISORY SIGN WHERE REQUIRED UNLESS OTHERWISE NOTED IN THE PLANS.

DUE TO THE TEMPORARY NATURE OF CONSTRUCTION, SIGNS WHICH ARE 33 S.F. AND OVER WILL HAVE NO REINFORCING STEEL IN THEIR FOOTINGS.

ALL SIGNS AND SIGN ASSEMBLIES WITH A TOTAL SURFACE AREA OF 10 S.F. OR MORE SHALL BE INSTALLED ON TWO (2) POSTS. THE EXCEPTION BEING SINGLE ROUTE MARKER ASSEMBLIES.

SIGNS MOUNTED ON BARRICADES SHALL BE MOUNTED AS HIGH AS NECESSARY TO BE VISIBLE.

BARRICADES

ONE (1) WING BARRICADE SHALL BE SET ON EACH SIDE OF THE ROADWAY 250 FEET IN ADVANCE OF THE FIRST ADVANCE WARNING SIGN. THE EXCEPTIONS ARE MINOR CROSS STREETS AND SECTION LINE ROADS WHICH INTERSECT THE WORK AREA.

WING BARRICADES SHALL BE INSTALLED ON TWO (2) POSTS.

NCHRP REPORT 350 CRASHWORTHY REQUIREMENTS

TRAFFIC CONTROL DEVICES SHALL MEET THE EVALUATION CRITERIA IN NCHRP REPORT 350 AS SUPPLEMENTED BY FHWA MEMORANDUM "IDENTIFYING ACCEPTABLE HIGHWAY SAFETY FEATURES", DATED JULY 25, 1997 (AVAILABLE ON THE INTERNET AT http://safety.fhwa.dot.gov/programs/roadside_hardware.htm).

THE CONTRACTOR SHALL :

1. CERTIFY THAT ALL CATEGORY 1 DEVICES (AS DEFINED IN THE FHWA MEMORANDUM) WERE PURCHASED PRIOR TO OCTOBER 1, 1998; OR IF THE DEVICES WERE PURCHASED AFTER OCTOBER 1, 1998, INCLUDE A COPY OF THE MANUFACTURER'S SELF CERTIFICATION STATING THAT THEY ARE NCHRP REPORT 350 COMPLIANT.
2. CERTIFY THAT ALL CATEGORY 2 DEVICES (AS DEFINED IN THE FHWA MEMORANDUM) WERE PURCHASED PRIOR TO OCTOBER 1, 2000; OR IF THE DEVICES WERE PURCHASED AFTER OCTOBER 1, 2000, INCLUDE A COPY OF THE ENTIRE FHWA ACCEPTANCE LETTER FOR EACH OF THE DEVICES STATING THAT THEY ARE NCHRP REPORT 350 COMPLIANT.
3. CERTIFY THAT THE TRUCK MOUNTED ATTENUATORS (TMAs)(WHICH ARE DEFINED AS CATEGORY 3 DEVICES BY THE FHWA MEMORANDUM) WERE PURCHASED PRIOR TO OCTOBER 1, 1998, AND INCLUDE A COPY OF THE ENTIRE FHWA ACCEPTANCE LETTER STATING THAT THE TMAs ARE NCHRP REPORT 230 COMPLIANT; OR IF THE DEVICES WERE PURCHASED AFTER OCTOBER 1, 1998, INCLUDE A COPY OF THE ENTIRE FHWA'S ACCEPTANCE LETTER STATING THAT THE TMAs ARE NCHRP REPORT 350 COMPLIANT.

ALL CATEGORY 1 AND 2 DEVICES PURCHASED PRIOR TO THE ABOVE DATES MAY BE USED UNTIL THE END OF THEIR SERVICEABLE LIVES OR OCTOBER 1, 2002, WHICHEVER COMES FIRST. TMAs PURCHASED PRIOR TO OCTOBER 1, 1998, MAY BE USED UNTIL THE END OF THEIR SERVICEABLE LIVES.

LIGHTING

TYPE "A" WARNING LIGHTS SHALL BE USED ON BARRICADES (AS REQUIRED) AND WARNING SIGNS.

TYPE "C" WARNING LIGHTS SHALL BE USED ON CHANNELIZING DEVICES AND VERTICAL PANELS (AS REQUIRED).

CONSTRUCTION NOTES

SHOULD THE REQUIRED WORK ON ANY PROJECT, INCLUDING ANY TRAFFIC CONTROL, OVERLAP OR OTHERWISE INTERFERE WITH THE ON-GOING WORK OR TRAFFIC CONTROL OF ANOTHER PROJECT, IT SHALL BE THE RESPONSIBILITY OF THE RESPECTIVE CONTRACTORS TO COORDINATE THEIR WORK ACTIVITIES TO FACILITATE THE SAFE MOVEMENT OF TRAFFIC THROUGHOUT OR AROUND THEIR COLLECTIVE WORK AREAS. ANY SUCH RECOMMENDED CHANGES SHALL BE SUBMITTED IN WRITING TO EACH PROJECT RESIDENT ENGINEER FOR REVIEW AND APPROVAL.

ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC THROUGH THE TEMPORARY TRAFFIC CONTROL ZONE SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC OR OTHERWISE TAKEN OUT OF SERVICE. DEVICES SHALL NOT BE STORED ALONG THE ROADWAY WITHIN 15 FEET (15') OF AN OPEN DRIVING LANE, EITHER BEFORE OR AFTER THEY ARE TO BE USED UNLESS PROTECTED BY GUARDRAIL, BRIDGE RAIL, AND/OR BARRIERS INSTALLED FOR OTHER PURPOSES. THESE DEVICES SHALL BE REMOVED FROM THE TEMPORARY TRAFFIC CONTROL ZONE WHEN THE ENGINEER DETERMINES THEY ARE NO LONGER NEEDED. WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY TO PROVIDE FOR THIS 15 FEET (15') SETBACK, THE CONTRACTOR SHALL DETERMINE ALTERNATE LOCATIONS AND REQUEST THE ENGINEERS APPROVAL TO USE THEM.

TRAFFIC CONTROL DEVICES, WARNING DEVICES, AND BARRIERS SHALL BE KEPT IN CORRECT POSITION, PROPERLY DIRECTED, CLEARLY VISIBLE AND CLEAN AT ALL TIMES. DAMAGED, DEFACED OR DIRTY DEVICES OR BARRICADES SHALL IMMEDIATELY BE REPAIRED, REPLACED OR CLEANED BY THE CONTRACTOR AND APPROVED FOR USE BY THE ENGINEER.

NO EQUIPMENT OR VEHICLES BELONGING TO THE CONTRACTOR, HIS SUB-CONTRACTORS OR EMPLOYEES SHALL BE PARKED OR STOPPED WITHIN 30 FEET (30') OF A LANE CARRYING TRAFFIC, AT ANY TIME, UNLESS REQUIRED BY ONGOING WORK OPERATIONS.

ALL DETOURS AND DIVERSIONS SHOULD BE IN PLACE, WITH SIGNING, STRIPING AND CHANNELIZING DEVICES, AS SHOWN IN THE PLANS OR STANDARD DRAWINGS. BEFORE THEY ARE OPENED TO TRAFFIC.

WHEN IT BECOMES NECESSARY TO CLOSE THE ROAD TO THROUGH TRAFFIC, NO LESS THAN SEVEN DAYS PRIOR TO THE CLOSURE, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING INDIVIDUALS OR AGENCIES DESCRIBING THE AFFECTED ROAD AND THE APPROXIMATE DURATION OF THE CLOSURE. THOSE TO BE NOTIFIED INCLUDE BUT ARE NOT LIMITED TO 1) LOCAL LAW ENFORCEMENT OFFICIALS, 2) LOCAL FIRE OFFICIALS, 3) AMBULANCE SERVICES, 4) LOCAL SCHOOL SUPERINTENDENT, 5) UNITED STATES POSTAL SERVICE, AND 6) CITY OR COUNTY ROAD SUPERINTENDENT.

ARROW DISPLAY

USE OF AN ARROW DISPLAY, IN THE ARROW OR CHEVRON MODE, SHALL BE LIMITED TO STATIONARY OR MOVING LANE CLOSURES.

AN ARROW DISPLAY, IN THE CAUTION MODE, SHALL BE USED ONLY FOR SHOULDER WORK, BLOCKING THE SHOULDER, ROADSIDE WORK NEAR THE SHOULDER, OR FOR MOBILE OPERATIONS (I.E. STRIPING).

AN ARROW DISPLAY IN THE ARROW OR CHEVRON MODE, SHALL NOT BE USED ON A TWO-LANE, TWO-WAY ROADWAY FOR TEMPORARY ONE-LANE OPERATION.

AN ARROW DISPLAY SHALL NOT BE USED ON A MULTI-LANE ROADWAY TO LATERALLY SHIFT TRAFFIC.

CHANNELIZING DEVICES

IN THOSE AREAS WHERE DRIVERS ARE ASKED TO MAKE A DECISION OR MUST BE GUIDED THROUGH A PRECISE MOVEMENT, BY USE OF CHANNELIZING DEVICES, IT IS ESPECIALLY IMPORTANT TO PROVIDE A CLEARLY DEFINED PATH. EXAMPLES OF THIS COULD BE IN DELINEATING A TEMPORARY GORE OR TURNING RADIUS. IN SUCH AREAS THE SPACING OF CHANNELIZING DEVICES MAY BE REDUCED TO 10 FEET FOR SPEEDS OF 40 M.P.H. OR LESS, AND 20 FEET FOR SPEEDS GREATER THAN 40 M.P.H.

WHEN CHANNELIZING DEVICES ARE USED TO DIRECT TRAFFIC ACROSS EXISTING LANE LINES OR EDGE LINES, THE SPACING BETWEEN CHANNELIZING DEVICES SHALL BE REDUCED 50%. SPACING SHOULD ALSO BE REDUCED WHEN CHANNELIZING DEVICES ARE PLACED ON CURVES, HILLS, OR NEXT TO POTENTIAL HAZARDS.

FLAGGERS

FLAGGERS MUST BE CLEARLY VISIBLE TO APPROACHING TRAFFIC FOR A DISTANCE SUFFICIENT TO PERMIT PROPER RESPONSE BY MOTORISTS TO THE FLAGGING INSTRUCTIONS, AND TO PERMIT TRAFFIC TO REDUCE SPEED OR STOP BEFORE ENTERING THE TEMPORARY TRAFFIC CONTROL ZONE. FLAGGERS SHALL BE POSITIONED TO MAINTAIN MAXIMUM COLOR CONTRAST BETWEEN THE FLAGGER'S REFLECTIVE CLOTHING AND EQUIPMENT AND THE WORK AREA BACKGROUND.

DURING HOURS OF DARKNESS, FLAGGER STATIONS SHALL BE ILLUMINATED SUCH THAT THE FLAGGER WILL BE CLEARLY VISIBLE TO APPROACHING TRAFFIC. LIGHTS TO BE USED FOR ILLUMINATING THE STATION SHALL BE APPROVED BY THE ENGINEER. RETLECTORIZED PADDLES AND REFLECTORIZED VESTS, SHIRTS OR JACKETS SHALL BE USED FOR NIGHTTIME FLAGGING.

UNLESS OTHERWISE SPECIFIED IN THE PLANS, THE COST OF FLAGGING OPERATIONS SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

MINIMUM STANDARDS FOR TRAFFIC CONTROL DEVICES

(1) WARNING LIGHTS (TYPE A FLASHERS AND TYPE C STEADY BURN)
- (A) NOT LESS THAN NINETY (90) PERCENT OF THE TOTAL NUMBER OF LIGHTS BEING USED AT ANY ONE TIME SHALL BE FULLY OPERATIONAL.
- (B) NOT MORE THAN THREE (3) LIGHTS ADJACENT TO ONE ANOTHER SHALL BE FAILING.

(2) ARROW DISPLAY
- (A) WHEN IN ARROW MODE, NO MORE THAN TWO (2) LAMPS IN THE STEM AND ZERO (0) LAMPS IN THE HEAD SHALL BE FAILING. THE DIMMING FUNCTION SHALL BE OPERATING PROPERLY.
- (B) WHEN IN CAUTION MODE (CORNERS), A MINIMUM OF FOUR (4) LAMPS SHALL BE OPERATIONAL. THE DIMMING FUNCTION SHALL BE OPERATING PROPERLY.
- (C) ANY LAMP WHICH IS LIGHTED BUT IMPROPERLY ALIGNED SHALL NOT BE CONSIDERED OPERATIONAL.

(3) CHANGEABLE MESSAGE SIGNS
- (A) NOT LESS THAN NINETY (90) PERCENT OF THE PIXELS SHALL BE FUNCTIONAL IN EACH CHARACTER MODULE.

(4) PAVEMENT MARKING TAPE
- (A) NOT MORE THAN TEN (10) PERCENT OF ALL TAPE, PAINT, MESSAGE OR SYMBOL SHALL BE MISSING
- (B) NOT MORE THAN TWO (2) CONSECUTIVE DASHED LINES SHALL BE MISSING.
- (C) NOT MORE THAN FIFTY (50) CONTINUOUS FEET OF A SOLID LINE SHALL BE MISSING.

(5) CONSTRUCTION ZONE PAVEMENT MARKERS
- (A) NOT MORE THAN TEN (10) PERCENT OF THE TOTAL NUMBER OF MARKERS SHALL BE MISSING.
- (B) NOT MORE THAN THREE (3) CONSECUTIVE MARKERS SHALL BE MISSING.

STRIPING

WHENEVER THE WORK CAUSES THE OBLITERATION OF PAVEMENT MARKINGS, EITHER TEMPORARY OR PERMANENT MARKINGS SHALL BE IN PLACE PRIOR TO OPENING THE ROADWAY TO TRAFFIC. CENTERLINE PAVEMENT MARKINGS SHALL BE PROVIDED AT ALL TIMES FOR ROADWAYS OPEN TO TRAFFIC.

THE APPLICATION SURFACES FOR PAVEMENT MARKINGS SHALL BE FREE OF DUST, DIRT, MOISTURE OR OTHER FOREIGN MATTER WHICH WOULD INTERFERE WITH ADHESION. INSTALLATION OF ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

ALL TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED IMMEDIATELY AHEAD OF THE PERMANENT STRIPING OPERATIONS OR RE-STRIPING FOR FOLLOWING CONSTRUCTION PHASES.

WHEN REMOVABLE PAVEMENT MARKINGS TAPE IS TO BE INSTALLED ON NEW CONCRETE PAVEMENT, THE CURING COMPOUND SHALL BE REMOVED PRIOR TO INSTALLATION.

IF REMOVABLE PAVEMENT MARKING TAPE IS INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND FAILS DURING THE FIRST SIX MONTHS OF SERVICE, IT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. REPLACEMENT SHALL BE ACCOMPLISHED IN A TIMELY MANNER UPON BEING NOTIFIED, BY THE ENGINEER, OF SUCH FAILURE.

PILOT CAR

WHEN LANE CLOSURES ARE REQUIRED ON TWO-LANE / TWO-WAY ROADWAYS, THE CONTRACTOR MAY, AT HIS OPTION, UTILIZE A PILOT CAR. IF THE CONTRACTOR ELECTS TO USE A PILOT CAR, CHANNELIZING DEVICES ALONG THE CENTERLINE WILL NOT BE REQUIRED. THE PILOT CAR OPERATOR SHALL BE IN RADIO CONTACT WITH PERSONEL IN THE TEMPORARY TRAFFIC CONTROL ZONE. MAXIMUM SPEED OF THE PILOT CAR THROUGH THE WORK AREA SHALL BE 25 M.P.H. FULL COMPENSATION FOR FURNISHING AND OPERATING THE PILOT CAR, (INCLUDUNG DRIVER, RADIOS, AND ANY OTHER EQUIPMENT OR LABOR REQUIRED) SHALL BE CONSIDERED AS INCLUDED IN THE COST OF OTHER ITEMS OF WORK.

MISCELLANEOUS

TRAFFIC CONDITIONS MAY NECESSITATE CHANGES IN THE USE AND/OR QUANTITIES OF THE TRAFFIC CONTROL DEVICES AS SHOWN IN THE PLANS OR IN THE STANDARDS. ANY SUCH CHANGES ARE SUBJECT TO APPROVAL BY THE ENGINEER.

ALL CHANNELIZING DEVICES PROVIDED ON THIS PROJECT SHALL BE IN GOOD CONDITION AND SHALL BE APPROVED FOR USE ON THIS PROJECT BY THE ENGINEER.

THE REGULATORY SPEED LIMITS THROUGH THE WORK ZONE MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER WITH THE DOCUMENTED APPROVAL OF THE DIVISION ENGINEER IN ACCORDANCE WITH TITLE 47 OF THE OKLAHOMA MOTOR VEHICLE LAWS.

IF THE REGULATORY SPEED LIMIT THROUGH A TEMPORARY TRAFFIC CONTROL ZONE HAS BEEN REDUCED, A SPEED LIMIT SIGN, R2-1 (APPROPRIATE SIZE), SHOULD BE INSTALLED 300 FEET PAST THE CG20-2A (END ROAD WORK) SIGN. THE PURPOSE OF THIS SIGN IS TO ADVISE MOTORISTS THAT THEY MAY RETURN TO THE POSTED SPEED LIMIT PRIOR TO CONSTRUCTION.

THE CONSTRUCTION SIGNING AND BARRICADE CONTRACTOR SHOULD AFFIX THEIR COMPANY NAME AND/OR LOGO INCONSPICUOUSLY ON EACH TRAFFIC CONTROL DEVICE.

APPROVED BY TRAFFIC ENGINEER Harold Hawk DATE 10-17-2000

OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)
TRAFFIC CONTROL STANDARD
TRAFFIC CONTROL CONSTRUCTION NOTES

1999 SPECIFICATIONS	TCS1-1	02E
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SCHEMMER

DESCRIPTION	REVISIONS	DATE

TAPER LENGTH CRITERIA FOR WORK ZONES

SPEED LIMIT M.P.H.	"L" FORMULA	"L" TAPER LENGTH (MINIMUM) (FT) 10' OFFSET	11' OFFSET	12' OFFSET	NUMBER OF CHANNELIZING DEVICES REQUIRED (MINIMUM) 10' OFFSET	11' OFFSET	12' OFFSET	SPACING CHANNELIZING DEVICES (MAXIMUM) ① THRU TAPER SECTION (FT.)	② THRU TANGENT SECTION (FT.)	MAXIMUM HORIZONTAL ALIGNMENT THRU DETOUR (DEGREE) (S=0)	SPEED LIMIT M.P.H.
20	$L = \frac{W \times S^2}{60}$	70	75	80	5	5	5	20	40	—	20
25		105	115	125	6	6	6	25	50	—	25
30		150	165	180	6	7	7	30	60	15	30
35		205	225	245	7	8	8	35	70	11	35
40		265	295	320	8	9	9	40	80	8	40
45	$L = W \times S$	450	495	540	11	12	13	45	90	6	45
50		500	550	600	11	12	13	50	100	5	50
55		550	605	660	12	14	15	50	100	4	55
60		600	660	720	13	15	16	50	100	3	60
65		650	715	780	14	16	17	50	100	2.5	65
70		700	770	840	15	17	18	50	100	2	70
75		750	825	900	16	18	19	50	100	1.8	75

NOTES:

① RECOMMENDED SIGNING TO BE USED THRU LANE TAPER IS (1) CW1-8 ON EVERY OTHER DRUM.

② RECOMMENDED SIGNING TO BE USED THRU TANGENT LANES IS (1) R4-7A(R) OR (1) R4-7A(L) (AS APPLIES) ON EVERY FOURTH DRUM.

L = TAPER LENGTH IN FEET

W = WIDTH OF OFFSET IN FEET

S = POSTED SPEED OR OFF-PEAK 85 PERCENTILE SPEED IN MPH

TYPE OF TAPER	TAPER LENGTH
UPSTREAM TAPERS	
MERGING TAPER	L MINIMUM
SHIFTING TAPER	1/2 L MINIMUM
SHOULDER TAPER	1/3 L MINIMUM
TWO-WAY TRAFFIC TAPER	100 FEET MAXIMUM
DOWNSTREAM TAPERS (USE IS OPTIONAL)	100 FEET PER LANE

RECOMMENDED CLEAR ZONE DISTANCE (FT) (CONSTRUCTION WORK ZONES)

DESIGN SPEED	DESIGN ADT	FILL SLOPES 6:1 OR FLATTER	5:1 OR 4:1	3:1	CUT SLOPES 3:1	4:1 OR 5:1	6:1 OR FLATTER
40 MPH OR LESS	UNDER 750	4	4	SEE NOTE 3	4	4	4
	750-1500	5	6		5	5	5
	1500-6000	6	7		6	6	6
	OVER 6000	7	8		7	7	7
45-50 MPH	UNDER 750	5	6		4	4	5
	750-1500	7	8		5	6	7
	1500-6000	8	10		6	7	8
	OVER 6000	10	12		7	9	10
55 MPH	UNDER 750	6	7		4	5	5
	750-1500	8	10		5	7	8
	1500-6000	10	12		7	8	10
	OVER 6000	11	13		8	10	11
60 MPH	UNDER 750	8	10		5	6	7
	750-1500	10	13		6	8	10
	1500-6000	13	16 *		7	9	12
	OVER 6000	15	18 *		10	12	13
65-70 MPH	UNDER 750	9	10		5	7	7
	750-1500	12	14		6	9	10
	1500-6000	14	17 *		8	11	13
	OVER 6000	15	19 *		11	13	14

NOTES:

* THE CLEAR ZONE MAY BE LIMITED TO 15 FEET FOR PRACTICALITY AND TO PROVIDE A CONSISTENT ROADWAY TEMPLATE.

(1) ALL DISTANCES ARE MEASURED FROM EDGE OF THE TRAVEL LANE.

(2) FOR CLEAR ZONES, THE "DESIGN ADT" WILL BE THE TOTAL ADT ON TWO-WAY ROADWAYS AND DIRECTIONAL ADT ON ONE-WAY ROADWAYS (E.G., RAMPS AND ONE ROADWAY OF A DIVIDED HIGHWAY).

(3) FILL SLOPES WHICH ARE 3:1 OR STEEPER ARE CRITICAL AND MAY REQUIRE A BARRIER. THEREFORE THERE IS NOT A CLEAR ZONE APPLICATION.

FLARE RATES FOR CONCRETE MEDIAN BARRIER IN TEMPORARY TRAFFIC CONTROL ZONES

SPEED *	FLARE RATE (MINIMUM)
40 M.P.H.	9 TO 1
45 M.P.H.	10 TO 1
50 M.P.H.	11 TO 1
55 M.P.H.	12 TO 1
60 M.P.H.	13 TO 1
65 M.P.H.	14 TO 1
70 M.P.H.	15 TO 1
75 M.P.H.	16 TO 1

* POSTED SPEED LIMIT PRIOR TO CONSTRUCTION

GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE

SPEED * (MPH)	LENGTH (FEET)
20 M.P.H.	35
25 M.P.H.	55
30 M.P.H.	85
35 M.P.H.	120
40 M.P.H.	170
45 M.P.H.	220
50 M.P.H.	280
55 M.P.H.	335
60 M.P.H.	415
65 M.P.H.	485
70 M.P.H.	560
75 M.P.H.	640

* POSTED SPEED, OFF-PEAK 85th PERCENTILE SPEED PRIOR TO WORK STARTING.

RECOMMENDED DISTANCE BETWEEN SIGNS (MIN.)

ROAD TYPE	A (FT)	B (FT)	C (FT)
URBAN (LOW SPEED)	200	200	200
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1,000	1,600	2,600

PAVEMENT MARKINGS THROUGH TEMPORARY TRAFFIC CONTROL ZONE

	DRIVING SURFACE	FLEX TAB MARKERS	TAPE (REMOVABLE)	TAPE (NON-REMOVABLE)	PAINT	CONSTRUCTION ZONE PAVEMENT MARKERS
ASPHALT	EXISTING PAVEMENT TO BE REMOVED OR OVERLAYED IN THE NEXT PHASE	X	X	X	X	X
	EXISTING PAVEMENT TO BE LEFT IN PLACE THRU THE NEXT PHASE	X	X			X
	INTERMEDIATE LIFT	X	X	X	X	X
	MILLED SURFACE	X	X	X	X	X
	FINAL LIFT	X	X			
CONCRETE	EXISTING PAVEMENT TO BE REMOVED OR OVERLAYED IN THE NEXT PHASE	X	X	X	X	X
	EXISTING PAVEMENT TO BE LEFT IN PLACE THRU THE NEXT PHASE	X	X			X
	FINAL SURFACE	X	X		X	X

NOTE:
USE OF NON-REMOVABLE TAPE (FOILBACK) SHALL BE LIMITED TO THOSE CONDITIONS SHOWN IN THE TABLE.

CROSSOVER CRITERIA FOR WORK ZONES

WIDTH OF MEDIAN (W) (FT)	LATERAL SHIFT – (P) (FT)		LENGTH OF CROSSOVER – LC * (FT) 30 M.P.H.	35 M.P.H.	40 M.P.H.	45 M.P.H.	50 M.P.H.	55 M.P.H.	60 M.P.H.	65 M.P.H.	70 M.P.H.	75 M.P.H.
		V.	15°	11°	8°	6°	5°	4°	3°	2.5°	2°	1.8°
		D.	382	521	716	955	1146	1433	1910	2292	2865	3183
20	32		219	256	301	348	382	427	493	541	605	637
30	42		250	293	344	398	437	489	565	619	692	730
40	52		277	325	382	443	485	543	628	688	770	812
50	62		301	354	417	483	529	593	685	751	841	886
60	72		324	381	448	519	570	638	738	809	905	955
70	82		344	405	478	554	608	681	787	863	966	1,018
80	92		363	428	505	586	643	720	833	914	1,023	1,078
90	102		381	450	531	616	676	758	877	962	1,076	1,135
100	112		398	470	555	644	708	793	918	1,007	1,127	1,189
110	122		414	489	578	672	738	827	958	1,050	1,176	1,240
120	132		429	508	601	698	767	860	995	1,092	1,223	1,290

* CROSSOVER = REVERSE CURVE CONNECTION TYING TWO (2) PARALLEL ROADWAYS.

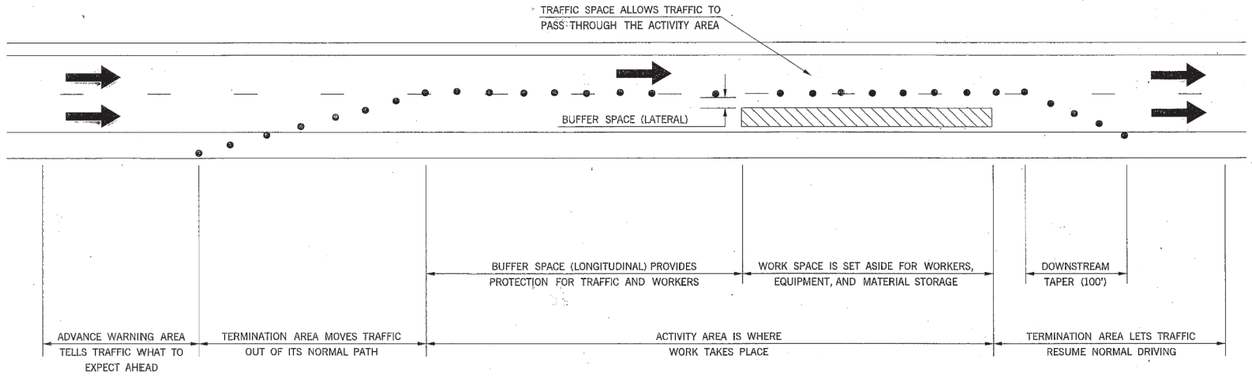
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OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)
TRAFFIC CONTROL STANDARD
TRAFFIC CONTROL TABLES AND CHARTS

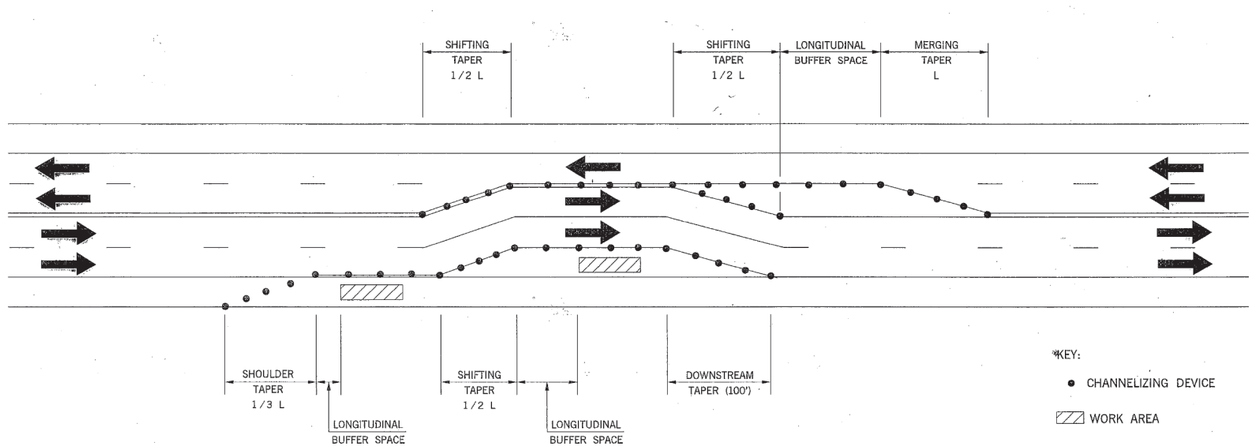
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COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL ZONE



TAPERS AND BUFFER SPACE

TEMPORARY TRAFFIC CONTROL ELEMENTS

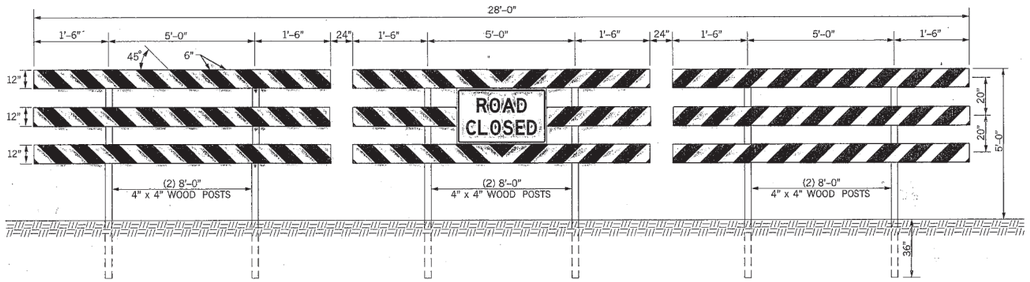
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OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)
TRAFFIC CONTROL STANDARD
TEMPORARY TRAFFIC CONTROL ELEMENTS

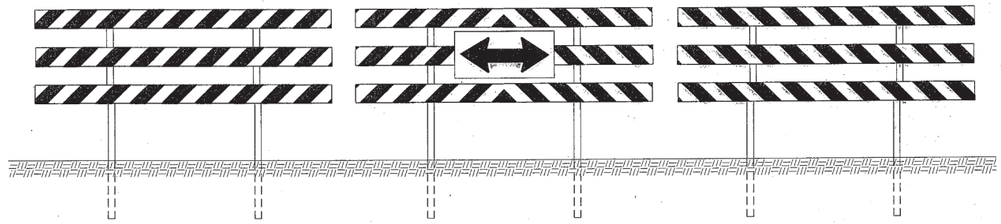
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WHEN ROAD ENDS



FOR T–INTERSECTIONS

NOTES: A PERMANENT BARRICADE TYPE III(A) SHALL CONSIST OF NINE (9) PANELS AND SIX (6) POSTS.

TYPICAL INSTALLATION AS SHOWN IS FOR AN ABSOLUTE CLOSURE.

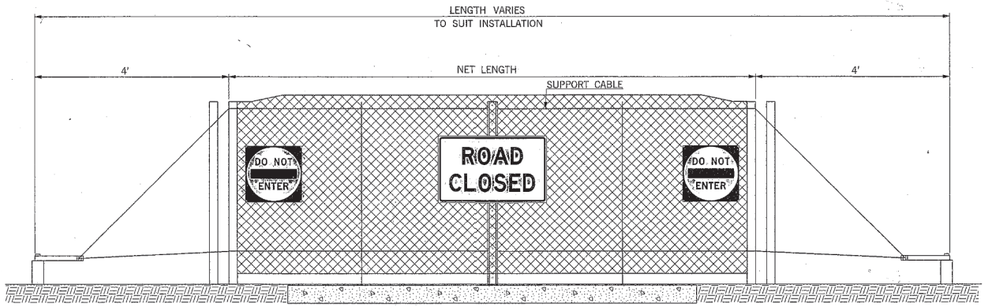
BARRICADES SHOULD NOT BE PLACED PARALLEL TO TRAFFIC IF NOT OUTSIDE OF CLEAR ZONE.

PERMANENT BARRICADE TYPE III(B) WILL BE IDENTICAL TO TYPE III(A) WITH NINE (9) ADDITIONAL REFLECTORIZED 3/4"x12" LUMBER PANELS ATTACHED TO THE BACK SIDE OF THE BARRICADE.

COLOR: BACKGROUND – WHITE (REFLECTORIZED)
DIAGONAL STRIPES – RED (REFLECTORIZED)

PERMANENT TYPE III(A/B) BARRICADE

(DIMENSIONS ARE TYPICAL FOR BOTH BARRICADES)



DRAGNET VEHICLE ATTENUATION SYSTEM

(TO BE PLACED 150 FEET IN FRONT OF HAZARD IN CURRENT WORK AREA)

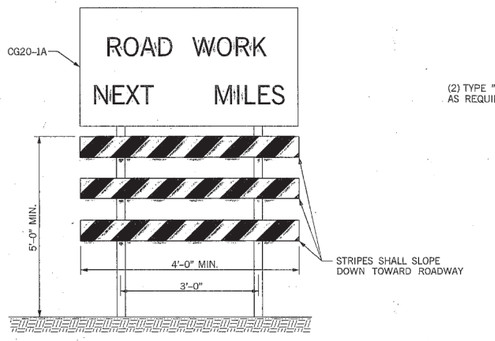


CONSTRUCTION – DOUBLE FINE SIGN DETAIL

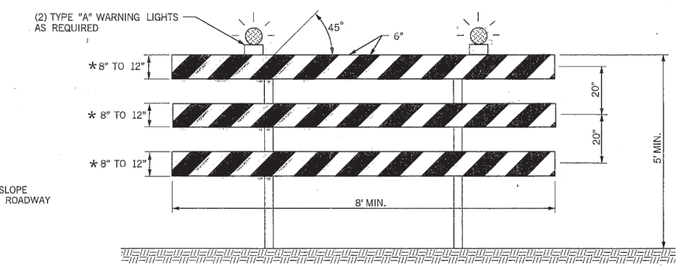
SIGN NUMBER	CONSTRUCTION SIGN
WIDTH x HEIGHT	72" x 48"
BORDER WIDTH	1.1"
MARGIN	0.75"
CORNER RADIUS	6.0"
MOUNTING	GROUND
LETTER SIZE	6D
BACKGROUND *	TYPE: REFLECTIVE
	COLOR: ORANGE
LEGEND/BORDER *	TYPE: NON-REFLECTIVE
	COLOR: BLACK
BACKGROUND ■	TYPE: REFLECTIVE
	COLOR: WHITE
LEGEND/BORDER ■	TYPE: NON-REFLECTIVE
	COLOR: BLACK

NOTES: SIGN TO BE PLACED 250 FEET IN FRONT OF WING BARRICADES.

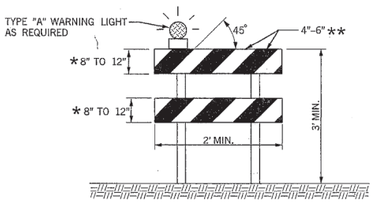
SIGN TO BE USED ONLY ON STATE OR FEDERAL HIGHWAYS WHERE THE SPEED LIMIT IS REDUCED OR AS DIRECTED BY THE ENGINEER.



WING BARRICADE



TYPE III BARRICADE



TYPE II BARRICADE

NOTES: FLASHING OR STEADY BURN WARNING LIGHTS SHOULD BE USED ON BARRICADES, PANELS AND DRUMS AS REQUIRED.

* FOR WOODEN BARRICADES NOMINAL LUMBER DIMEMSIONS WILL BE SATISFACTORY.

** FOR RAILS LESS THAN 3 FEET LONG, 4 INCH WIDE STRIPES SHALL BE USED.

TYPE III BARRICADES SHALL BE CONSTRUCTED USING A MINIMUM OF TWO (2) POSTS.

FOR WOODEN BARRICADES, PANEL THICKNESS SHALL NOT EXCEED ONE-HALF INCH (1/2").

WHEN SIGNS ARE TO BE MOUNTED ON TYPE III BARRICADES A MAXIMUM OF TWO (2) SIGNS SHALL BE PERMITTED.

BARRICADES SHOULD NOT BE PLACED PARALLEL TO TRAFFIC IF NOT OUTSIDE OF CLEAR ZONE.

PROJECTS WITH WORK LIMITS OF 1.0 MILES OR MORE IN LENGTH WILL REQUIRE THE OG20-1A SIGN. THE SIGN SHALL BE MOUNTED ON THE WING BARRICADE AS SHOWN. THE SIGN (OG20-1A) WILL BE REQUIRED ON ONE SIDE OF A 2-LANE ROADWAY AND BOTH SIDES OF A DIVIDED HIGHWAY.

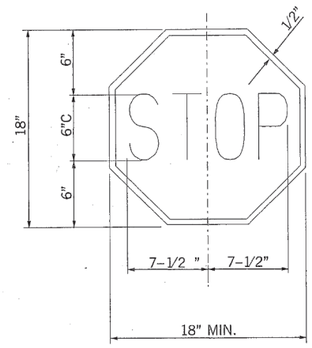
WING BARRICADES SHALL BE CONSTRUCTED, USING A MINIMUM OF TWO (2) POSTS.

APPROVED BY TRAFFIC ENGINEER Harold Stuart DATE 10-1-99

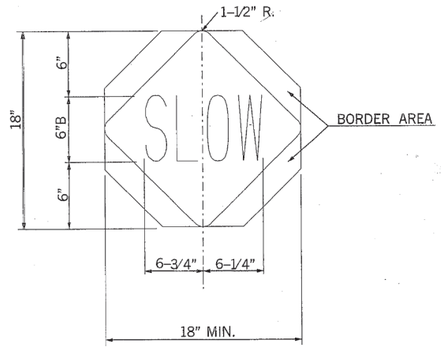
OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)
TRAFFIC CONTROL STANDARD
TRAFFIC CONTROL DEVICES

1999 SPECIFICATIONS	TCS4--1	00E
		T-504E

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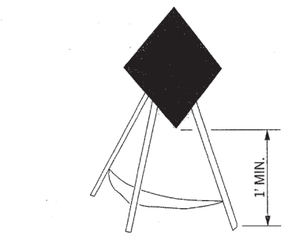
STOP:
LEGEND AND BORDER: WHITE (REFLECTORIZED)
BACKGROUND: RED (REFLECTORIZED)

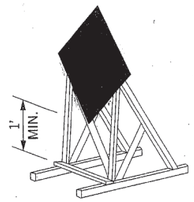


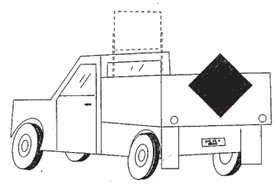
SLOW:
LEGEND AND BORDER AREA: BLACK (NON-REFLECTORIZED)
BACKGROUND: ORANGE (REFLECTORIZED)

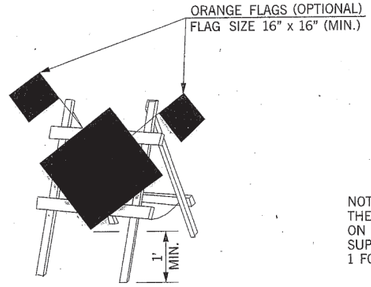
STOP-SLOW PADDLE

DESCRIPTION	REVISIONS	DATE



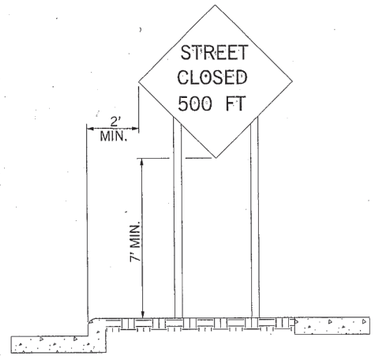




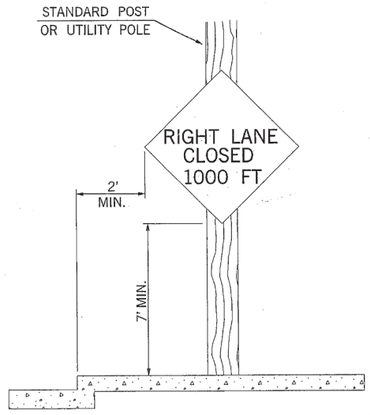


NOTE:
THE BOTTOM OF SIGNS MOUNTED ON BARRICADES OR TEMPORARY SUPPORTS SHALL BE ON LESS THAN 1 FOOT ABOVE THE TRAVELED WAY.

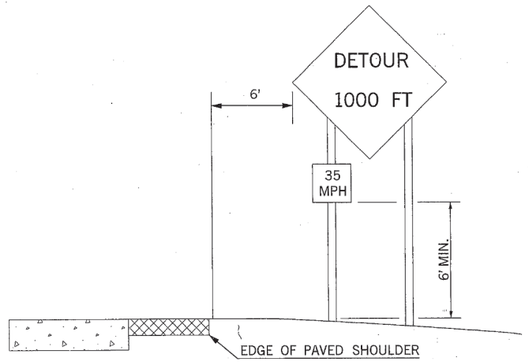
PORTABLE AND TEMPORARY MOUNTINGS
METHODS OF MOUNTING SIGNS OTHER THAN ON POSTS



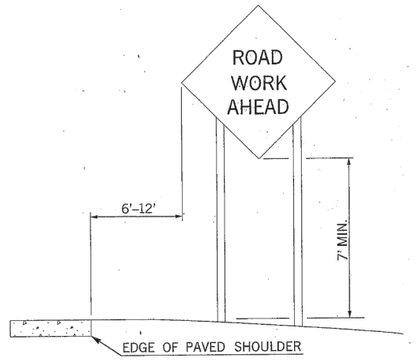
URBAN DISTRICT



URBAN DISTRICT



RURAL DISTRICT WITH ADVISORY SPEED PLATE

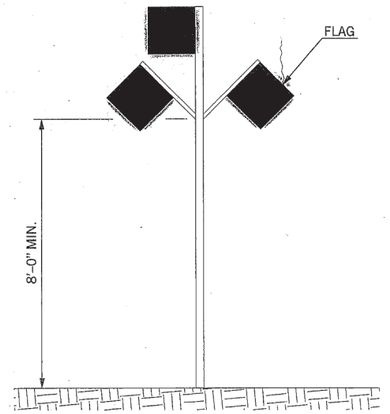


RURAL DISTRICT

HEIGHT AND LATERAL LOCATIONS OF SIGNS – TYPICAL INSTALLATIONS

APPROVED BY TRAFFIC ENGINEER	DATE 10-1-99
OKLAHOMA DEPT. OF TRANSPORTATION TRAFFIC STANDARD (ENGLISH) TRAFFIC CONTROL STANDARD TRAFFIC CONTROL DEVICES	
1999 SPECIFICATIONS	TCS5-1 00E T-505E

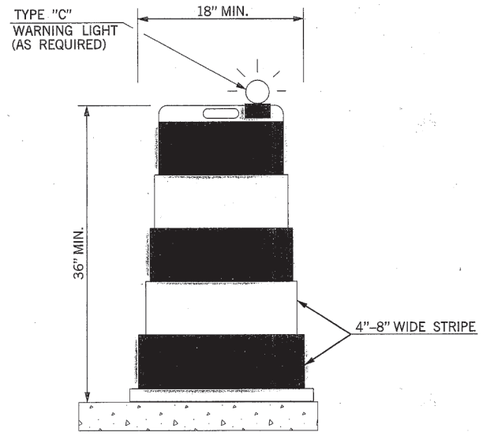
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HIGH LEVEL WARNING DEVICE

NOTES:

FLAGS SHALL BE 16 INCHES SQUARE OR LARGER AND SHALL BE ORANGE OR FLUORESCENT VERSIONS OF ORANGE IN COLOR.



DRUM

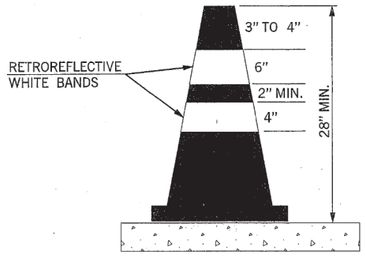
NOTES:

METAL DRUMS SHALL NOT BE USED.

EACH DRUM SHALL HAVE A MINIMUM OF TWO (2) ORANGE STRIPES ALTERNATING WITH A MINIMUM OF TWO (2) WHITE STRIPES. THESE STRIPES SHALL CONSIST OF RETROREFLECTIVE SHEETING.

BALLAST SHALL NOT BE PLACED ON TOP OF A DRUM.

DRUMS SHALL NOT BE USED TO DELINEATE AN EDGE DROP OFF IF THEY MUST BE PLACED IN THE DROP OFF AREA BELOW THE LEVEL OF THE DRIVING SURFACE.



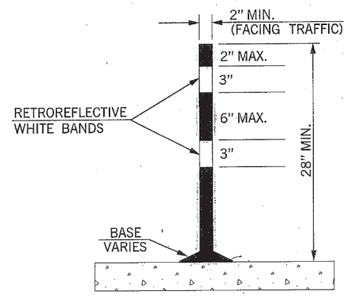
CONE

NOTES:

CONES USED ON HIGH SPEED ROADWAYS, ON ALL HIGHWAYS DURING NIGHTTIME, OR WHENEVER MORE CONSPICUOUS GUIDANCE IS NEEDED SHALL BE A MINIMUM OF 28 INCHES HIGH.

CONES SHALL BE PREDOMINANTLY ORANGE, WITH WHITE RETROREFLECTIVE SHEETING.

DESCRIPTION	REVISIONS	DATE

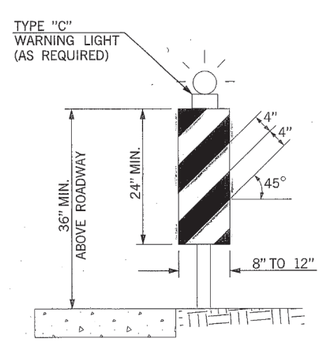


TUBE CHANNELIZER

NOTES:

TUBE CHANNELIZERS USED ON HIGH SPEED ROADWAYS, ON ALL HIGHWAYS DURING NIGHTTIME, OR WHENEVER MORE CONSPICUOUS GUIDANCE IS NEEDED SHALL BE A MINIMUM OF 28 INCHES HIGH.

TUBE CHANNELIZERS SHALL BE PREDOMINANTLY ORANGE, WITH WHITE RETROREFLECTIVE SHEETING.

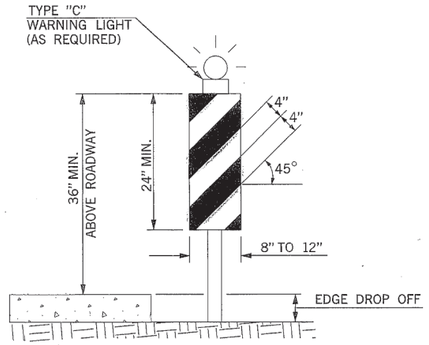


VERTICAL PANEL

NOTES:

PANEL STRIPE WIDTHS SHALL BE 6 INCHES EXCEPT WHERE PANELS LENGTHS ARE LESS THAN 36 INCHES, THEN 4 INCH WIDE STRIPES MAY BE USED.

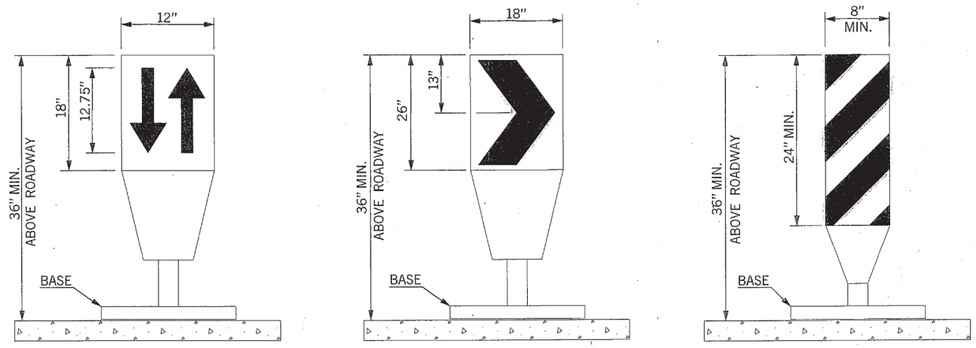
MARKINGS FOR VERTICAL PANELS SHALL BE ALTERNATING ORANGE AND WHITE RETROEFLECTORIZED STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS).



VERTICAL PANEL

ON UNDIVIDED HIGHWAYS, VERTICAL PANELS SHALL HAVE A MINIMUM OF 192 SQUARE INCHES OF RETRO-REFLECTIVE SHEETING ON EACH PANEL (FRONT AND BACK). WHEN USED ON HIGH SPEED ROADWAYS, VERTICAL PANELS SHALL HAVE MINIMUM OF 270 SQUARE INCHES OF RETRO-REFLECTIVE SHEETING ON EACH PANEL (FRONT AND BACK). THIS SHALL CONSTITUTE ONE (1) COMPLETE VERTICAL PANEL.

ON DIVIDED HIGHWAYS A VERTICAL PANEL MAY HAVE SHEETING ON ONLY ONE SIDE.



IMPACT RECOVERY SYSTEM (I.R.S.)

NOTES:

(1) IMPACT RECOVERY SYSTEM SIGNS SHALL BE MOUNTED BACK TO BACK WHEN USED FOR TWO-WAY TRAFFIC.

(2) BASE SHALL BE NO LARGER THAN 34" LONG BY 15" WIDE, AND 2" THICK.

(3) BASE SHALL WEIGHT 35.5 LBS. OR MORE.

(4) THESE DEVICES SHALL BE CONSTRUCTED OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING VEHICLES ON IMPACT.

(5) THESE DEVICES SHOULD BE USED ON LOW SPEED ROADWAYS (40 M.P.H. OR LESS).

APPROVED BY TRAFFIC ENGINEER Harold Smith DATE 10-1-99

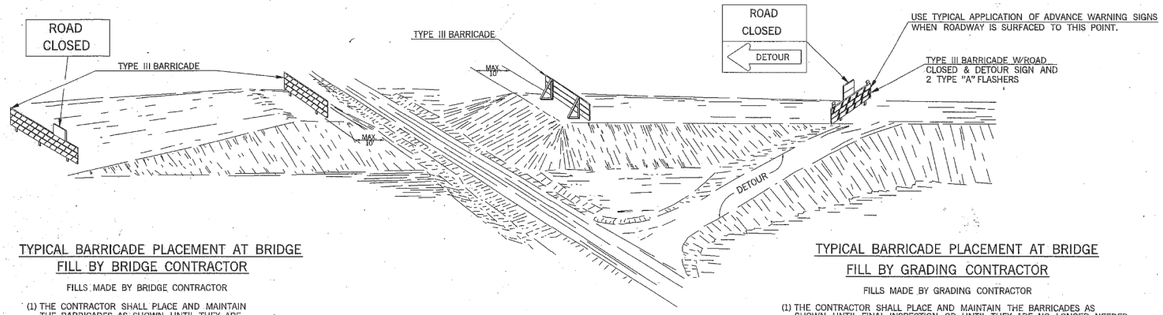
OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)
TRAFFIC CONTROL STANDARD
TRAFFIC CONTROL DEVICES

1999 SPECIFICATIONS	TCS6-1	00E
		T-506E

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SCHEMMER

REVISIONS		
DESCRIPTION		DATE



TYPICAL BARRICADE PLACEMENT AT BRIDGE FILL BY BRIDGE CONTRACTOR

FILLS MADE BY BRIDGE CONTRACTOR

(1) THE CONTRACTOR SHALL PLACE AND MAINTAIN THE BARRICADES AS SHOWN UNTIL THEY ARE NO LONGER NEEDED.

(2) THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO REMOVAL OF THE BARRICADES.

(3) THE ENGINEER SHALL NOTIFY THE GRADING CONTRACTOR TO FURNISH AND ERECT HIS BARRICADES "IMMEDIATELY" AFTER THE BRIDGE CONTRACTOR REMOVES HIS BARRICADES. THE GRADING CONTRACTOR SHALL MAINTAIN HIS BARRICADES UNTIL FINAL INSPECTION OR UNTIL THEY ARE NO LONGER NEEDED.

BARRICADES AT BRIDGE FILL SHALL BE IN PLACE AND MAINTAINED AT ALL TIMES UNTIL OPENED TO TRAFFIC. HOWEVER, BARRICADES MAY BE REMOVED OR ADJUSTED, AS NEEDED, TO ALLOW ACCESS TO THE WORK AREA.

TYPICAL BARRICADE PLACEMENT AT BRIDGE FILL BY GRADING CONTRACTOR

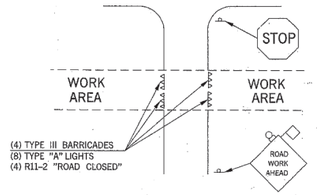
FILLS MADE BY GRADING CONTRACTOR

(1) THE CONTRACTOR SHALL PLACE AND MAINTAIN THE BARRICADES AS SHOWN UNTIL FINAL INSPECTION OR UNTIL THEY ARE NO LONGER NEEDED.

(2) THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO REMOVAL OF THE BARRICADES.

(3) IF THE BRIDGE WORK ORDER IS ISSUED PRIOR TO COMPLETION OF THE GRADING CONTRACT, THE BRIDGE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE GRADING CONTRACTOR TO ASSUME RESPONSIBILITY FOR PROTECTION OF THE BRIDGE WORK AREA. THIS WILL INCLUDE FURNISHING, INSTALLING, AND MAINTAINING ALL BARRICADES AND SIGNS NECESSARY TO PROVIDE THAT PROTECTION UNTIL THE BRIDGE IS COMPLETED AND THE FINAL INSPECTION IS COMPLETED.

(4) IF THE BRIDGE WORK ORDER HAS NOT BEEN ISSUED PRIOR TO THE FINAL INSPECTION OF THE GRADING, THEN THE GRADING CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OKLAHOMA DEPARTMENT OF TRANSPORTATION FOR STATE FORCES TO SUPPLY, INSTALL AND MAINTAIN ANY NECESSARY TRAFFIC CONTROL DEVICES NEEDED TO PROTECT THE WORK AREA. THESE STATE OWNED DEVICES SHALL REMAIN IN PLACE UNTIL SUCH TIME THAT THE BRIDGE WORK ORDER IS ISSUED. AT THAT TIME THE BRIDGE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR TRAFFIC CONTROL AND REPLACE THE STATE OWNED DEVICES WITH HIS OWN.



TYPICAL SIGN PLACEMENT FOR INTERSECTING ROADS AND STREETS

NOTES:

(1) SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.

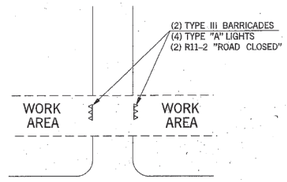
(2) FLASHING WARNING LIGHTS AND FLAGS SHALL BE USED TO CALL ATTENTION TO THE EARLY WARNING SIGNS.

(3) WARNING LIGHTS SHOULD BE USED TO MARK CHANNELIZING DEVICES AT NIGHT AS NEEDED.

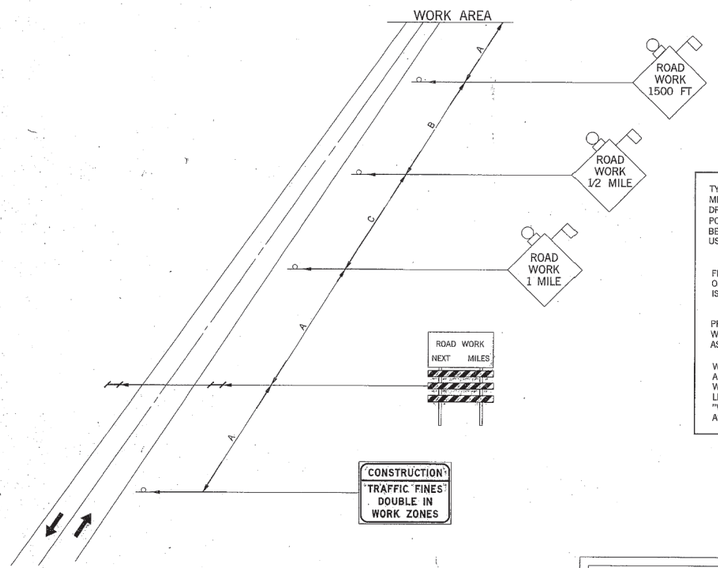
(4) PLACEMENT OF TYPE III BARRICADES SHALL BE APPROVED BY THE ENGINEER.

(5) TYPE II BARRICADES, DRUMS AND/OR VERTICAL PANELS MAY BE SUBSTITUTED FOR TYPE III BARRICADES TO AVOID OBSTRUCTING THE MOTORISTS VIEW.

(6) IF TWO OR MORE DRIVEWAYS ARE IN CLOSE PROXIMITY, THE BARRICADES BETWEEN THE DRIVEWAYS MAY BE OMITTED AT THE DISCRETION OF THE ENGINEER.



TYPICAL SIGN PLACEMENT FOR PRIVATE DRIVE OR RESIDENCE



TYPICAL APPLICATION ADVANCE WARNING SIGNS ON 2-LANE HIGHWAY

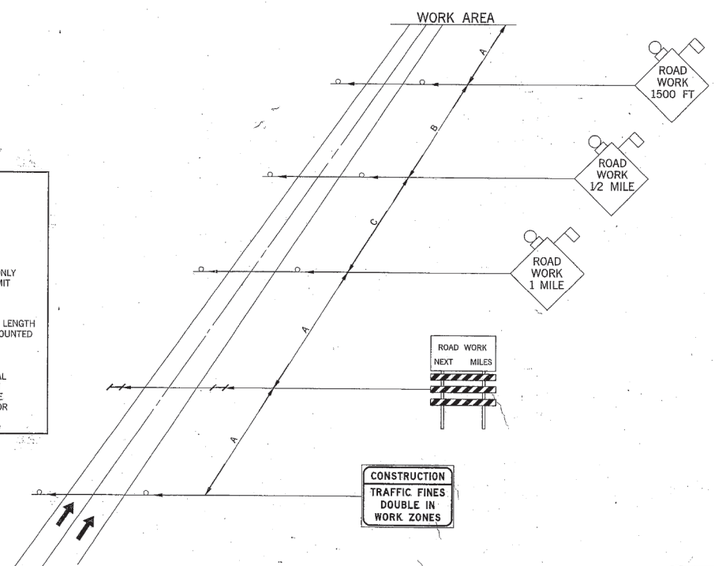
TYPICAL CONSTRUCTION WARNING SIGNS WITH MESSAGES OTHER THAN DETAILED ON STANDARD DRAWINGS SHALL BE CONSTRUCTED USING THE LARGEST POSSIBLE LETTER SIZE. SIGN SIZE AND COLOR SHALL BE THE SAME AS OTHER CONSTRUCTION WARNING SIGNS USED FOR SIMILAR CONDITIONS.

FINES DOUBLE IN WORK ZONE SIGNS ARE TO BE USED ONLY ON STATE OR FEDERAL HIGHWAYS WHERE THE SPEED LIMIT IS REDUCED OR AS DIRECTED BY THE ENGINEER.

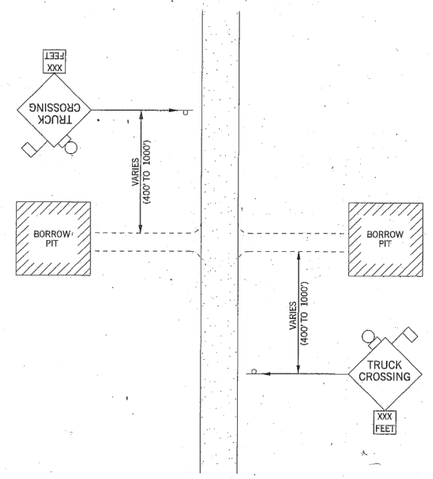
PROJECTS WITH WORK LIMITS OF 1.0 MILES OR MORE IN LENGTH WILL REQUIRE THE G220-1A SIGN. THE SIGN SHALL BE MOUNTED AS SHOWN ON TCS4-1-(LATEST REVISION).

WARNING SIGNS SHOWN ARE "ADVANCE" WARNING SIGNS AND ARE REQUIRED ON ALL STATE HIGHWAYS. ADDITIONAL WARNING SIGNS MAY BE REQUIRED WITHIN THE PROJECT LIMITS TO WARN DRIVERS OF SPECIFIC HAZARDS. ADVANCE "WARNING SIGNS" MAY CHANGE AS CONDITIONS CHANGE OR AS DIRECTED BY THE ENGINEER.

RECOMMENDED DISTANCE BETWEEN SIGNS (MIN.)			
ROAD TYPE	A (FT)	B (FT)	C (FT)
URBAN (LOW SPEED)	200	200	200
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY /FREEWAY	1,000	1,600	2,600



TYPICAL APPLICATION ADVANCE WARNING SIGNS ON A DIVIDED HIGHWAY



TYPICAL APPLICATION ADVANCE SIGNING WHERE TRUCKS ARE CROSSING

APPROVED BY TRAFFIC ENGINEER Harold Smith DATE 10-1-99

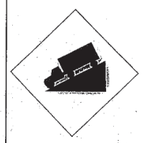
OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)
TRAFFIC CONTROL STANDARD
TYPICAL APPLICATION
PLACEMENT OF TRAFFIC CONTROL DEVICES

1999 SPECIFICATIONS	TCS7-1	00E
		T-507E

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SCHEMMER

DESCRIPTION	REVISIONS	DATE


CW7-1 B/O



CW7-1S B/O



CW8-1 B/O



CW8-2 B/O



CW8-3 B/O



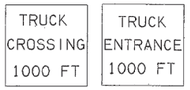
CW8-4 B/O


CW8-5 B/O



CW8-5S B/O


CW8-6A B/O



CW8-6S B/O

CW8-6BS B/O



CW8-7 B/O



CW8-8 B/O



CW8-9 B/O



CW8-9A B/O



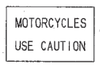
CW8-11 B/O



CW8-12 B/O



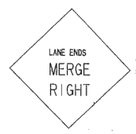
CW8-12A B/O



CW8-12S B/O



CW9-2(L) B/O



CW9-2(R) B/O


CW12-1 B/O



CW12-2 B/O



CW13-1 B/O



CW20-1 B/O



CW20-2 B/O



CW20-2A B/O



CW20-3 B/O



CW20-3A B/O



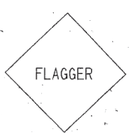
CW20-4 B/O



CW20-5(L) B/O



CW20-5(R) B/O



CW20-7 B/O


CW20-7A B/O



CW20-7B B/O



CW20-7S B/O



CW21-1 B/O



CW21-2 B/O



CW21-3 B/O



CW21-4 B/O



CW21-5 B/O



CW21-6 B/O



CW21-7 B/O



CW21-8 B/O



CW21-9 B/O



CW21-10 B/O



CW22-1 B/O



CW22-2 B/O



CW22-3 B/O

COMMONLY USED REGULATORY AND WARNING SIGNS IN WORK ZONES

SIGN CODES AND DESCRIPTIONS

CW7–1	HILL SIGN
CW7–1S	HILL SIGN *
CW8–1	BUMP SIGN
CW8–2	DIP SIGN
CW8–3	PAVEMENT ENDS SIGN
CW8–4	SOFT SHOULDER SIGN
CW8–5	SLIPPERY WHEN WET SIGN
CW8–5S	SLIPPERY WHEN WET SIGN *
CW8–6	TRUCK CROSSING SIGN
CW8–6A	TRUCK CROSSING SIGN
CW8–6S	TRUCK CROSSING 1000 FT SIGN *
CW8–6BS	TRUCK ENTRANCE 1000 FT SIGN *
CW8–7	LOOSE GRAVEL SIGN
CW8–8	ROUGH ROAD SIGN
CW8–9	LOW SHOULDER SIGN
CW8–9A	SHOULDER DROP–OFF SIGN
CW8–11	UNEVEN LANES SIGN
CW8–12	NO CENTER STRIPE SIGN
CW8–12A	GROOVED PAVEMENT AHEAD SIGN
CW8–12S	MOTORCYCLE USE CAUTION SIGN (18" x 36") *
CW9–2(L)	LANE ENDS MERGE LEFT SIGN
CW9–2(R)	LANE ENDS MERGE RIGHT SIGN
CW12–1	DOUBLE ARROW SIGN
CW12–2	CLEARANCE SIGN
CW13–1	ADVISORY SPEED SIGN *
CW20–1	ROAD WORK SIGN
CW20–2	DETOUR SIGN
CW20–2A	DETOUR AHEAD SIGN
CW20–3	ROAD CLOSED SIGN
CW20–3A	STREET CLOSED SIGN
CW20–4	ONE LANE ROAD SIGN
CW20–5(L)	LEFT LANE CLOSED SIGN
CW20–5(R)	RIGHT LANE CLOSED SIGN
CW20–7	FLAGGER SIGN
CW20–7A	FLAGGER SIGN
CW20–7B	BE PREPARED TO STOP SIGN
CW20–7S	XX FEET SIGN *
CW21–1	WORKERS SIGN
CW21–2	FRESH OIL SIGN
CW21–3	ROAD MACHINERY AHEAD SIGN
CW21–4	ROAD WORK SIGN
CW21–5	SHOULDER WORK SIGN
CW21–6	SURVEY CREW SIGN
CW21–7	MOWING AHEAD SIGN
CW21–8	BRIDGE REPAIR SIGN
CW21–9	MATERIAL ON SHOULDER SIGN
CW21–10	MATERIAL ON ROADWAY SIGN
CW22–1	BLASTING ZONE AHEAD SIGN
CW22–2	TURN OFF 2–WAY RADIO AND CELLULAR TELEPHONES SIGN
CW22–3	END BLASTING ZONE SIGN

COLOR CODES

LEGEND AND/OR SYMBOL / BACKGROUND

O ORANGE (REFLECTORIZED)
B BLACK (NON–REFLECTORIZED)
W WHITE (REFLECTORIZED)
R RED (REFLECTORIZED)
Y YELLOW (REFLECTORIZED)
G GREEN (REFLECTORIZED)

NOTES:
WORD SIGNS OR SYMBOL SIGNS MAY BE USED. FOR SIGN DETAILS AND ADDITIONAL SIGNS REFER TO THE "STANDARD HIGHWAY SIGNS MANUAL" AS SPECIFIED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) (CURRENT EDITION).

ALL DIAMOND SHAPE CONSTRUCTION WARNING SIGNS SHALL BE 48 INCHES X 48 INCHES UNLESS OTHERWISE NOTED IN THE PLANS.

* SUPPLEMENTAL SIGNS SHALL ONLY BE USED IN CONJUCTION WITH DIAMOND SHAPE CONSTRUCTION WARNING SIGNS. THE SIZE OF SUPPLEMENTAL SIGNS SHALL BE APPROPRIATE FOR USE WITH A 48 INCH x 48 INCH WARNING SIGN UNLESS OTHERWISE NOTED IN THE PLANS.

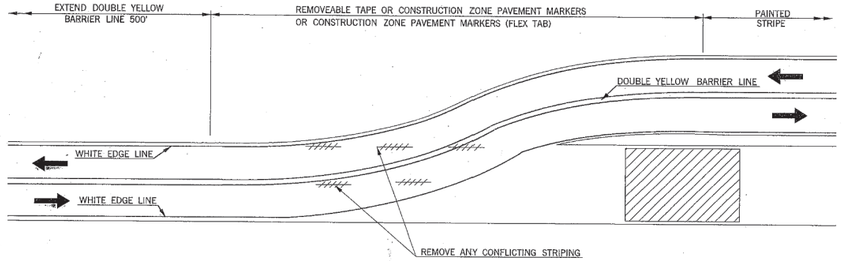
APPROVED BY TRAFFIC ENGINEER [signature] DATE 10-1-99

OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)
TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

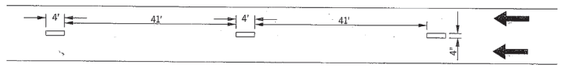
1999 SPECIFICATIONS	TCS9–1	00E
		T–509E

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SCHEMMER



CONSTRUCTION ZONE PAVEMENT MARKINGS THRU SHOO–FLY



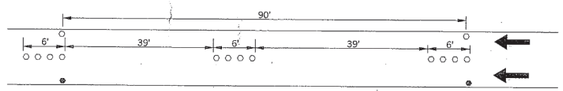
ONE–WAY PAVEMENT MARKING
REMOVEABLE TAPE OR PAINT

PAVEMENT MARKINGS: REMOVEABLE TAPE OR PAINT

WIDTH OF LINES SHALL BE A MINIMUM OF 4".

SHORT–TIME PAVEMENT MARKINGS ARE THOSE THAT MAY BE USED UNTIL THE EARLIEST DATE WHEN IT IS PRACTICAL AND POSSIBLE TO INSTALL PERMANENT PAVEMENT MARKINGS THAT MEET THE FULL OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARDS FOR PAVEMENT MARKINGS.

TWO–WAY PAVEMENT MARKING
REMOVEABLE TAPE OR PAINT



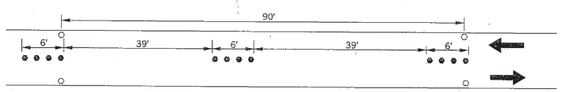
ONE–WAY PAVEMENT MARKING
FLEX TABS

PAVEMENT MARKINGS: FLEX TABS

TYPE I – FLEX TAB MARKERS SHALL HAVE REFLECTORIZED MATERIAL ON BOTH SIDES.

TYPE II – FLEX TAB MARKERS SHALL HAVE REFLECTORIZED MATERIAL ON BOTH SIDES AND SHALL HAVE A CLEAR REMOVEABLE COVER.

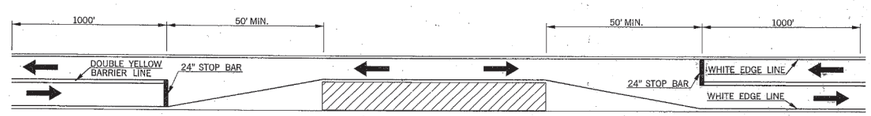
FLEX TABS MAY BE INSTALLED AS SHOWN FOR INTERIM PAVEMENT MARKINGS



TWO–WAY PAVEMENT MARKING
FLEX TABS

SHORT TIME PAVEMENT MARKINGS

REVISIONS	
DESCRIPTION	DATE



TYPICAL PAVEMENT MARKINGS FOR ONE LANE CLOSURE ON TWO LANE /TWO WAY ROADWAY
REMOVEABLE TAPE OR CONSTRUCTION ZONE PAVEMENT MARKERS (FLEX TAB)

NOTES:

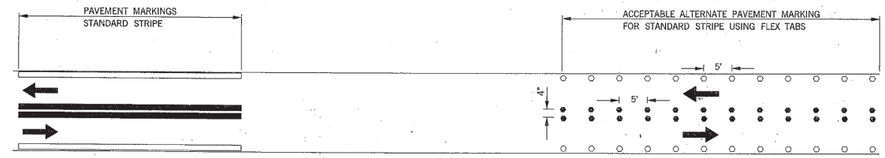
CONSTRUCTION ZONE PAVEMENT MARKINGS SHALL CONSIST OF EITHER PAINT, CONSTRUCTION ZONE PAVEMENT MARKERS (FLEX TABS) OR REMOVABLE MARKING TAPE. THERMO–PLASTIC STRIPE MAY BE USED IN CONJUNCTION WITH PAINT, FLEX TABS OR TAPE WHEN SPECIFIED IN THE PLANS.

ALL PAVEMENT MARKINGS TO BE PLACED ON TEMPORARY SURFACES OR ON SURFACES SCHEDULED TO BE REMOVED SHALL BE DONE WITH PAINT UNLESS OTHERWISE SHOWN IN THE PLANS OR STANDARD DRAWINGS. ALL FINAL OR FINISHED SURFACES SHALL BE MARKED WITH EITHER REMOVABLE PAVEMENT MARKING TAPE OR CONSTRUCTION ZONE PAVEMENT MARKERS (FLEX TABS), UNLESS OTHERWISE NOTED ON THE PLANS.

WIDTH OF STRIPED LANE LINES SHALL BE A MINIMUM OF 4".

KEY:

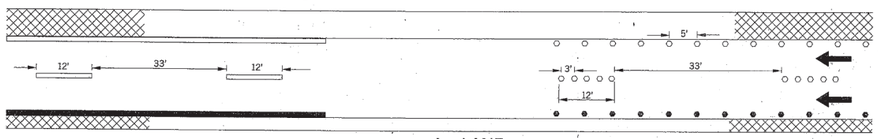
- WORK ZONE
- WHITE LANE LINE (PAINT OR TAPE)
- YELLOW LANE LINE (PAINT OR TAPE)
- WHITE FLEX TAB
- YELLOW FLEX TAB



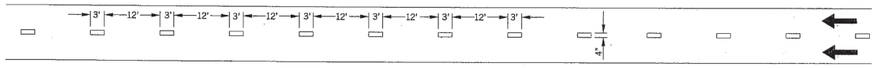
TWO–LANE /TWO–WAY
NO PASSING



TWO–LANE /TWO–WAY
PASSING PERMITTED



4 –LANE
DIVIDED ROADWAY



WHITE DOTTED LINE

INTERIM PAVEMENT MARKINGS

APPROVED BY TRAFFIC ENGINEER Harold Hinsley DATE 10-1-99

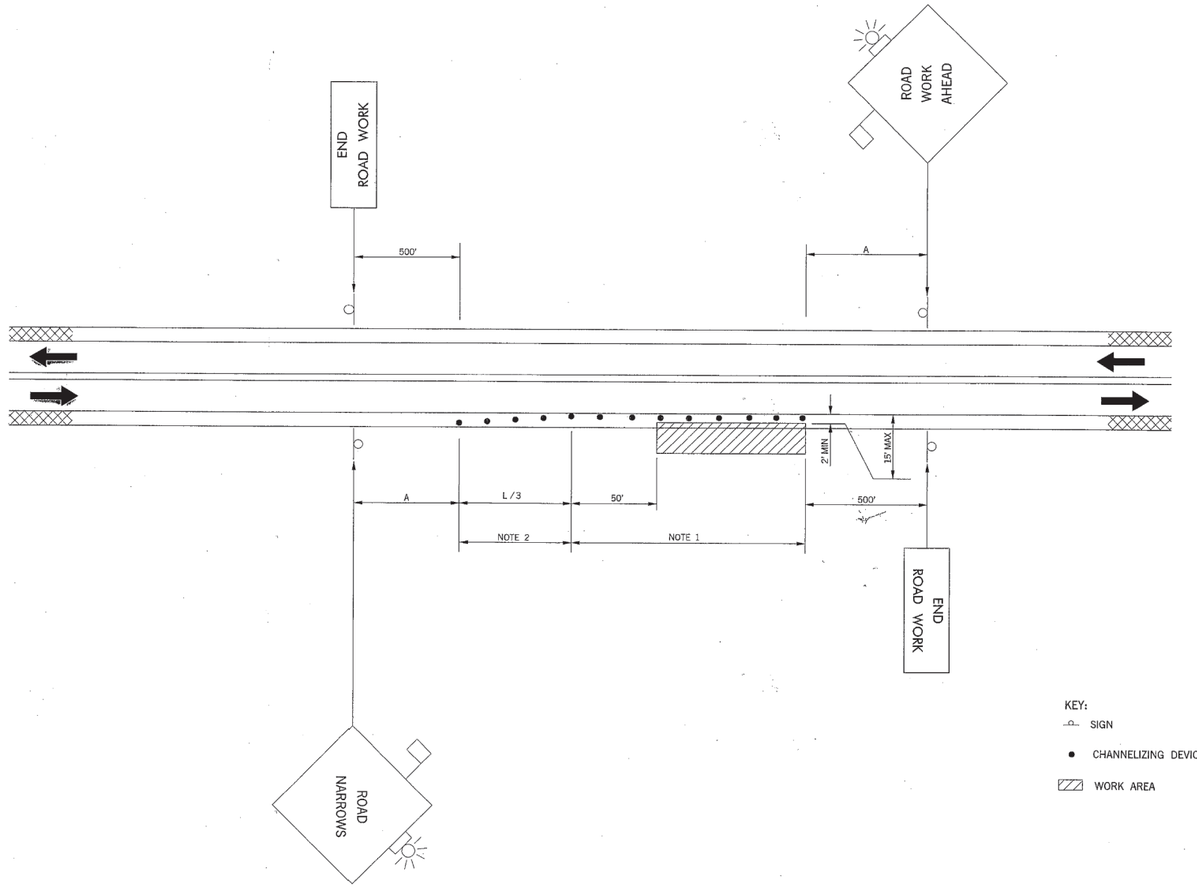
OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)
TRAFFIC CONTROL STANDARD
CONSTRUCTION ZONE PAVEMENT MARKINGS

1999 SPECIFICATIONS	TCS10–1	00E
		T–510E

TRFPC42 d:\user\stds\tcsmtrx4\1999\st510a-dgn 4:05:36 PM 10/15/99

SCHEMMER

REVISIONS	
DESCRIPTION	DATE



KEY:
- SIGN
- CHANNELIZING DEVICE
- WORK AREA

NOTE 1 .
MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES (FEET) SHALL BE EQUAL TO THE POSTED SPEED LIMIT (M.P.H.) WITH THE FOLLOWING EXCEPTIONS. SPACING SHALL NOT EXCEED 25 FEET FOR CONES OR TUBE CHANNELIZERS. SPACING SHALL NOT EXCEED 50 FEET FOR TYPE II BARRICADES, VERTICAL PANELS OR DRUMS.

NOTE 2
A MINIMUM OF FIVE (5) CHANNELIZING DEVICES SHALL BE PLACED THRU THIS AREA.

RECOMMENDED DISTANCE BETWEEN SIGNS (MIN.)			
ROAD TYPE	A (FT)	B (FT)	C (FT)
URBAN (LOW SPEED)	200	200	200
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY /FREEWAY	1,000	1,600	2,600

THE "ROAD WORK AHEAD" SIGN MAY BE REPLACED WITH OTHER APPROPRIATE SIGNS SUCH AS "SHOULDER WORK" IF CONDITIONS DICTATE.

IF THE WORKSPACE IS LOCATED IN THE MEDIAN OF A DIVIDED ROADWAY AN ADVANCE WARNING SIGN SHOULD ALSO BE PLACED ON THE LEFT SIDE OF THE ROADWAY.

FOR WORK REQUIRING (60 MINUTES OR LESS), OR MOBILE OPERATION, ALL SIGNS AND CHANNELIZING DEVICES MAY BE ELIMINATED IF A VEHICLE WITH AN ACTIVATED FLASHING OR REVOLVING YELLOW LIGHT IS USED.

ALL VEHICLES, EQUIPMENT, WORKERS (EXCEPT FLAGGERS) AND THEIR ACTIVITIES SHALL BE RESTRICTED TO ONE SIDE OF THE ROADWAY.

TYPICAL APPLICATION
WORK ON SHOULDERS

APPROVED BY TRAFFIC ENGINEER Harold Smith DATE 10-1-99

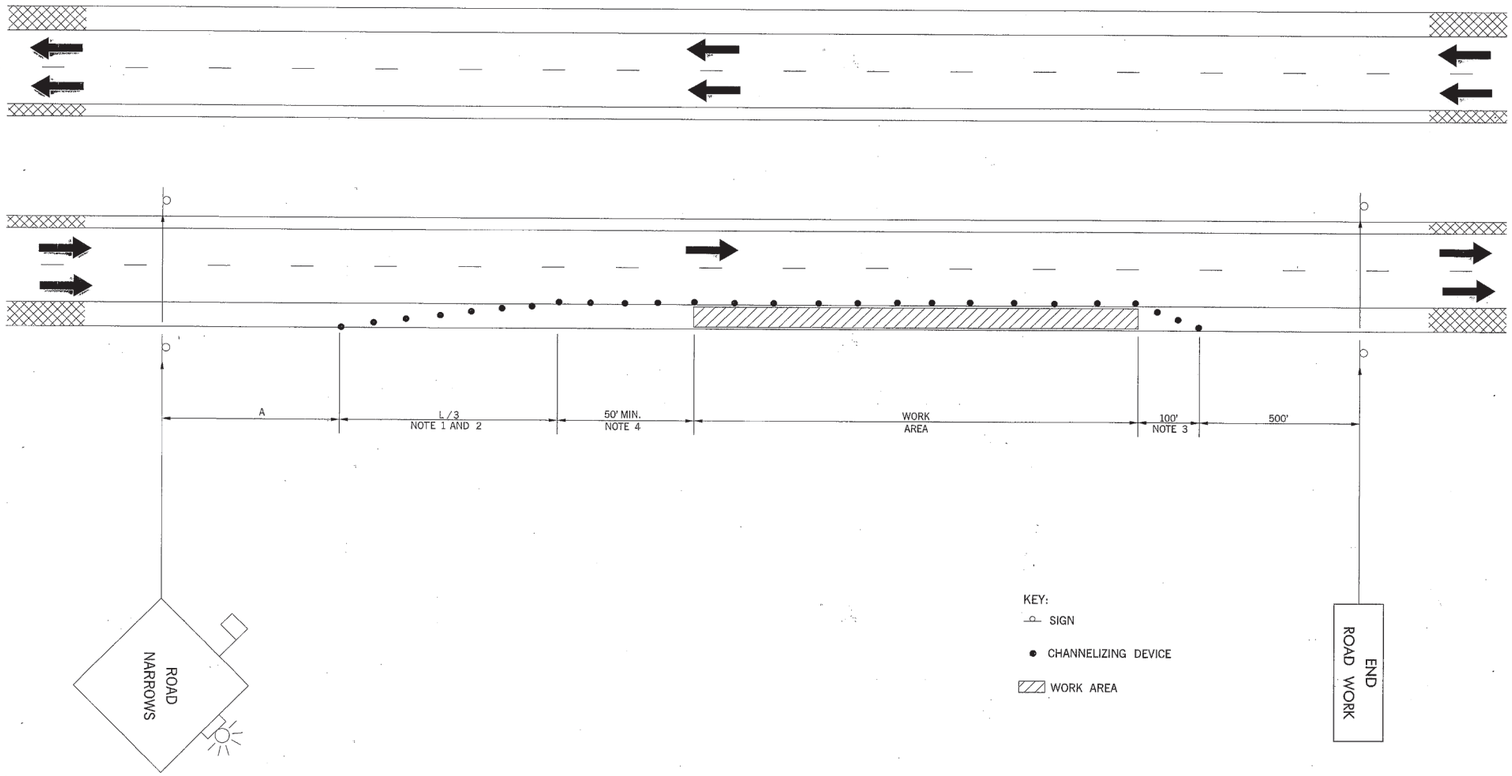
OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)
TRAFFIC CONTROL STANDARD
TYPICAL APPLICATION
WORK ON SHOULDER

1999 SPECIFICATIONS	TCS31-1	00E
		T-531E

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SCHEMMER

REVISIONS		
DESCRIPTION		DATE



NOTE 1
MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES (FEET) SHALL BE EQUAL TO THE POSTED SPEED LIMIT (M.P.H.) WITH THE FOLLOWING EXCEPTIONS. SPACING SHALL NOT EXCEED 25 FEET FOR CONES OR TUBE CHANNELIZERS. SPACING SHALL NOT EXCEED 50 FEET FOR TYPE II BARRICADES, VERTICAL PANELS OR DRUMS.

NOTE 2
A MINIMUM OF FIVE (5) CHANNELIZING DEVICES SHALL BE PLACED THROUGH THIS TAPER.

NOTE 3
DOWNSTREAM TAPERS SHALL CONTAIN A MINIMUM OF FOUR (4) CHANNELIZING DEVICES.

NOTE 4
A LONGITUDINAL BUFFER AREA, TO ALLOW WORKERS TIME TO EVACUATE THE WORK AREA, SHOULD BE PROVIDED. FOR GUIDELINES ON SETTING THE LENGTH OF THIS BUFFER, SEE STANDARD DRAWING TCS2-1-(LATEST REVISION). ACTUAL LENGTH SHALL BE DETERMINED BY FIELD CONDITIONS AND THE JUDGEMENT OF THE ENGINEER.

RECOMMENDED DISTANCE BETWEEN SIGNS (MIN.)			
ROAD TYPE	A (FT)	B (FT)	C (FT)
URBAN (LOW SPEED)	200	200	200
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY /FREEWAY	1,000	1,600	2,600

FOR ADDITIONAL INFORMATION ABOUT TAPER LENGTHS AND SPACING OF CHANNELIZING DEVICES, SEE STANDARD DRAWING TCS2-1-(LATEST REVISION).

TYPICAL APPLICATION – DIVIDED ROADWAY, SHOULDER CLOSED, SHORT DURATION

APPROVED BY TRAFFIC ENGINEER Harold Hamm DATE 10-1-99

OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)

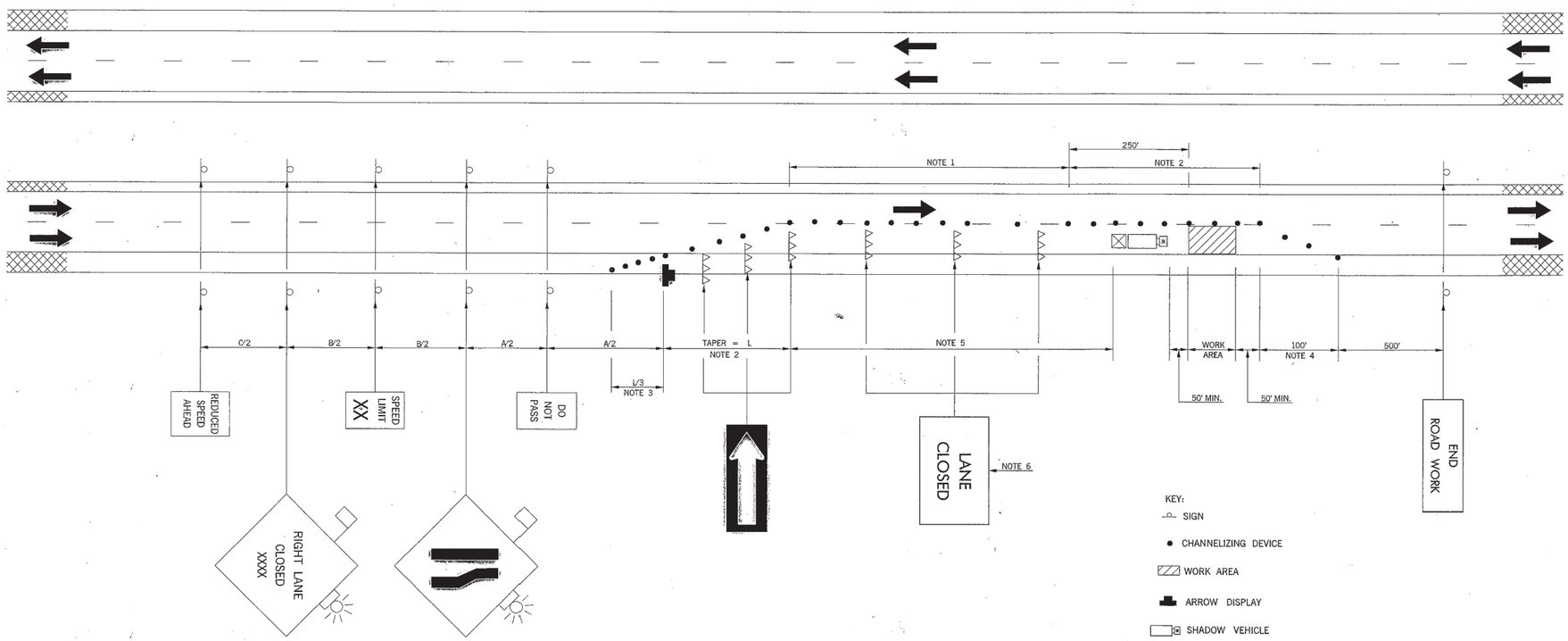
TRAFFIC CONTROL STANDARD
TYPICAL APPLICATION – DIVIDED ROADWAY, SHOULDER CLOSED, SHORT DURATION

1999 SPECIFICATIONS	TCS65-1	00E
		T-565E

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SCHEMMER

REVISIONS		
DESCRIPTION		DATE



KEY:
- SIGN
- CHANNELIZING DEVICE
- WORK AREA
- ARROW DISPLAY
- SHADOW VEHICLE
- TRUCK MOUNTED ATTENUATOR
- TYPE III BARRICADES

NOTE 1
MAXIMUM SPACING OF CHANNELIZING DEVICES SHALL BE AS FOLLOWS:
(A) FIRST 250 FEET OF ACTIVITY AREA.
(1) 25 FEET FOR CONES AND TUBE CHANNELIZERS.
(2) 50 FEET FOR TYPE II BARRICADES, VERTICAL PANELS OR DRUMS.
(B) REMAINDER OF WORK AREA.
(1) 50 FEET FOR CONES AND TUBE CHANNELIZERS.
(2) 100 FEET FOR TYPE II BARRICADES, VERTICAL PANELS OR DRUMS.

NOTE 2
MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES (FEET) SHALL BE EQUAL TO THE POSTED SPEED LIMIT (M.P.H.) WITH THE FOLLOWING EXCEPTIONS. SPACING SHALL NOT EXCEED 25 FEET FOR CONES OR TUBE CHANNELIZERS. SPACING SHALL NOT EXCEED 50 FEET FOR TYPE II BARRICADES, VERTICAL PANELS OR DRUMS.

NOTE 3
A MINIMUM OF FIVE (5) CHANNELIZING DEVICES SHALL BE PLACED THROUGH THIS TAPER.

NOTE 4
DOWNSTREAM TAPERS SHALL CONTAIN A MINIMUM OF FOUR (4) CHANNELIZING DEVICES.

NOTE 5
A LONGITUDINAL BUFFER AREA, TO ALLOW WORKERS TIME TO EVACUATE THE WORK AREA, SHOULD BE PROVIDED. FOR GUIDELINES ON SETTING THE LENGTH OF THIS BUFFER, SEE STANDARD DRAWING TCS2-1-(LATEST REVISION). ACTUAL LENGTH SHALL BE DETERMINED BY FIELD CONDITIONS AND THE JUDGEMENT OF THE ENGINEER.

NOTE 6
TYPE III BARRICADES WITH SIGNS READING "LANE CLOSED" (R11-2) SHALL BE PLACED EVERY 2,000 FEET THROUGH ACTIVITY AREA. THESE TYPE III BARRICADES AND SIGNS MAY BE OMITTED ON MOVING OPERATIONS AND SHORT DURATION PROJECTS.

RECOMMENDED DISTANCE BETWEEN SIGNS (MIN.)			
ROAD TYPE	A (FT)	B (FT)	C (FT)
URBAN (LOW SPEED)	200	200	200
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY /FREEWAY	1,000	1,600	2,600

FOR ADDITIONAL INFORMATION ABOUT TAPER LENGTHS AND SPACING OF CHANNELIZING DEVICES, SEE STANDARD DRAWING TCS2-1-(LATEST REVISION).

TYPICAL APPLICATION – DIVIDED ROADWAY, ONE LANE CLOSED, SHORT DURATION

APPROVED BY TRAFFIC ENGINEER Harold Hamm DATE 10-1-99

OKLAHOMA DEPT. OF TRANSPORTATION
TRAFFIC STANDARD (ENGLISH)
TRAFFIC CONTROL STANDARD
TYPICAL APPLICATION – DIVIDED ROADWAY, ONE LANE CLOSED, SHORT DURATION

1999 SPECIFICATIONS	TCS66-1	00E
		T-566E

(566)(tcs566-1.dgn 10:20:15 AM 10/7/99)

Sub: 3-10-83

FED. ROAD DIST. NO.	PROJECT NO.	SHEET NO.	TOTAL SHEETS
6		1	

REV 3-15-83

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED
STATE HIGHWAY

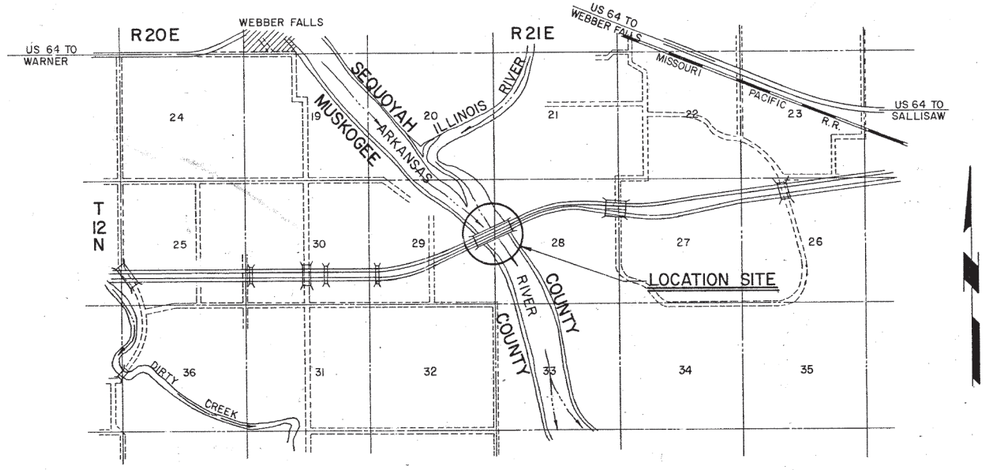
FEDERAL AID PROJECT NO. IR-40-6(187)291E
BRIDGE REPAIR, OVERLAY, GUARDRAIL & MEDIAN BARRIER
INTERSTATE HIGHWAY NO. I-40
STATE JOB NO. 04085(04)

MUSKOGEE - SEQUOYAH COUNTIES

INDEX OF SHEETS

SHEET NO.	1	TITLE
	2	SUMMARY OF PAY QUANTITIES - BRIDGE
	3	SUMMARY OF PAY QUANTITIES - ROADWAY & TRAFFIC CONTROL
	4	DETOUR ROUTE & SPECIAL SIGNS
	5 - 6	PLAN & PROFILE
	7	CROSSOVER LAYOUT
	8	MEDIAN BARRIER & GUARD RAIL LAYOUT
	9	DETAILS OF APPROACH SLAB MEDIAN BARRIER
	10 - 13	GENERAL PLAN & ELEVATION
	14	PIER NO. 4 REPAIR
	15	SECTION OF SUPERSTRUCTURE
	16	MISC. DETAILS
	17 - 24	DECK SURVEY & REPAIR AREAS
	25,25A,25B	DETAILS OF EXPANSION JOINTS
	26	LATERAL BRACING MODIFICATION
	27	LATERAL BRACING VIBRATION DAMPNER
	28	SEISMIC RESTRAINER
	29	PIER PROTECTION LIGHTING
	30	PIER PROTECTION CELLS

STANDARDS
GRH-2-1
GRAU-3-1
TCD-1-4
TCD-5-5
TCD-10-2
TCD-11-3
TCD-12-2
GMS-1-19
FGS-2-17
SPA-1-14
MB-1-3
EXP-1-0



DESIGN DATA

SCALES

1"

PLAN 1"=
PROFILE HOR. 1"=
VER. 1"=
LAYOUT MAP 1"=

CONVENTIONAL SIGNS

- PROPOSED ROAD
- RAILROADS
- RANGE & TOWNSHIP
- SECTION LINES
- QUARTER SECTION LINES
- FENCES
- GROUND LINE
- EXISTING ROADS
- BASE LINE
- GRADE LINES
- TELEPHONE & TELEGRAPH
- POWER LINES
- OIL WELLS
- BUILDINGS
- DRAINAGE STRUCTURES - IN PLACE
- DRAINAGE STRUCTURES - NEW
- Prop. R/W → RIGHT-OF-WAY LINES - EXISTING
- R/W → RIGHT-OF-WAY LINES - NEW
- RIGHT-OF-WAY MARKERS - IN PLACE
- RIGHT-OF-WAY MARKERS - REMOVE & RESET
- RIGHT-OF-WAY MARKERS - NEW
- CONTROLLED ACCESS
- RIGHT-OF-WAY FENCE

P.E. NO.

1976 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION GOVERN, APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, MAY 4, 1976.

OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED	DATE APPROVED
BY DIRECTOR	BY DIVISION ADMINISTRATOR

SWO. Project No. IR-40-6(187)291 Sheet No. 1

PAY QUANTITIES ····· BRIDGES

DESCRIPTION Str. A - I-40 over Arkansas River: Rehabilitate 3-125', (200'-330'-200') 4-125', 3-125' C.P.G. Spans, 2-30' Rdys. and Construct 2-40' Dia. Pier Protection Cells BRID: X005

ITEM NO.	ITEM		UNIT	QUANTITY
506.06(B)	Painting Exist. Bridges	(1)	L.SUM	1.
511.06	Reinforcing Steel	(2)(18)	LB.	12,200.
515.06Sp.	Epoxy Penetrating Sealer	(3)	S.Y.	244.
515.06Sp.	Penetrating Water Repellent Surface Treatment	(4)	S.Y.	17,829.
520.06(A)Sp.	Preparation of Cracks, Above Water	(5)	L.F.	130.
520.06(B)Sp.	Preparation of Cracks, Below Water	(5)	L.F.	150.
520.06(C)Sp.	Epoxy Resin, Above Water	(5)	GAL.	14.
520.06(D)Sp.	Epoxy Resin, Below Water	(5)	GAL.	16.
Sp.	Strip Seal Type Expansion Joint	(6)	L.F.	137.
Sp.	Modular Expansion Joint (6" Movement)	(6A)	L.F.	131.84
Sp	Modular Expansion Joint (9" Movement)	(6A)	L.F.	65.92
530.06SP.	Class A Bridge Floor Repair (Type A or B)	(7)(8)	S.Y.	1,125.
530.06SP.	Class B Bridge Floor Repair (Type A or B)	(7)(8)	S.Y.	1,372.
530.06SP.	Class C Bridge Floor Repair (Type A or B)	(7)(8)(18)	S.Y.	269.
530.06SP.	Bridge Floor Overlay (Type A or B)	(8)	S.Y.	13,466.
530.06SP.	Floodlighting	(8)	DAY	5.
Sp.	Approach Slab Median Barrier	(9)	L.SUM	1.
Sp.	Concrete Finish	(10)	S.Y.	4,363.
Sp.	Sheet Piling	(11)	S.F.	12,300.
Sp.	Quarry-Run Stone	(12)	C.Y.	3,400.
Sp.	Pier Protection Cell Accessories	(13)	L.SUM	1.
Sp.	Concrete Sawing	(14)	L.F.	2,880.
Sp.	Lateral Bracing Vibration Dampener	(15)	EA.	160.
Sp.	Lateral Bracing Modification	(16)	EA.	88.
Sp.	Seismic Restrainer	(17)	EA.	12.

GENERAL NOTES

All construction and materials shall be in accordance with the 1976 Oklahoma Standard Specifications for Highway Construction, and Special Provisions. (See Proposal for Special Provisions.).

All dimensions of the existing bridge components shown on the plans are approximate. The contractor shall verify all dimensions necessary to connect the new material and shall be solely responsible for the accuracy thereof.

Bidders will fully inform themselves of the nature of the work and condition under which it will be performed. The contractor shall adopt methods consistent with good construction practice and shall take all necessary precautions to prevent damage to the existing bridge or attachments. Any damage to the existing bridge structure or roadway due to the contractor's negligence shall be repaired at the contractor's expense, to the satisfaction of the engineer.

CONSTRUCTION PLANS OF EXISTING BRIDGES:

Detail plans for existing bridges are available from the Reproduction Branch of the Okla. Department of Transportation, 200 N. E. 21st Street, Oklahoma City, Okla. 73105. The project number is 1-40-6(99)288.

The shop details are available for inspection from the Bridge Division.

SPECIAL NOTES FOR PAY ITEMS:

(1) Item "Painting Existing Bridges" consists of furnishing all materials, equipment, labor and incidentals necessary to apply paint to approximately 2505 tons of structural steel, on all exposed surfaces as specified.

All corroded areas and all areas of cracked paint shall be completely cleaned to expose underlying metal by spot sandblasting. The edges of the cleaned areas shall be feathered so that the repainted surface will have a smooth surface.

All remaining oil, grease, dirt and other surface accumulation shall be removed by brush sandblast. The grit size shall be suitably reduced to secure satisfactory cleaning with a minimum abrasion to the remaining paint film.

Two coats of red lead primer is required on all surfaces cleaned to bare metal and one complete coat of aluminum over all structural steel shall be applied in accordance with paragraph 506.04(d) of the standard specifications.

Red lead primer and aluminum finish coat shall meet the requirements of paragraphs 730.04(a)(b)(c) of the standard specifications.

Minimum dry thickness of each coat of primer shall be 2 mils, and minimum thickness of the aluminum coat shall be one mil, or a minimum total dry mil thickness of 5 mils for all three coats.

The weight shown for structural steel to be painted is approximate and the State assumes no responsibility for the accuracy. No compensation will be allowed for errors in this weight.

Contractor shall perform the painting operations during the period of time that traffic is detoured from the respective eastbound or westbound lanes of traffic.

All cost of the work as specified shall be included in the lump sum price bid for "Painting Existing Bridges".

(2) Item "Reinforcing Steel" - When exposed reinforcing steel for Class A, B, or C Bridge Floor repair is found to have lost 25% of its cross section, the reinforcing steel shall be spliced with new reinforcing steel of the same size, and will be paid for at the unit price bid per Lb. for "Reinforcing Steel".

For estimating purposes, 5000 Lbs. of reinforcing steel has been included in the pay quantities for this replacement.

(3) Item "Epoxy Penetrating Sealer" shall consist of cleaning and applying epoxy penetrating sealer to pier no. 4 as shown on the plans, in accordance with the special provisions and in a manner approved by the Engineer.

Penetrating epoxy sealer shall contain 25% epoxy solids in lieu of the 15% epoxy solids specified in the special provisions.

See Special Provision 515-8(a), dated 9-27-76 for specifications and payment.

(4) Item "Penetrating Water Repellent Surface Treatment" consists of cleaning and applying a penetrating water repellent surface treatment to abutments, pier caps, bridge deck, curbs, and parapets as shown on the plans, in accordance with the special provisions and in a manner approved by the Engineer.

See Special Provision 515-14(a-c), dated 6-30-80 for specifications and payment.

(5) The purpose of pay items "Preparation of Cracks, Above Water", "Preparation of Cracks, Below Water", "Epoxy Resin, Above Water", and "Epoxy Resin, Below Water" is to restore the structural integrity of the concrete in pier no. 4 by injecting the cracks with Epoxy Resin.

The approximate location and size of the major cracks to be epoxy injected and sealed are shown on the plans. Additional cracks, if designated by the Engineer, may be included in the contract and paid for at the unit prices bid.

Photographs of pier no. 4, showing the cracks, are available for inspection at the Bridge Maintenance Office, Oklahoma DOT Building, in Okla. City.

All quantities are approximate. Final payment will be made at the unit price bid for the actual amount of work done.

See Special Provision 520-3(a-b), dated 6-22-77 for specifications and payment.

(6) For Specifications and Payment see ODOT STD. EXP-1 and Sheet No. 25B of these plans.

(6A) **For details see sheet Nos. 25, 25A, 25B. For specifications and payment see Special Provisions included in the Proposal.**

EXPLANATION OF DECK SURVEY AND REPAIR AREAS

(7) Test holes are shown typically with numbers in boxes. They are located scale wise at points samples were taken. Information shown in boxes includes the chloride content in Lbs. per C.Y. and the depth of reinforcing steel.

Numbers typically shown in grid are halfcell test readings of electronic potential measured in volts and are located scale wise. Contours are shown for equal halfcell voltages for .25, .30, .35 volts, etc.

The estimated plan quantities for Class A, B, and C Repairs are based on the following:

Class A Bridge Floor Repair: The sum of the areas of halfcell readings between .25 and.35 volts and cracks where no active corrosion of reinforcement exists.

Class B Bridge Floor Repair: The sum of the areas of halfcell readings between .35 and .40 and areas of delaminations, patches, and spalls. Areas of cracks shall be included in Class B Repair where active corrosion of reinforcement exists.

Class C Bridge Floor Repair: 100%of the sum of the area of halfcell readings greater than .40 and areas of seepage.

Cracks shall be repaired by removing a strip 6" wide the full length of crack to the depth shown for Class A Repair. In areas showing active rebar corrosion, the depth of removal shall be as required to obtain a minimum of 1 inch clearance around the bar. The repair shall be measured for payment as Class A or Class B Repair as determined by the required depth of concrete removal.

For estimating purposes, cracks were assumed to be every 10' for the length of the bridge. 80% of the cracks were assumed to be Class A Bridge Floor Repair and 20% Class B Bridge Floor Repair. Final areas are to be determined by the Engineer.

(8) The contractor may, at his option, use either of two types (Type "A" or Type "B") of Class A, B, or C Bridge Floor Repair and Bridge Floor Overlay specified in the Special Provisions included in the proposal. The thickness of Type "A" Overlay (High Density P.C. Concrete System) shall be 1 1/2" measured from the original surface (1 3/4" from the scarified surface). The thickness of Type "B" Overlay (Latex-Modified System) shall be 1" measured from the original surface (1 1/4" from the scarified surface).

The thickness of the approach overlay at the bridge ends shall be adjusted to conform to the top of bridge overlay selected.

The thickness of overlay at expansion devices shall match depth of expansion device used and the transition thickness of overlay shall be at the rate of 1/8" per 10' longitudinally.

See Special Provision 530-4(a-h), dated 4-12-78 for specifications and payment of Type A Overlay.

See Special Provision 530-2(a-i), dated 2-15-77 for specifications and payment of Type B Overlay.

(9) Item "Approach Slab Median Barrier" consists of removal, disposal, and reconstruction of the existing parapets and curbs at each end of the bridge to the lines and grades shown on the plans.

Contractor shall furnish Class A Concrete and Reinforcing Steel as required to complete this item of work.

Disposal of materials removed shall be as approved by the engineer.

Construction of Approach Slab Median Barriers shall be according to Section 509 of the standard specifications and as approved by the engineer.

All cost of removal, disposal, labor, materials, equipment, and incidentals necessary to complete this item of work will be paid for at the lump sum price bid for "Approach Slab Median Barrier".

(10) Item "Concrete Finish" consists of furnishing labor, equipment and materials to apply a uniformly textured and colored finish on all exposed concrete surfaces of the parapets and curbs as shown on the plans. The concrete finish shall comply with subsection 509.04(o), Option II, of the standard specifications.

The color of the finish coat shall conform to Federal Color Standard No. 36586.

Test Panel: A sample panel 12"x18" shall be prepared and submitted to the Bridge Engineer for approval before the final color mixing of the concrete finish material. The approved panels will be used as a standard for application to the abutments and piers.

(10 Cont.) Surface Preparation: Surfaces shall be thoroughly cleaned to remove dirt, grease or other foreign materials, exposing a sound surface. Cleaning process shall be coordinated with item of work "Penetrating Water Repellent Surface Treatment". Any rough areas or spalls shall be repaired to the satisfaction of the engineer before applying the surface finish. It may be necessary to apply additional coats where form works show through the first coat and where necessary to produce the desired surface texture and uniformity.

Concrete finish shall be applied after penetrating water repellent surface treatment has been applied.

All cost of materials, labor, equipment, and incidentals necessary to complete the work as specified will be paid for at the unit price bid per Square Yard for "Concrete Finish".

(11) Item "Sheet Piling" consists of constructing two 40'-0" diameter pier protection cells at locations shown on the plans, by driving steel sheet piling into the river channel to firm foundation.

All steel piling shall be U.S.S. Mariner Steel, Section S-28 Federal Designation or approved equal.

Pile driving shall be according to section 514 of the standard specifications and as approved by the Engineer.

All cost of labor, tools, equipment, materials, and incidentals necessary to complete the work as specified shall be included in the price bid per Sq. Ft. for "Sheet Piling".

(12) Item "Quarry-Run Stone" consists of furnishing and placing the quarry-run stone in the pier protection cells as approved by the Engineer.

Material for quarry-run stone shall conform to the requirements of stone for riprap as specified in Section 713.04 of the ODOT specifications, except as follows:

Quarry-run stone shall have no piece weighing more than 250 pounds. At least 40 percent of each shipment shall consist of stones weighing 50 pounds or more. Stone shall be free from overburden spoil; except that stone carrying dirt and fines accumulated from interledge layers or blasting or loading operations, will be accepted provided not more than 10 percent by weight of each shipment consists of dirt and fines which will pass the 1/2 inch square mesh sieve. Then stone shall be reasonably well graded between the maximum and minimum sizes permitted.

All cost of labor, tools, equipment, and materials necessary to complete the work shall be included in the unit price bid per Cubic Yard for "Quarry-Run Stone".

(13) Item "Pier Protection Cell Accessories" consists of furnishing and installing ladders, lighting, rubbing strips, clearance gages on cell and pier, non-sparking coating, reflectors on cells and superstructure, electrical wiring and incidental hardware as shown on the plans and approved by the Engineer. For location and details see sheet nos. 11, 29, and 30.

All cost of labor, materials, equipment, and incidentals necessary to complete the work shall be included in the lump sum price bid for "Pier Protection Cell Accessories".

(14) Item "Concrete Sawing" consists of sawing transverse joints in concrete overlay at existing transverse joints in concrete bridge deck, as Appoved by the Engineer.

Concrete sawing will be performed only at joints where reflective cracking appears after a section of overlay is poured.

Transverse joints shall be cut 3/4" deep and sealed with a "Pourable Joint Sealer" in accordance with standard specification 722.08.

This item includes an estimated quantity that may be increased or decreased as necessary, as approved by the Engineer.

All cost of labor, tools, materials, and incidentals necessary to complete the work shall be included in the unit price bid per Lin. Ft. for "Concrete Sawing".

(15) Item "Lateral Bracing Vibration Dampener" consists of furnishing and installing all hardware as shown on the plans and approved by the Engineer.

Contractor shall remove any existing rods, cables, and clamps that interfere with installation of new Vibration Dampeners and dispose of same as approved by the Engineer.

All cost of labor, material, equipment and incidentals necessary to complete this item of work shall be included in the price bid per each for "Lateral Bracing Vibration Dampener".

(16) Item "Lateral Bracing Modification" consists of removing a 3" strip of horizontal gusset plate and backing plate; and reconnecting horizontal gusset plate using 3/8" bent plates bolted to web and welded to gusset plate as shown on the plans.

State personnel will conduct in-depth examinations of existing welds connecting horizontal gusset plates to web and welds at lower ends of various vertical web stiffeners. This inspection will be conducted while traffic is detoured and before painting the structural steel. Estimated time to inspect each bridge is two weeks. The contractor shall coordinate his work to permit this inspection.

The in-depth weld inspection by State personnel may indicate the need to modify horizontal gusset plate connections at additional locations.

All cost of labor, materials, equipment, and incidentals necessary to complete this item of work shall be included in the price bid per each for "Lateral Bracing Modification".

(17) Item "Seismic Restrainer" consists of furnishing materials, drilling holes in pier caps, drilling holes in lower girder flanges, installing seismic restrainer assemblies, and incidental work as shown on the plans.

The intersection of one girder line and one pier cap is considered to be one seismic restrainer assembly.

All cost of labor, tools, equipment, materials and incidentals necessary to complete the work as specified or shown on the plans shall be included in the unit price bid per each for "Seismic Restrainer".

(18) Cost of removing existing expansion joints and other incidental work necessary for reconstructing deck, approach slabs, curbs, and parapets shall be included in the unit price bid for "Class C Bridge Floor Repair".

Cost of replacing or adding new reinforcing steel shall be measured and paid for as Reinforcing Steel (7200 Lbs.).

See Sheet Nos. 25, 25A, 25B **for areas of removal and** reconstruction.

All material removed shall become the property of the contractor and be disposed of in a manner approved by the engineer.

REVISIONS		
REV. NO.	DESCRIPTION	DATE
	Revised	3-15-83
	Revised Note 13	4-5-83

NOTE:

ATTENTION IS CALLED TO BRIDGE PERMIT ISSUED BY THE UNITED STATES COAST GUARD. ALL CONDITIONS OF THIS PERMIT MUST BE ADHERED TO BY OKLAHOMA DEPT. OF TRANSPORTATION AND THE CONTRACTOR.
IT IS ESSENTIAL THAT THE UNITED STATES COAST GUARD BE INFORMED OF ANY CONSTRUCTION THAT COULD AFFECT NAVIGATION, PRIOR TO COMMENCING WORK.

Note: Survey targets are in place on pier caps. Contractor will exercise care to not damage these survey targets. Any damaged targets will be replaced by contractor at his expense, to the satisfaction of the engineer.

SUMMARY OF PAY QUANTITIES

BRIDGE

Design		
Detail		
Check	Hill 3-83	
Squad: HILL		
Engr.: McCollom		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION | PROJ. NO. IR-40-6(187)291 | SHEET NO. 2

REVISIONS			
REV. NO.	DESCRIPTION		DATE
1	Added G-R-E-A-Tcz	NAO	3-17-83
△ 2	Rev. Pay Items		4-14-83

PAY QUANTITIES ····· BRIDGES

DESCRIPTION Roadway Quantities (Bridge Approach Overlay, Crossovers, Guardrail, Median Barrier, Field Office and Mobilization)

ITEM NO.	ITEM	UNIT	QUANTITY		
509.06(B)	Class A Concrete (Median Barrier)	C.Y.	361.7		
511.06	Reinforcing Steel	LB.	9,500.		
623.06(B)Sp.	Beam Type Guard Rail (Single) (1)	L.F.	800.		
623.06(D)Sp.	Guard Rail Anchor Unit (Type A) (1)	EA.	2.		
623.06(D)Sp.	Guard Rail Anchor Unit (Type D) (1)	EA.	2.		
Sp.	Removal of Existing Guard Rail (2)	L.SUM	1.		
Sp.	Asphalt Concrete - Type C (3)	TON	542.		
640.06	Field Office	EA.	1.		
641.06	Mobilization	L.SUM	1.		

(1) Items "Beam Type Guard Rail (Single)", "Guard Rail Anchor Unit (Type A)", and "Guard Rail Anchor Unit (Type D)" consists of constructing guardrail and anchor units as shown on the plans using new posts, spacer blocks, end shoes, hardware, and undamaged sections of existing beam type guardrail.
For location of guardrail and anchor units see sheet no.8 ; for details of construction and payment see ODOT Standards GRH-2 and GRAU-3.

(2) Item "Removal of Existing Guard Rail" consists of removing guardrail posts, hardware glare deflector screen, repairing post holes, and delivering guardrail, posts, glare deflector screen, and hardware to Division One headquarters at Muskogee for storage.(1025 Lin.Ft. of existing guardrail is to be reused on this project).
Post holes shall be repaired to the satisfaction of the engineer.

The location and approximate amount of guardrail to be removed is as follows:
West End of Bridge:
Rt. of Rt. Lane - 2312' Single Faced
Lt. of Lt. Lane - 1250' Single Faced
Rt. of Lt. Lane (in median) - 2237' Double Faced
East End of Bridge:
Rt. of Rt. Lane - 525' Single Faced
Lt. of Lt. Lane - 562' Single Faced
Rt. of Lt. Lane (in median) - 750' Double Faced
Length of glare deflector screen is approximately the same as the double faced guardrail.

Contractor shall exercise care in removing guardrail and glare deflector screen. These items are to be reused by ODOT.
All cost of removal, transporting, post hole repair, labor, materials, and equipment shall be included in the lump sum price bid for "Removal of Existing Guard Rail".

(3) Item "Asphalt Concrete (Type C)" consists of furnishing and placing overlay at ends of approach slabs, constructing crossovers, and base for cast in place median barrier.
Asphalt Concrete (Type C) shall meet the requirements of section 411 of the standard specifications. Method of measurement will be by the ton and payment will be made at the unit price bid per ton which price shall be full compensation for furnishing aggregates, asphalt, equipment, labor, and all other incidentals necessary to complete the work as specified. Asphalt concrete estimated at 108 lbs. per square yard per 1" thick (estimated 94% aggregate and 6% asphalt).
Crossovers: Crossovers shall be constructed at locations shown on the Plans. Actual length and grade of crossover shall be as approved by the engineer. The crossover shall be constructed a minimum of 6" thick using Type C Plant Mixed Asphalt Concrete.
For estimating purposes the quantity was assumed to be 400' long x median width x 6" thick x two crossovers.
Prime coat and tack coat will not be measured for payment, but will be included in the price bid for Asphalt Concrete (Type C). Any incidental grading or shaping of median to construct the crossovers shall be included in the price bid for other items of work.
Overlay at End of Approach Slabs: A transition from new overlay on approach slabs to existing pavement is to be made using Asphalt Concrete (Type C) at each end of bridge. At the point of termination of overlay, the existing pavement shall be notched to insure a smooth transition from existing pavement to new overlay section. All cost of notching or shaping of existing roadway or shoulder shall be included in the price bid for other items of work. Cost of prime coat and tack coat will be included in the price bid for Asphalt Concrete (Type C).
For purposes of estimating, the average depth was assumed to be 1 1/2" and the total asphalt concrete quantity equals bridge roadway width x 1 1/2" thick x 150' long x 4 ends.
Median Barrier Base: An asphalt concrete base shall be constructed the length of new cast in place median barrier as shown on the plans, using Asphalt Concrete (Type C). The base shall be placed over existing shoulder paving with the top of base being level. Cost of prime coat and tack coat will be included in the price bid for Asphalt Concrete (Type C).
For estimating purposes, the quantity was assumed to be the length of new median barrier minus 2 x 400' (2 crossovers) x 4'-0" x 4" average thickness.

PAY QUANTITIES ····· BRIDGES

DESCRIPTION Traffic Control

	ITEM NO.	ITEM	UNIT	QUANTITY		
△	Spec.	Advance Warning Device (Type C) (1)	S.D.	480.		
	Spec.	Signs 0 to 6.25 S.F. (1)	S.D.	4,560.		
	Spec.	Signs 6.26 to 15.99 S.F. (1)	S.D.	1,920.		
	Spec.	Signs 16.0 S.F. & Over (1)	S.D.	4,800.		
	Spec.	Barricades (Type I) (1)	S.D.	240.		
	Spec.	Barricades (Type II) (1)	S.D.	240.		
	Spec.	Barricades (Type III) (1)	S.D.	1,440.		
	Spec.	Wing Barricades (1)	S.D.	960.		
	Spec.	Vertical Panels (1)	S.D.	120.		
	Spec.	Type A Lights (1)	S.D.	5,280.		
	Spec.	Type C Lights (1)	S.D.	17,040.		
	Spec.	Drums (1)	S.D.	17,040.		
	856.06	Traffic Stripe (Construction) (3)	L.F.	4,000.		
	856.06Sp.	Removable Pavement Marking Tape (2)	L.F.	11,200.		
	627.06(E)Sp.	Precast Concrete Median Barrier,				
		Portable Type (4)(5)	L.F.	3,070.		
	627.06(G)Sp.	Relocation of Portable Type				
		Precast Concrete Median Barrier (4)(5)	L.F.	6,140.		
	Special	Construction Zone Guardrail Energy				
		Absorbing Terminal Impact Attenuator				
		G-R-E-A-Tcz (5)(6)(7)	EA.	2.		
	Special	Construction Zone Guardrail Energy				
		Absorbing Terminal Impact Attenuator				
		G-R-E-A-T cz (Replacement Package) (5)(6)	EA.	2.		
△	851.06(A)	6" @ 15 Galv. Steel Wide				
		Flange Beam Posts	L.F.	40.		
	851.06(A)	6" @ 20 Galv. Steel Wide				
		Flange Beam Post	L.F.	90.		
	851.06(A)	6" @ 25 Galv. Steel Wide				
		Flange Beam Post	L.F.	90.		
	804.06	Structural Concrete	C.Y.	4.		
	850.06(B)	Panel Signs (Extruded Alum.				
	850.06(D)	or Galv. Steel)	S.F.	564.		

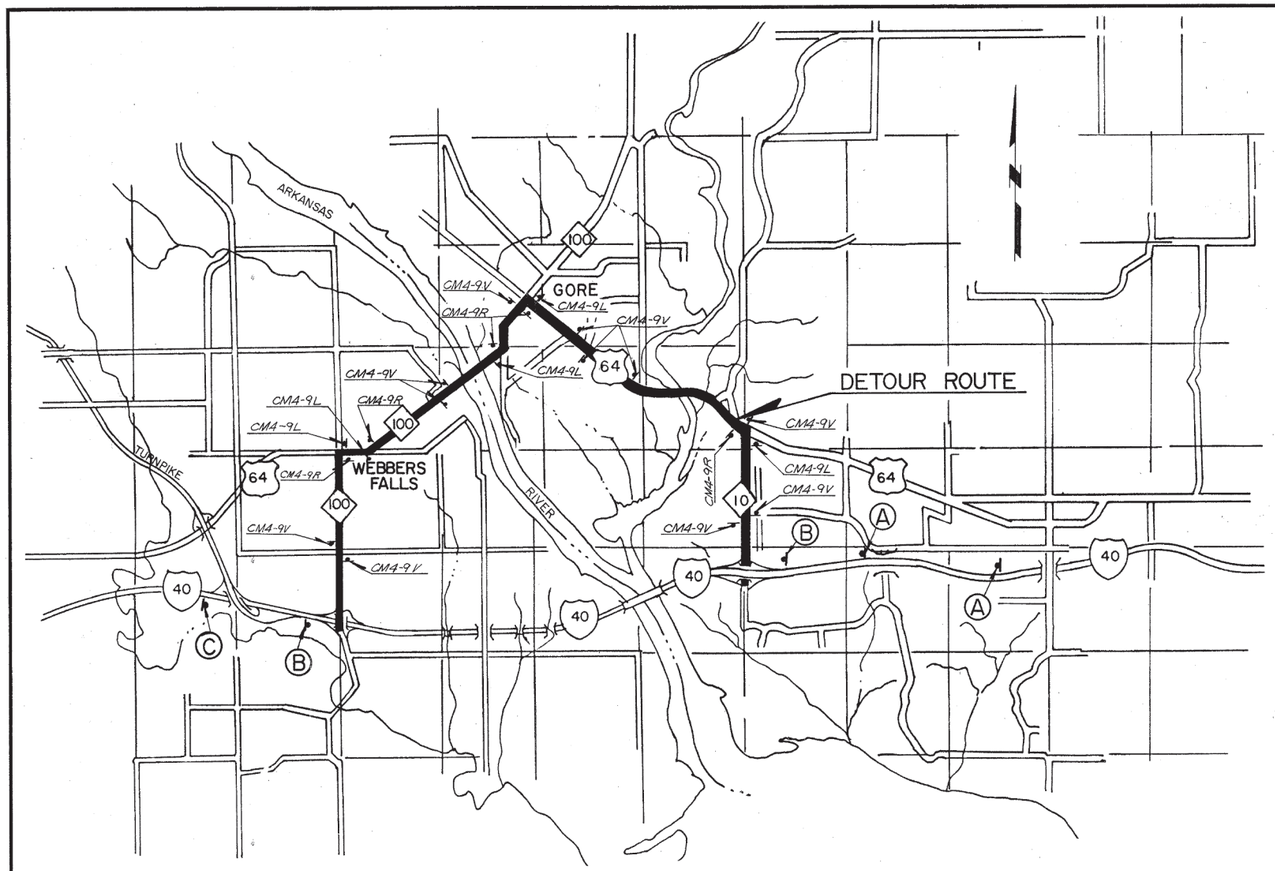
(1) See Special Provision TC-104-7, 4-2-80.
(2) Includes an estimated 8,600 L.F. of white and 2,600 L.F. of yellow stripe. See Special Provision 856-(a-b). 5-21-82.
(3) Includes an estimated 2,000 L.F. of white and 2,000 L.F. of yellow stripe.
(4) See Special Provision 627-1(a-b), 11-28-79.
(5) Upon completion of project this item shall become the property of the state and shall be delivered to Division One Headquarters by the contractor.
(6) See Special Provision 874(a-c) 1-9-80
(7) This Item is to be installed at each end of Bridge Median Barrier.

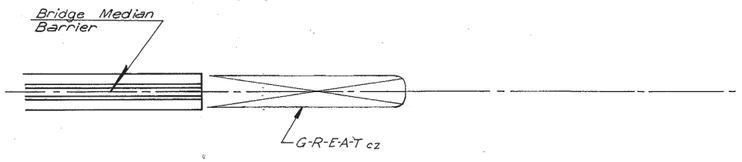
I-40 OVER ARK. RIVER MUSKOGEE & SEQUOYAH CO.

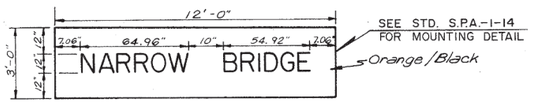
SUMMARY OF PAY QUANTITIES
ROADWAY & TRAFFIC CONTROL

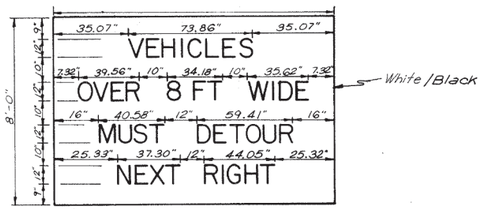
Design		
Detail	KDS	10/82
Check	H.H.	10-82
Squad: Hill		
Engr.: Mc Collom		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION
PROJ. NO. IR-40-6(187)291 | SHEET NO. 3

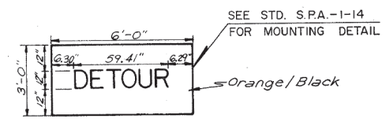


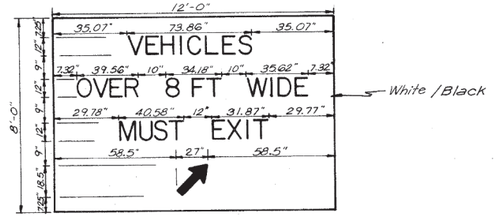




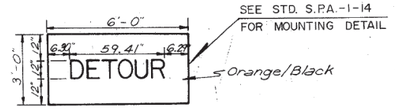


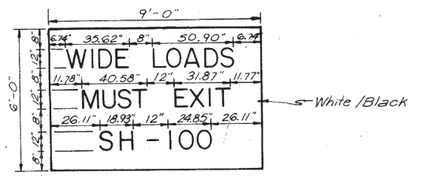
Special Sign 'A'
Series D-12"





Special Sign 'B'
Series D-12"

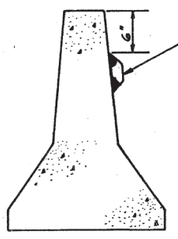




Special Sign 'C'
Series D-12"

NOTE: All special signs shall be constructed of extruded alum. panel and mounted on brakeaway post.

Upon compliation of project special signs shall become the property of the state and be delivered to the Muskogee Maintainance Yard by the Contractor.



Barrier Delineator @ 50' Spacing
Stimsonite Model P/N 962Y or an approved equal.
Delineator shall have 7.0 Sq. In. (MIN.) Reflective Area. See Std. Specification 710.01 (d) through (h)
Delineator to be installed as recommend by the manufacturer.

DETAILS NOT DRAWN TO SCALE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS		
DESCRIPTION		DATE
Added G-R-E-A-T cz	NAC	3-17-83

Design		
Drawn	N.C.	9/82
Checked		9-82
Approved		
Squad	Traffic Eng.	

DETOUR ROUTE & SPECIAL SIGNS

Project No. IR-40-6(187)291 Sheet No. 4

SCHEMMER

FED ROAD DIST. NO.	STATE	F. A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.	I-40-6(199) 288		3	154

PLAN — NOTE BOOK — NO. — SURVEYED — PLOTTED — DRAWN — CHECKED — ALIGNMENT CHECKED — RT. OF WAY CHECKED — BY — DATE

PROFILE — NOTE BOOK — NO. — SURVEYED — PLOTTED — DRAWN — CHECKED — B. M.'s NOTED — STRUCTURE NO(ATM)'S CHKD — BY — DATE

Margaret Farris
NW 1/4 SW 1/4
SW 1/4 SW/4 NW 1/4

CURVE DATA
Δ = 24°46' 26.38
D = 0° 28'
T = 2,694.62
L = 5,305.12
R = 12,277.67
E = 252.22

Virginia Lipotich
SW 1/4 SE 1/4 NW 1/4
N 1/2 NE 1/4 SW 1/4

C.F. Ross Et Al

C.E. Sloan & Nola Sloan

Clifford Sloan
Lot 3

716+00
720
730
740
750
760
770
780+00

LIMITS OF NO ACCESS

Field Road

N88° 36' 55.51" E

N 63° 50' 26.60 E

1,532.42'

Charles F. Ross
S 1/2 NE 1/4 SW 1/4
SE 1/4 SE 1/4 NW 1/4
S 1/2 NE 1/4 SE 1/4 NW 1/4

SEC 29 T12N R21E

SEC 28 T12N R21E

ARKANSAS RIVER

MUSKOGEE COUNTY

SEQUOYAH COUNTY

ILLINOIS RIVER

Pier Protection Cells

Fisherman's Trail

George Jr. & Geneva Marie Co.

C.E. Sloan & Nola Sloan
NW 1/4 SE 1/4, S 1/2 SW 1/4 NE 1/4

THIS SHEET FOR INFORMATION PURPOSE ONLY!

Bridge Length = 1,988.5'

Finished Grade

0.00%

+3.00%

-2.00%

900' V.C.

1,444.44' V.C.

2 % Line Elev. 469.5

Navigation Pool Elev. 460.0

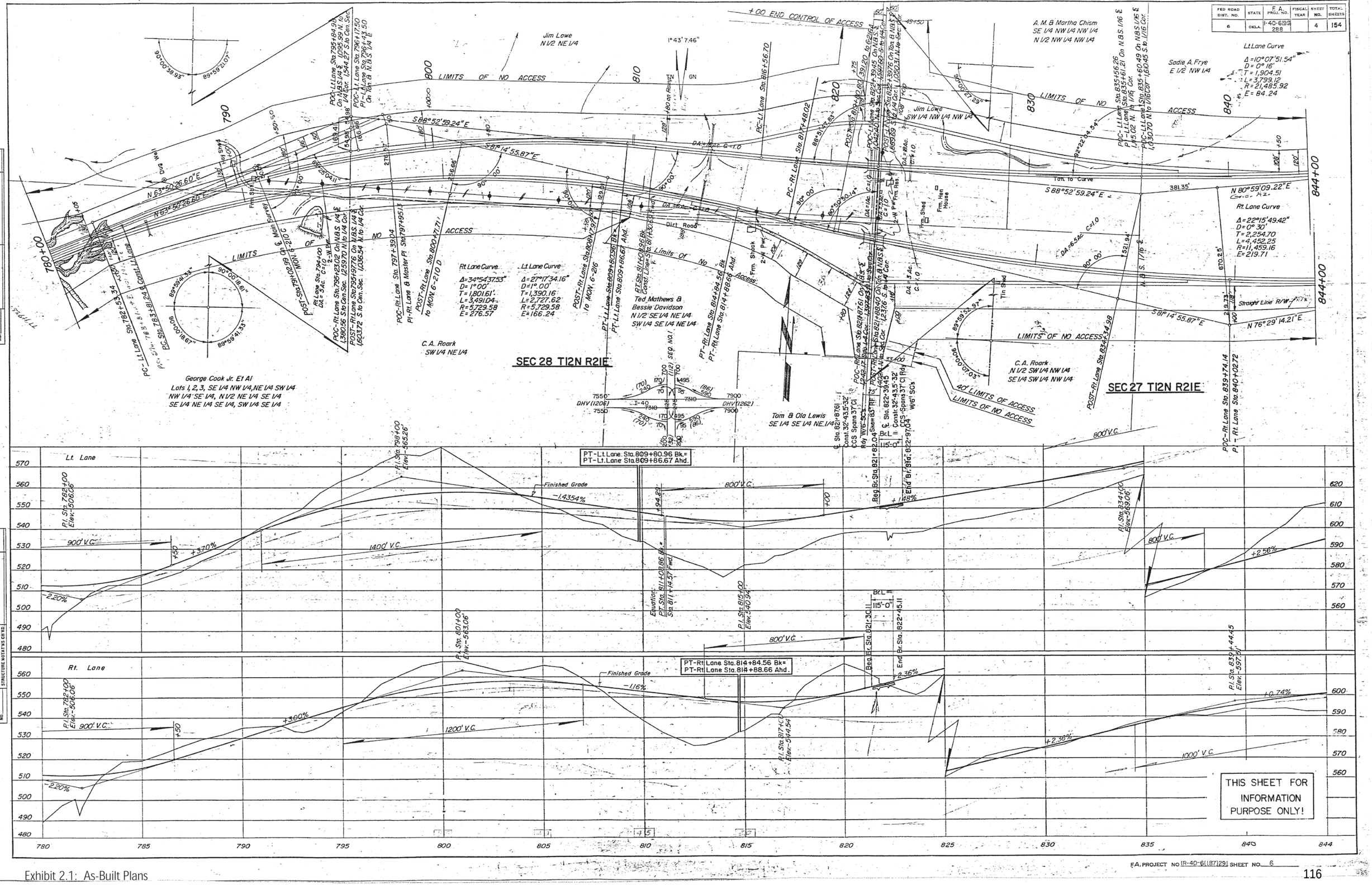
716 720 725 730 735 740 745 750 755 760 765 770 775 780

SCHEMMER

FED ROAD DIST. NO.	STATE	F.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.	I-40-6(193) 288		4	154

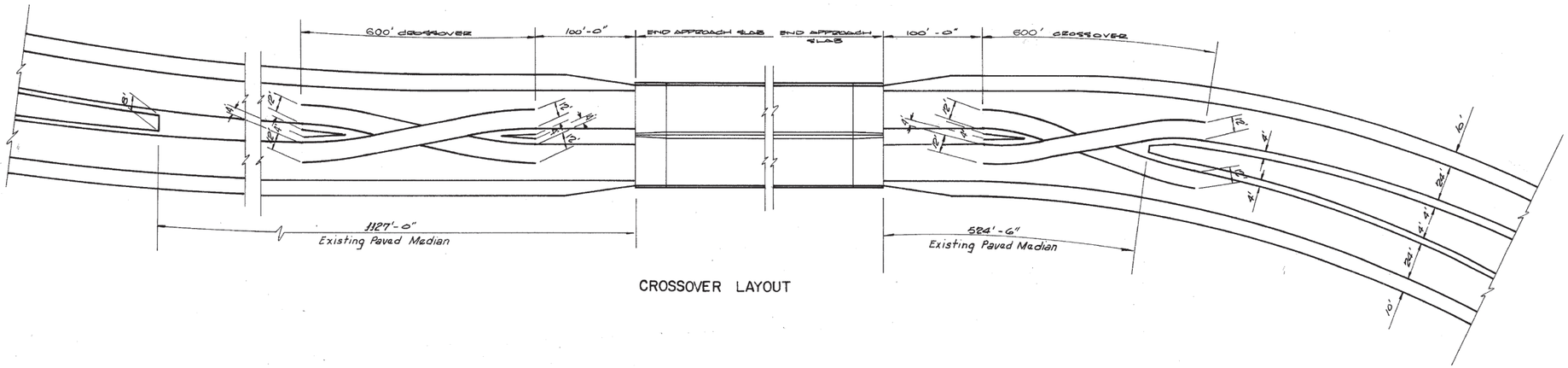
PLAN — SURVEYED, PLOTTED, CHARTS CHECKED, R.O.W. SHOWN, STRUCTURE NO(AT)'S CHKD. — NOTE BOOK — NO. — BY — DATE

PROFILE — SURVEYED, PLOTTED, CHARTS CHECKED, R.O.W. SHOWN, STRUCTURE NO(AT)'S CHKD. — NOTE BOOK — NO. — BY — DATE



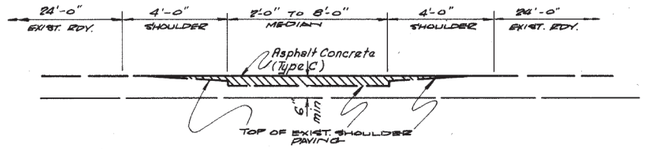
SCHEMMER

REVISIONS		
REV. NO.	DESCRIPTION	DATE

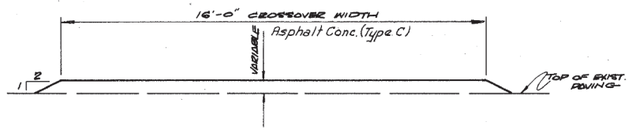


CROSSOVER LAYOUT

NOTE: Crossovers shall be constructed at locations shown. Actual length and grade shall be as approved by the Engineer. See Std. TCD-11



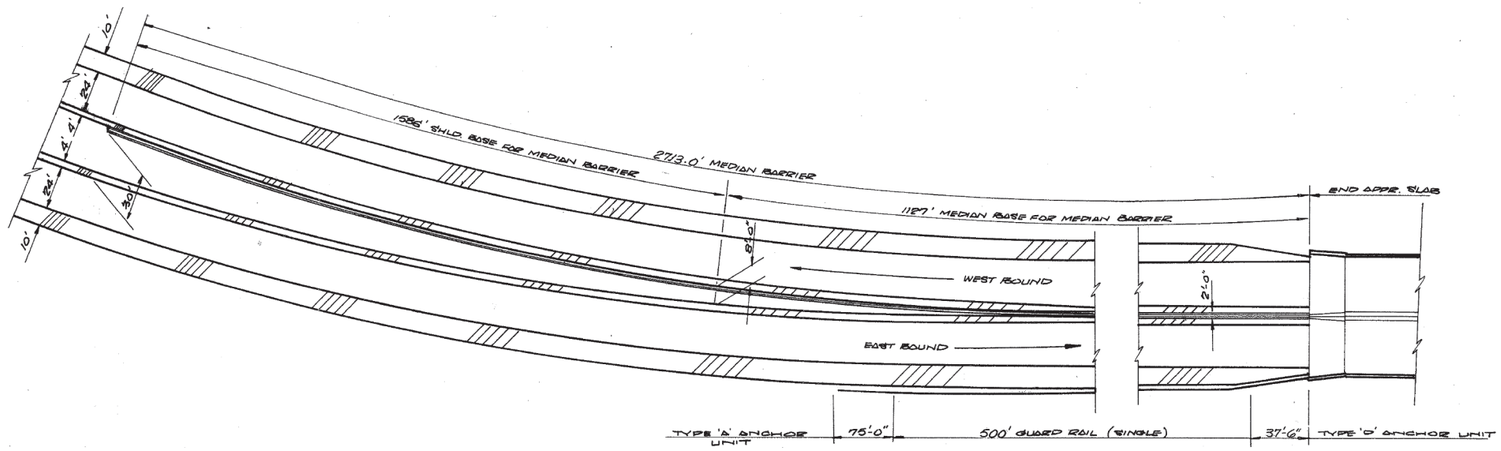
TYPICAL MEDIAN PAVING SECTION



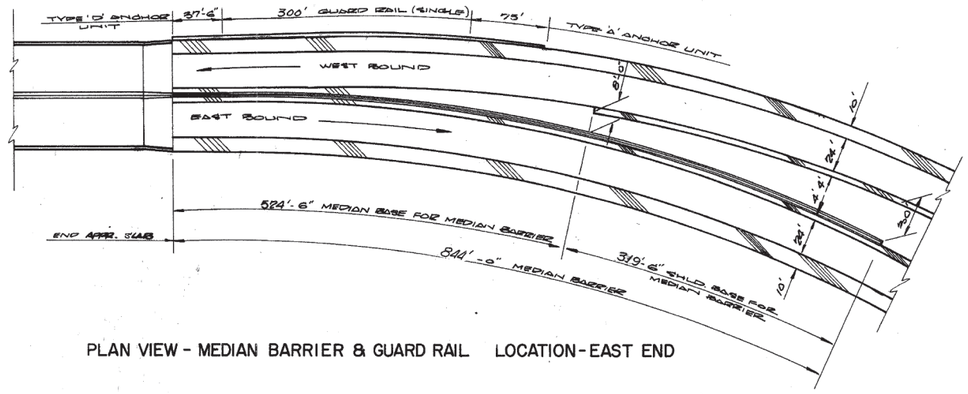
TYPICAL CROSSOVER PAVING SECTION

I-40 OVER ARK. RIVER	MUSKOGEE & SEQUOYAH Co.	Design	
		Detail	J.C. 9-82
CROSSOVERS LAYOUT		Check	9/82
		Squad: HILL	
		Engr.: McCollom	
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION		
	PROJ. NO. IR-40-6(187)291	SHEET NO. 7	

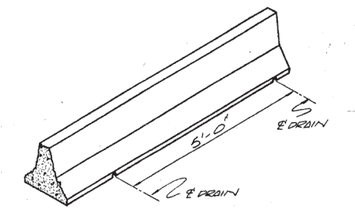
REVISIONS		
REV. NO.	DESCRIPTION	DATE



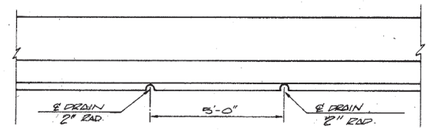
PLAN VIEW - MEDIAN BARRIER & GUARD RAIL LOCATION - WEST END



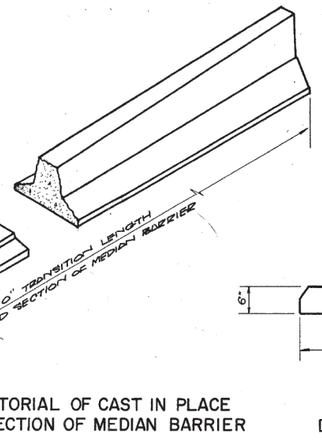
PLAN VIEW - MEDIAN BARRIER & GUARD RAIL LOCATION - EAST END



PICTORIAL CAST IN PLACE - MEDIAN BARRIER

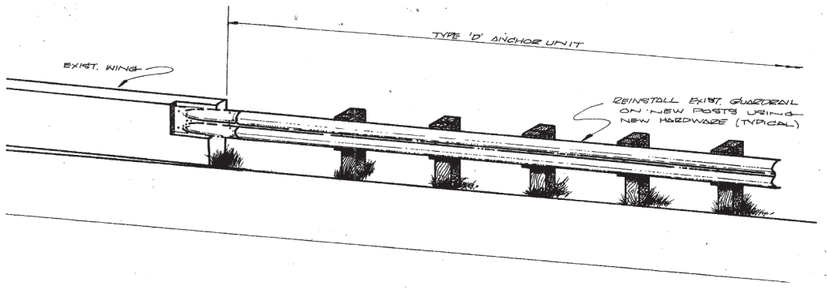


DETAIL MEDIAN BARRIER - DRAIN LOCATIONS

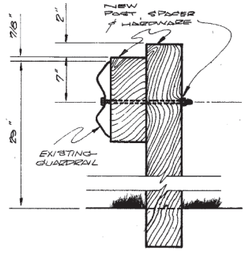


PICTORIAL OF CAST IN PLACE END SECTION OF MEDIAN BARRIER

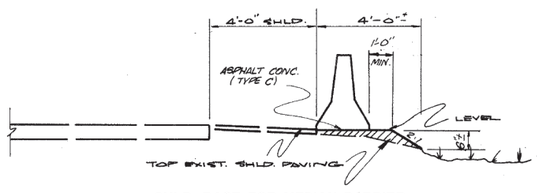
END DETAIL



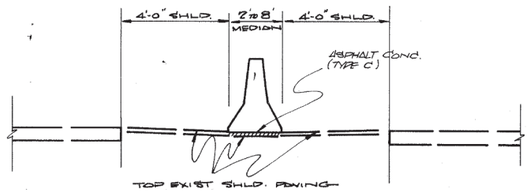
ANCHOR UNIT - TYPE "D"



WOOD POST DETAIL



SHLD. BASE FOR MEDIAN BARRIER



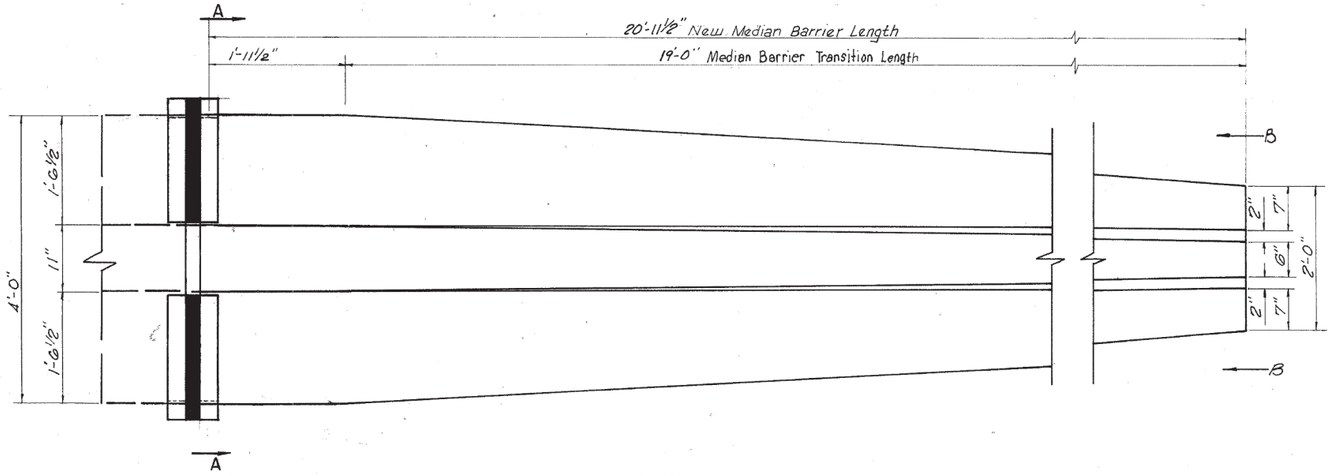
MEDIAN BASE FOR MEDIAN BARRIER

MEDIAN BARRIER PLACEMENT

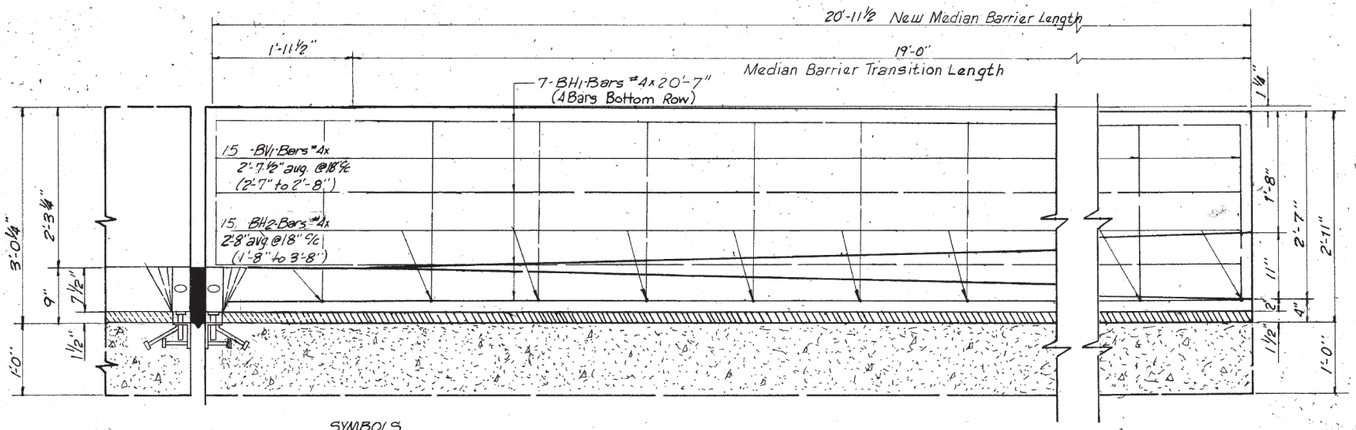
NOTE : For details of guard rail and anchor units, see std. GRH-2 & GRAU-3.
For details of cast in place median barrier, see std. MB - 1.

I - 40 OVER ARK. RIVER	MUSKOGEE & SEQUOYAH CO.			
MEDIAN BARRIER & GUARD RAIL LAYOUT		Design		
		Detail	JC	9 / 82
		Check		9/82
		Squad: HILL		
		Engr.: McCOLLOM		
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION			
	PROJ. NO. IR - 40-6 (187) 291	SHEET NO. 8		

REVISIONS		
REV. NO.	DESCRIPTION	DATE
1	Revised	3-10-83

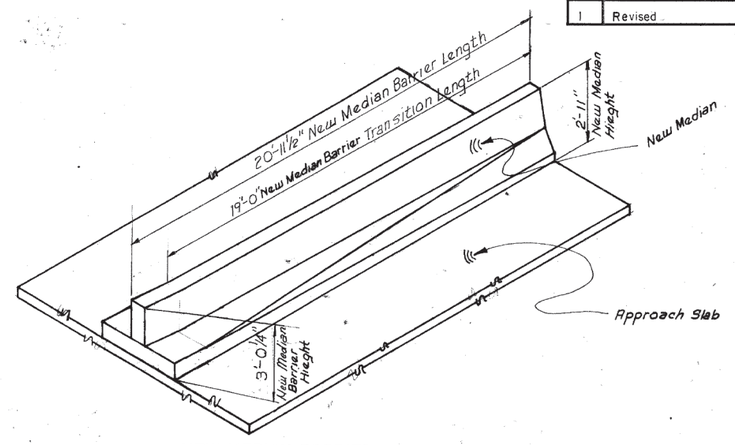


PLAN

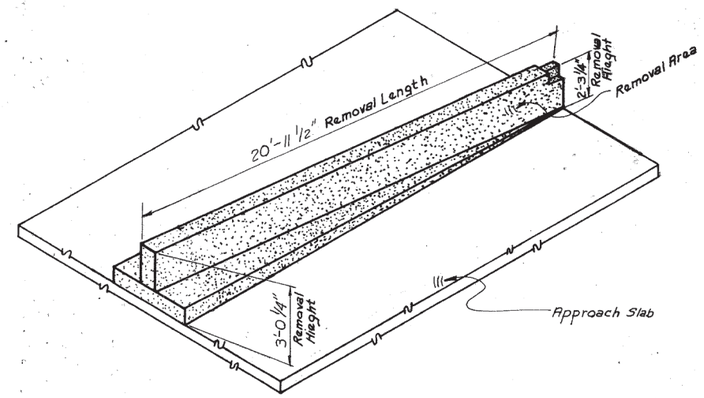


SYMBOLS	
1½" Conc. Overlay	
1'-0" Existing Conc. Slab	

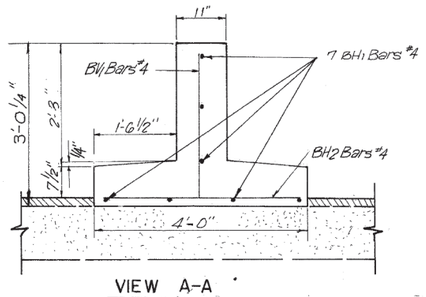
ELEVATION



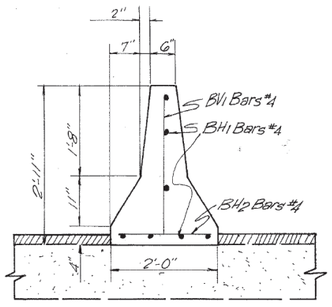
NEW MEDIAN BARRIER



REMOVAL OF APPROACH SLAB MEDIAN BARRIER



VIEW A-A



VIEW B-B

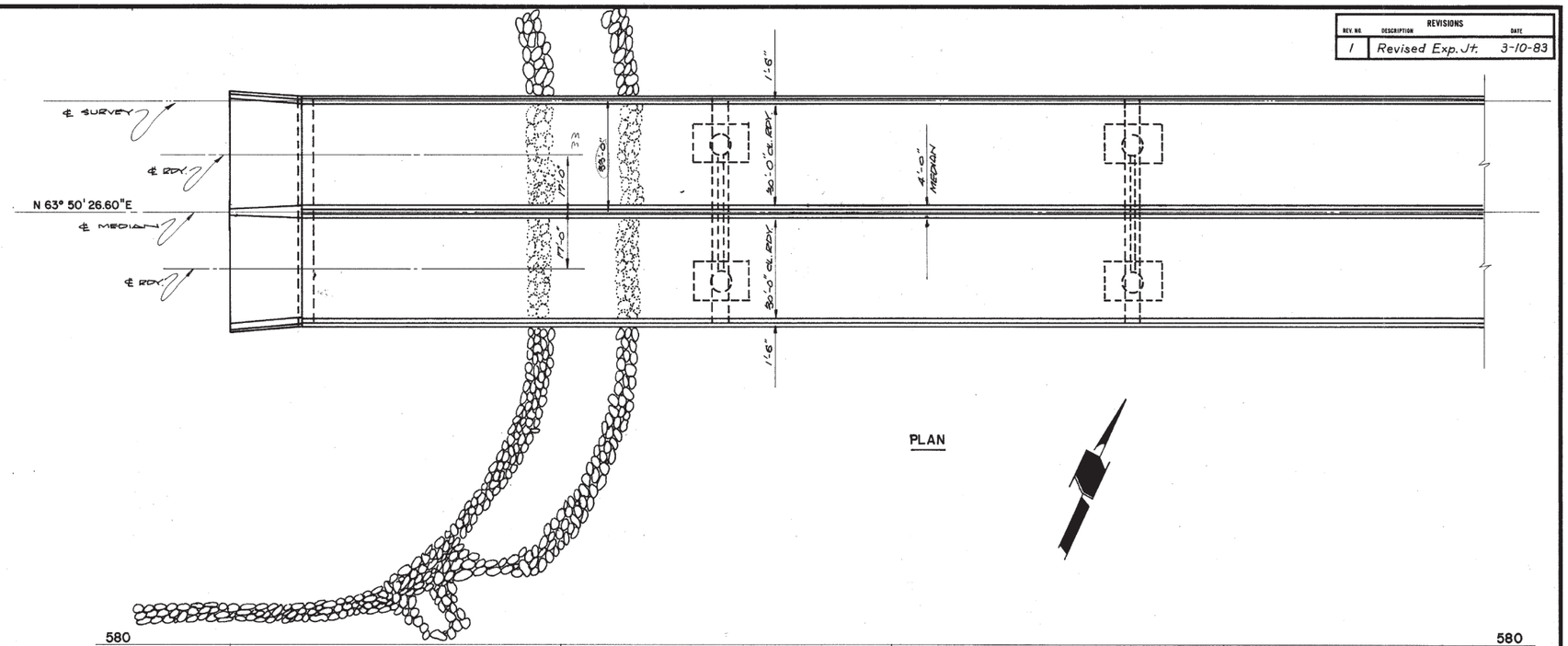
Estimated Quantities: One Median Barrier Transition
Class "A" Conc. = 3.2 cy
Reinforcing Steel = 1501 lbs.

NOTE: All cost of labor, materials, equipment and incidental work necessary to remove existing rails and curbs, and construct new median barriers at both ends of bridge, which shall be paid for at the lump sum price bid for "Approach Slab Median Barrier".

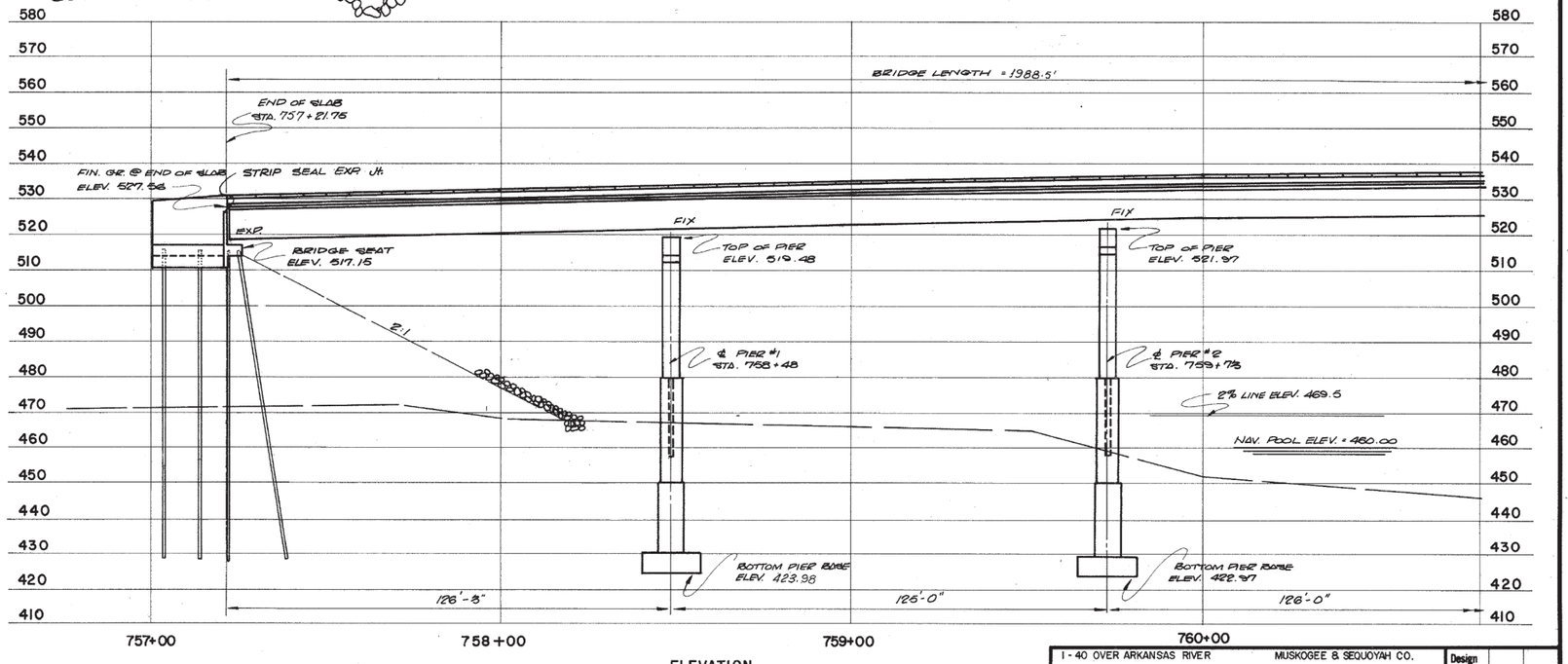
I-40 over Arkansas River	Muskogee/Sequoyah Counties	Design		
DETAILS OF APPROACH SLAB MEDIAN BARRIER		Detail	RLJ	9/82
		Check		9/82
		Squad: Hill		
		Engr.: McCollom		
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION			
	PROJ. NO. IR-40-6(187)291	SHEET NO. 9		

SCHEMMER

REVISIONS		
REV. NO.	DESCRIPTION	DATE
1	Revised Exp. Jt.	3-10-83



PLAN



ELEVATION

I-40 OVER ARKANSAS RIVER — MUSKOGEE & SEQUOYAH CO.

GENERAL PLAN & ELEVATION

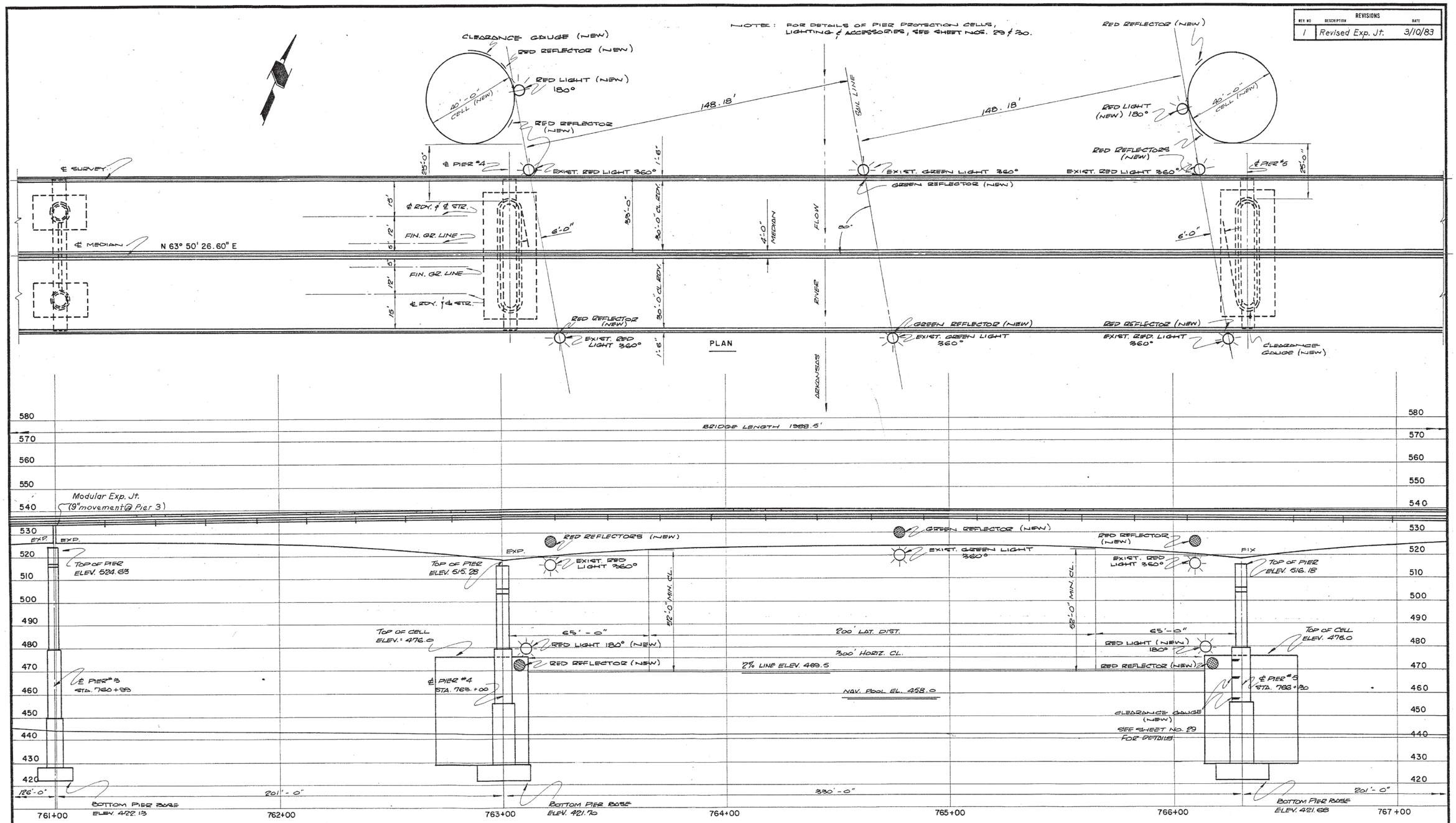
Design		
Detail	JC	8/82
Check	[illegible]	8/82
Squad:	HILL	
Engr.:	Mc COLLOM	

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION

PROJ. NO. IR-40-6(187)291 — SHEET NO. 10

SCHEMMER

REVISIONS		
REV NO	DESCRIPTION	DATE
1	Revised Exp. Jt.	3/10/83



I-40 OVER ARK. RIVER — MUSKOGEE & SEQUOYAH CO.

GENERAL PLAN & ELEVATION

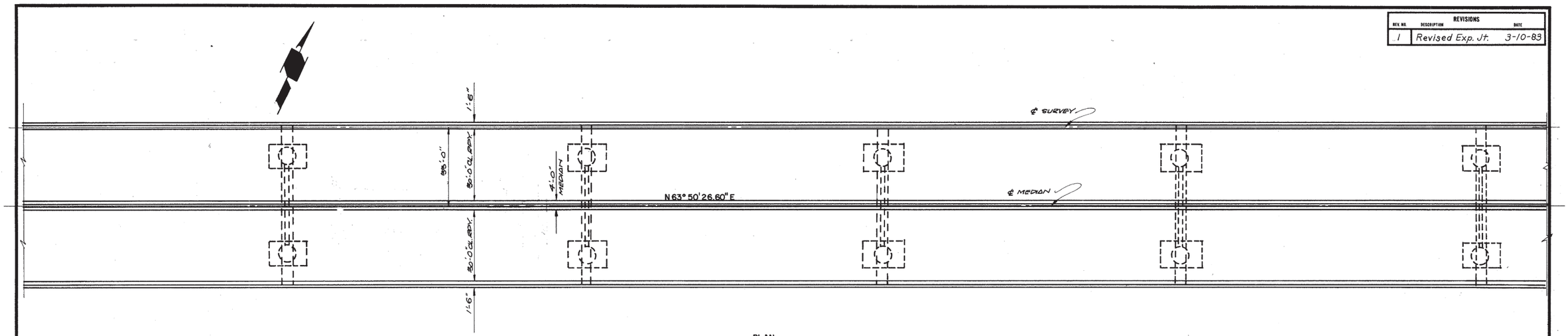
Design		
Detail	JC	8/82
Check		8/82
Squad: HILL		
Engr.: Mc COLLOM		

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION

PROJ. NO. IR-40-6(187) 291 — SHEET NO. 11

SCHEMMER

REVISIONS		
REV. NO.	DESCRIPTION	DATE
1	Revised Exp. Jt.	3-10-83



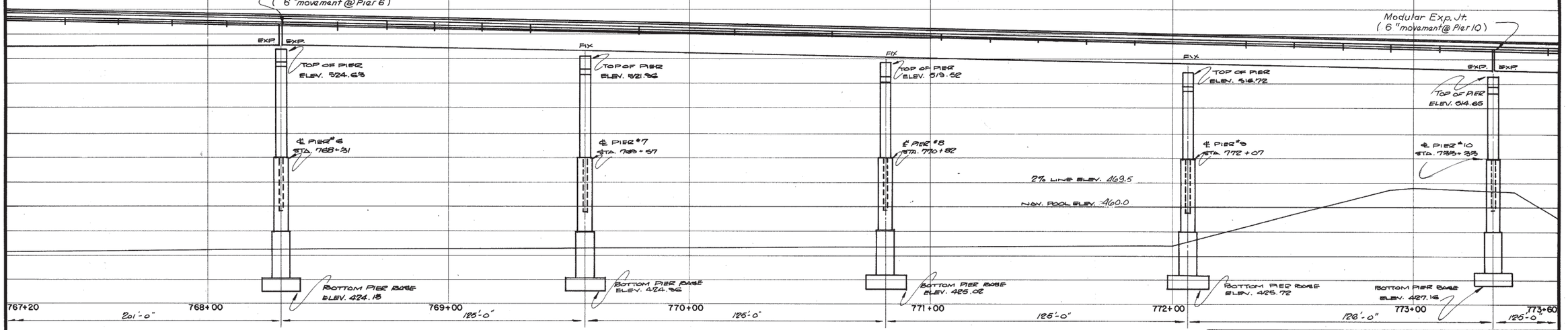
PLAN

B.M. #10 - R.R. SPK. IN 12" WILLOW (R.P. TO P.O.T.) 169.1' LT.
STA. 778+06.70 EL. 468.25

B.M. #11 - R.R. SPK. IN 24" COTTONWOOD
675' LT. STA. 778+20 EL. 469.83

STA. 770+76.11
P.T. OF VERT. CURVE

BRIDGE LENGTH = 1988.5'

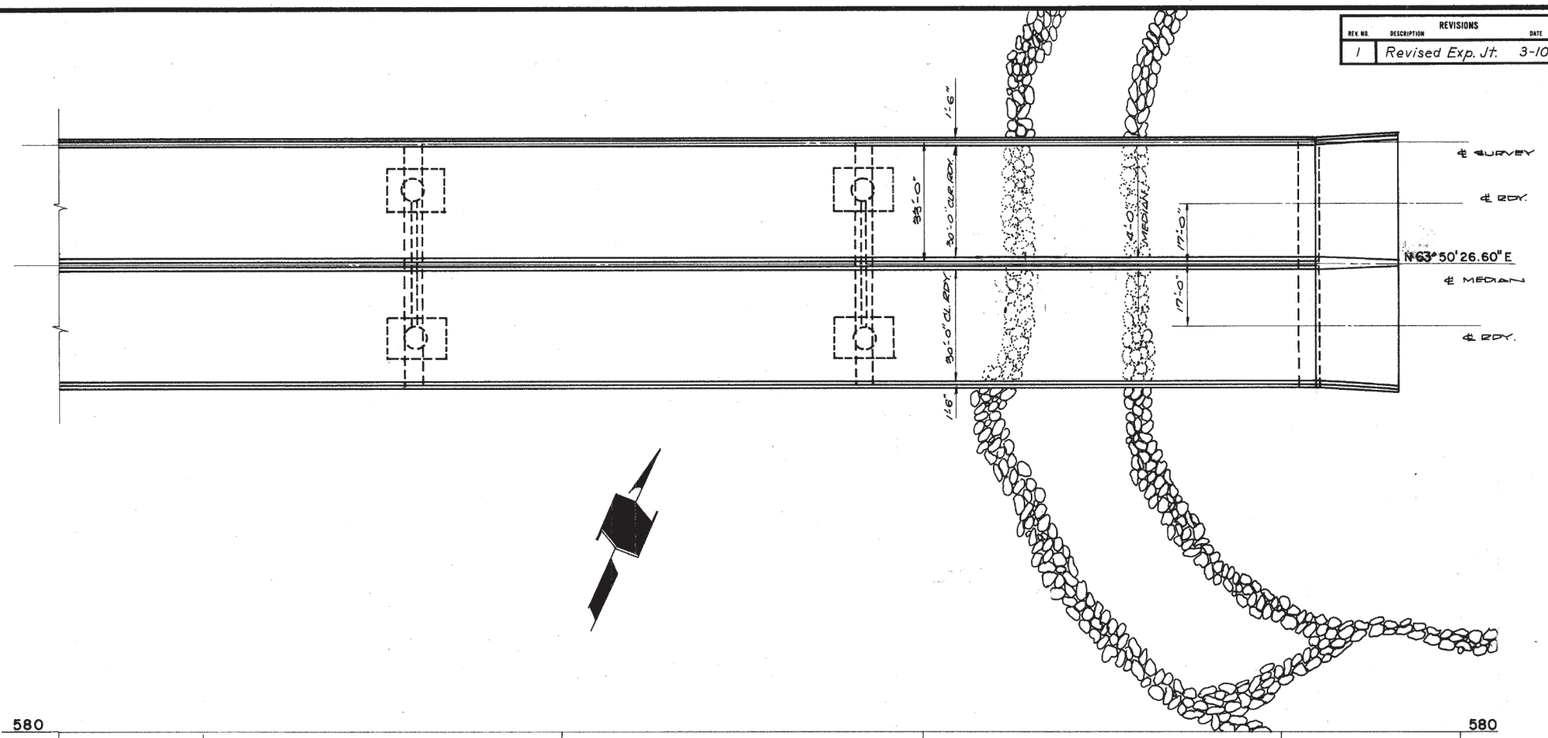


ELEVATION

I-40 OVER ARK. RIVER	MUSKOGEE & SEQUOYAH CO.	Design	
GENERAL PLAN & ELEVATION		Detail	JC 8/82
		Check	8/82
		Squad: HILL	
		Engr.: Mc COLLOM	
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION	PROJ. NO. IR-40-6(187) 291	SHEET NO. 12

SCHEMMER

REVISIONS		
REV. NO.	DESCRIPTION	DATE
1	Revised Exp. Jt.	3-10-83

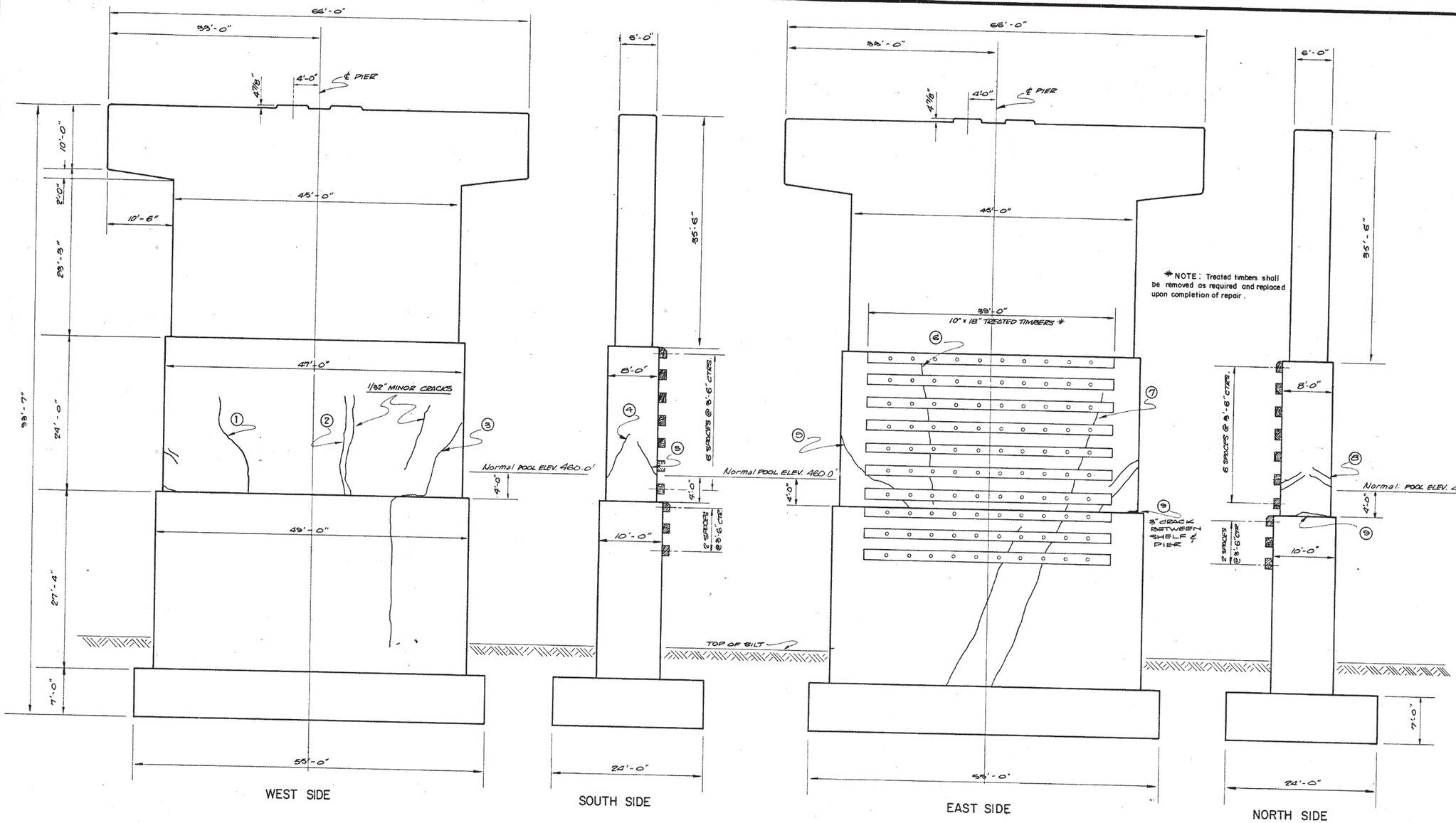


ELEVATION

I-40 OVER ARK. RIVER	MUSKOGEE & SEQUOYAH CO.	Design	
GENERAL PLAN & ELEVATION		Detail	JC 8/82
		Check	8/82
		Squad: HILL	
		Engr.: Mc COLLOM	
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION	PROJ. NO. IR-40-6(187) 291	SHEET NO. 13

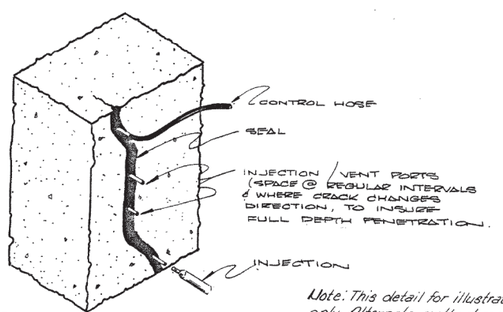
SCHEMMER

REVISIONS		
REV. NO.	DESCRIPTION	DATE



NOTE: See sheet no. 16 for location of Epoxy Penetrating Sealer.

① 3/16" MAJOR CRACK
② 3/16" MAJOR CRACK
③ 3/16" MAJOR CRACK
⑨ 3" CRACK BETWEEN SHELF & PIER.



DETAIL OF CRACK REPAIR BY SEALING & INJECTION

Note: This detail for illustration only. Alternate method may be used.

SPECIAL NOTES:

1. CONTRACTOR SHALL SCHEDULE UNDERWATER REPAIR OPERATIONS DURING PERIODS OF MINIMUM STREAM FLOW. THIS WILL REQUIRE CO-ORDINATION WITH CORPS OF ENGINEERS.
2. CRACKS UNDER WATER SHALL BE CLEANED USING HIGH PRESSURE WATER BLASTER.
3. SEALING WITH TAPE UNDERWATER WILL NOT BE PERMITTED.
4. EPOXY SURFACE SEALER UNDERWATER TAKES APPROX. 3 DAYS TO HARDEN SUFFICIENTLY TO WITHSTAND INJECTION PRESSURE.
5. THE ADDITION OF FINE AGGREGATE TO THE EPOXY RESIN, (one part epoxy resin to one part silican sand) MAY BE REQUIRED FOR A MORE SUBSTANTIAL FILLER FOR REPAIRING THE 3" CRACK AT THE JOINT BETWEEN THE 8'& 10' THICK COLUMNS IN A MANNER APPROVED BY THE ENGINEER.
6. THE CONTRACTOR WILL BE REQUIRED TO DRILL ONE OR MORE HOLES TO ASSURE THAT THE EPOXY HAS SEALED THE INTERNAL CRACKS AS INTENDED. THESE CORE HOLES SHALL BE 2" DIA. & THEIR LOCATION & DEPTH SHALL BE DETERMINED BY THE ENGINEER. ALL COSTS OF DRILLING CORE HOLES & FILLING WITH AN APPROVED GROUT WILL BE INCLUDED IN COST OF OTHER ITEMS OF WORK.

I-40 BRIDGE OVER ARKANSAS RIVER Muskogee/Sequoyah Co.

PIER NO. 4 REPAIR

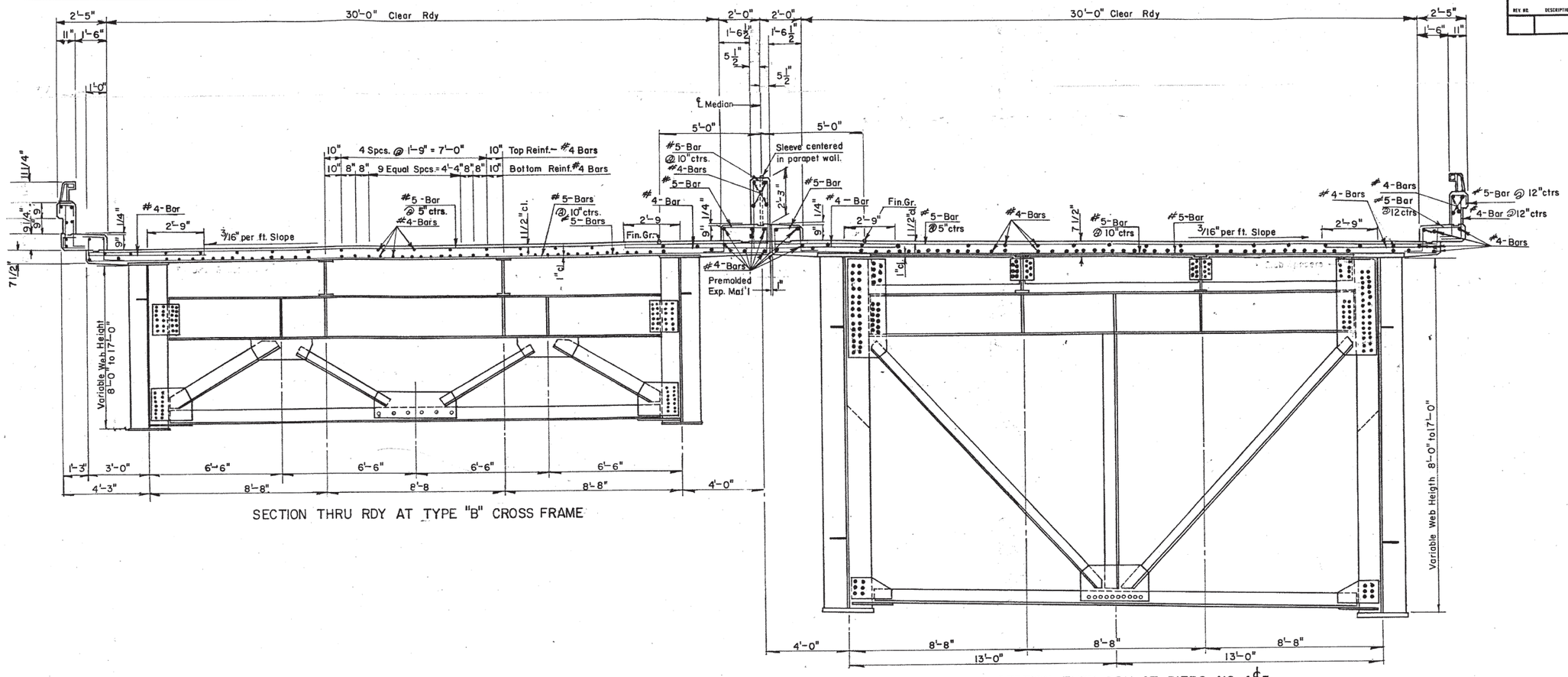
Design		
Detail	J.C.	7-82
Check		
Squad: HILL		
Engr.: Mc COLLOM		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION

PROJ. NO. IR-40-6(187)291 | SHEET NO. 14

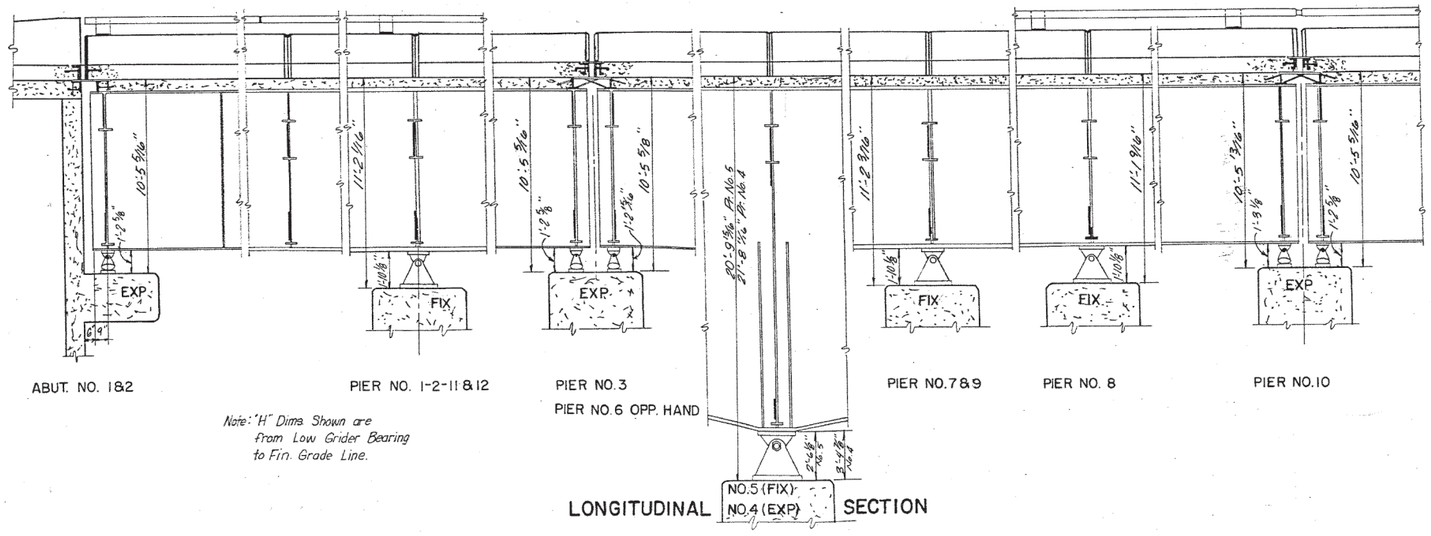
SCHEMMER

REVISIONS		
REV. NO.	DESCRIPTION	DATE



SECTION THRU RDY AT TYPE "B" CROSS FRAME

SECTION THRU RDY AT PIERS NO. 4 & 5



ABUT. NO. 1&2 — PIER NO. 1-2-11&12 — PIER NO.3 — PIER NO.6 OPP. HAND — PIER NO.7&9 — PIER NO. 8 — PIER NO.10

Note: "H" Dims. Shown are from Low Grider Bearing to Fin. Grade Line.

LONGITUDINAL SECTION

PIER NO. 5 / PIER NO.4 SIMILAR

THIS SHEET FOR INFORMATION PURPOSE ONLY

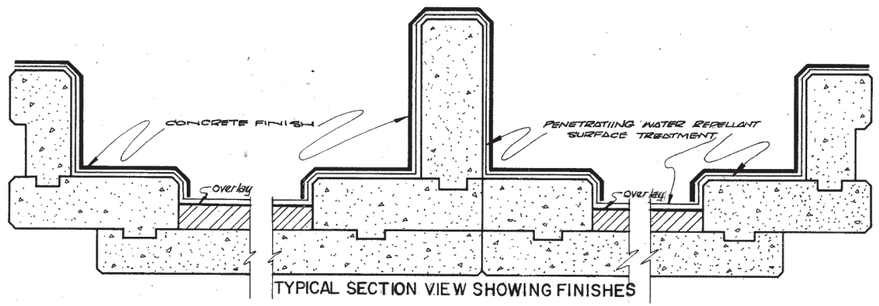
Muskogee / Sequoyah Co.

I-40 OVER ARK. RIVER
SECTION OF SUPERSTRUCTURE

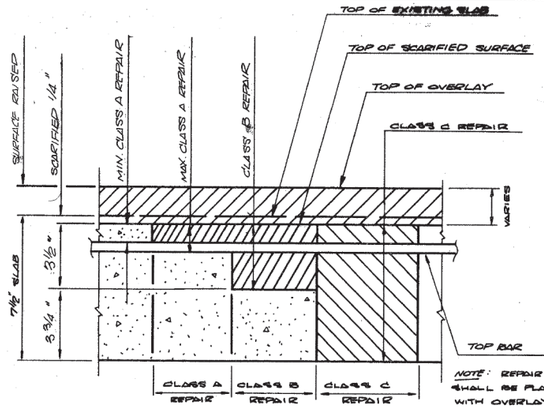
Design		
Detail	RLJ	10/82
Check	HH	10/82
Squad: Hill		
Engr.: McCollom		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION | PROJ. NO. IR-40-6(187)29 | SHEET NO. 15

SCHEMMER



TYPICAL SECTION VIEW SHOWING FINISHES
(SUPERSTRUCTURE)



NOTE: REPAIR CONC. SHALL BE PLACED MONOLITHIC WITH OVERLAY EXCEPT FOR LARGE AREAS (4 SQ. FT. OR GREATER) OF CLASS C REPAIR. SEE SPECIAL PROVISIONS.

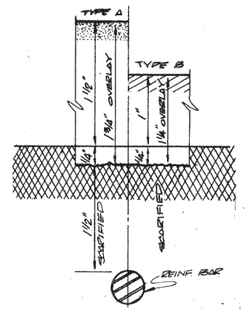
GRAPHIC REPRESENTATION FOR CLASSES OF REPAIR & OVERLAY

Class A— Halfcell readings between .25 and .35 volts and cracks where no active corrosion of reinforcing steel exist.

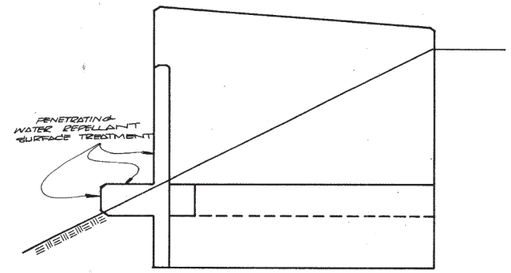
Class B— Halfcell reading between .35 and .40 and areas of delaminations patches, and spalls. Areas of cracks shall be included in Class B repair where active corrosion of reinforcing steel exist.

Class C— Halfcell reading greater than .40 and areas of seepage.

REVISIONS		
REV. NO.	DESCRIPTION	DATE



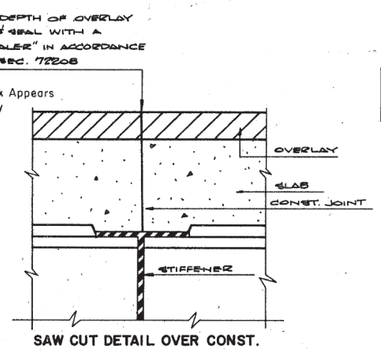
DETAIL OF OVERLAY
(BRIDGE)



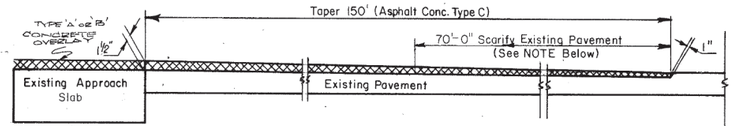
VIEW AT END OF ABUT. SHOWING FINISHES

MAKE SAW CUTS FULL DEPTH OF OVERLAY OVER CONST. JOINT & SEAL WITH A "POURABLE JOINT SEALER" IN ACCORDANCE WITH STD. SPEC., SEC. 712.08

(Only if Reflective Crack Appears After Section of Overlay is Poured.)

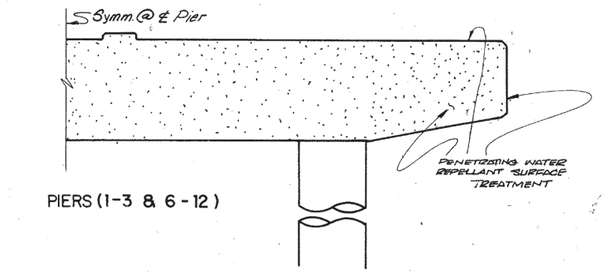


SAW CUT DETAIL OVER CONST.

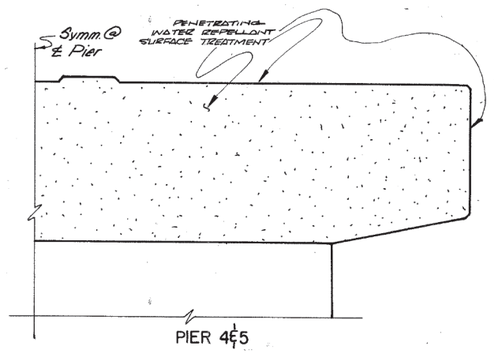


DETAIL OF OVERLAY TRANSITION @ END OF BRIDGE

NOTE: Existing pavement shall be scarified to a depth of from 1/4" to 1" at end 70'-0" of transition taper to provide for 1" minimum thickness of asphalt concrete overlay. All cost of scarification to be included in other items of work.

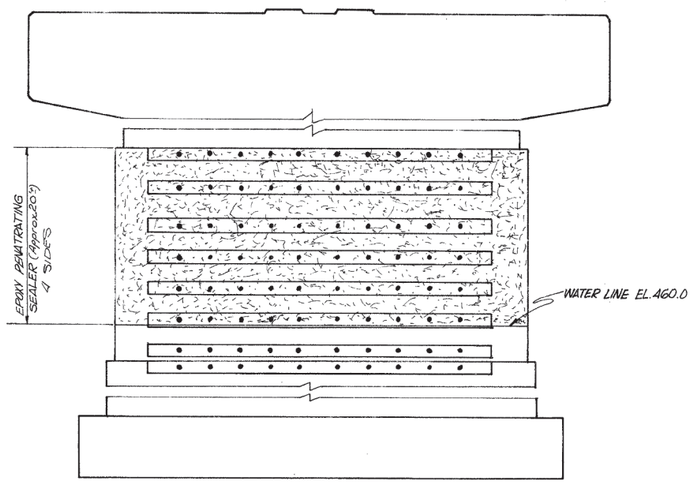


PIERS (1-3 & 6-12)

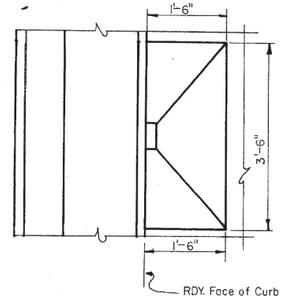


PIER 4℄5

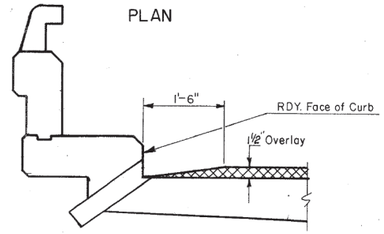
VIEW OF PIERS SHOWING FINISHIES



PIER 4



PLAN



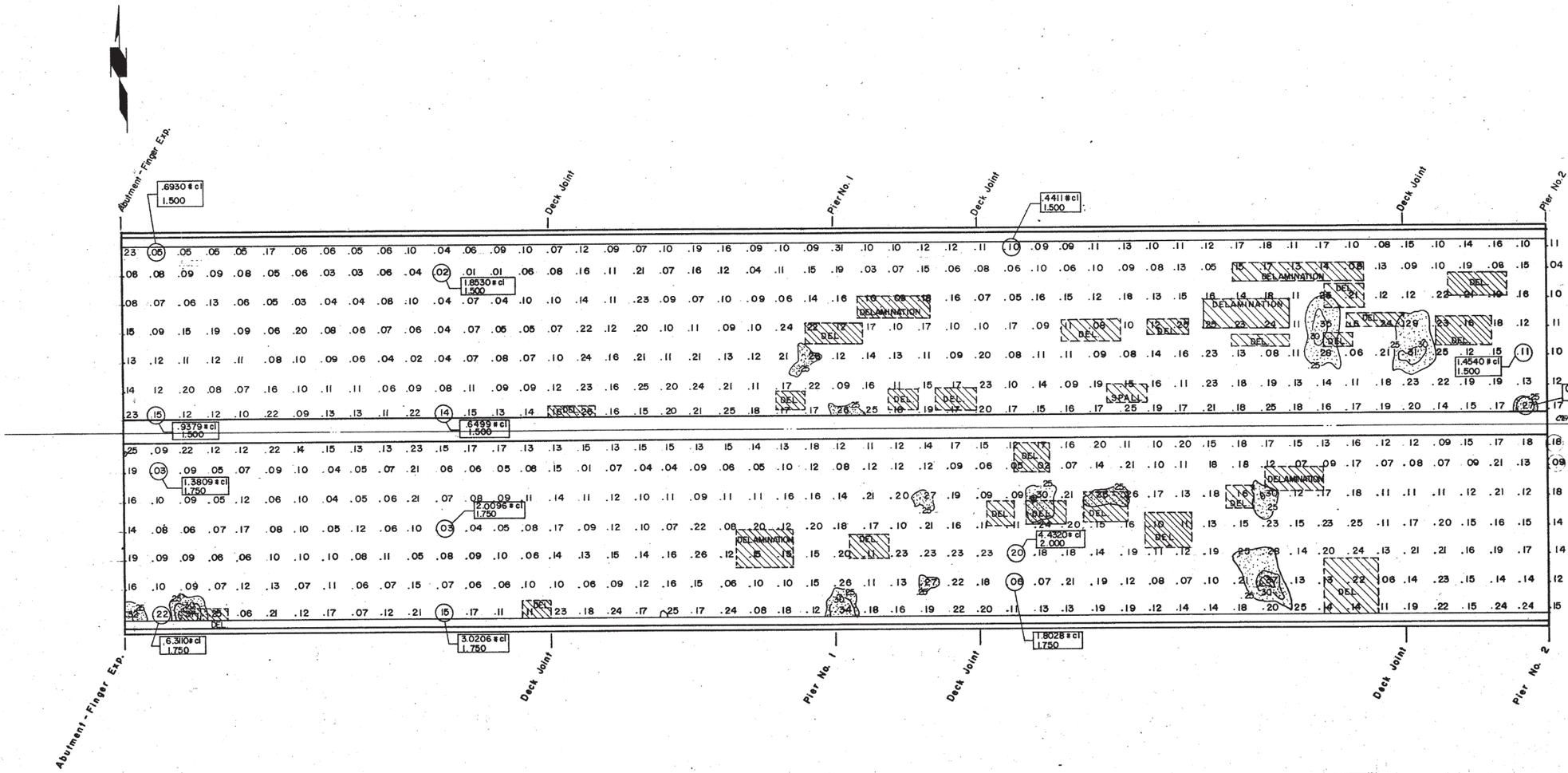
ELEVATION

DETAIL OF OVERLAY AT CI DRAIN

I-40 OVER ARK. RIVER Muskogee & Sequoyah Co.	Design		
MISC. DETAILS	Detail	KDS	9/82
	Check	M.	9/82
	Squad: Hill		
	Engr.: McCollom		
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION		
	PROJ. NO. IR-40-6(187)291	SHEET NO. 16	

SCHEMMER

REVISIONS		
REV NO.	DESCRIPTION	DATE



CLASS 'A' = .25 – .35

CLASS 'B' = .35 – .40

CLASS 'C' = .40 +

See Sheet No. 16 for Additional Details

I-40 OVER ARKANSAS RIVER MUSKOGEE & SEQUOYAH CO.

DECK SURVEY & REPAIR AREAS

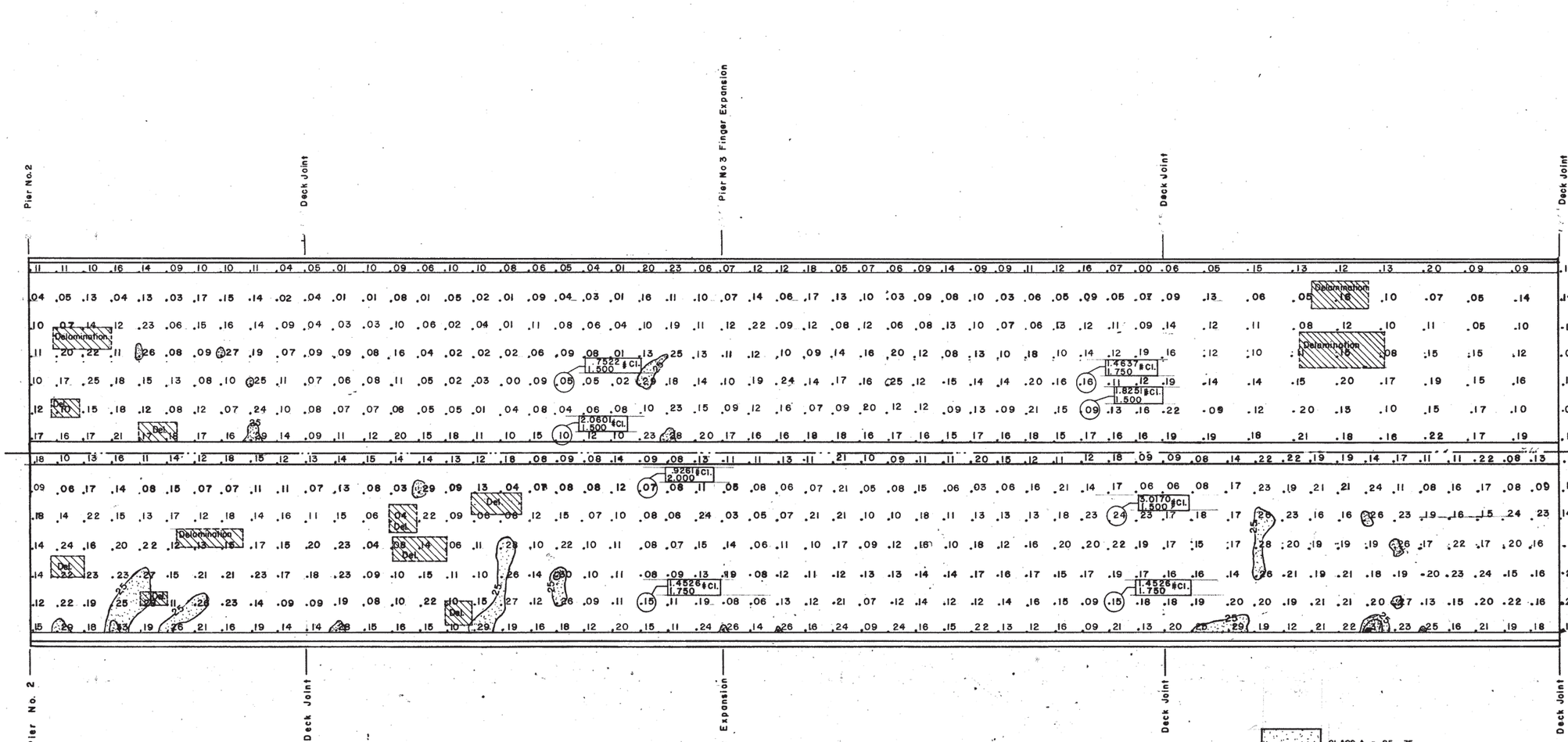
Design		
Detail	J.C.	8/82
Check		8/82
Squad: Hill		
Engr.: Mc Collom		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION

PROJ. NO. IR-40-6(187)291 | SHEET NO. 17

SCHEMMER

REVISIONS		
REV. NO.	DESCRIPTION	DATE



See sheet No.16 for Additional Details

I-40 OVER ARKANSAS RIVER MUSKOGEE & SEQUOYAH CO.

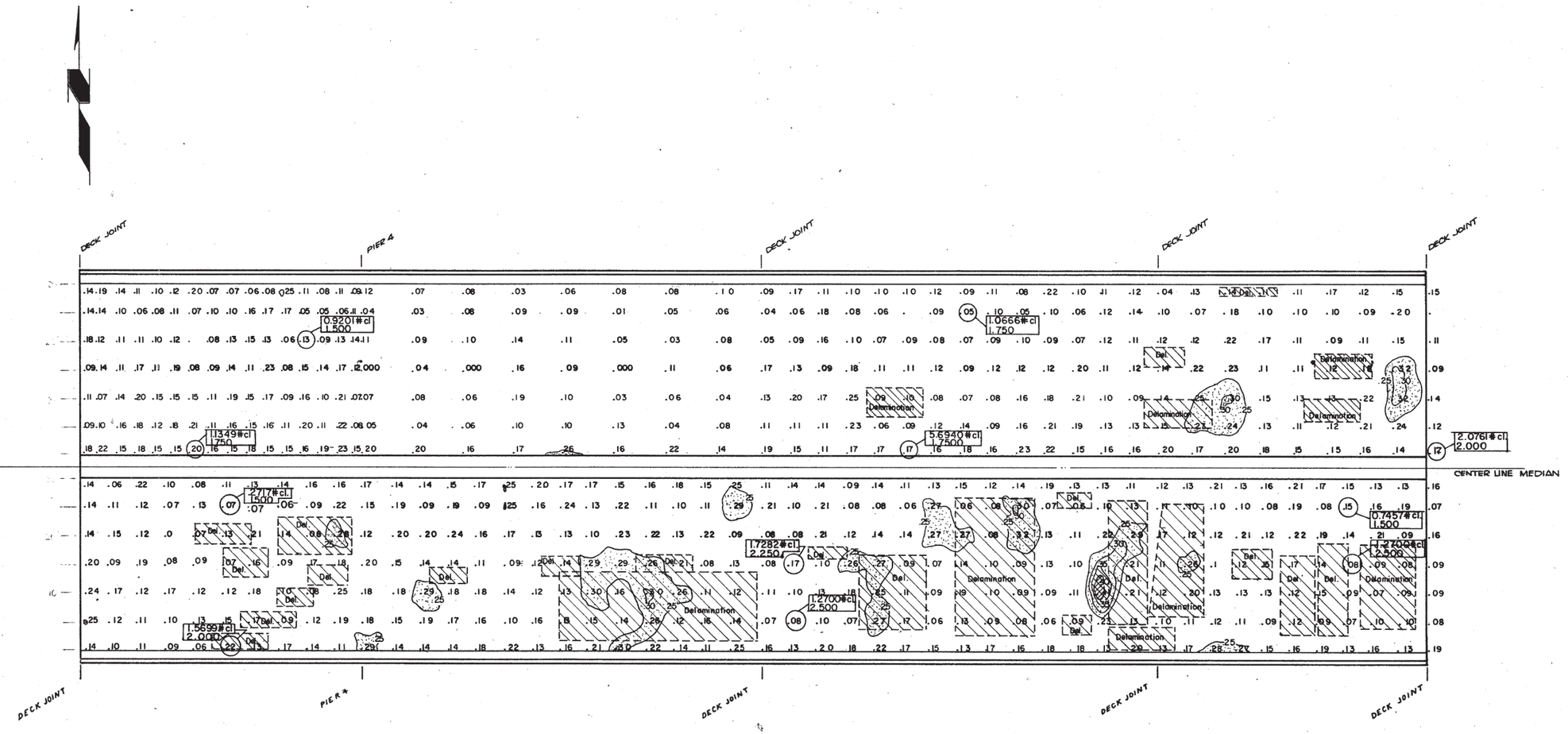
DECK SURVEY & REPAIR AREAS

Design		
Detail	K S	8/82
Check		8/82
Squad: Hill		
Engr.: Mc Collom		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION | PROJ. NO. : IR-40-6 (187) 291 | SHEET NO. 18

SCHEMMER

REVISIONS		
REV. NO.	DESCRIPTION	DATE



See sheet No.16 for Additional Details

I-40 OVER ARKANSAS RIVER MUSKOGEE & SEQUOYAH CO.

DECK SURVEY & REPAIR AREAS

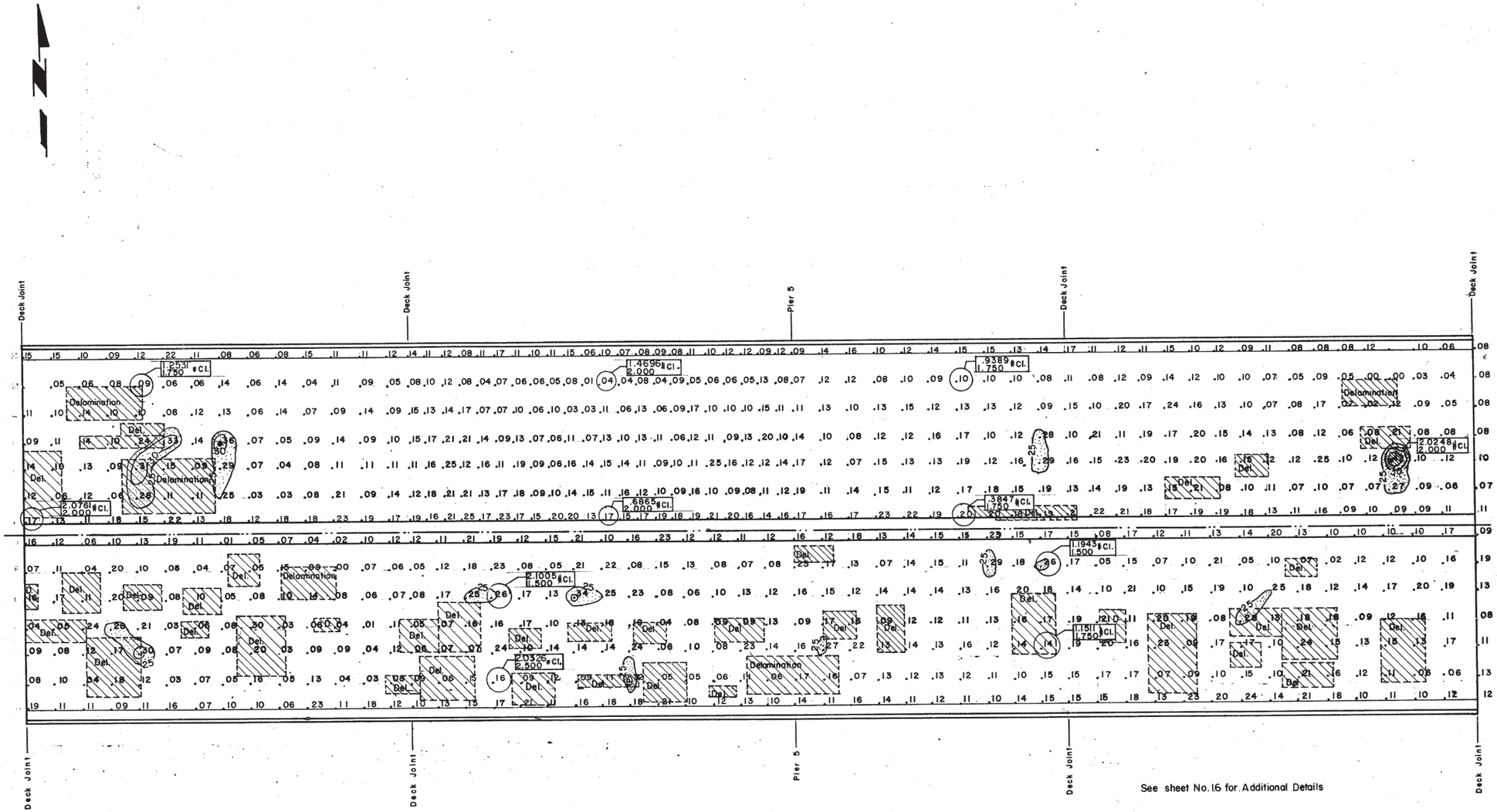
Design		
Detail	K DS	8/82
Check	M.	8/82
Squad: Hill		
Engr.: Mc Collom		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION | PROJ. NO. : IR-40-6 (178) 291 | SHEET NO. 19

187

SCHEMMER

REVISIONS		
REV NO.	DESCRIPTION	DATE



See sheet No. 16 for Additional Details

CLASS A = .25–.35

CLASS B = .35–.40

CLASS C = .40+

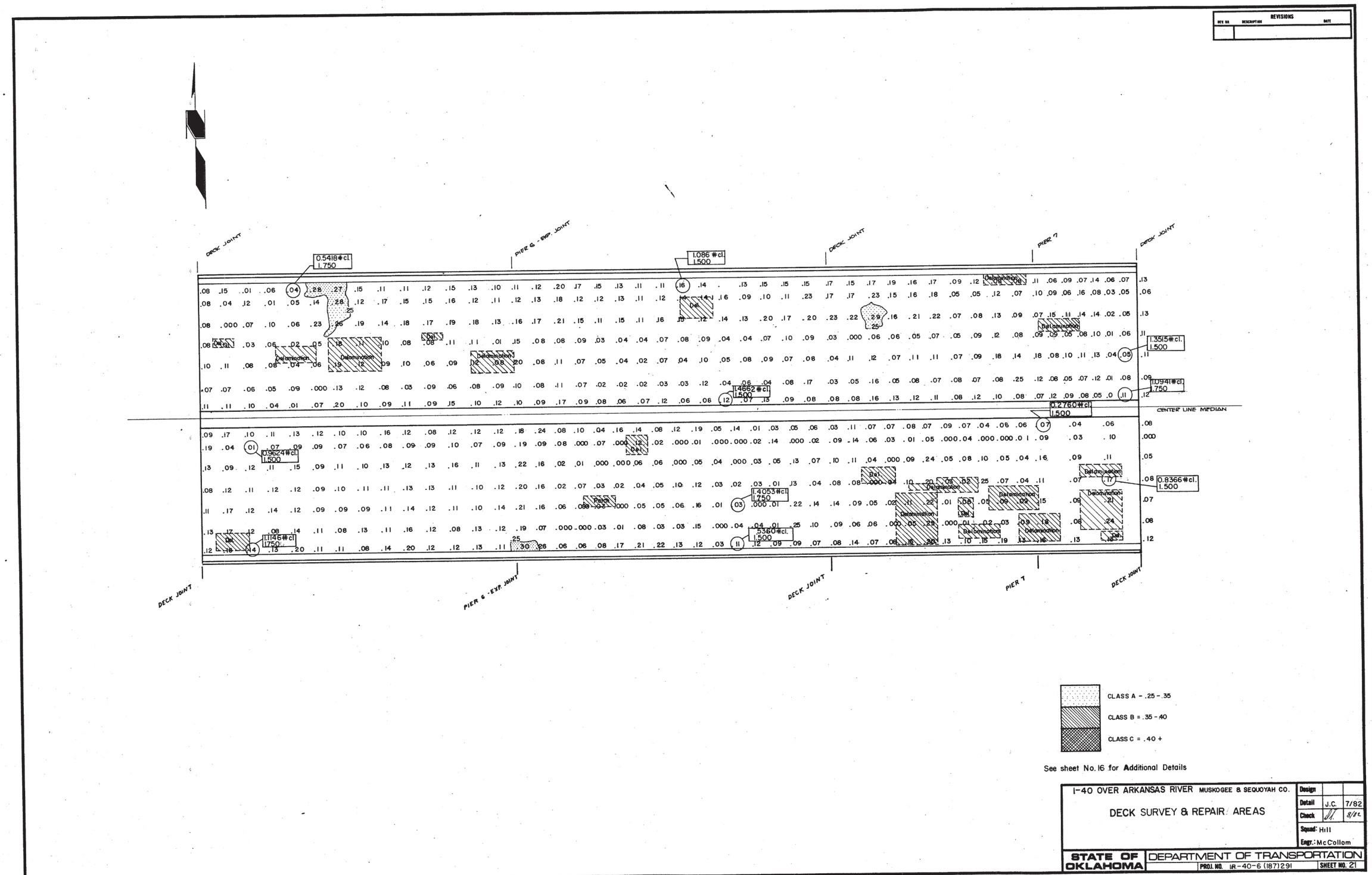
I-40 OVER ARKANSAS RIVER MUSKOGEE & SEQUOYAH CO.

DECK SURVEY & REPAIR AREAS

Design		
Detail	K S	8/82
Check	JH	8/82
Squad: Hill		
Engr.: McCollm		

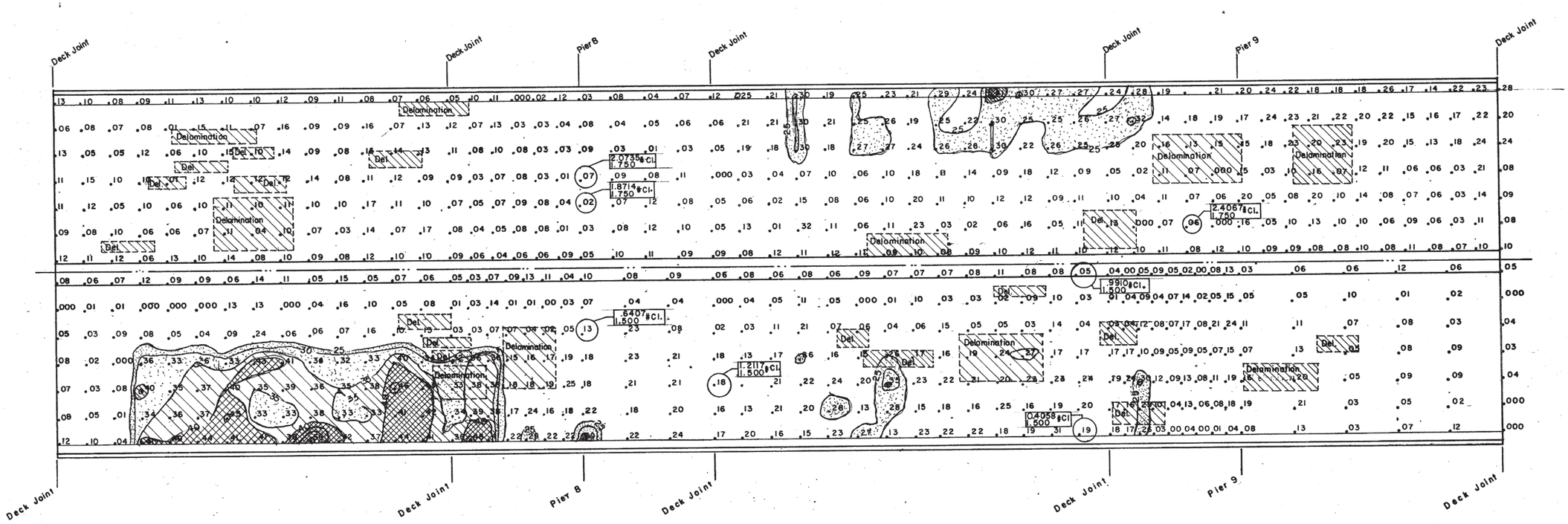
STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION | PROJ. NO. IR-40-6(178)291 | SHEET NO. 20

187


REVISIONS
REV. NO. DESCRIPTION DATE
DECK JOINT
PIER 6 - EXP. JOINT
DECK JOINT
PIER 7
DECK JOINT
0.5418#cl. I.750
I.086 #cl I.500
I.4652#cl. I.500
0.2760#cl. I.500
1.3515#cl. I.500
1.0941#cl. I.750
CENTER LINE MEDIAN
0.9624#cl. I.500
I.4053#cl. I.750
0.5360#cl. I.500
0.8366#cl. I.500
1.1145#cl. I.750
Delamination
Del.
Patch
CLASS A = .25 - .35
CLASS B = .35 - .40
CLASS C = .40 +
See sheet No. 16 for Additional Details
I-40 OVER ARKANSAS RIVER MUSKOGEE & SEQUOYAH CO.
DECK SURVEY & REPAIR AREAS
Design
Detail J.C. 7/82
Check 8/82
Squad: Hill
Engr.: McCollom
STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION
PROJ. NO. IR-40-6 (187)291
SHEET NO. 21

SCHEMMER

REVISIONS		
REV. NO.	DESCRIPTION	DATE



See sheet No.16 for Additional Details

CLASS A = .25 - .35

CLASS B = .35 - .40

CLASS C = .40 +

I-40 OVER ARKANSAS RIVER. MUSKOGEE & SEQUOYAH CO.

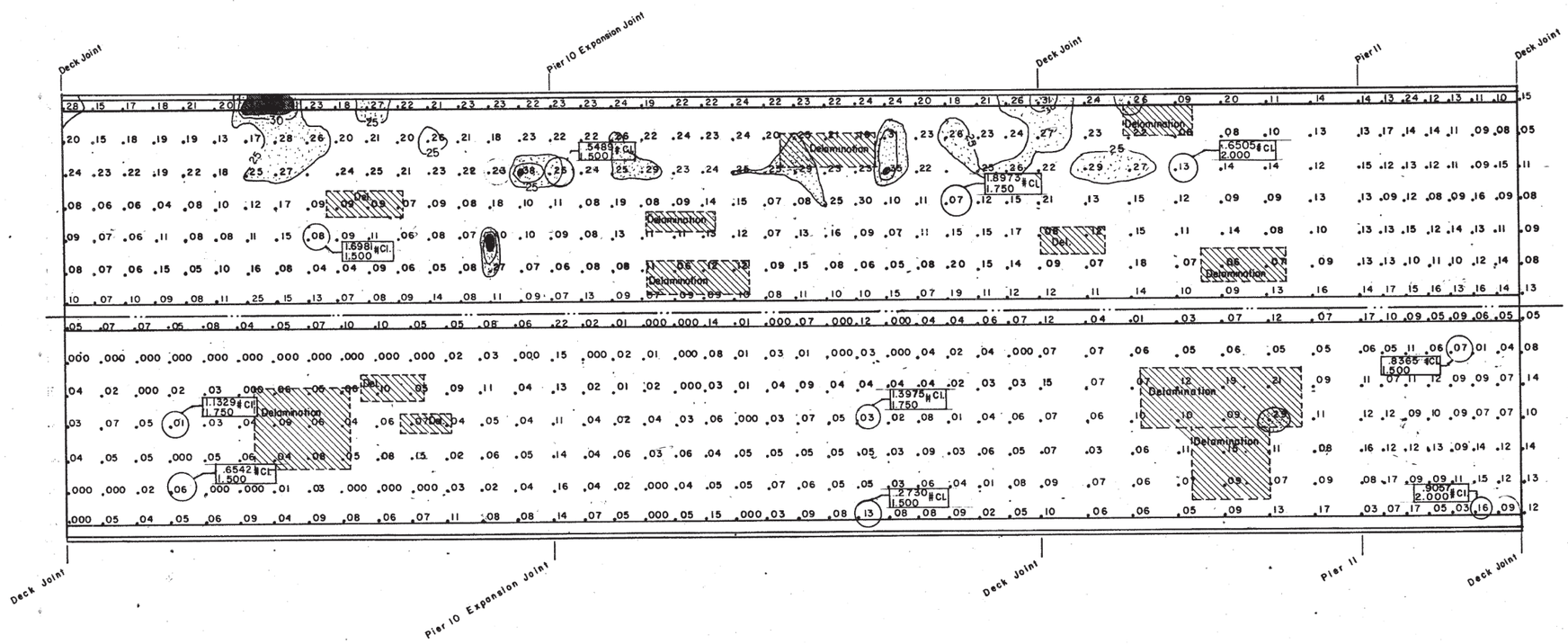
DECK SURVEY & REPAIR AREAS

Design		
Detail	K.S.	8/82
Check		8/82
Squad: Hill		
Engr.: Mc Collom		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION | PROJ. NO. IR-40-6(187)291 | SHEET NO. 22

SCHEMMER

REVISIONS		
REV. NO.	DESCRIPTION	DATE



See sheet No.16 for Additional Details

CLASS A - .25 - .35

CLASS B - .35 - .40

CLASS C - .40 +

I-40 OVER ARK. RIVER MUSKOGEE & SEQUOYAH CO.

DECK SURVEY & REPAIR AREAS

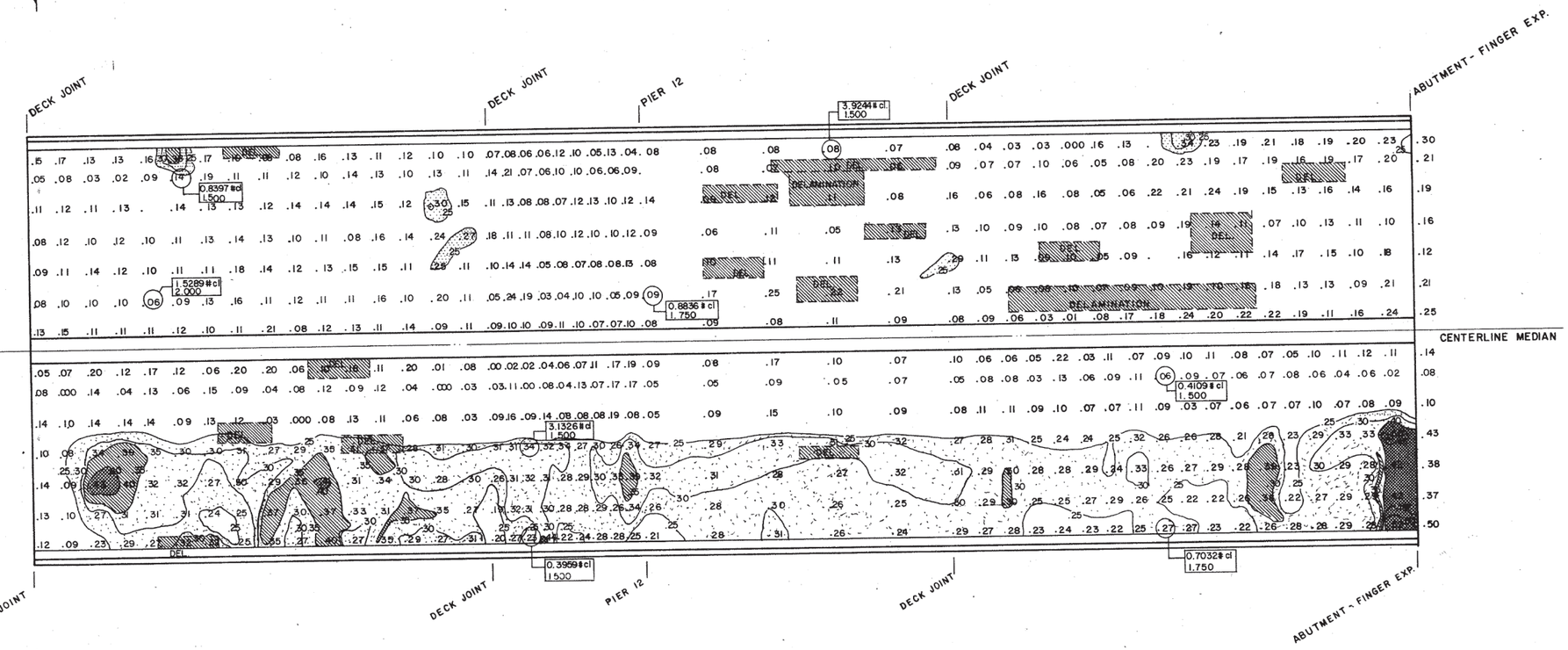
Design		
Detail	KS	8/82
Check	M	8/82
Squad: Hill		
Engr.: McCollom		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION

PROJ. NO. IR-40-6(187)291 | SHEET NO. 23

SCHEMMER

REVISIONS		
DEV. NO.	DESCRIPTION	DATE



See sheet No. 16 for Additional Details

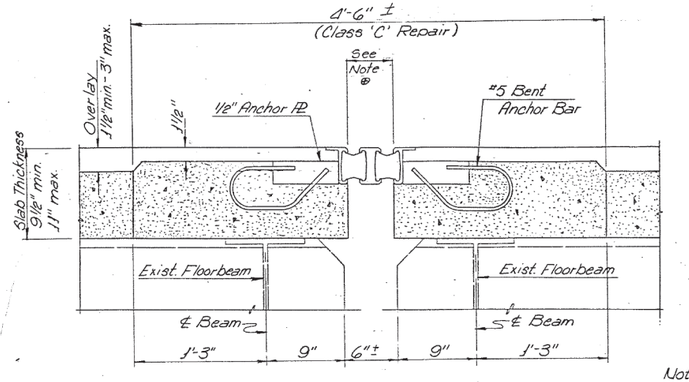
CLASS A - .25 - .35

CLASS B - .35 - .40

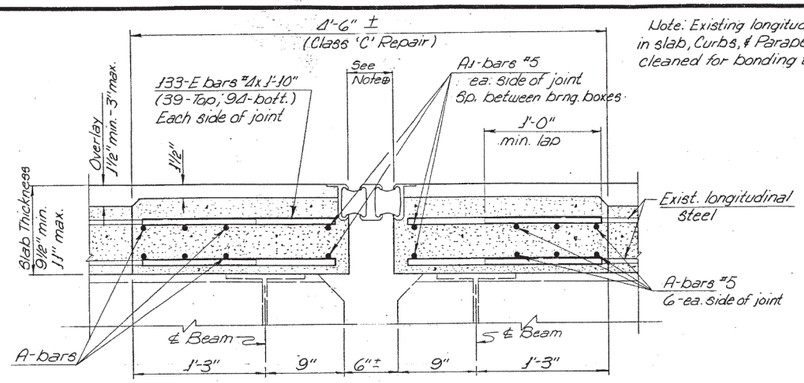
CLASS C - .40 +

I - 40 OVER ARKANSAS RIVER	MUSKOGEE & SEQUOYAH CO.	Design		
DECK SURVEY & REPAIR AREAS		Detail	JC	8/82
		Check	JH	8/82
		Squad: HILL		
		Engr.: Mc COLLOM		
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION	PROJ. NO. IR - 40 - 6I (187) 291	SHEET NO. 24	

REVISIONS		
KEY NO	DESCRIPTION	DATE
1	Revised	3-15-83



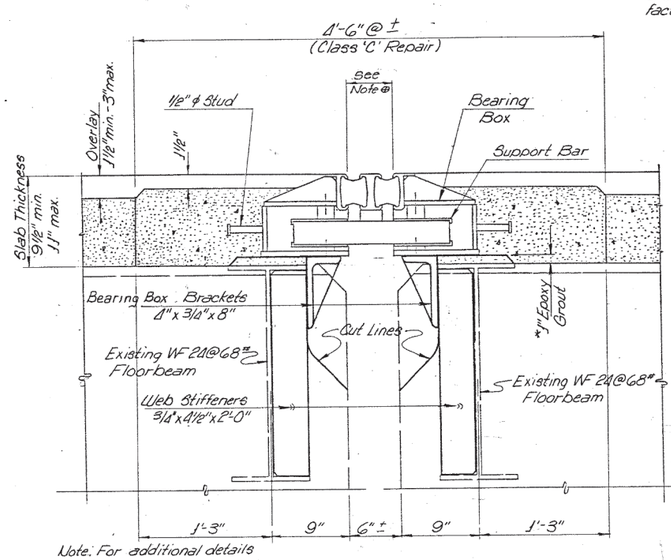
SECTION A-A



Note: Existing longitudinal steel in slab, Curbs, & Parapets to be cleaned for bonding to new concrete.

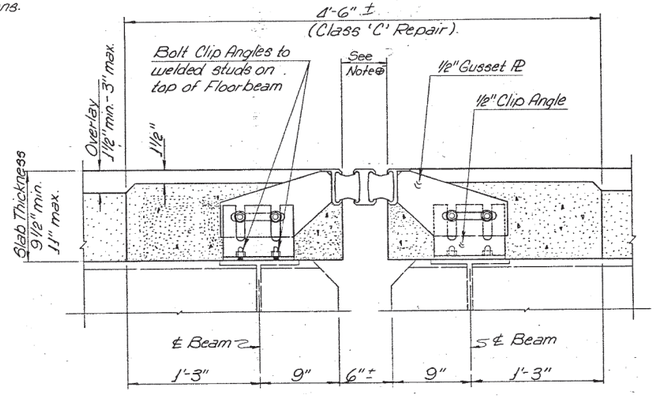
Note: Spacings of Bearing boxes, Clip Angles & Anchor bars shall be in accordance with manufacturers recommendations.

TYPICAL REINFORCING SECTION



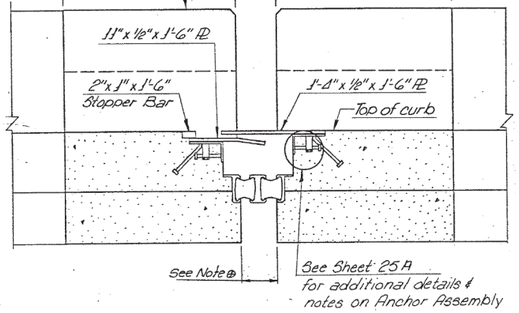
Note: For additional details of Bearing box support bracket & web Stiffener see Sheet No. 25 B

SECTION B-B

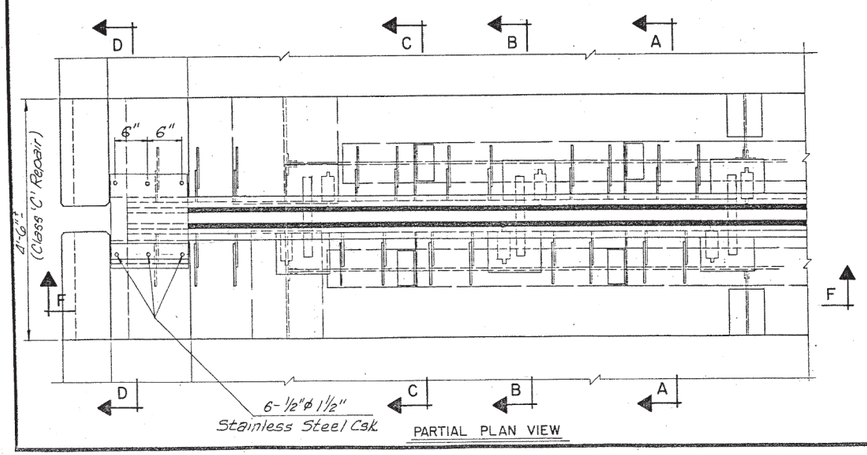


SECTION C-C

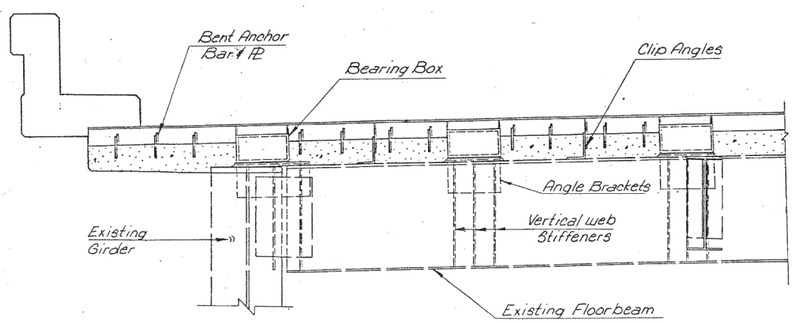
* Note: Epoxy Grout under Bearing Boxes prior to pouring concrete.



SECTION D-D @ CURBS



PARTIAL PLAN VIEW



SECTION F-F

NOTES

1. All welding shall conform to the STRUCTURAL WELDING CODE AWS D1.1 (including current revision) and the modifications to this code included in AASHTO STANDARD SPECIFICATIONS FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES.
2. No welding, cutting, or drilling of existing structure, other than that shown on the plans will be permitted without the written approval of the engineer.
3. Contractor shall be responsible for verifying all dimensions to insure proper installation of the joint.
4. Vertical web stiffeners shall be field welded to existing floor beams at locations shown on approved shop drawings of expansion joint. These are located at brackets for bearing boxes of joint.
5. Sliding plate assemblies at the curbs, vertical web stiffeners, and bearing box brackets shall be painted in accordance with 506.04(d) using red lead primer and aluminum finish coat meeting the requirements of paragraph 730.04(a)(b)(c)1. of the standard specifications.
6. Bearing Box Bracket is a part of joint system and is to be furnished by joint manufacturer.
7. The joint shall be furnished preset to the manufacturer's recommended opening at 60° F; however, when actually installed the joint system will be set to the proper width for ambient temperature at the time of setting as shown on the approved shop drawings.
8. The cost of all labor, materials and equipment, necessary to complete the work (except for reconstructing concrete) shall be included in the unit price bid per linear foot for "Modular Expansion Joint".
9. See Special Provision "Modular Expansion Joint System" included in the proposal.
10. The bearing box must be capable of supporting 16,000 lb. wheel load plus impact.
11. The bearing boxes and support brackets shall be bolted together, the joint properly aligned, and support brackets in full contact with floor beam web stiffeners before welding bracket to stiffeners.

Note: Total Expansion Length at this Joint is:
@ Pier No. 6 = 4'50'
@ Pier No. 10 = 4'10'

⊕ Note: Joint opening shall be set in accordance with manufacturers recommendations.

Note: For misc. details and notes See Sheet No. 25 B

I-40 over Arkansas River — Muskogee/Sequoyah Co.

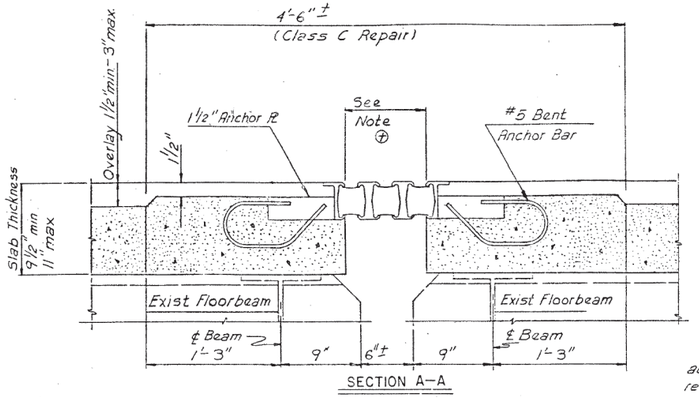
DETAILS OF MODULAR EXP. JOINTS (PIERS 6 & 10)

Design		
Detail	K.S.	3/83
Check		
Squad: HILL		
Engr.: McCOLLOM		

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION

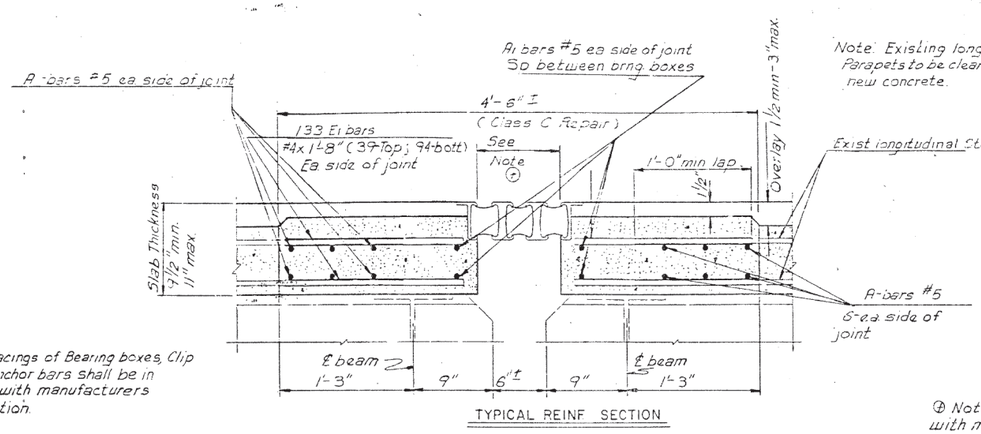
PROJ. NO. IR-40-6(187)291 — SHEET NO. 25

REVISIONS		
BY	DESCRIPTION	DATE
1	Revised	3/15/83



SECTION A–A

Note: Spacings of Bearing boxes, Clip Angles & Anchor bars shall be in accordance with manufacturers recommendation.



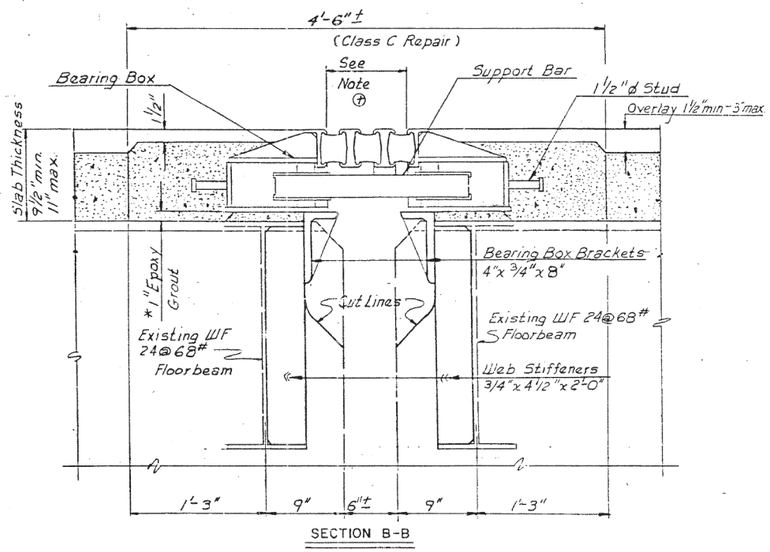
TYPICAL REINF SECTION

Note: Existing longitudinal Steel in slab, curbs, & Parapets to be cleaned for bonding to new concrete.

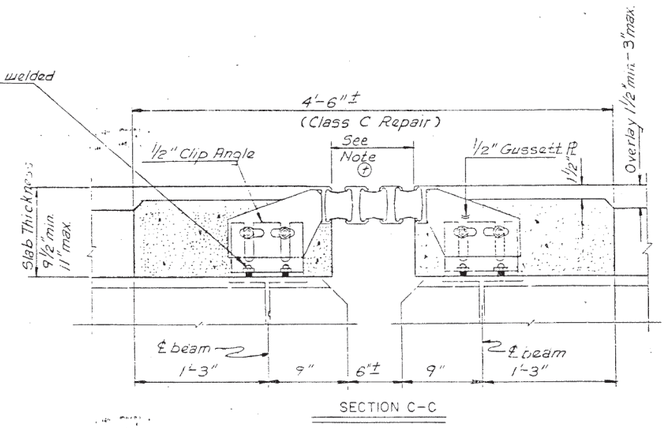
For add'l note on Modular Exp Joints See Sheet No. 25. For Misc. Details and Notes See Sheet No. 25B

Note: Total Expansion Length of this Joint is @ Pier 3 = 720'

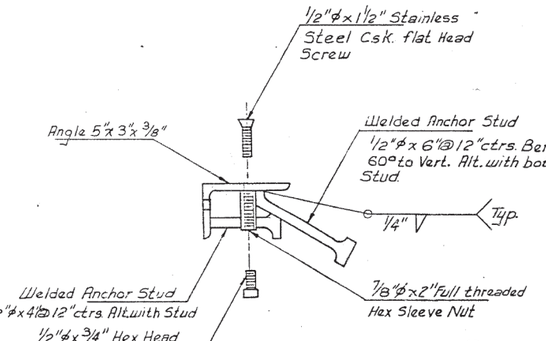
⊕ Note: Joint Opening shall be set in accordance with manufacturers recommendations.



SECTION B–B

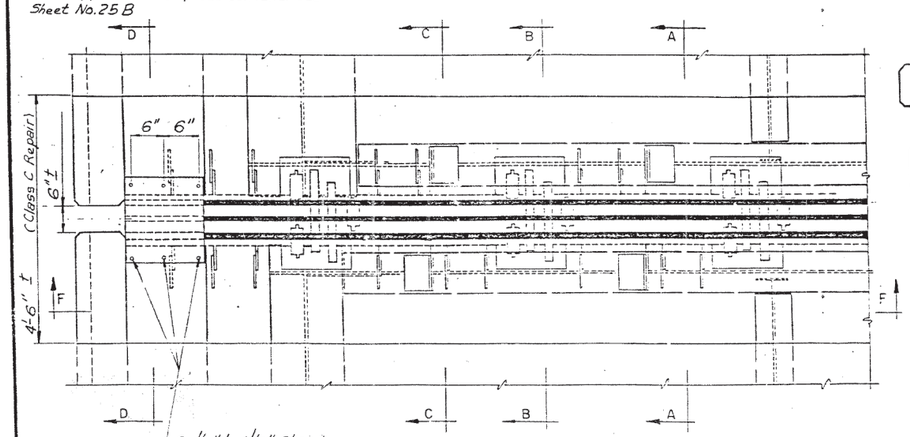


SECTION C–C



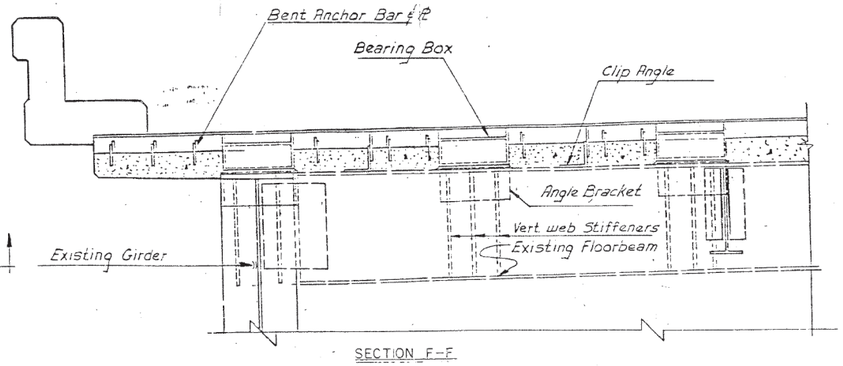
DETAIL OF ANCHOR ASSEMBLY @ CURBS

Note: For additional details of Bearing Box support bracket & web stiffener See Sheet No. 25B

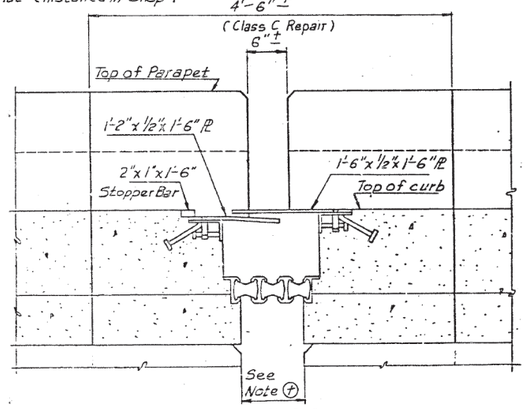


PARTIAL PLAN VIEW

* Note: Epoxy Grout under Bearing Box prior to pouring concrete



SECTION F–F



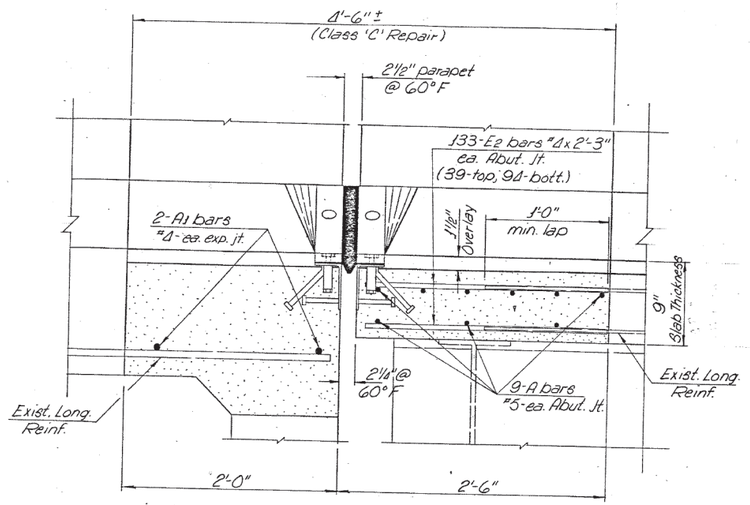
SECTION D–D

I-40 OVER ARK. RIVER MUSKOGEE/SEQUOYAH CO.

DETAILS OF MODULAR EXPANSION JOINTS (PIER 3)

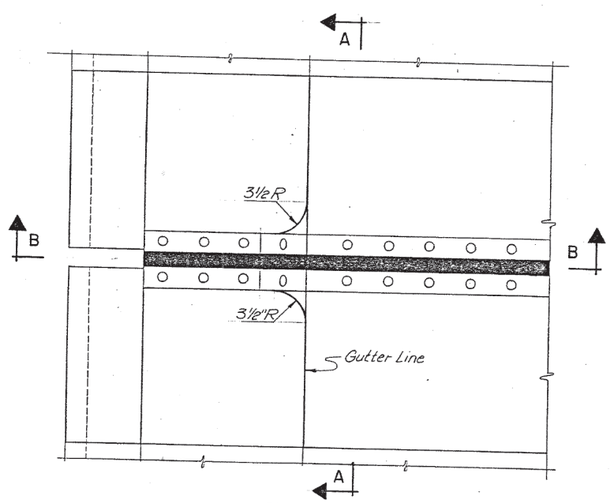
Design		
Detail	K.S.	3/83
Check	WLL	3/83
Squad: HILL		
Engr.: Mc Collom		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION | PROJ. NO. IR-40-6(187)291 | SHEET NO. 25A



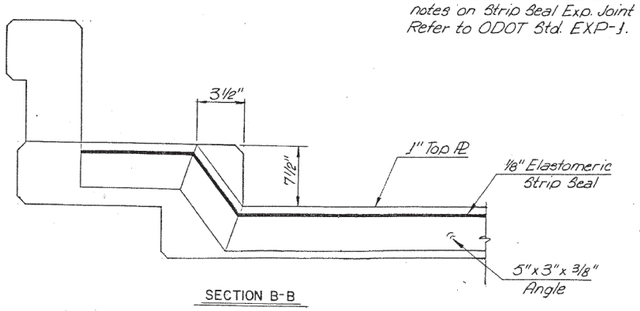
Note: Existing Longitudinal Steel in slab, curb, & parapets shall be cleaned for bonding to new concrete.

SECTION A-A



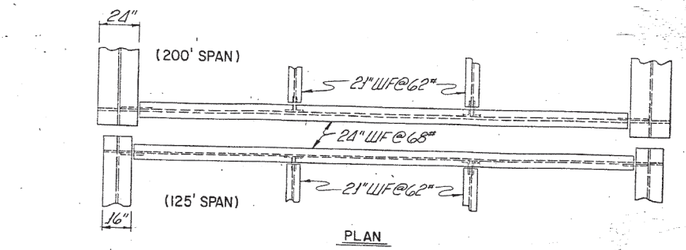
PARTIAL PLAN VIEW

Note: For additional details & notes on Strip Seal Exp. Joint Refer to ODOT Std. EXP-1.

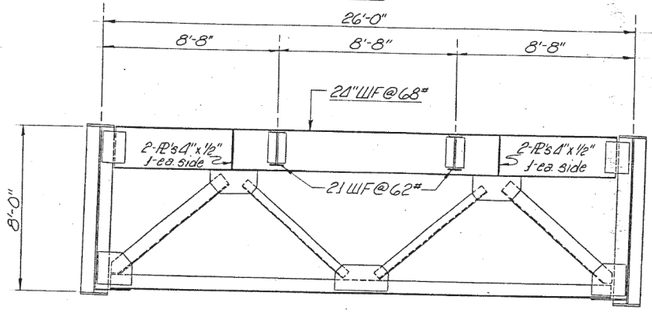


SECTION B-B

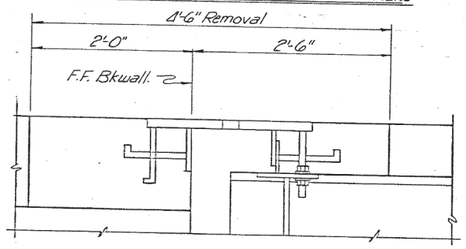
DETAILS OF STRIP SEAL EXP. JOINT AT ABUTMENTS



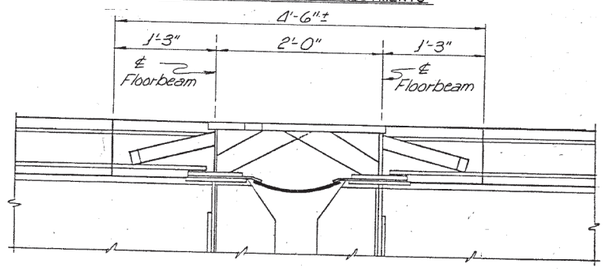
PLAN



ELEVATION OF EXISTING CROSS FRAME AT PIERS



LIMITS OF REMOVAL AT ABUTMENTS



LIMITS OF REMOVAL AT PIERS

REMOVAL AND RECONSTRUCTION OF EXPANSION JOINTS:

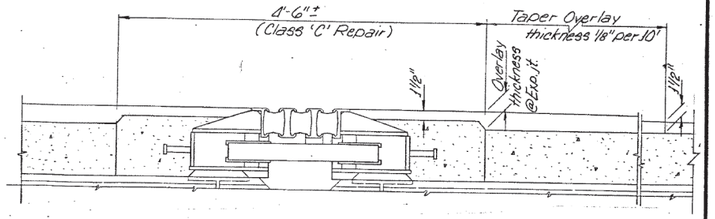
Removal and reconstruction of slab, approach slabs, parapets, and curbs to dimensions shown shall be measured and paid for as Class C Bridge Floor Repair. Inside vertical faces of parapets and curbs shall be measured for payment giving a total pay quantity per joint as follows:

North Str.: 4.5'(34.83'+1.5'+(2x75')+(2x2.25')) ÷ 9 = 21.2 S.Y. per jt.
South Str.: 4.5'(33.83'+(2x75')+1.5) ÷ 9 = 18.4 S.Y. per jt.

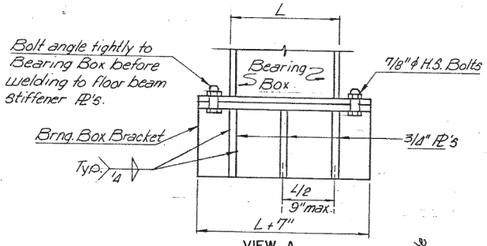
Cost of removing existing expansion joint and other incidental work necessary for reconstructing deck, approach slabs, curbs, and parapets (except reinforcing steel) shall be included in the unit price bid for Class C Bridge Floor Repair.

Existing longitudinal steel in slab, approach slabs, curbs, and parapets to be cleaned for bonding to new concrete. Transverse reinforcing steel shall be replaced with new reinforcement. New longitudinal bars will be lap spliced to existing bars a minimum of 12" lap. New reinforcing steel shall be measured and paid for as Reinforcing Steel, (7,200 Lbs.).
Replacement concrete shall be Class 'AA' meeting the requirements of Section 701 of the standard specs.

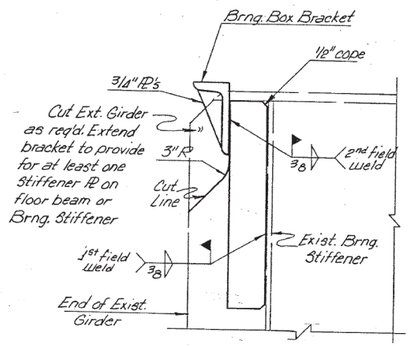
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revised	3/15/83



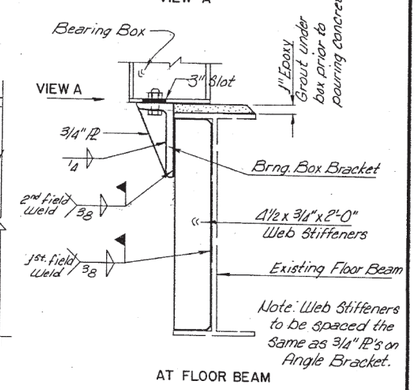
DETAIL OF OVERLAY TRANSITION AT EXP. JOINTS



VIEW A



AT GIRDER



AT FLOOR BEAM

DETAILS OF SUPPORT MODIFICATIONS

For additional notes see sheet No. 25

MISC. DETAILS

QUANTITIES		
ITEM	UNIT	AMOUNT
MODULAR EXP. JT. (6" Movement)	L.F.	131.84
MODULAR EXP. JT. (9" Movement)	L.F.	65.92
STRIP SEAL TYPE EXP. JT.	L.F.	137.0

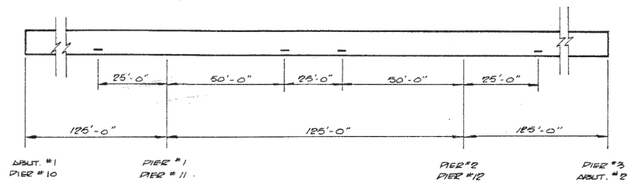
I-40 Over Ark. River — Muskogee/Sequoyah Co.

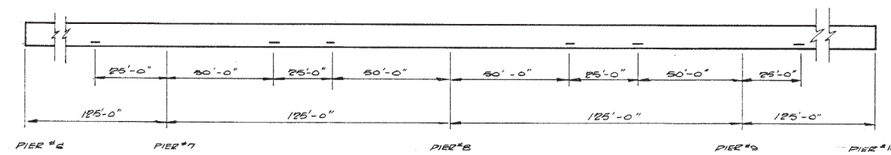
DETAILS OF EXPANSION JOINT AT ABUTMENTS & MISC. DETAILS

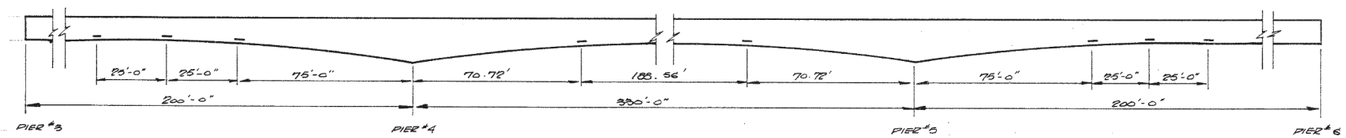
Design		
Detail	K.S.	3/83
Check	[illegible]	3/83
Squad: HILL		
Engr.: McCOLLOM		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION | FED. AID | PROJ. NO. IR-40-6(187)291 | SHEET NO. 25B

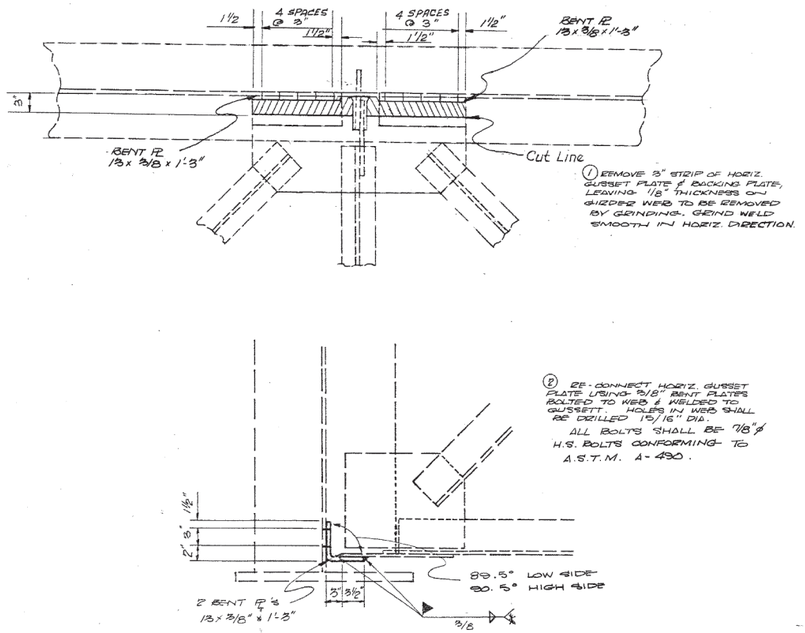
REVISIONS		
REV. NO.	DESCRIPTION	DATE



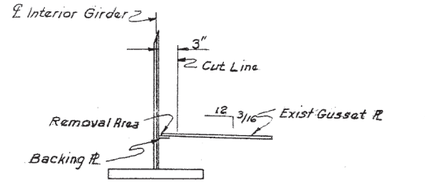




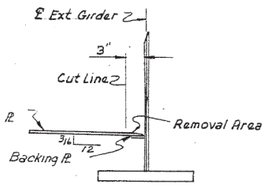
LOCATION OF GUSSET PLATE MODIFICATION



DETAIL OF GUSSET PL. MODIFICATIONS



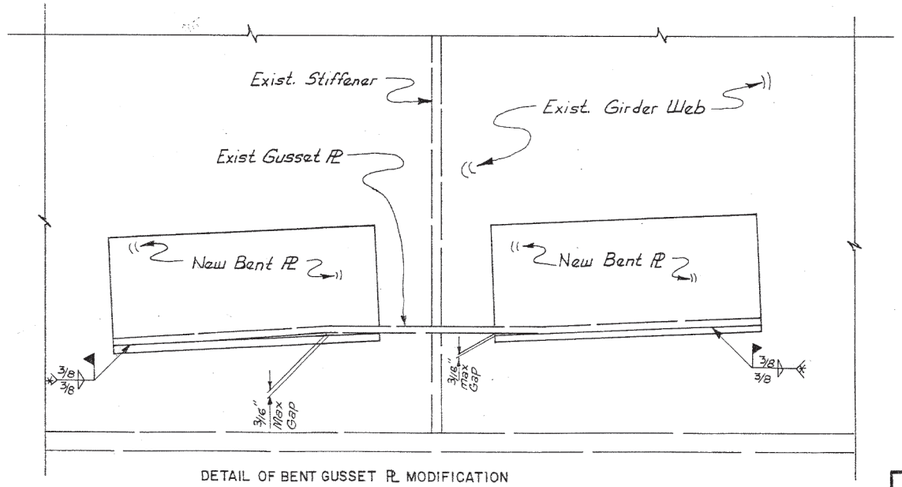
INTERIOR GIRDERS



EXTERIOR GIRDERS

NOTE: State personnel will conduct in-depth examinations of existing welds connecting horizontal gusset plates to web and welds at lower ends of various vertical web stiffeners. This inspection will be conducted while traffic is detoured and before painting the structural steel. Estimated time to inspect each bridge is two weeks. The contractor shall coordinate his work to permit this inspection.

The in-depth weld inspection by State personnel may indicate the need to modify horizontal gusset plate connections at additional locations.



DETAIL OF BENT GUSSET PL. MODIFICATION

* NOTE: The gap between parts shall normally not exceed 3/16". If gap between parts is 1/16" or greater the leg of the fillet weld shall be increased by the amount of separation or the contractor shall demonstrate that the required throat thickness has been obtained.

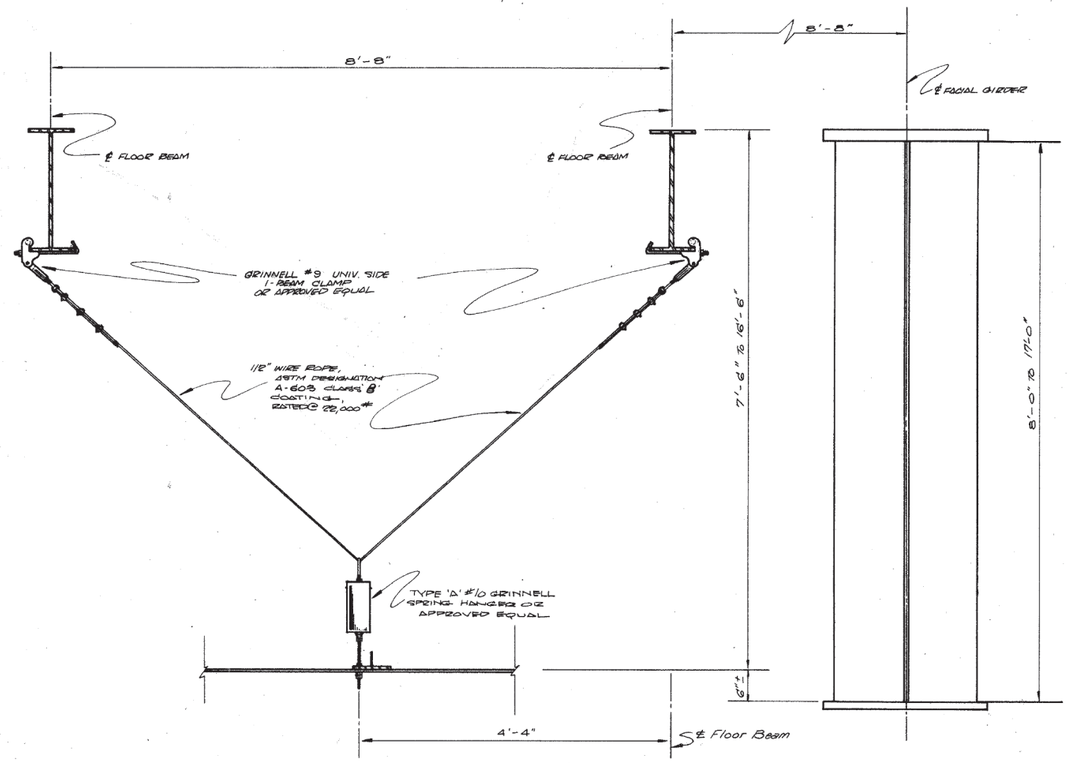
I-40 OVER ARK. RIVER — MUSKOGEE & SEQUOYAH CO.

LATERAL BRACING MODIFICATION

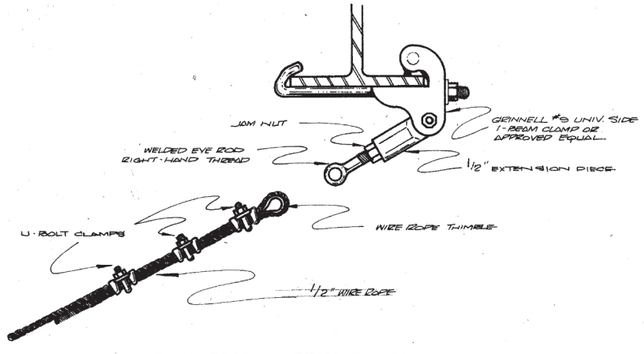
Design		
Detail	KDS	10/82
Check		10-82
Squad: Hill		
Engr.: McCollom		

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION | PROJ. NO. IR-40-6(187)291 | SHEET NO. 26

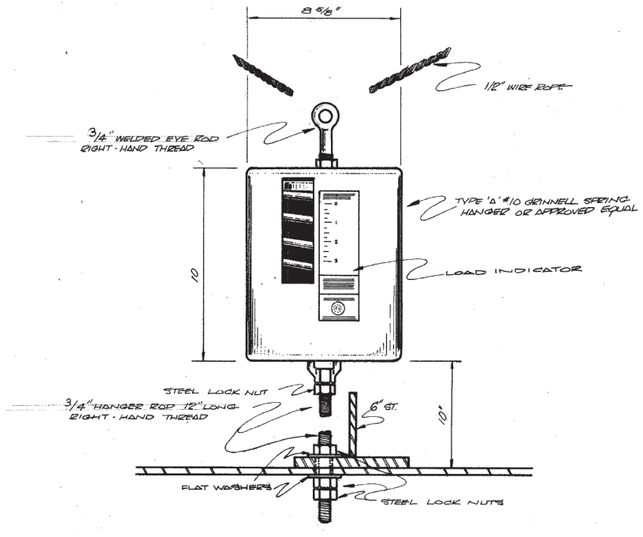
REVISIONS		
REV NO.	DESCRIPTION	DATE



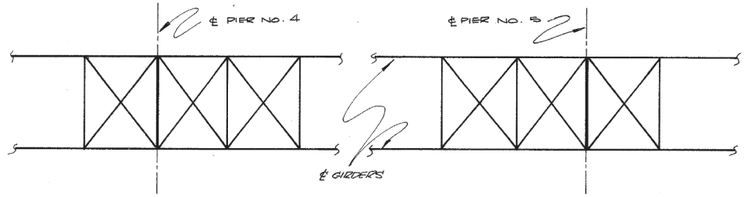
LATERAL BRACING VIBRATION DAMPNER



DETAIL OF UNIVERSAL I-BEAM CLAMP



DETAIL OF SPRING HANGER



LAYOUT OF LATERAL BRACING AT PIER NO.s 4 & 5
(SEE LOAD INDICATOR SETTING NOTE BELOW)

LOAD INDICATOR SETTING FOR SPRING HANGER:

After the complete vibration dampener assembly is in place, the load indicator on the spring hanger shall be adjusted to show a setting as follows:

1 1/2" - Lateral bracing panels adjacent to Pier No. 4 & Pier No. 5 as shown in "Layout of Lateral Bracing at Pier Nos. 4 & 5" (12 panels total).

1/2" - All remaining lateral bracing panels.

NOTE: DO NOT PAINT SPRING HANGER

I-40 OVER ARKANSAS RIVER MUSKOGEE & SEQUOYAH CO.

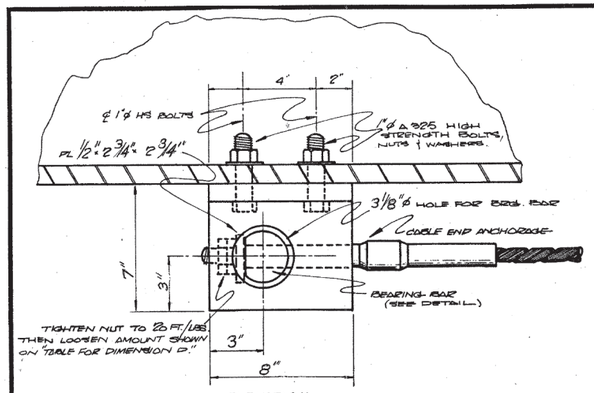
DETAILS OF LATERAL BRACING VIBRATION DAMPNER

Design		
Detail	JC	9/82
Check	JH	9-82
Squad: HILL		
Engr.: Mc COLLOM		

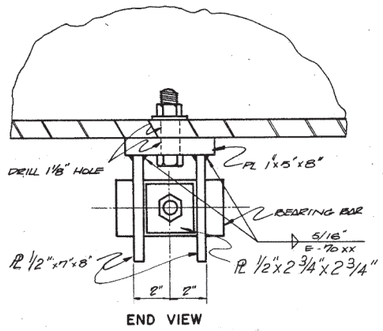
STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION | PROJ. NO. IR-40-6(187)291 | SHEET NO. 27

SCHEMMER

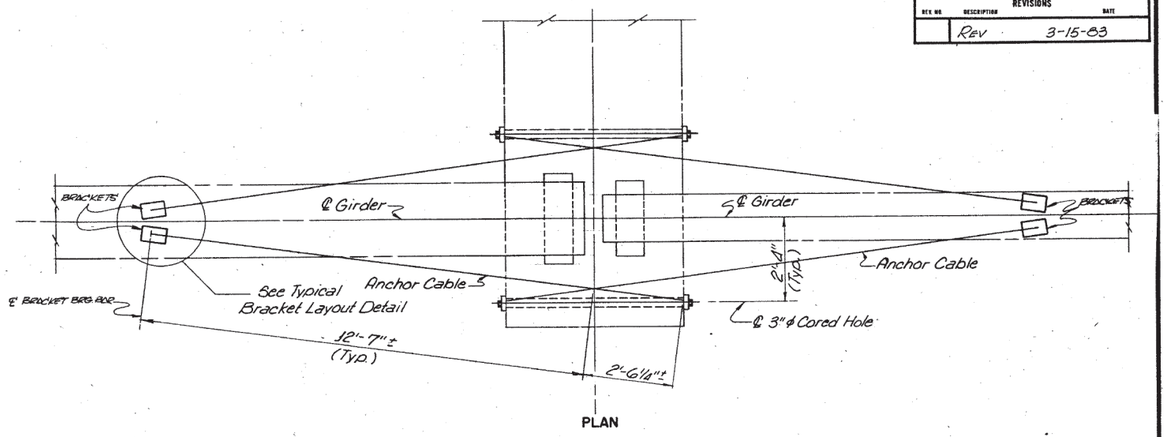
REVISIONS		
REV. NO.	DESCRIPTION	DATE
	Rev	3-15-83



ELEVATION

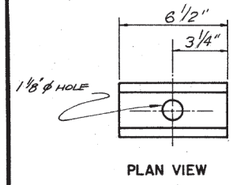


END VIEW

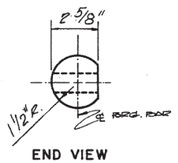


PLAN

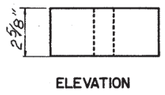
NOTE: 1-SEISMIC RESTRAINER CONSISTS OF; 4 BRACKETS WITH MOUNTING BOLTS, 4 BRACKET BEARING BARS, 4 ANCHOR CABLE ASSEMBLIES (1½" ℄, END ANCHORAGE, 1¼" NEOPRENE PAD, 2 NUTS, 1 WASHER, ANCHOR CABLE, 3/4" I.D. NEOPRENE TUBE & CLAMPS), & 4 BEARING PLATES. A TOTAL NUMBER OF 12 - SEISMIC RESTRAINERS ARE REQUIRED.



PLAN VIEW



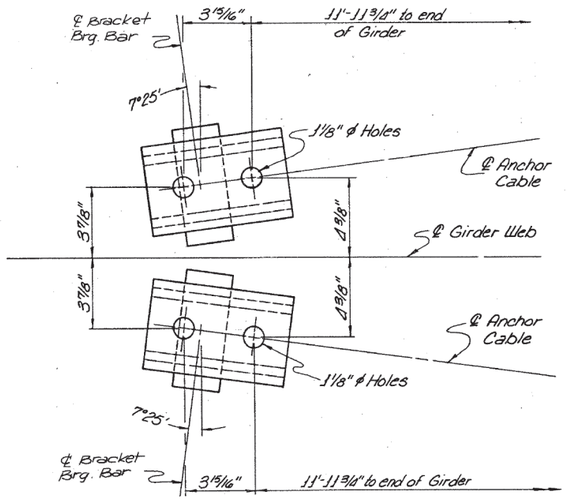
END VIEW



ELEVATION

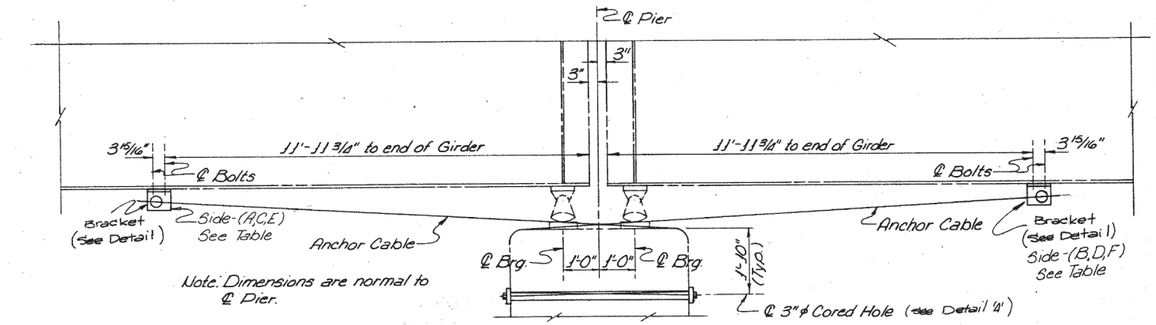
BRACKET BEARING BAR

DETAIL OF BRACKET ASSEMBLY



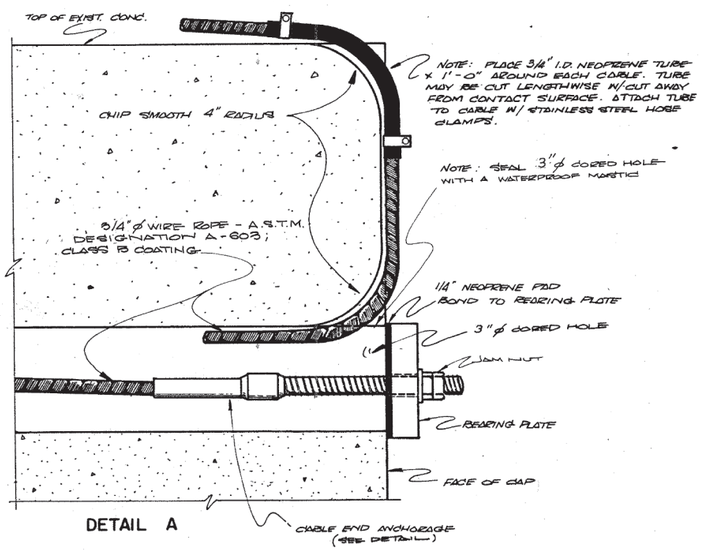
TYPICAL BRACKET LAYOUT

Note: Bottom Girder Flange omitted for clarity.

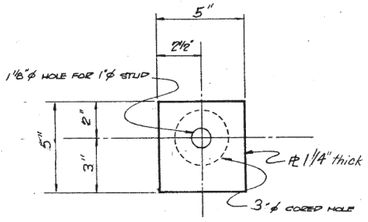


Note: Dimensions are normal to ℄ Pier.

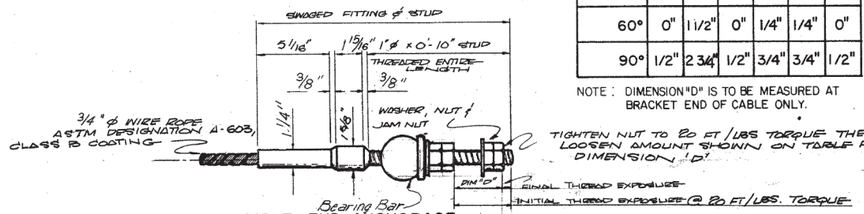
ELEVATION



DETAIL A



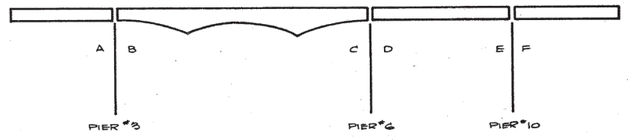
BEARING PLATE DETAIL



CABLE END ANCHORAGE

TABLE FOR DIMENSION "D"						
TEMP. °F	PIER # 3		PIER # 6		PIER # 10	
	SIDE "A"	SIDE "B"	SIDE "C"	SIDE "D"	SIDE "E"	SIDE "F"
30°	0"	1/4"	0"	0"	0"	0"
60°	0"	1 1/2"	0"	1/4"	1/4"	0"
90°	1/2"	2 3/4"	1/2"	3/4"	3/4"	1/2"

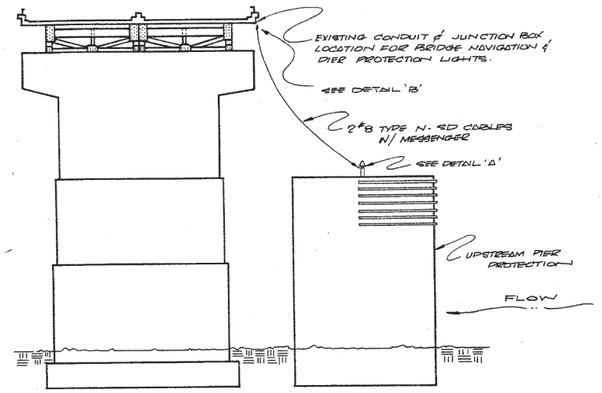
NOTE: DIMENSION "D" IS TO BE MEASURED AT BRACKET END OF CABLE ONLY.



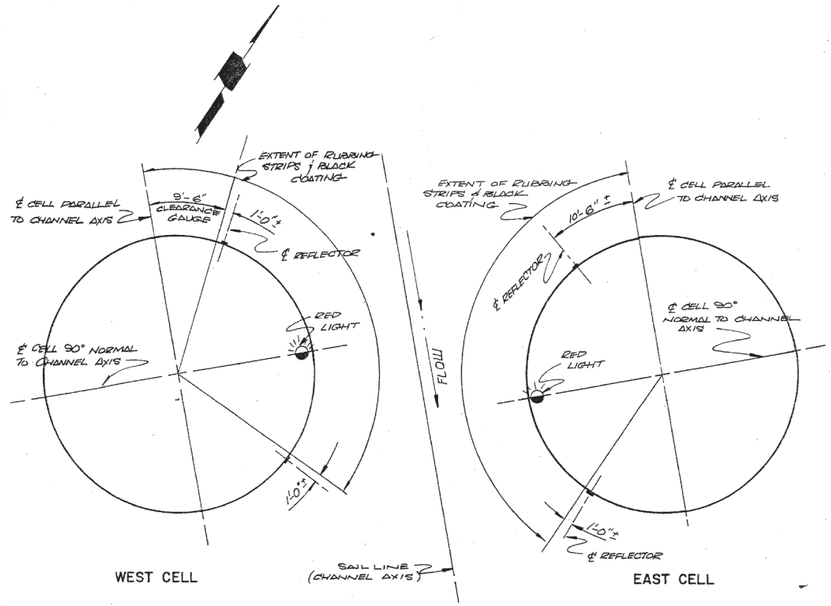
ANCHORAGE LAYOUT

I-40 OVER ARK. RIVER	MUSKOGEE & SEQUOYAH CO.	Design	DC.D 2/25/8
DETAILS OF SEISMIC RESTRAINER		Detail	JC 10/82
		Check	10/82
		Squad: HILL	
		Engr.: Mc COLLOM	
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION	PROJ. NO. IR-40-6(187) 291	SHEET NO. 28

REVISIONS		
REV. NO.	DESCRIPTION	DATE



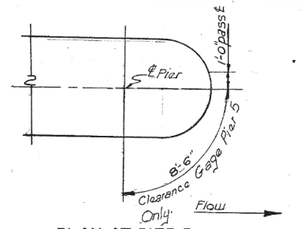
SECTIONAL ELEVATION
PIER NO. 4 - LOOKING WEST



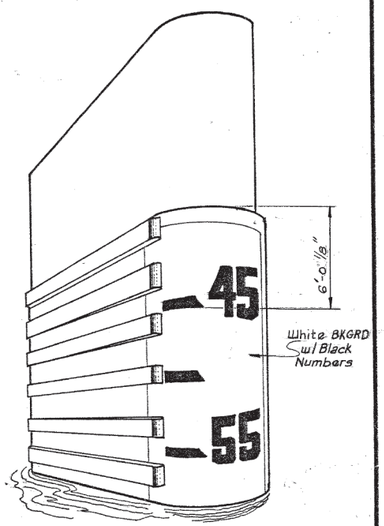
WEST CELL

EAST CELL

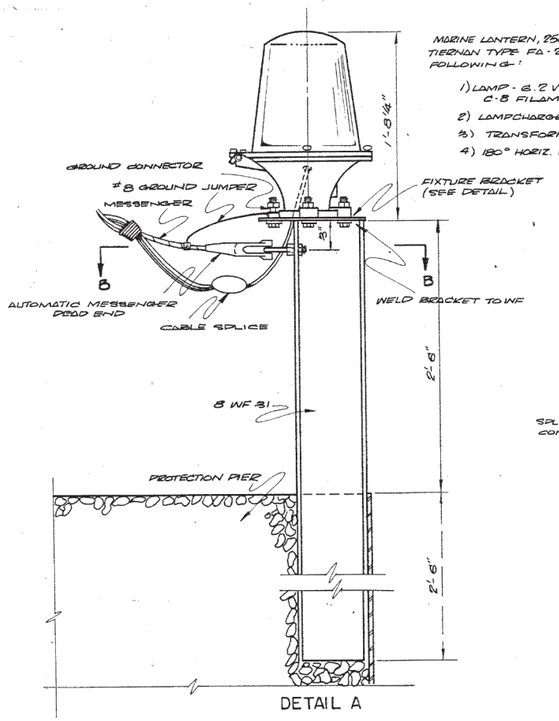
LAYOUT OF CELL LIGHTS & REFLECTORS



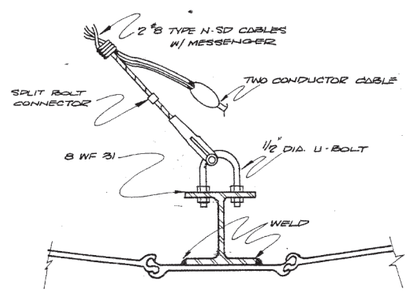
PLAN AT PIER 5



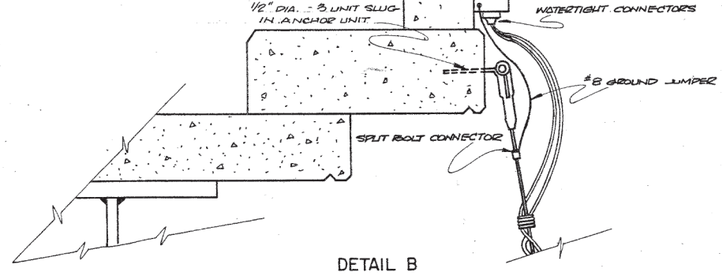
PICTORAL AT PIER 5



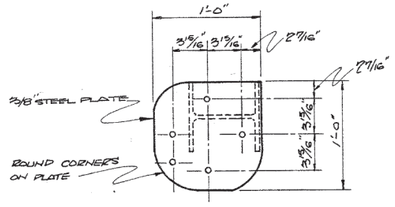
DETAIL A



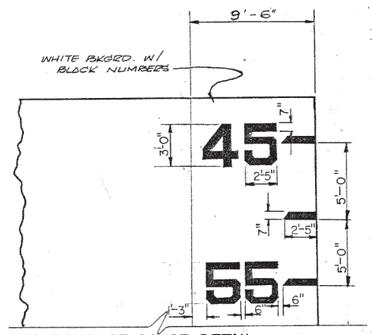
SEC. BB



DETAIL B



FIXTURE BRACKET

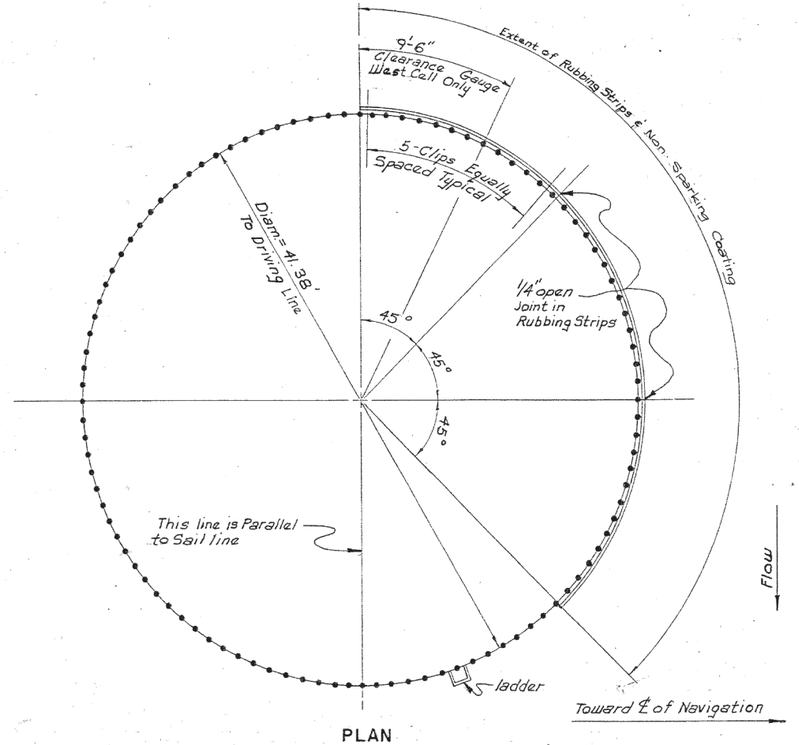


CLEARANCE GAUGE DETAIL

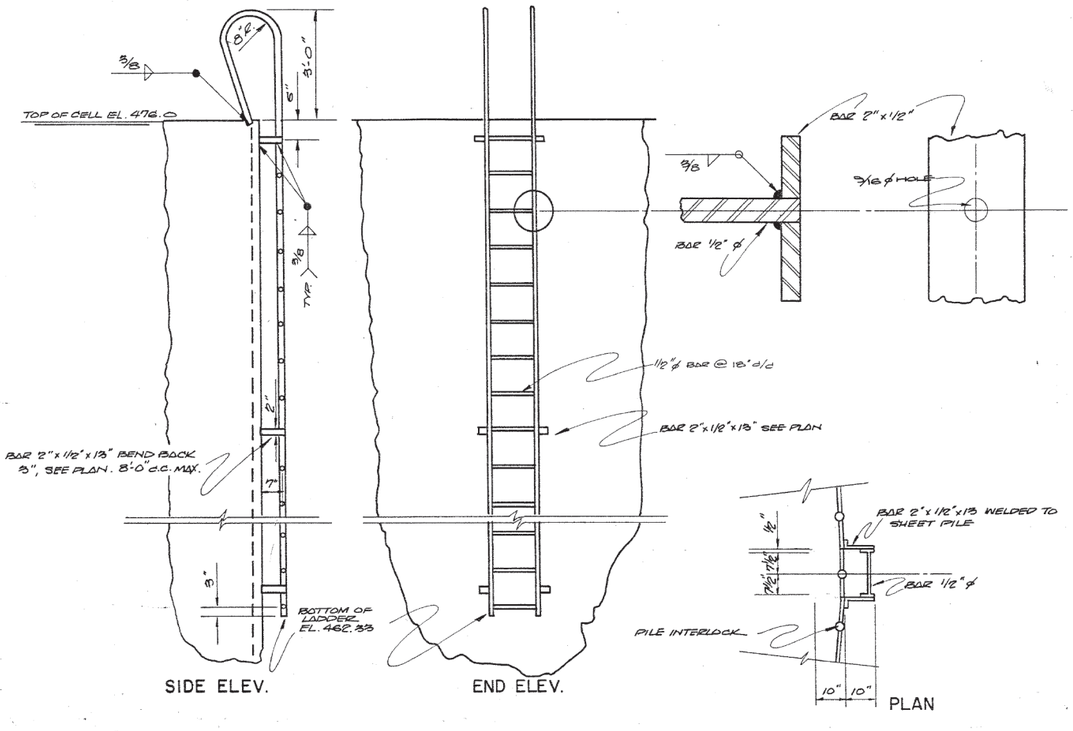
I-40 OVER ARK. RIVER	MUSKOGEE & SEQUOYAH CO.	Design		
		Detail	JC	8/82
PIER PROTECTION LIGHTING		Check		9/82
		Squad: HILL		
		Engr.: Mc COLLOM		
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION	PROJ. NO. IR-40-6(187)291		SHEET NO. 29

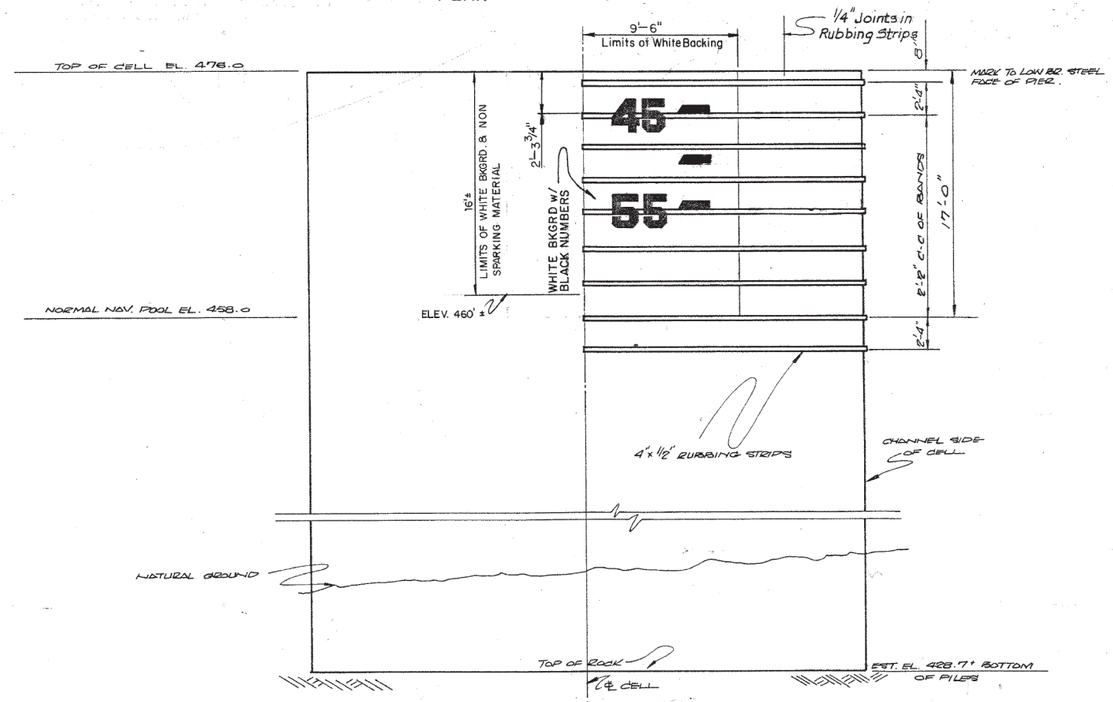
SCHEMMER

REVISIONS		
REV. NO.	DESCRIPTION	DATE

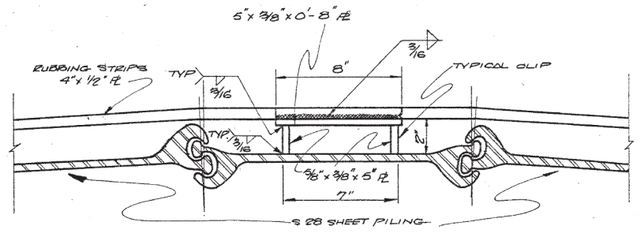


PLAN





UPSTREAM ELEVATION



TYPICAL CONNECTION — RUBBING STRIP TO CELL

SUMMARY OF QUANTITIES – TWO CELLS	
SHEET PILING	12,300 sq. ft.
QUARRY RUN STONE	3,400 c.y.
PROTECTION CELL ACCESSORIES	1. sum.

1. ALL SHEET PILING TO BE SEC. S28, GOVERNMENT DESIGNATION OF U.S.S. "MARINER" STEEL OR EQUAL.
2. THE RUBBING STRIPS & CONNECTION CLIPS SHALL BE 304 CORROSION RESISTANT STEEL.
3. ALL SHEET PILING WILL BE DRIVEN TO PRACTICAL REFUSAL IN ROCK.
4. CELLS ARE TO BE FILLED WITH QUARRY RUN STONE BETWEEN TOP OF NATURAL GROUND & TOP OF CELL.
5. LADDER SHALL BE GALVANIZED.
6. LOCATION OF CELLS ARE SHOWN ON GENERAL ELEVATION & PLAN SHEETS.
7. REFLECTORS SHALL BE INSTALLED AS SHOWN. THE REFLECTORS SHALL BE SQUARE OR CIRCULAR & HAVE A REFLECTIVE AREA OF NOT LESS THAN 36 SQ. IN., & NOT MORE THAN 144 SQ. IN. REFLECTORS SHALL BE RED W/ AN ALUMINUM FINISHED FLANGE HOUSING.
8. THE CHANNELWARD SIDE OF CELLS & RUBBING STRIPS SHALL BE FACED WITH A NON-SPARKING COATING CONSISTING OF A HEAVY THIXOTROPIC COATING, PETROLEUM BASE, WHICH DRIES TO A PLIABLE, RESILIANT FILM, SUCH AS TECTYL 121-A, A BLACK COATING MANUFACTURED BY ASHLAND PETROLEUM CO. OR AN APPROVED EQUAL. THE MINIMUM DRY FILM THICKNESS SHALL BE 15 MILS. REQUESTS FOR APPROVAL OF ALTERNATE MATERIALS SHALL BE ACCOMPANIED BY SPECIFICATIONS INFORMATION, TEST RESULTS, & SAMPLES FOR EVALUATION
9. PAINT FOR NUMBERS & WHITE BACKGRD. SHALL BE AN APPROVED PETROLEUM BASED WATERPROOF PAINT.
10. SEE SHEET NO. 29 FOR DETAIL OF CELL LIGHTING.

I-40 OVER ARK. RIVER — MUSKOGEE & SEQUOYAH CO.

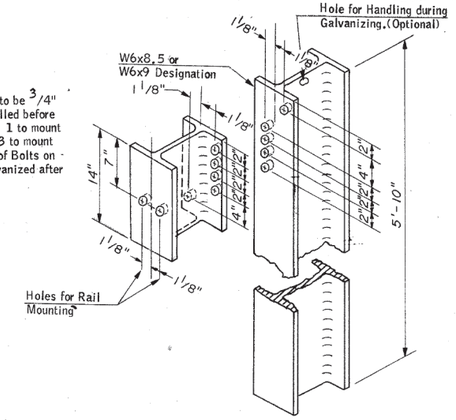
DETAIL OF PIER PROTECTION CELLS

Design		
Detail	JC	8/82
Check		8/82
Squad: HILL		
Engr.: Mc COLLOM		

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION

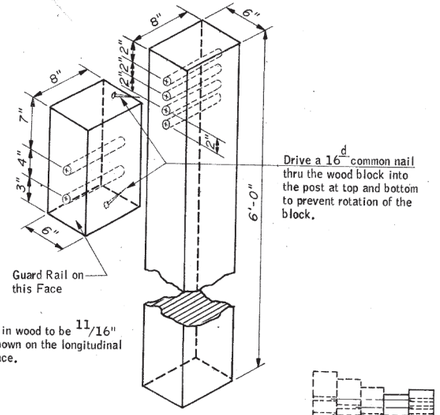
PROJ. NO. IR-40-6(187)291 — SHEET NO. 30

NOTE: All holes in steel to be 3/4" and shall be punched or drilled before galvanizing. Use Bolt No. 1 to mount rail to block and Bolt No. 3 to mount block to post. See Table of Bolts on this sheet. Unit to be galvanized after fabrication.



STEEL POST & BLOCKOUT

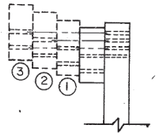
On initial installations, the Blockout shall be attached to the Post using the top holes in the Post and Blockout and the bottom holes in the Post and Blockout. (Two Bolts required.) Other holes are for future vertical adjustment.



NOTE: All holes in wood to be 11/16" dia., drilled as shown on the longitudinal center of the 6" face.

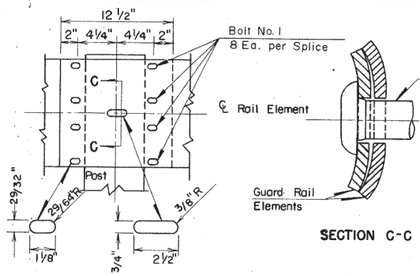
WOOD POST & BLOCKOUT

On initial installations, the Rail and Blockout shall be attached to the Post using one Bolt No. 2 through the Rail, the center hole in the Blockout, and bottom hole in the Post. Other holes are for future vertical adjustment.



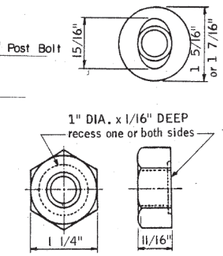
DETAIL SHOWING BLOCKOUT TO BE RAISED IN 2" INCREMENTS

An additional bolt will be required for Increment No. 3.

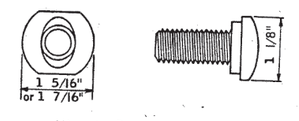


SECTION C-C

Guard Rail shall be lapped in the direction of nearest traffic at all locations where splices occur (except at narrow or one lane bridge approaches, where laps shall be toward the bridge on both sides of the approach roadway).

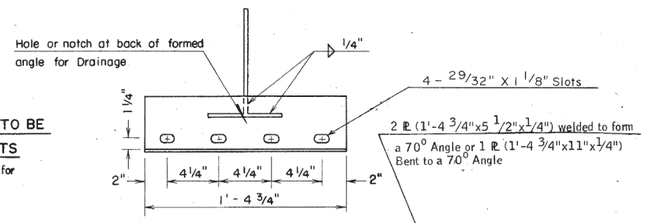


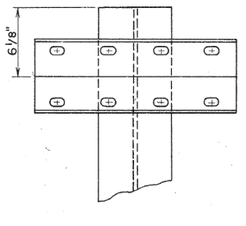
5/8" ∅ Button Head Bolt & Recess Nut



Alternate Button Head Bolt

RAIL SPLICE



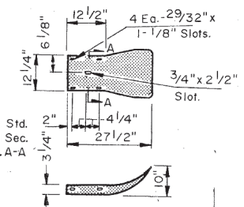


BACKUP CONNECTION PIECE (6")

12 Gauge galvanized steel W-beam 6" long. Bolted directly (behind rail element) to post.

Unit to be galvanized after fabrication

BRIDGE SPECIAL STEEL ANCHOR POST DETAIL



SECTION THRU 12 GAUGE GALVANIZED STEEL RAIL ELEMENT

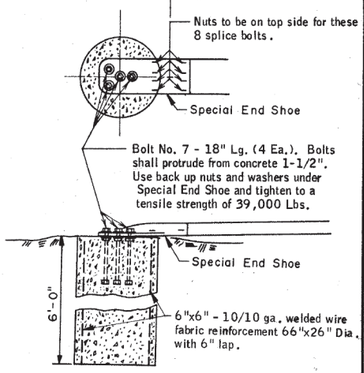
May vary due to tolerances. Nominal thickness 0.105" exclusive of protective coating.

NOTE: Guard rail components shall meet the applicable standards of "A Guide to Standardized Highway Barrier Rail Hardware" prepared and approved by the AASHTO-ARTBA-AGC Joint Cooperative Committee, Technical Bulletin Number 268 B.

MATERIALS SHALL MEET THE REQUIREMENTS OF THE FOLLOWING SUBSECTIONS OF THE 1976 STD. SPEC'S.

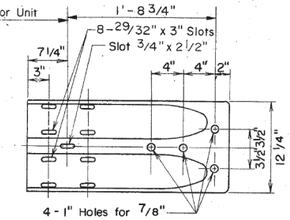
P.C. Conc.	701
Reinf. Steel	723
Guard Rail Posts & Spacer Blocks	729 & 732
Metal Plate Steel Beam	732
Fittings	732
Galvanization	732

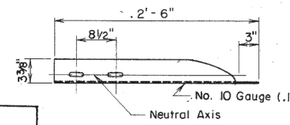
All dimensions are subject to Manufacturer's Tolerance.



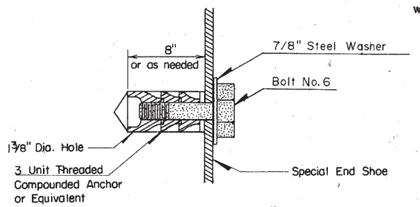
Class "A" Conc. to be Placed into 30" Dia. Hole to a Depth of Approx. 6'-0". Slope Top of Conc. to Fit Slope. Class "A" Conc. = 1.09 C.Y.

DETAIL OF CONCRETE & BOLTS USED IN ANCHOR



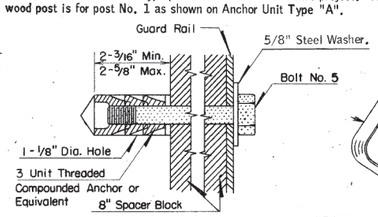


SPECIAL END SHOE



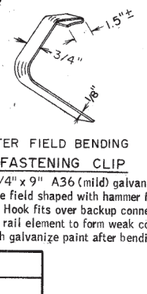
ANCHOR DEVICE (7/8" BOLT)

Use to anchor Special End Shoe to bridge pier, bridge curb, or to concrete parapet in lieu of bolts through the parapet.



ANCHOR DEVICE (5/8" BOLT)

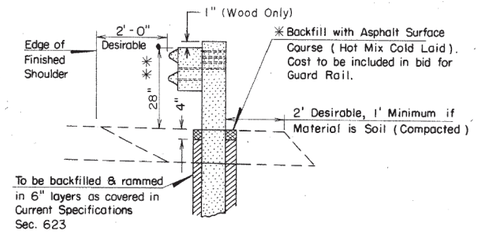
Use where connection is made to round piers, as in Type "C", "G", or "GE" unit.



FASTENING CLIP

1/8" x 3/4" x 9" A36 (mild) galvanized steel plate field shaped with hammer for tight fit. Hook fits over backup connection piece and rail element to form weak connection. Spray with galvanize paint after bending.

DETAIL OF WEAKENED CONNECTION



DETAIL OF GUARD RAIL POST IN SHOULDER BASE WIDENING

✱ See Current Specifications - Sec. 405 Asphalt Surface Course (Hot Mix-Cold Laid).

✱✱ Measure Directly Below Rail. Guard Rail to be installed to this dimension ±1".

NOTE: Typical Base Widening placed by Surfacing Contractor For Thickness & Slope see Surfacing Plans.

TABLE OF BOLTS, NUTS, & WASHERS

	ITEM	ASSEMBLY	NOMENCLATURE & DIMENSIONS
②	Bolt 1	Recess Nut & Specified Washer	5/8-11 UNC-2A x 1 1/4" Lg. Button Head With Oval Shoulder.
②	Bolt 2	Recess Nut & Steel Washer	5/8-11 UNC-2A x 18" Lg. Button Head With Oval Shoulder
②	Bolt 3	Hex Nut & Lock Washer	5/8-11 UNC-2A x 1 1/2" Lg. Hex-Head Bolt.
②	Bolt 4	Recess Nut & 5/8" Steel Washer	5/8-11 UNC-2A x ___" Lg. Button Head With Oval Shoulder.
②	Bolt 5	5/8" Steel Washer & Anchor Device	5/8-11 UNC-2A x 10 1/2" Lg. Hex-Head Bolt.
①②	Bolt 6	7/8" Steel Washer & Anchor Device	7/8-9 UNC-2A x 8" Lg. Hex-Head Bolt.
①③	Bolt 7	7/8" Steel Washer & 7/8" Hex Nut	7/8 - 9 UNC - 2A x ___" Lg. High Strength Steel Hex-Head Bolt.
⑥	Recess Nut		5/8-11 UNC-2B Semi-Finished.
⑥	5/8" Hex Nut		5/8-11 UNC-2B Semi-Finished.
①④	7/8" Hex Nut		7/8-9 UNC-2B Semi-Finished.
⑤	5/8" Steel Washer		11/16"x1-3/4"x0.141" Type A Plain Washer.
⑤	7/8" Steel Washer		15/16"x2-1/4"x0.156" Type A Plain Washer.
①	Lock Washer		11/16" I.D. Galvanized Standard Hardware Item.
⑦	Rectangular Plate Washer		1 3/4" x 3" Lg. x 0.187" With a 11/16" x 1" Slotted Hole.

① Not a Standard Item in "A Guide to Standardized Highway Barrier Rail Hardware", Technical Bulletin No. 268-B.
② Shall Meet Requirements of A.S.T.M. A307 & A153.
③ Shall Meet Requirements of A.S.T.M. A325 or A449, & A153.
④ Shall Meet Requirements of A.S.T.M. A153 & A563 Grade B or Better.
⑤ Shall Meet Requirements of A.S.T.M. A153 & A.N.S.I. B27.2.
⑥ Shall Meet Requirements of A.S.T.M. A153 & A563, Grade A or better.
⑦ Shall Meet Current Requirements of A.A.S.H.T.O. M180.

OPTIONAL TYPE POSTS FOR GUARD RAIL

The Contractor may, at his option, use one of the type posts shown above and having made his choice must use the same type post and block for the entire project. The only obligatory use of wood post is for post No. 1 as shown on Anchor Unit Type "A".

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
623.06(B)	Beam Type Guard Rail (Sgl.)	L.F.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS		
DESCRIPTION		DATE
POST & BLOCKOUT DETAILS	DLH	3-82

APPROVED BY

RURAL DES. ENGR.	URBAN DES. ENGR.	BRIDGE ENGINEER	CONST. ENGINEER	ASST. DIR./DES.
R.G. Hankins	T.R. McConnell	Valleta Tom	Wm. Samuel	Ray Fogle
DATE 5-18-82	DATE 5-18-82	DATE 5-18-82	DATE 5-18-82	DATE 5/18/82

Design	E.M.	8-81
Drawn	D.H.	9-81
Checked	C.W.	9-81
Approved	R.H.	9-81
Squad	Support Unit	

OKLAHOMA DEPARTMENT OF TRANSPORTATION

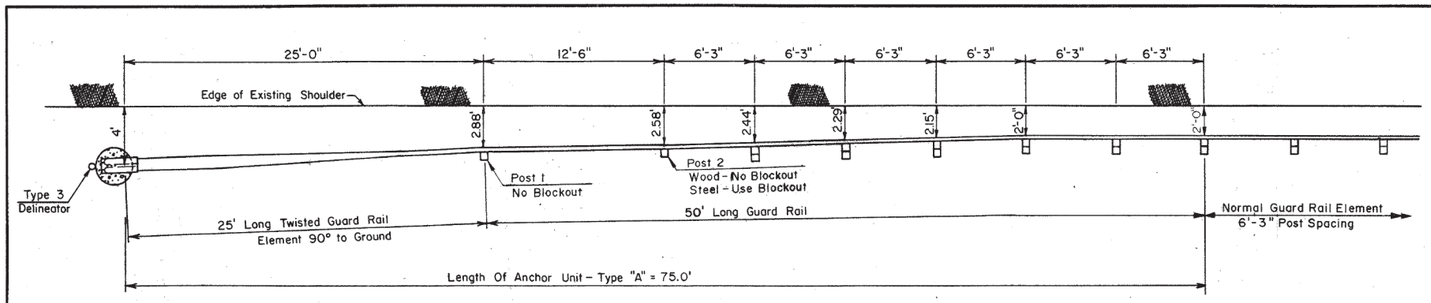
STANDARD GUARD RAIL HARDWARE

GRH-2-1

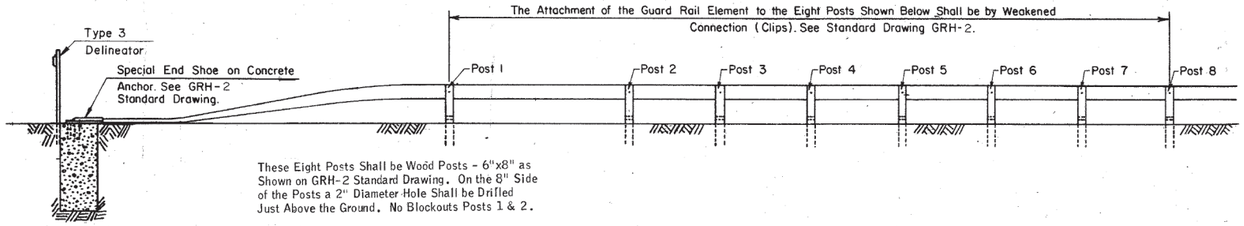
131

Filed

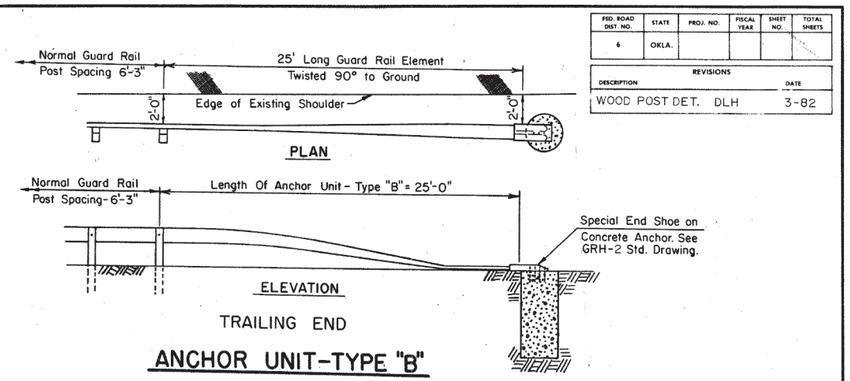
SCHEMMER



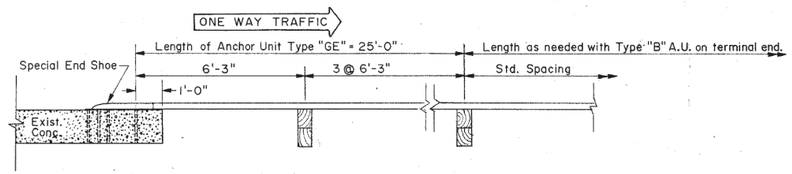
PLAN



ELEVATION - WOOD POSTS

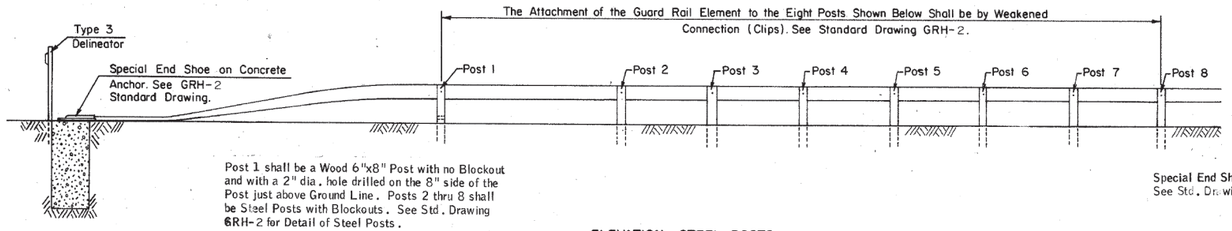


ANCHOR UNIT-TYPE "B"

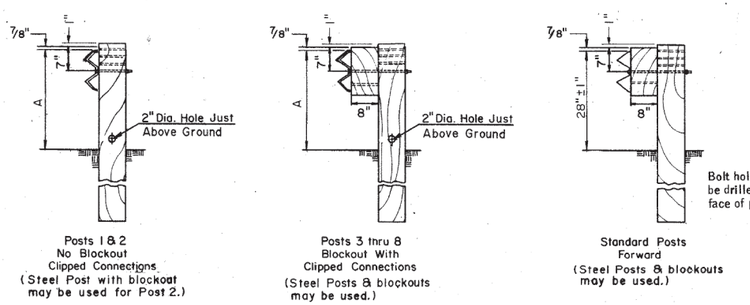


TYPE "GE" ANCHOR UNIT

Only to be used at exiting ends of one-way bridges.



ELEVATION - STEEL POSTS



WOOD POST DETAIL

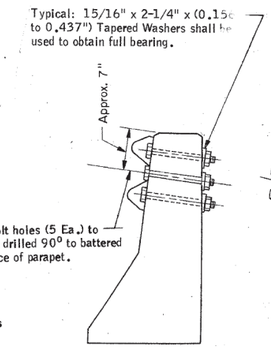
(See GRH-2 Std. Drawing.)

POST NO.	DIM. A
1	26"
2	27"
3	27 1/2"
4-8	28"

Guard Rail Height Dimensions for both Wood & Steel Posts.

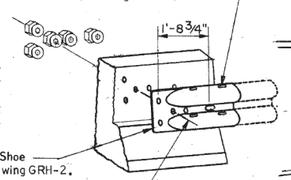
APPROACH END

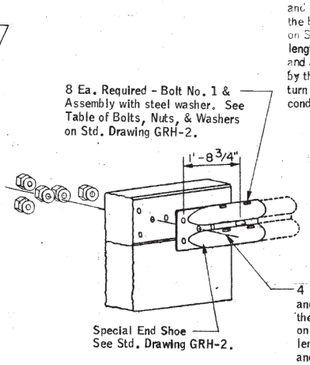
ANCHOR UNIT-TYPE "A"



SECTION THRU WING PARAPET FOR RETROFIT TYPE "D","G",& "GE" ANCHOR UNIT

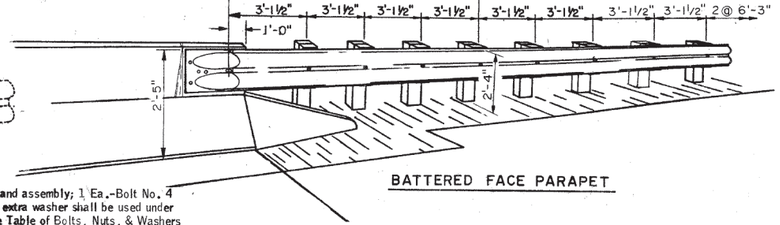
NOTE: Guard rail components shall meet the applicable standards of "A Guide to Standardized Highway Barrier Rail Hardware" prepared and approved by the AASHTO-ARTBA-AGC Joint Cooperative Committee, Technical Bulletin Number 268 B.



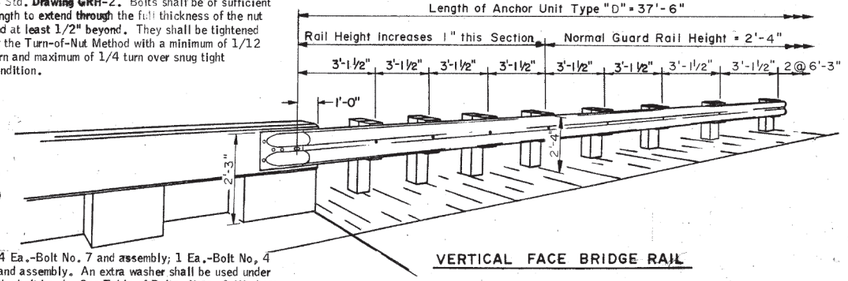


4 Ea.-Bolt No. 7 and assembly; 1 Ea.-Bolt No. 4 and assembly. **An extra washer shall be used under the bolt head. See Table of** Bolts, Nuts, & Washers on Std. **Drawing GRH-2.** Bolts shall be of sufficient length to **extend through** the full thickness of the nut and at **least 1/2" beyond.** They shall be tightened by the Turn-of-Nut Method with a minimum of 1/12 turn and maximum of 1/4 turn over snug tight condition.

4 Ea.-Bolt No. 7 and assembly; 1 Ea.-Bolt No. 4 and assembly. An extra washer shall be used under the bolt head. See Table of Bolts, Nuts, & Washers on Std. Drawing GRH-2. Bolts shall be of sufficient length to extend through the full thickness of the nut and at least 1/2" beyond. They shall be tightened by the Turn-of-Nut Method with a minimum of 1/12 turn and maximum of 1/4 turn over snug tight condition.



BATTERED FACE PARAPET



VERTICAL FACE BRIDGE RAIL

ANCHOR UNIT-TYPE "D"

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
623.0600	* Guard Rail Anchor Unit (Type ____)	EA.

*Includes guard rail, all hardware, Type 3 Delineator (where applicable) and other appurtenances necessary to construct unit.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

REVISIONS	
DESCRIPTION	DATE
WOOD POST DET. DLH	3-82

APPROVED BY				
RURAL DES. ENGR.	URBAN DES. ENGR.	BRIDGE ENGINEER	CONST. ENGINEER	ASST. DIR./DES.
R.G. Hankins	R.M. Conry	Velda K. Gonz	[illegible]	Ray Boyd
DATE 3-15-82	DATE 3-18-82	DATE 3-18-82	DATE 3-18-82	DATE 3/18/82

Design	E.M.	8-81
Drawn	D.H.	9-81
Checked	C.W.	9-81
Approved	R.H.	9-81
Squad	Support Unit	

OKLAHOMA DEPARTMENT OF TRANSPORTATION

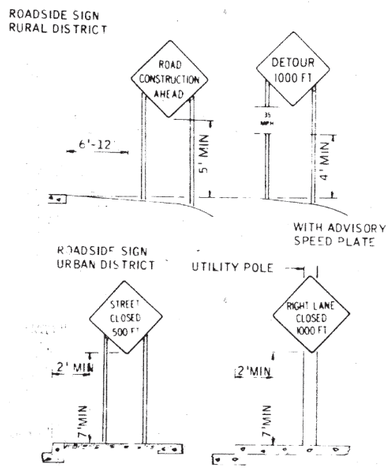
STANDARD GUARD RAIL ANCHOR UNIT

GRAU-3-1

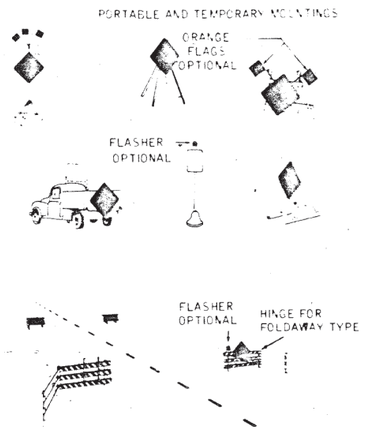
132

OKLA. DEPT. OF TRANSPORTATION

STD. NO.	TCD-1-4
REVISIONS	DATE
Note (L)	6/79
Added CG-20-1A Note (O)	3/80
Notes (H)(I)(N) & Wing Barricade	2/28/81
Notes & Wing Barricade (A)	5/1/12



Height and lateral locations of signs – typical installations

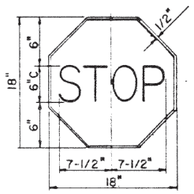


Methods of mounting signs other than on posts

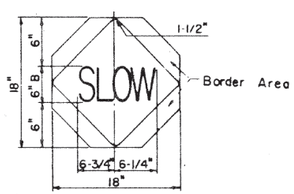
TEMPORARY PAVEMENT MARKINGS

WHEN TEMPORARY PAVEMENT MARKINGS ARE REQUIRED, THEY SHALL BE OF EXPENDABLE MATERIAL AS DESCRIBED IN SECTION 711 OF THE OKLAHOMA STANDARD SPECIFICATIONS, EDITION 1976.

WIDTH OF LINES SHALL BE A MINIMUM OF 4"
EDGE LINES SHALL BE SOLID.
DASHED LANE LINES SHALL BE 2' LONG MINIMUM ON 50' CENTERS MAXIMUM.



STOP: Reflectorized Red Background with Reflectorized White Legend and Border.



SLOW: Reflectorized Orange Background with Non-reflectorized Legend and Border Area.

STOP - SLOW PADDLE

NOTE: ALL GENERAL NOTES SHOWN BELOW SHALL APPLY TO ALL OF THE STANDARD DRAWINGS IN TCD SERIES

(A) ON CONSTRUCTION PROJECTS IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO INSTALL THE NECESSARY SIGNS BEFORE CONSTRUCTION BEGINS.

(B) ALL SIGN BLANK MATERIALS USED SHALL BE THE OPTION OF THE CONTRACTOR BUT SHALL BE OF SUCH MATERIAL THAT WILL RETAIN A SATISFACTORY APPEARANCE THROUGHOUT THE LIFE OF THE CONTRACT.

(C) THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL SIGNS TO ASSURE A HIGH DEGREE OF BOTH DAY AND NIGHT VISIBILITY, WHICH WILL INCLUDE ANY WASHING, REPLACEMENT AND/OR RE-POSITIONING WHERE DEEMED NECESSARY BY THE ENGINEER.

(D) REFLECTORIZATION OF SIGNS AND BARRICADES SHALL BE BY MEANS OF WIDE ANGLE FLAT TOP REFLECTIVE SHEETING MEETING THE REQUIREMENTS OF OKLAHOMA DOT STANDARD SPECIFICATIONS EDITION 1976, SECTION 719.04.

(E) ALL SIGNS SHALL BE SECURELY PLACED OR WEIGHTED TO PREVENT BLOWING OVER. ROCKS, BROKEN CONCRETE OR OTHER SUCH OBJECTS SHALL NOT BE CONSIDERED AN ACCEPTABLE SUBSTITUTE FOR SAND BAGS WHEN USED TO OBTAIN ADDED STABILITY FOR MOVABLE SIGNS AND BARRICADES.

(F) SPACING OF SIGNING, ON THE PLANS OR T.C.D. STANDARDS, SHALL BE NO LESS THAN THE DISTANCES SHOWN. THE DISTANCE BETWEEN SIGNS SHOULD BE INCREASED ON HIGH SPEED, OR MORE HEAVILY TRAVELED HIGHWAYS, OR WHERE SIGHT DISTANCE IS RESTRICTED.

(G) ALL SIGNS, FLASHERS, FLAGS, ETC. SHALL CONFORM IN SIZE, SHAPE, COLOR, LEGEND AND APPLICATION TO THE STANDARDS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND/OR OKLAHOMA STATE STANDARD DRAWINGS FOR SIGNS. STANDARD DRAWINGS ARE AVAILABLE FROM THE DEPARTMENT OF TRANSPORTATION. INTERPRETATIONS THAT MAY BE NECESSARY SHALL BE REFERRED TO THE ENGINEER.

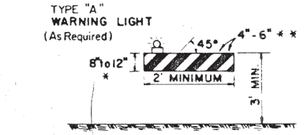
(H) IN ALL CONSTRUCTION ZONES THE FIRST THREE ADVANCE WARNING SIGNS IN SEQUENCE SHALL HAVE ATTACHED THERETO FLOURESCENT FLAGS AND TYPE "A" FLASHING BARRICADE WARNING LIGHTS. THIS SHALL ALSO APPLY WHEN SIGNS ARE USED ON BOTH SIDES OF THE ROADWAY. ADDITIONAL FLASHING BEACONS MAY BE REQUIRED WHEN SO DESIRED BY THE ENGINEER.

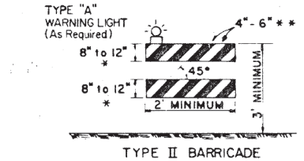
(I) TYPE "A" WARNING LIGHTS SHALL BE USED ON BARRICADES (AS REQUIRED) AND ON ADVANCE WARNING SIGNING. SEE NOTE "H" THIS SHEET.

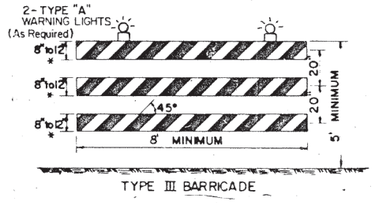
(J) TYPE "C" WARNING LIGHTS SHALL BE USED ON CHANNELIZING DEVICES AND VERTICAL PANEL SIGNS. (AS REQUIRED)

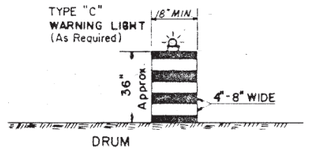
(K) STANDARD DRAWING TCD-1-(LATEST REVISION) SHALL ALWAYS BE INCLUDED WHEN OTHER TCD STANDARDS CALLED FOR. OTHER TCD STANDARDS MAY BE CALLED FOR INDIVIDUALLY AS APPLICALBE ON ALL FEDERAL AID AND STATE AID PROJECTS.

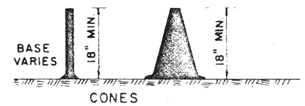
(L) ALL DIAMOND SHAPED CONSTRUCTION WARNING SIGNS ON EXPRESSWAYS OR FREEWAYS SHALL BE 48" X 48", WITH 24" X 24" ADVISORY SPEED SIGNS WHERE REQUIRED.

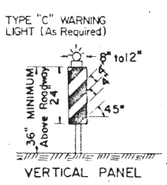


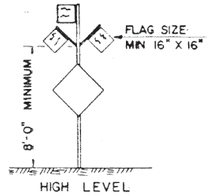










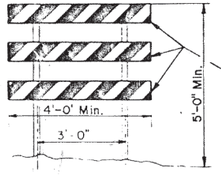


NOTE: Flashing or steady burn warning lights should be used on barricades, panels, and drums as required.

* For wooden barricades nominal lumber dimensions will be satisfactory.

** For rails less than 3' long, 4 inch wide stripes shall be used.

Channelizing devices and high level warning devices



WING BARRICADE

NOTE: Projects with work limits of 2.0 miles or more in length will require the CG 20-1 Sign. The sign shall be mounted above the Wing Barricade as shown. The sign (CG 20-1) will be required on one side of a 2-lane roadway and both sides of a divided highway. (See TCD-10)

Design	BY	WDG	5/79
	CK		
Drawn			
Checked	HN BET	WDG	5/79
Approved Traffic Engineer			Date 6/6/79
Approved Chief Traffic Eng.			Date 6/6/79

OKLAHOMA DEPARTMENT OF TRANSPORTATION

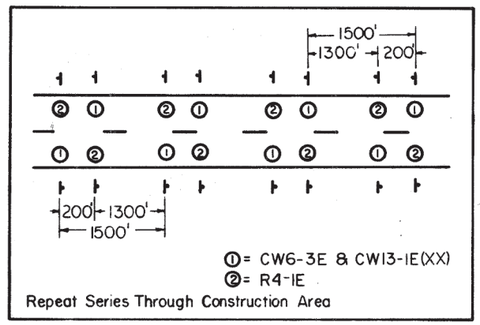
TRAFFIC CONTROL DEVICES FOR CONSTRUCTION WORK ZONES

STD. NO. TCD-1-4

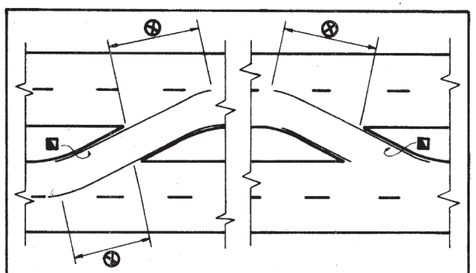
T-59

FILE

OKLA. DEPT. OF TRANSPORTATION	
STD. NO.	TCD-5-5
REVISIONS	DATE
Revised	8/3/79
Revised	12/20/79
Arrow Panels 4g, 2-2-81	
Title Block 4g, 5/12/82	
Taper Lengths 1/31/83	



Detail A



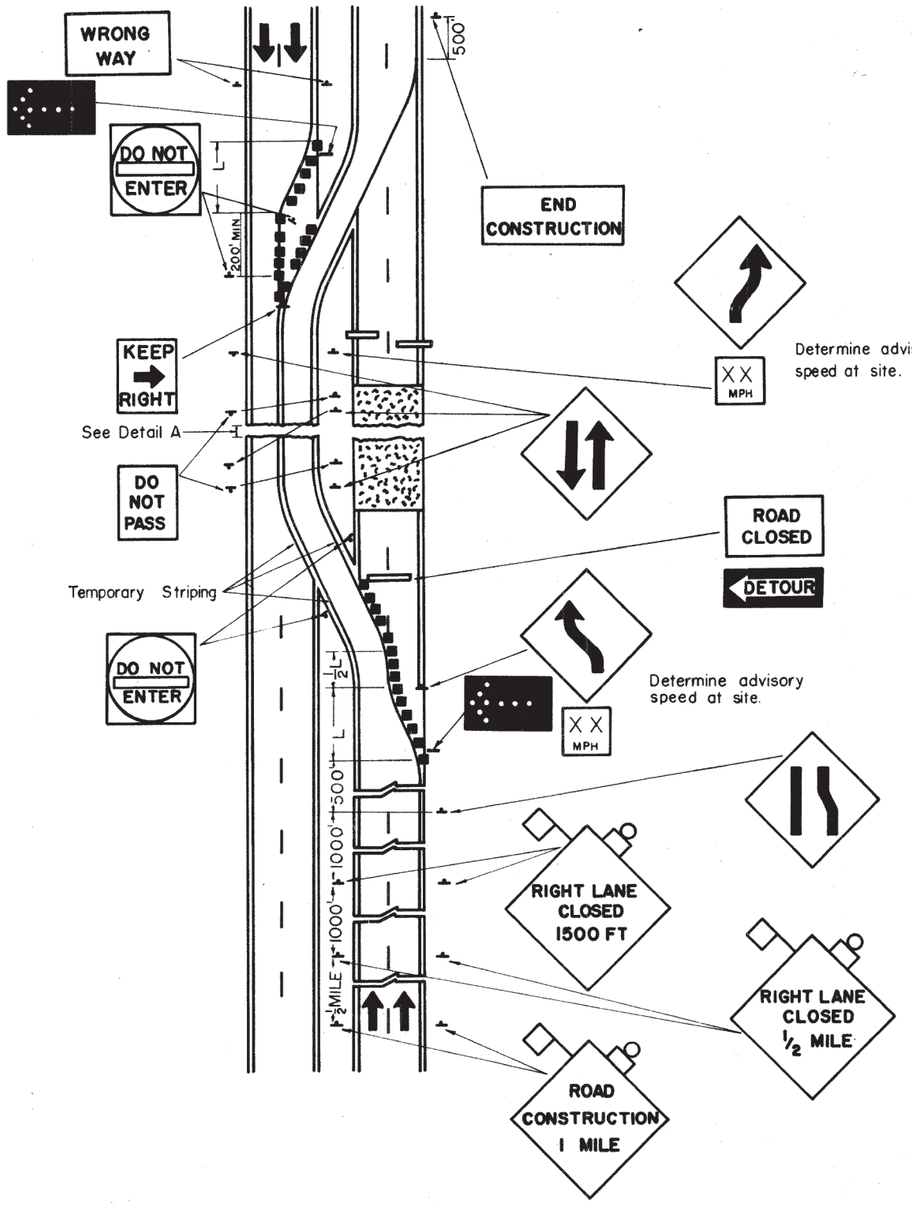
All signs and other barricades shall be as shown in detail.

All lines on left side of traffic shall be yellow.

⊗ These lines shall be removed at night when roadway is open to thru traffic and new lines placed in the morning prior to detouring of traffic.

Typical application – 4 lane divided roadway where one roadway is closed during the day and opened to traffic at night.

Detail B



Typical application – 4-lane divided roadway where one roadway is closed.

NOTES:

1. Taper Formula:
   $L = S \times W$ for speeds of 45 or more.
   $L = \frac{WS^2}{60}$ for speeds of 40 or less.
   Where:
   L = Minimum length of taper.
   S = Numerical value of posted speed limit prior to work or 85 percentile speed.
   W = Width of offset.
2. Signs shown for one direction of travel only.
3. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
4. Warning lights should be used to mark channelizing devices at night as needed.
5. Flashing warning lights and/or flags shall be used to call attention to the early warning signs.
6. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit.
7. For Portable Concrete Median Barrier placement detail see Std. TCD-11-0.

KEY

- ▭ Type III Barricade
- ■■ Channelizing Devices
- ■ Type "C" Arrow Panel

Design	BY		5/79
	CK.		
Drawn	MCS		
Checked			5/79
Approved Signing Engineer			Date 6/6/79
Approved Chief Traffic Eng.			Date 6/7/79

OKLAHOMA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DEVICES FOR CONSTRUCTION WORK ZONES

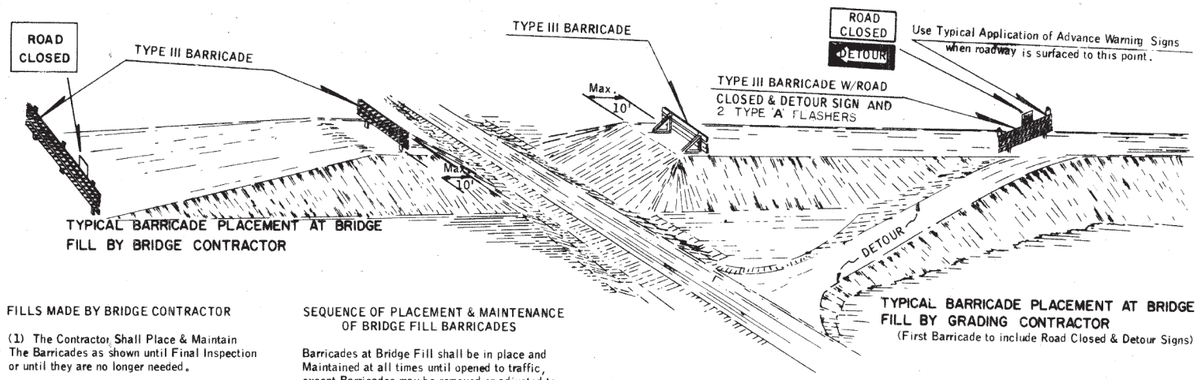
STD. NO. TCD-5-5

T-63

OKLA. DEPT. OF TRANSPORTATION

STD. NO. TCD-10-2

REVISIONS	DATE
Wing Barricade	3/80
Deleted Sign #4 on Wing Barricade	5/04



TYPICAL BARRICADE PLACEMENT AT BRIDGE FILL BY BRIDGE CONTRACTOR

TYPICAL BARRICADE PLACEMENT AT BRIDGE FILL BY GRADING CONTRACTOR
(First Barricade to include Road Closed & Detour Signs)

FILLS MADE BY BRIDGE CONTRACTOR

(1) The Contractor Shall Place & Maintain The Barricades as shown until Final Inspection or until they are no longer needed.

(2) The Contractor shall notify the Engineer prior to removal of the Barricades.

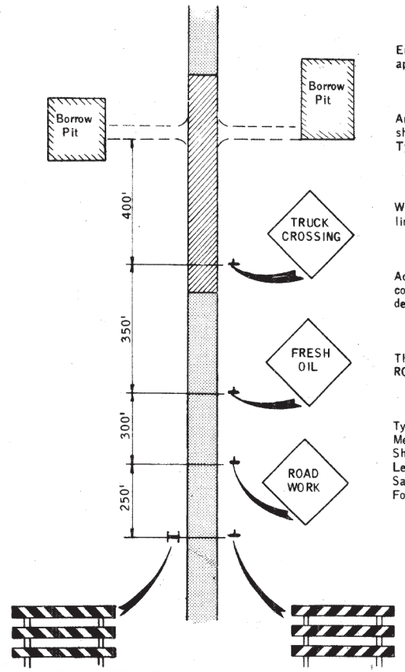
(3) The Engineer shall notify the Grading Contractor to furnish and erect his Barricades "IMMEDIATELY" after removal by the Bridge Contractor of his Barricades. The Grading Contractor shall maintain his Barricades until Final Inspection or until they are no longer needed.

SEQUENCE OF PLACEMENT & MAINTENANCE OF BRIDGE FILL BARRICADES

Barricades at Bridge Fill shall be in place and Maintained at all times until opened to traffic, except Barricades may be removed or adjusted to permit actual construction operations at the Site, but shall be replaced as soon as possible.

FILLS MADE BY GRADING CONTRACTOR

(1) The Contractor shall place and maintain the Barricades as shown until final inspection or until they are no longer needed.
(2) If the Bridge Work Order is issued prior to completion of the Grading Contract, the Bridge Contractor shall arrange with the Grading Contractor to replace those barricades furnished by the Grading Contractor with his own and it shall be the Bridge Contractor's responsibility to maintain the Barricades after the fill is completed until his final inspection or until they are no longer needed.
(3) If the Bridge Work Order has not been issued prior to the final inspection of the Grading, then the Grading Contractor shall arrange with the State Forces to replace the Barricades furnished by the Grading Contractor. The State Forces shall maintain the Barricades erected by them until such time as the Bridge Work Order is issued. When the Bridge Work Order is issued the Bridge Contractor shall replace those Barricades furnished by the State Forces with his own and maintain them until his final inspection or until they are no longer needed.



Erection of signs to be identical for each approach.

Any material left on roadway or shoulder shall have standard Vertical Panel and/or Type "A" Flashers placed at night

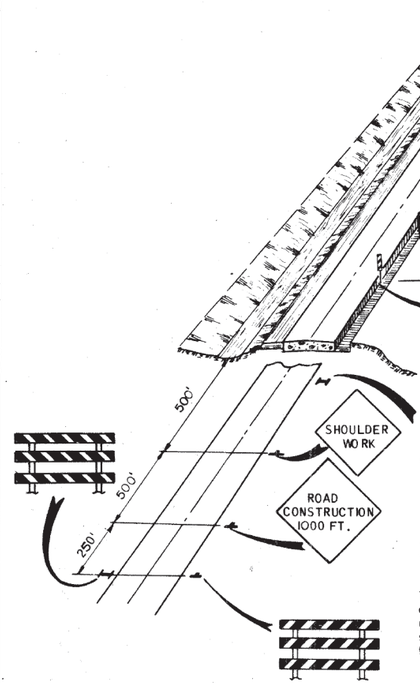
When several repair areas are within the project limits, repeat all necessary and applicable signs.

Advisory speed plate may also be placed in conjunction with warning signs. Speeds to be determined by the Engineer at site.

This sign message variable to suit existing conditions. ROUGH ROAD, LOOSE GRAVEL, FRESH OIL, ect.

Typical Construction Warning Signs Shown With Messages Other Than Detailed on Standard Drawings Shall Be Constructed Using The Largest Possible Letter Sizes. Sign Size And Color Shall Be The Same As Other Construction Warning Signs Used For Similar Conditions.

TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES WHERE TRUCKS ARE CROSSING, FRESH OIL ON ROAD, ETC.



Vertical panels may be spaced closer than 300' depending on degree of hazard.

Vertical Panel to be placed along edge of slab. *

Type II Barricade with Type 'A' Flasher

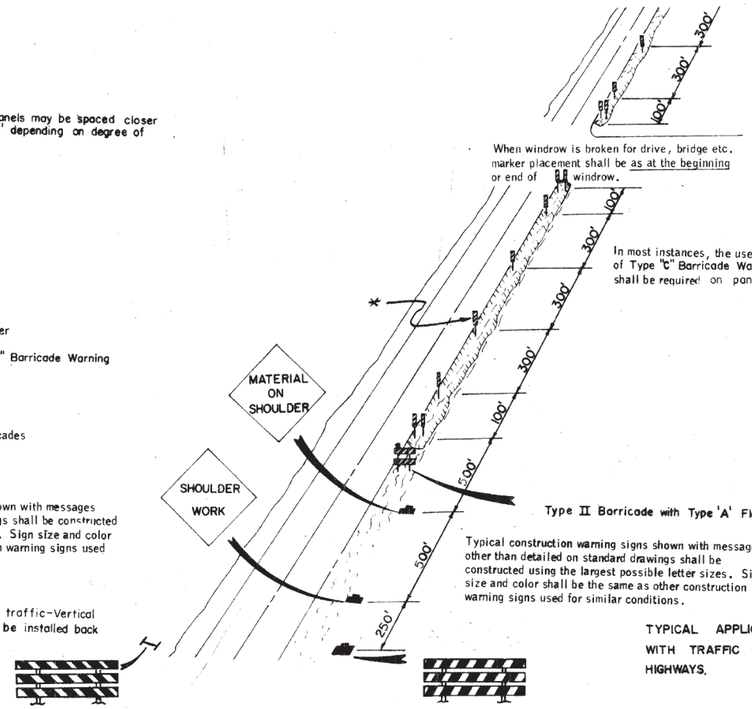
In most instances, the use of Type "C" Barricade Warning shall be required on panels.

Flashers, Signs and Barricades to be moved as work progresses or as directed by the Engineer.

Typical construction warning signs shown with messages other than detailed on standard drawings shall be constructed using the largest possible letter sizes. Sign size and color shall be the same as other construction warning signs used for similar conditions.

TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR TRENCH WIDENING OR FULL WIDTH SHOULDER WIDENING

* When 2 way traffic-Vertical Panels shall be installed back to back.



In most instances, the use of Type "C" Barricade Warning Lights shall be required on panels.

Type II Barricade with Type 'A' Flasher

Typical construction warning signs shown with messages other than detailed on standard drawings shall be constructed using the largest possible letter sizes. Sign size and color shall be the same as other construction warning signs used for similar conditions.

TYPICAL APPLICATIONS OF VERTICAL PANEL WITH TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAYS.

Design	BY WDG / CK		5/79
Drawn			
Checked	WN BGT / WDG		5/79
Approved H.D. Lamm Signing Engineer		Date	6/6/79
Approved H.A. Norman Chief Traffic Eng.		Date	6/8/79

OKLAHOMA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DEVICES FOR CONSTRUCTION WORK ZONES

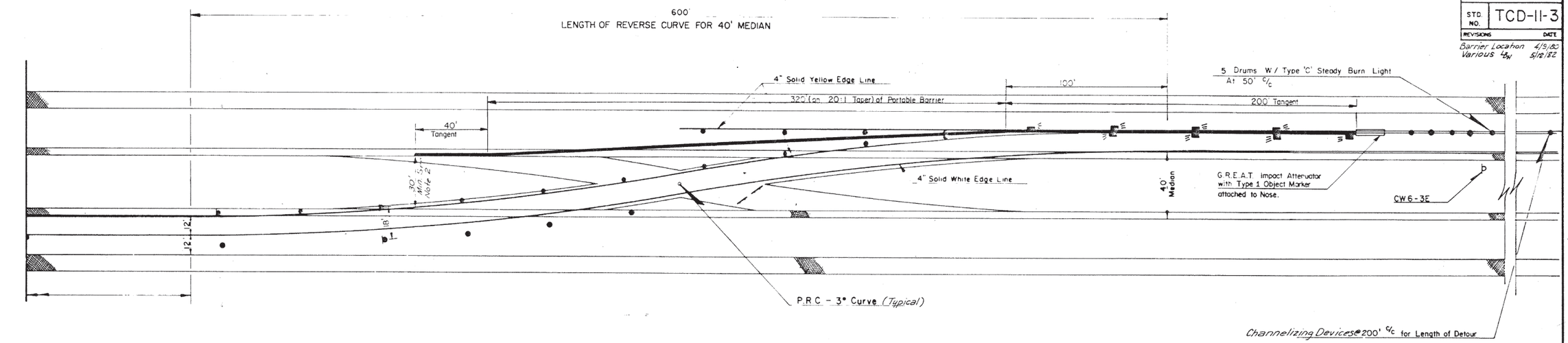
STD. NO. TCD-10-2

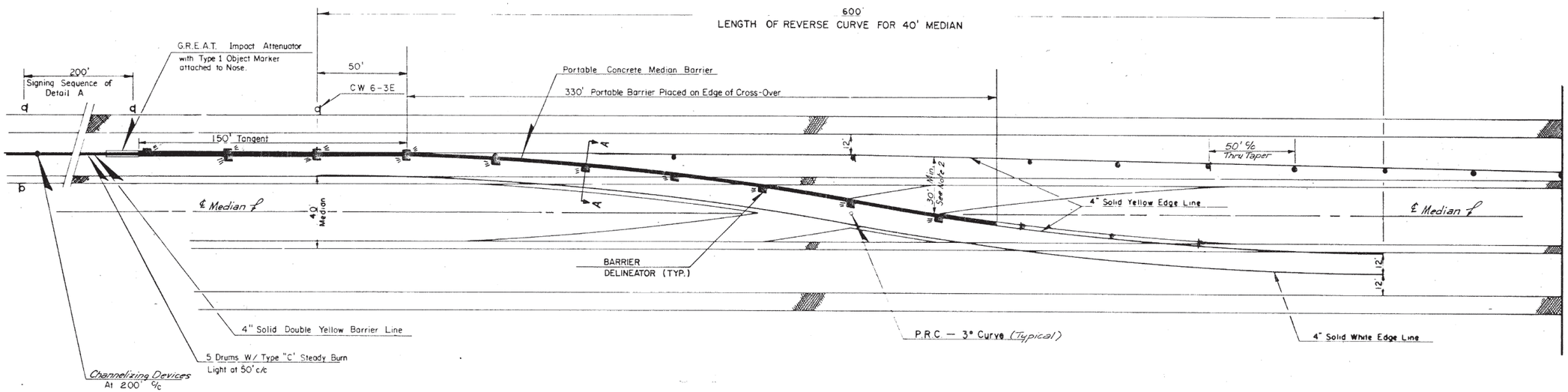
T-64D

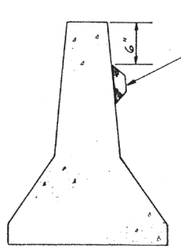
FILE 147

OKLA. DEPT. OF TRANSPORTATION

STD. NO.	TCD-11-3
REVISIONS	DATE
Barrier Location Various	4/9/80 5/12/82







Barrier Delineator @ 50' Spacing
Stimsonite Model P/N 962Y or an approved equal.
Delineator shall have 7.0 Sq. In. (MIN.) Reflective Area. See Std. Specification 710.01 (d) through (h)
Delineator to be installed as recommend by the manufacturer.
Cost to be included in other items of work.

NOTES:

1. For signing, striping, barricade placement details see Std. TCD-5 *–(Latest Revision)*
2. Unprotected ends of Concrete Median Barrier shall be a min. of 30' from edge of travel roadway.

DETAIL OF TWO-WAY OPERATION ON ONE SIDE OF DIVIDED HIGHWAY

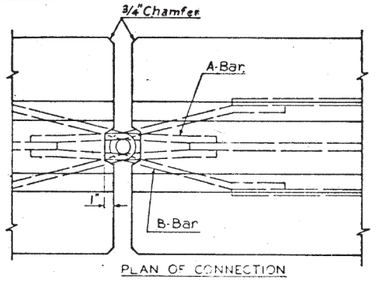
Design	LBT TCK		
Drawn		N.A.C.	1-2-80
Checked		B.E.T.	1-2-80
Approved Signing Engineer			Date 1-2-80
Approved Chief Traffic Eng.			Date 1-6-80

OKLAHOMA DEPARTMENT OF TRANSPORTATION

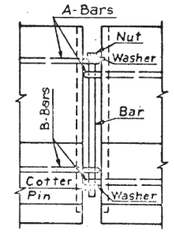
TRAFFIC CONTROL DEVICES FOR CONSTRUCTION WORK ZONES

STD. NO. TCD-11-3

OLD 4-6-89 T-132

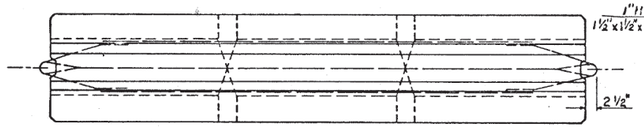


PLAN OF CONNECTION

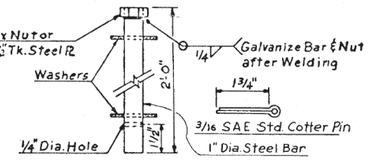


Second Unit First Unit to be Placed

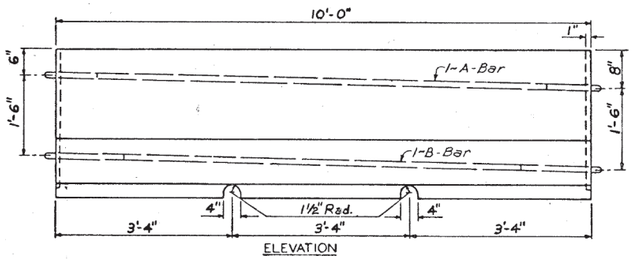
DETAIL OF CONNECTION



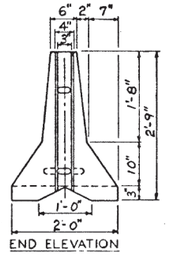
PLAN



CONNECTOR PIN ASSEMBLY

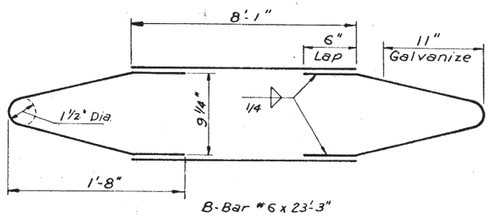


ELEVATION



END ELEVATION

DETAIL OF PRECAST MEDIAN BARRIER

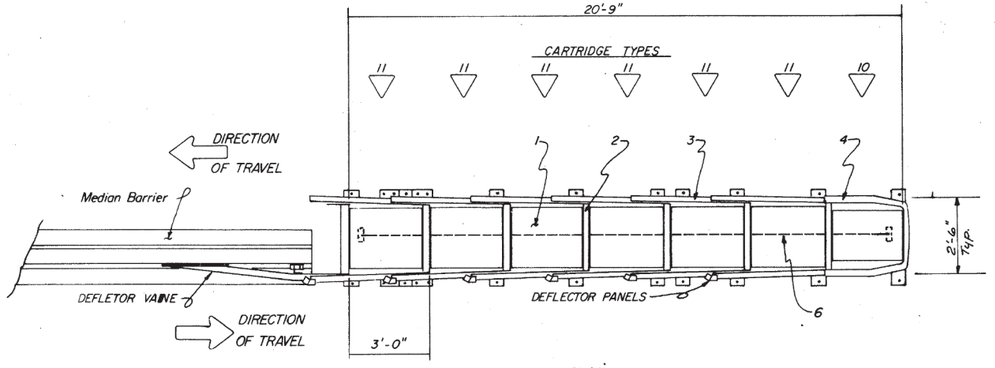


B-Bar #6 x 23'-3"

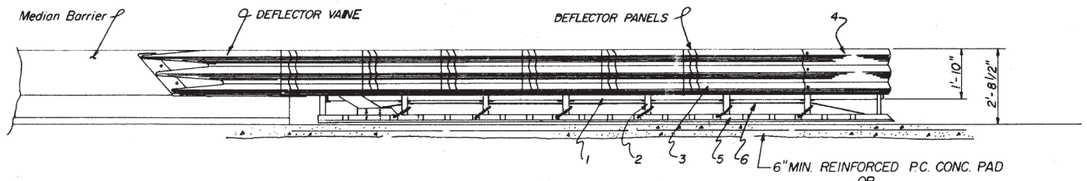
DETAIL OF PORTABLE MEDIAN BARRIER FOR CONSTRUCTION ZONES

GENERAL NOTES

1. THE PRECAST CONCRETE MEDIAN BARRIER PROVIDED BY THE CONTRACTOR SHALL MEET THE REQUIREMENTS OF SPECIAL PROVISION 627.



PLAN
OFFSET POSITION

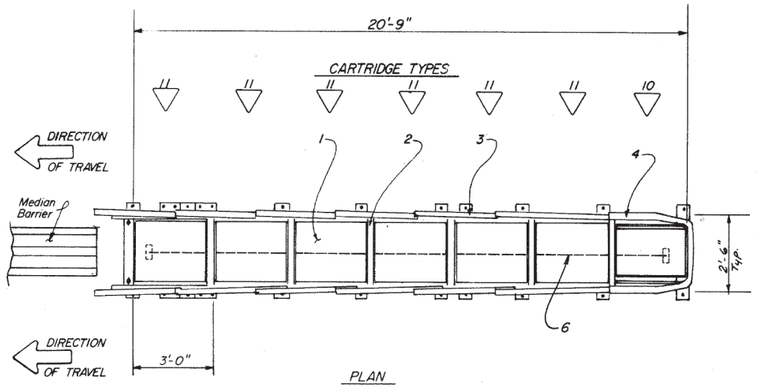


ELEVATION
OFFSET POSITION

KEY

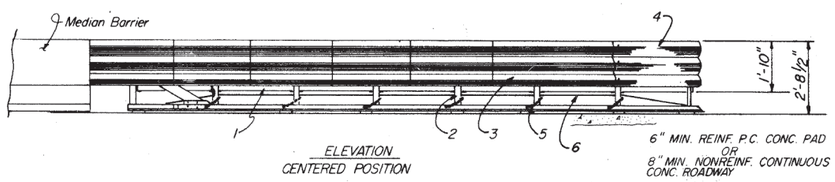
1 HI-DRI CARTRIDGE
2 DIAPHRAGM
3 THRIE BEAM FENDER PANEL
4 NOSE COVER
5 PLATFORM
6 RESTRAINING CABLE

MODEL NO. 20620656 G-R-E-A-T C.Z.



PLAN
CENTERED POSITION

MODEL NO. 20620656 G-R-E-A-T C.Z.



ELEVATION
CENTERED POSITION

DETAIL OF ATTENUATORS FOR CONSTRUCTION ZONES

GENERAL NOTES

1. THE IMPACT ATTENUATOR PROVIDED BY THE CONTRACTOR SHALL MEET THE REQUIREMENTS OF SPECIAL PROVISION 874(a-d)
2. PORTABLE UNITS WILL SET UPON 1/4" STEEL PLATES SIZED TO ACCOMODATE THE PORTIONS OF THE UNIT WHEN IT IS DISASSEMBLED FOR TRANSPORT.
3. THE BACKUP WILL BE DESIGNED SUCH THAT THE WHOLE UNIT IS SELF-CONTAINED AND IS NOT DEPENDENT ON BACKUP SUPPORT FROM THE CONCRETE BARRIER SECTIONS.
4. LIFT LUGS MAY BE 3" x 3" x 5/16" L's WITH LIFTING HOLES OR SWIVELING/ LAY FLAT "U" SHAPED PINNED DEVICES WELDED AND REINFORCED AS NECESSARY.
5. WHEN THE IMPACT ATTENUATOR IS TO BE USED IN THE "CENTERED POSITION" THE DEFLECTOR VANE AND DEFLECTOR PANELS WILL NOT BE REQUIRED. (SEE DETAIL) ATTENUATOR POSITION SHALL BE SHOWN IN THE PLANS, OR ESTABLISHED BY THE ENGINEER.
6. REFERENCE TO THRIE BEAM SHALL MEAN GUARDRAIL WITH THREE CORRUGATIONS (AASHTO M-180) EXCEPT AS SPECIFIED OTHERWISE.
7. THE IMPACT ATTENUATOR SHALL BE LOCATED NO CLOSER THAN 2'-2" FORWARD OF ANY OBSTRUCTION WHICH WOULD PREVENT THE REARWARD MOVEMENT OF THE LAST BAY FENDER PANELS.

THIS STANDARD SHEET SHALL BE USED IN CONJUNCTION WITH STANDARD DRAWING TCD-11-(latest revision)

OKLA. DEPT. OF TRANSPORTATION

STD. NO.	TCD-12-2

REVISIONS	DATE
Added Restraining Cable to G.R.E.A.T. C.Z.	7/18/01
Title Block	5/13/02

	BY	CK	
Design			
Drawn	HALL		1/80
Checked	TAYLOR		1/80
Approved ..... Traffic Engineer			Date
Approved ..... Chief Traffic Eng.			Date 1/29/80

OKLAHOMA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DEVICES FOR CONSTRUCTION WORK ZONES

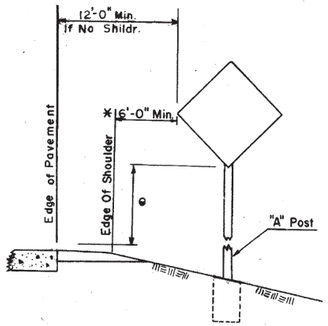
STD. NO. TCD-12-2

T-64F

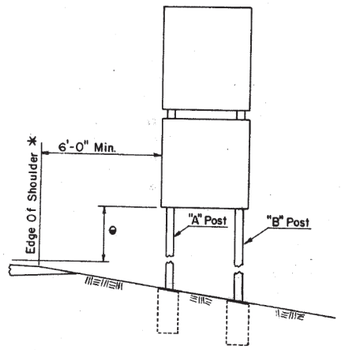
SCHEMMER

OKLA. DEPT. OF TRANSPORTATION

STD. NO.	GMS-1-19
REVISIONS	DATE
Various (RT)	8-17-79
REV. NOTE (PA)	8-29-79
REV. FOOTINGS (PA)	12-81



TYPICAL SINGLE POST INSTALLATION, SHOULDER SECTION

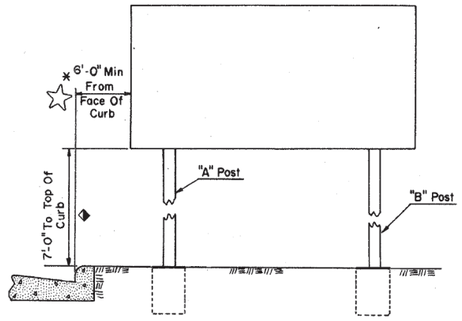


TYPICAL DOUBLE POST INSTALLATION "MAXIMUM" "MINIMUM" SPEED LIMIT SIGNS

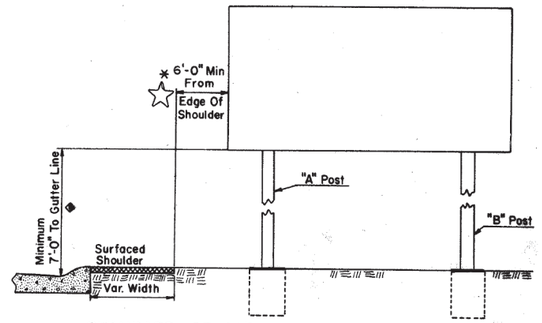
☆ Normally, on Freeway and Expressway mainlines, standard or special information Signs shall be located with a lateral clearance of 10'-0" from face of non-mountable curbs or guard rails, 20' from edge of shoulder. In all cases, except when sign supports are protected by barriers, signs shall have a lateral clearance of 30' from edge of driving lane.

Along interchange ramps the lateral clearance shall normally be 10'.

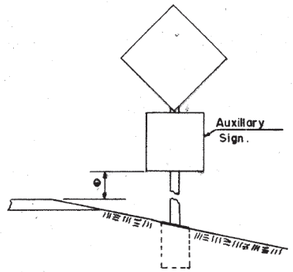
The "2-MILE" advance guide sign may be located longitudinally ± 800' from the exact 2 mile distance to ramp exit, the "1-MILE" advance guide sign ± 500' and the "1/2-MILE" advance guide sign ± 200'. This may be done in order to take advantage of flatter side slopes, obtaining clearnace from drainage structure and other factors which would permit use of shorter sign posts and/or permit better viewing of the sign.



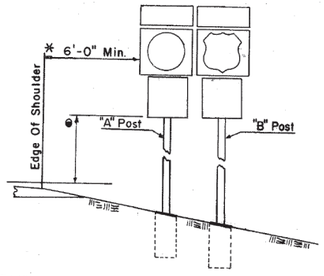
STANDARD OR SPECIAL INFORMATION SIGN WITH NON-MOUNTABLE CURB



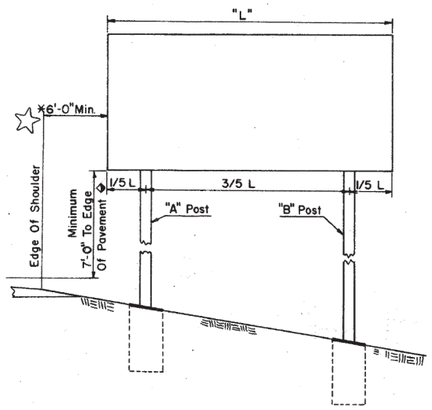
STANDARD OR SPECIAL INFORMATION SIGN, MOUNTABLE CURB WITH BERM



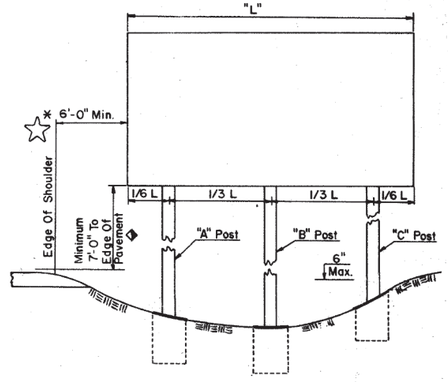
TYPICAL SINGLE POST INSTALLATION WITH AUXILLARY SIGN



TYPICAL DOUBLE POST INSTALLATION



STANDARD OR SPECIAL INFORMATION SIGN WITHOUT BERM

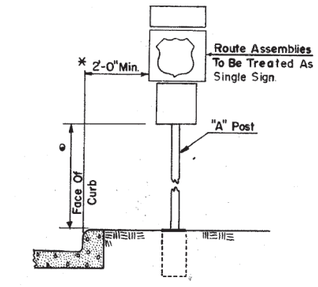


TYPICAL SECTION FOR TRIPLE POST STANDARD OR SPECIAL INFORMATION SIGN

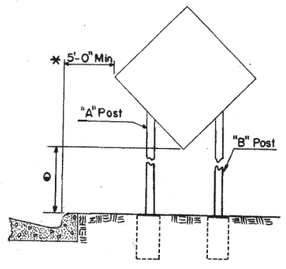
*=The Minimum Lateral Clearance Of The Sign From The Edge Of Shoulder Or Face Of Curb Shall Be As Shown On This Standard Drawing Except As Otherwise Shown On Plans.

When Signs Are Noted To Be Placed 6 Feet To 9 Feet From Shoulder, The Tolerance Shall Be The Distance Shown +1'. When 10 Feet Or More From Edge Of Shoulder, The Tolerance Shall Be The Distance Shown + 2'.

In Instances Where The Lateral Clearance Shown Causes The Footing To Be Located Undesireably, Such As The Bottom Of Ditches, Ect., The Engineer May, At His Discreation, Adjust The Location, As Necessary Outward From The Roadway.



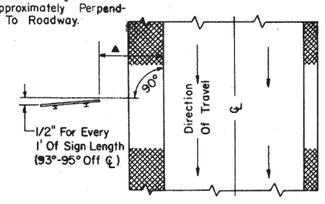
TYPICAL SINGLE POST INSTALLATION NON-MOUNTABLE CURB



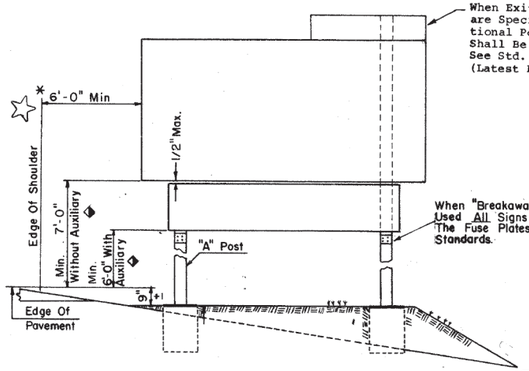
TYPICAL DOUBLE POST INSTALLATION WITH NON-MOUNTABLE CURB

NOTE: Signs Shall Be So Positioned To Eliminate Or Minimize Specular Reflection. Due To The Numerous Variations In Road Curves And Grades, This General Rule May Not Always Be Applicable, And Signs Shall Be Positioned As Determined By The Engineer.

▲ When Lateral Clearance Is 30' Or Greater From Edge Of Pavement Sign Is To Be Approximately Perpendicular To Roadway.



TYPICAL DETAIL OF SIGN POSITIONING

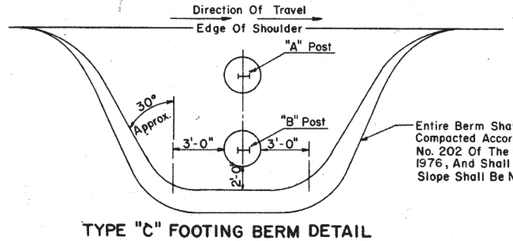


STANDARD OR SPECIAL INFORMATION SIGN WITH BERM (WITH OR WITHOUT AUXILIARY SIGN)

◆ = WHEN LATERAL CLEARANCE OF STANDARD OR SPECIAL INFORMATION (GUIDE) SIGNS IS 30' OR GREATER FROM EDGE OF PAVEMENT (20' FROM EDGE OF SHOULDER) THE MINIMUM VERTICAL CLEARANCE MAY BE 5'-0"

● = MINIMUM MOUNTING HEIGHT ABOVE NEAR EDGE OF PAVEMENT:
- 5'-0" RURAL
- 7'-0" URBAN AND/OR BUSINESS AND COMMERCIAL AREAS
- 6'-0" EXPRESSWAYS AND FREEWAYS

IF FURTHER CLARIFICATION OF VERTICAL AND LATERAL CLEARANCES IS REQUIRED, SEE SECTIONS 2A-23 AND 2A-24 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, EDITION 1978.



Entire Berm Shall Be Placed And Compacted According To Section No. 202 Of The STANDARD SPEC. 1976, And Shall Be Slab Sodded. Slope Shall Be No Steeper Than 6:1.

TYPE "C" FOOTING BERM DETAIL

Design	BY		
	CK		
Drawn			
Checked			
Approved Signing Engineer		Date	4-3-79
Approved Chief Traffic Eng.		Date	4-3-79

OKLAHOMA DEPARTMENT OF TRANSPORTATION

TYPICAL INSTALLATIONS, GROUND MOUNTED SIGNS

OKLA. DEPT. OF TRANSPORTATION TRAFFIC ENGINEERING DIVISION

STD. NO. G. M. S.-1-19

T-1

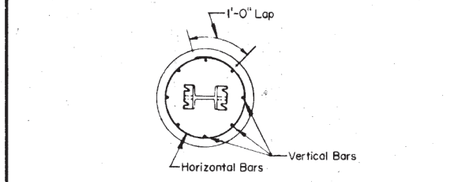
OD 4/6/89 rus

SCHEMMER

OKLA. DEPT. OF TRANSPORTATION

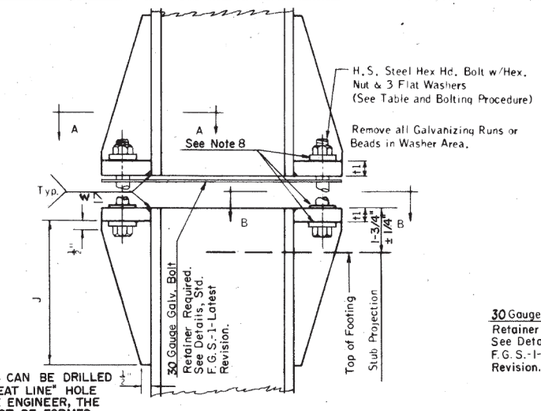
STD. NO.	F.G.S.-2-17

REVISIONS	DATE
REDRAWN	4-79
Revised Note 2 (RT)	12/79
Rev. Retainer Plate Guage Rev. Note 8	3/80
REV. FOOTING.	1/82

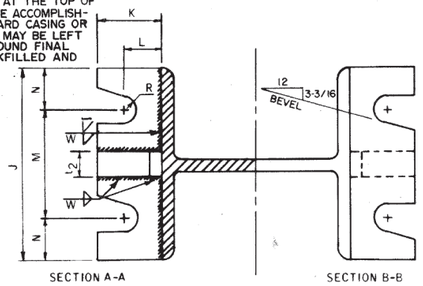


⊕ WHEN HOLE FOR FOOTING CAN BE DRILLED AND MAINTAINED AS A "NEAT LINE" HOLE IN THE OPINION OF THE ENGINEER, THE UPPER PORTION NEED NOT BE FORMED. IF FORMING IS REQUIRED, A MINIMUM OF 12" SHALL BE REQUIRED AT THE TOP OF FOOTING. FORMING MAY BE ACCOMPLISHED BY USE OF A CARDBOARD CASING OR SIMILAR MATERIAL THAT MAY BE LEFT IN PLACE. ANY VOID AROUND FINAL FOOTING SHALL BE BACKFILLED AND FIRMLY TAMPED.

TYPICAL "KC" FOOTING DETAILS

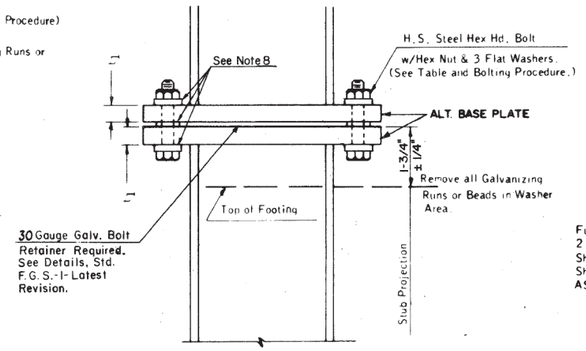


BASE PLATE DETAILS

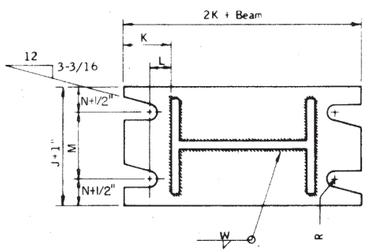


(See Table for Dimensions)

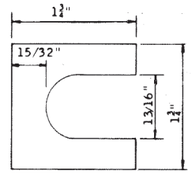
Sections Shown are for Installations on Right Shoulder and in Gore. Plate Slot Bevels are Opposite Hand From That Shown for Installations on Left Shoulder.



ALT. BASE PLATE DETAILS



ALTERNATE BASE PLATE
(See table for Dimensions and Note for Slot Bevels)



SHIM DETAIL

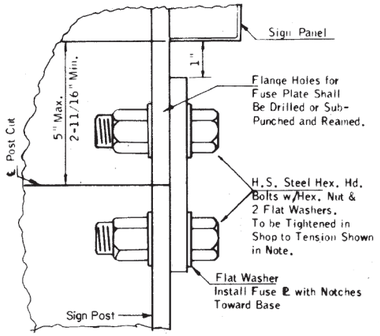
Furnish 2 @ .012" ± Thick and 2 @ ±.032" Thick Shims for Post. Shims shall be Fabricated From Brass Shim Stock or Strip Conforming to ASTM - B36.

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

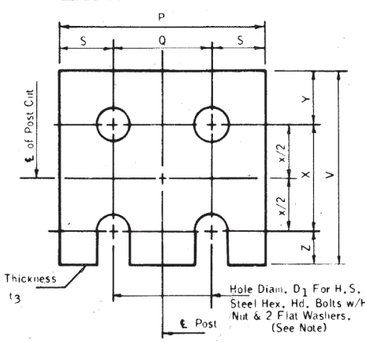
1. Assemble Post to Stub with Bolts and Washers and with One Flat Washer on each Bolt and Bolt Retainer BETWEEN Base Plates.
2. Shim as Required to Plumb and Align Post (s) Before or Immediately After Pouring Concrete Footing.
3. Tighten All Bolts, In a Systematic Order, to the Prescribed Torque to Bed Washers and Shims and Clean Bolt Threads.
4. Loosen and Retighten to Prescribed Torque in the Same Order as Initial Tightening. DO NOT OVER TIGHTEN.

CONSTRUCTION NOTES:

1. All Pipe and Wide Flange Beam Posts Shall Conform To Requirements of Section 721, 1976 Standard Specifications.
2. Fuse Plate Shall Conform to the Requirements of ASTM-A441, A572 Grade 50 or A588. All holes shall be Drilled. All Plate Cuts shall be preferably Saw Cuts, however, Flame Cutting will Be Permitted Provided all edges are Ground. Metal Projecting Beyond the Plane of the Plate Face will not be Tolerated.
3. All Bolts, Nuts, and Washers Shall Not Be Galvanized or Plated, but Shall be Painted, After Installation, with a Zinc Rich Paint.
4. Structural Steel To Be Galvanized After Fabrication, Except as Noted, In Accordance with Section 721, 1976 Standard Specifications.
5. Post Lengths as shown on the Plans Include both Sign Post & Stub Post which is Set in the Concrete Footing.
6. All Welding Materials and Methods, Including Qualifications of Welders, Shall Conform to the Requirements of Section 506, 1976 Standard Specifications.
7. Structural Excavation to be Paid For in Other Items of Work.
8. Top and Bottom Washers on Base Plate Shall Be 1/4" Thick. Washers May Be Round or Square. Use Standard Round Washers Between Base Plates.



FUSE PLATE DETAILS



SIGN POST DETAILS

TYPE "KC" FOOTING DATA

Footing Design No.	Size Post Required	FOOTING DIMENSIONS D	H	E	Vertical Bars	Horiz. Bars	QUANTITIES Class "A" Concrete	Reinforcing Steel
KC-0	4"WF 13	18"	5'-6"	2'-6"	6 #6	6 #4	.36 Cu.Yd.	65 Lbs.
KC-1	6"WF 15	24"	6'-6"	2'-6"	8 #7	7 #4	.76 Cu.Yd.	129 Lbs.
KC-1	6"WF 20	24"	6'-6"	2'-6"	8 #7	7 #4	.76 Cu.Yd.	129 Lbs.
KC-2	6" WF 25	24"	7'-0"	2'-6"	8 #8	8 #4	.82 Cu.Yd.	174 Lbs.
KC-3	8" WF 31	24"	8'-6"	3'-0"	8 #10	9 #4	.99 Cu.Yd.	316 Lbs.
KC-4	8" WF 35	24"	9'-0"	3'-0"	8 #10	10 #4	1.05 Cu.Yd.	338 Lbs.
KC-5	8" WF 40	24"	9'-6"	3'-0"	8 #11	10 #4	1.11 Cu.Yd.	428 Lbs.
KC-6	10" WF 45	30"	10'-0"	3'-6"	10 #11	11 #4	1.82 Cu.Yd.	567 Lbs.
KC-7	10" WF 49	30"	10'-6"	3'-6"	10 #11	11 #4	1.91 Cu.Yd.	593 Lbs.

ALL FUSE PLATE NUTS SHALL BE TIGHTENED IN THE SHOP TO PRODUCE THE REQUIRED MINIMUM BOLT TENSION IN CONFORMATION WITH ASTM-A325 OR THE EQUIVALENT TORQUE AS SHOWN IN THE TABLE BELOW. AFTER POSTS ARE SHIPPED AND ERECTED AT THEIR SITES, THE NUTS SHALL BE LOOSENED AND RE-TORQUED TO THEIR PROPER VALUE.

AFTER BEING RE-TORQUED TO THE SATISFACTION OF THE ENGINEER, THE NUTS, BOLTS AND WASHERS SHALL BE FREED OF RUST, CLEANED AND GIVEN A HEAVY AND THOROUGH COAT OF ZINC-RICH PAINT.

BOLT SIZE	TORQUE	MIN. RESIDUAL TENSION
1/2" ø	100 Ft. Lbs.	12,050 Lbs.
5/8" ø	200 Ft. Lbs.	19,200 Lbs.
3/4" ø	355 Ft. Lbs.	28,400 Lbs.
7/8" ø	526 Ft. Lbs.	36,050 Lbs.
1" ø	789 Ft. Lbs.	47,250 Lbs.
1-1/8" ø	1,350 Ft. Lbs.	56,450 Lbs.

TYPE "KC" POST DATA

Footing Design No.	SIZE POST REQUIRED	BASE CONNECTION DATA TABLE BASE ℄ BOLTS	BOLT TORQUE MIN.	BOLT TORQUE MAX.	J	K	L	M	N	t_1	t_2	W	R
KC-0 *	4"WF 13	3/4" ø x 3"	67.5 Ft.Lbs.	88.3 Ft. Lbs.	FOR DETAILS OF "KC-0" BASE PLATE SEE STD. F.G.S.-1-(LATEST REVISION).								
KC-1	6" WF 15	3/4"øx 3"	67.5 Ft. Lbs.	88.3 Ft. Lbs.	6"	2-1/8"	1-1/4"	3-1/2"	1-1/4"	3/4"	7/8"	5/16"	7/16"
KC-1	6" WF 20												
KC-2	6" WF 25												
KC-3	8" WF 31	1" øx 3-1/4"	77.1 Ft.Lbs.	118.2 Ft.Lbs.	8"	2-3/4"	1-5/8"	4-1/2"	1-3/4"	3/4"	1-1/8"	5/16"	9/16"
KC-4	8" WF35												
KC-5	8" WF 40												
KC-6	10"WF 45	1-1/8" øx4"	87.5 Ft.Lbs.	138.0 Ft.Lbs.	10"	3"	1-3/4"	6"	2"	1"	1-3/8"	5/16"	5/8"
KC-7	10"WF 49												

Footing Design No.	FUSE PLATE DATA TABLE P	Q	S	V	X	Y	Z	t_3	BOLT DIAM.	D_1
KC-0 *	4"	2-1/4"	7/8"	4"	2-1/4"	1-1/8"	5/8"	3/8"	1/2"ø	9/16
KC-1	6"	3-1/2"	1-1/4"	4"	2-1/4"	1-1/8"	5/8"	3/8"	5/8" ø	11/16
KC-1	6"	3-1/2"	1-1/4"	4"	2-1/4"	1-1/8"	5/8"	1/2"	5/8" ø	11/16
KC-2	6"	3-1/2"	1-1/4"	4-1/2"	2-1/2"	1-1/4"	3/4"	1/2"	3/4" ø	13/16
KC-3	8"	5-1/2"	1-1/4"	5-3/8"	3"	1-1/2"	7/8"	1/2"	7/8" ø	15/16
KC-4	8"	5-1/2"	1-1/4"	5-3/8"	3"	1-1/2"	7/8"	1/2"	7/8" ø	15/16
KC-5	8"	5-1/2"	1-1/4"	6-1/4"	3-1/2"	1-3/4"	1"	5/8"	1" ø	1-1/16
KC-6	8"	5-1/2"	1-1/4"	6-1/4"	3-1/2"	1-3/4"	1"	5/8"	1" ø	1-1/16
KC-7	10"	5-1/2"	2-1/4"	7-1/8"	4"	2"	1-1/8"	5/8"	1-1/8" ø	1-3/16

* USE SINGLE FUSE PLATE. WHEN BIDIRECTIONAL BREAKAWAY POST IS SPECIFIED ON PLANS USE SPECIAL FUSE PLATE, SEE DETAILS ON STD. F.G.S.-1-(LATEST REVISION).

Design	By	W.D.G.	3-79
	Ck		
Drawn		R.L.T	3-79
Checked		W.D.G	4-79
Approved H. D. Garner Signing Engineer			Date 4-79
Approved H. Allbaugh Chief Traffic Eng.			Date 5-2-79

OKLAHOMA DEPARTMENT OF TRANSPORTATION

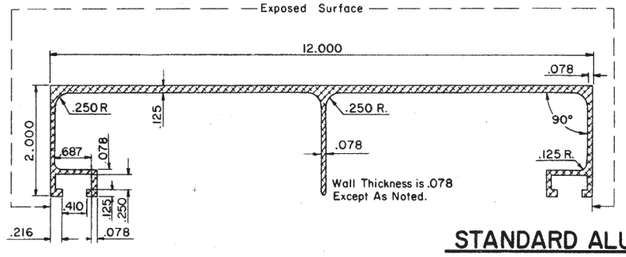
STANDARD FOOTINGS FOR GROUND MOUNTED SIGNS

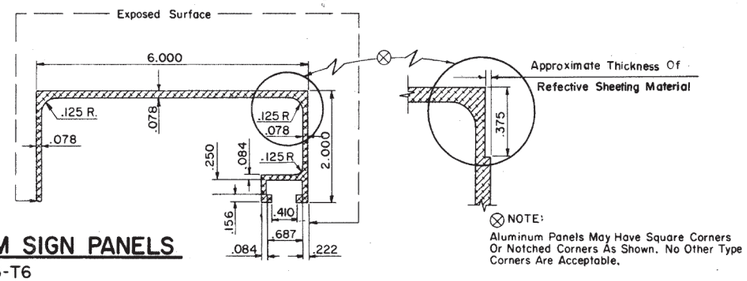
STD. NO.	F. G.S.-2-17

T-5

SCHEMMER

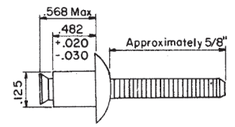
OKLA. DEPT. OF HIGHWAYS	
STD. NO.	S.P.A.-1-14
REVISIONS	DATE
REV. TITLE BLOCK 7-80	





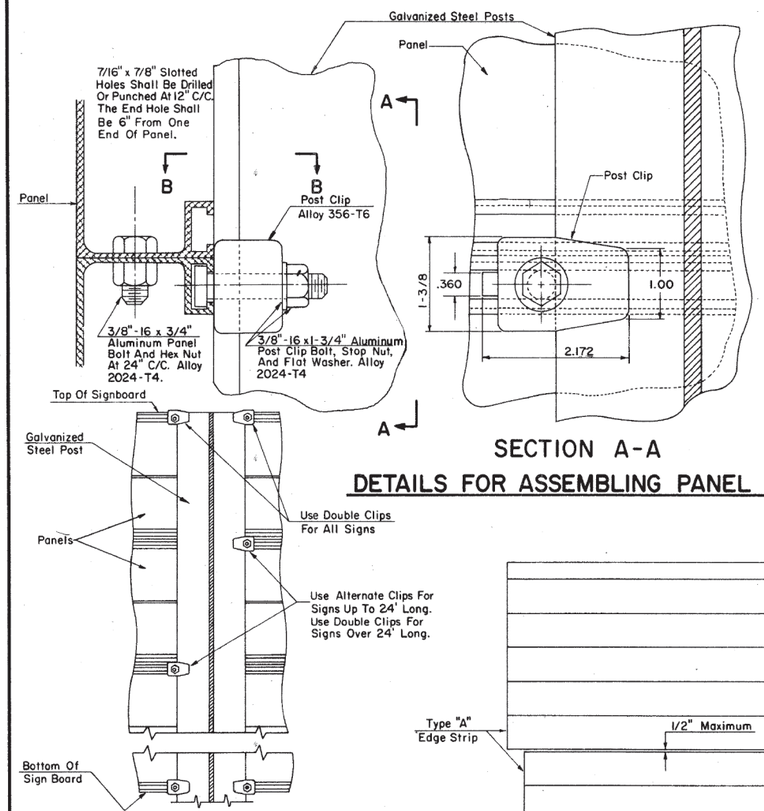
STANDARD ALUMINUM SIGN PANELS

ALLOY 6063-T6

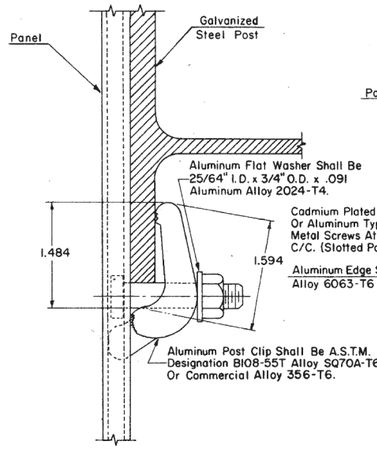


DETAIL OF A BLIND RIVET FOR CUTOUT LETTERS

(TYPICAL)

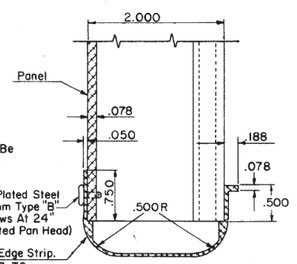


SECTION A-A

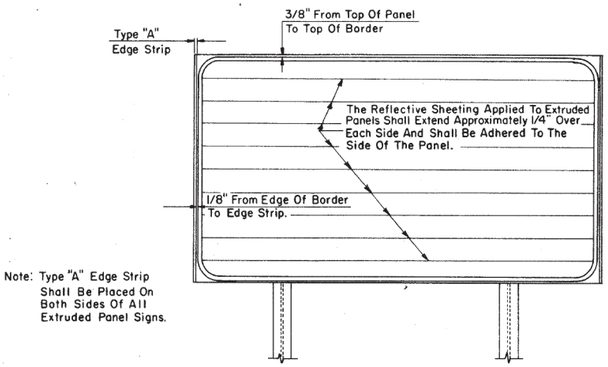


SECTION B-B

DETAILS FOR ASSEMBLING PANEL TYPE "A"



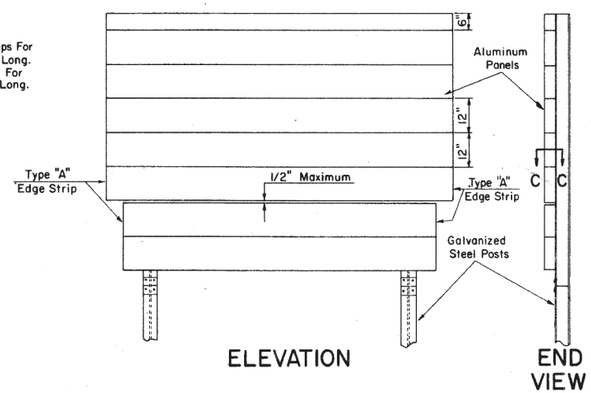
DETAIL OF TYPE "A" EDGE STRIP



Note: Type "A" Edge Strip Shall Be Placed On Both Sides Of All Extruded Panel Signs.

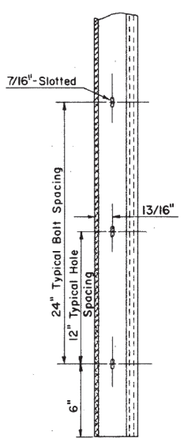
TYPICAL ASSEMBLY OF TYPE "A" EDGE STRIP, BORDER AND REFLECTIVE BACKGROUND

DETAIL OF POST CLIP LOCATION

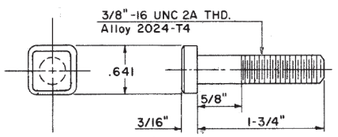


ELEVATION

END VIEW



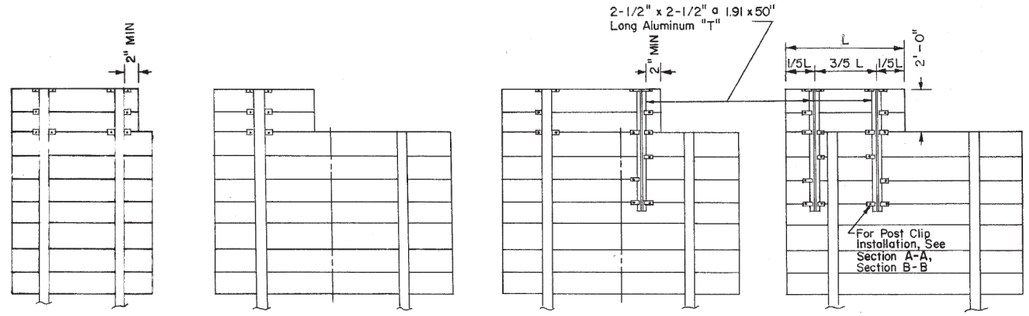
SECTION C-C



POST CLIP BOLT

TYPICAL ERECTION OF SIGN PANELS AND DETAILS OF AUXILIARY SIGN

NOTE
No More Than One 6" Panel Shall Be Used In
Making Of Either The Main Sign Or Auxiliary Sign.



TYPICAL DETAILS FOR MOUNTING EXIT PANEL SIGNS

NOTES:

EXIT NO. SIGNS SHALL BE MOUNTED ON EXTREME RIGHT OF GUIDE SIGNS FOR RIGHT EXITS OR EXTREME LEFT FOR LEFT EXITS.

EXIT NO. SIGN PANEL SHALL BE BOLTED TO MAIN SIGN -- SEE SECTION C-C THIS SHEET.

EDGE OF EXIT NO. SIGN SHOULD NOT EXTEND BEYOND EDGE OF MAIN SIGN.

"T" BRACES AND POST CLIPS SHALL BE PAID FOR IN PRICE BID FOR OTHER ITEMS OF WORK.

GALVANIZED STEEL "T" BRACES MAY BE SUBSTITUTED FOR ALUMINUM.

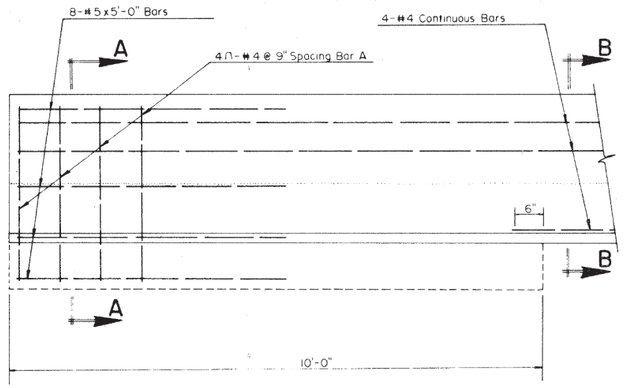
Design		
Drawn	P.A.	2-76
Checked		
Approved Signing Engineer		Date 9-27-80
Approved Chief Traffic Eng.		Date 9-27-80

OKLAHOMA DEPARTMENT OF TRANSPORTATION
STANDARD

ALUMINUM SIGN PANELS AND ASSEMBLY DETAILS

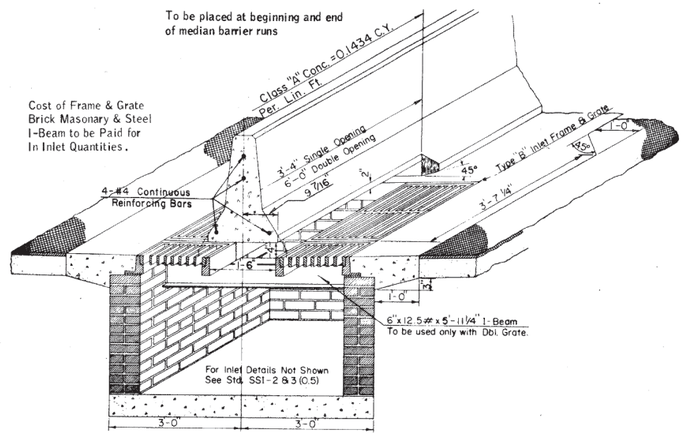
SPA-1-14

T 7

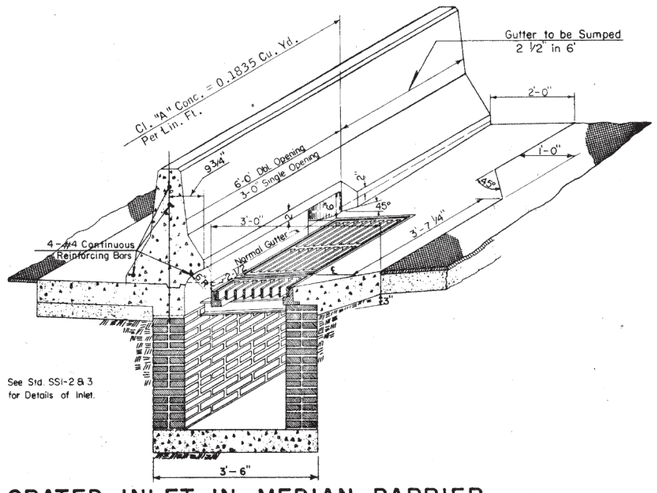


BARRIER END ANCHOR

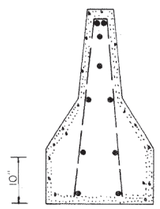
To be placed at beginning and end of median barrier runs



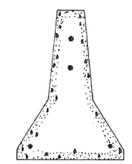
GRATED INLET FOR SUMP AREAS



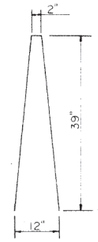
GRATED INLET IN MEDIAN BARRIER



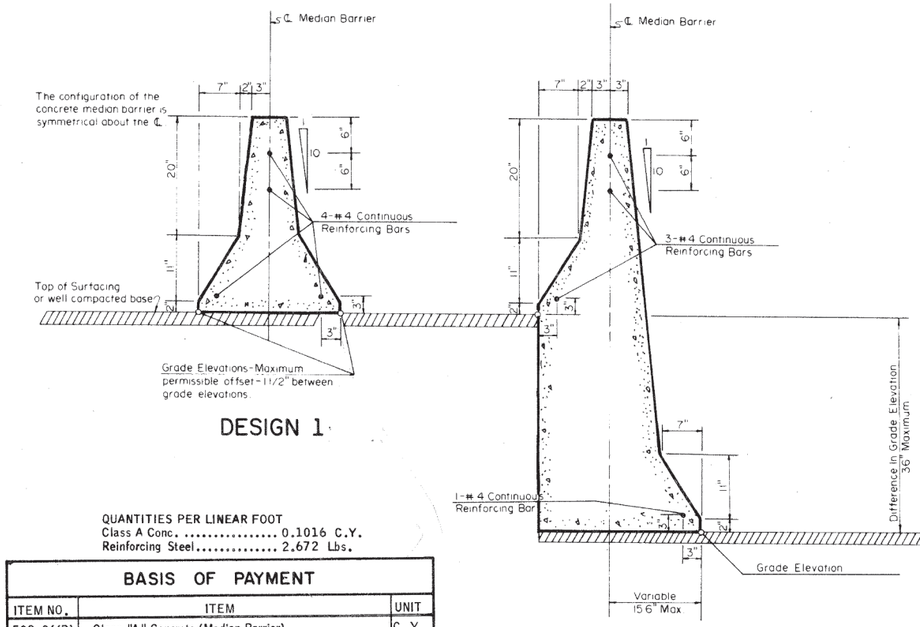
SECTION A-A



SECTION B-B



BENDING DIAGRAM BAR A



DESIGN 1

DESIGN 1A

QUANTITIES PER LINEAR FOOT
Class A Conc. ..... 0.1016 C.Y.
Reinforcing Steel..... 2.672 Lbs.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
509.06(B)	Class "A" Concrete (Median Barrier)	C. Y.
511.06	Reinforcing Steel	Lbs.

GENERAL CONSTRUCTION NOTES

(1) Price Bid shall include payment for materials, labor, Pipe sleeves, Expansion Joints, Expansion Joint material and all incidentals necessary to complete the installation.

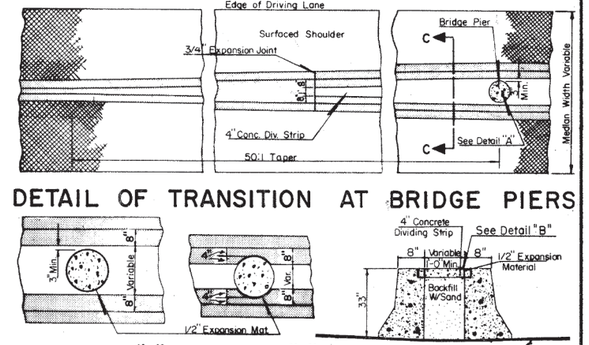
(2) For details of light pole footing, when lighting is required, see the current Std. Dwg. MBF-1 & MBF-2. Payment for **Median Barrier** is excluded for 5' at each light pole base.

(3) All construction and materials shall be in **accordance with the Oklahoma** Standard Specifications.

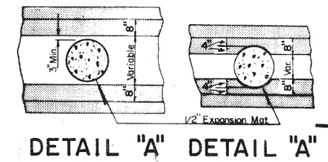
(4) All reinforcing steel shall be deformed bars, cold bent, no welds permitted and shall conform to the AASHTO M 31 Grade 40.

(5) Joints in the barrier are not required when barrier is placed on flexible base or Surfacing. When the barrier is placed on P. C. Concrete Surfacing the only joints required are those that shall match the joints on the rigid Surfacing.

(6) Unless otherwise specified on the plans, all exposed concrete surfaces shall have a finish in accordance with the current standard specifications.



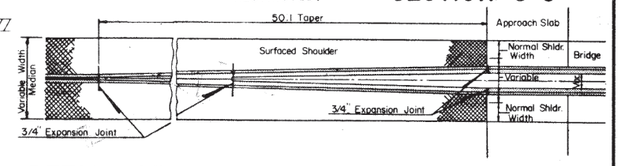
DETAIL OF TRANSITION AT BRIDGE PIERS



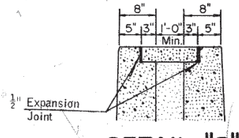
DETAIL "A" (NORMAL)

DETAIL "A" (WHEN LATERAL CLEARANCE IS RESTRICTED)

SECTION C-C



DETAIL OF TRANSITION AT BRIDGE ENDS



DETAIL "B"

Design	By		
	Ck.		
Drawn			
Checked			
Approved		Date	
Urban Des. Engineer			
Approved		Date	7/1/86
Rural Des. Engineer			

OKLA. DEPT. OF TRANSPORTATION

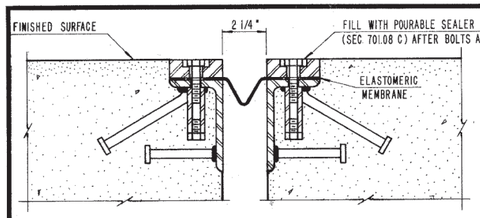
MEDIAN BARRIER

MB-1-3

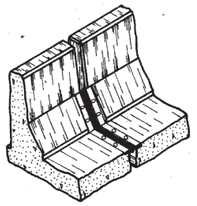
126

OLD 4/6/89

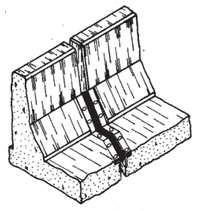
SCHEMMER



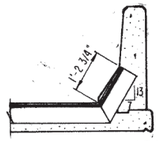
TYPICAL SECTION THRU JOINT
(ELASTOMERIC SHEET TYPE STRIP SEAL)



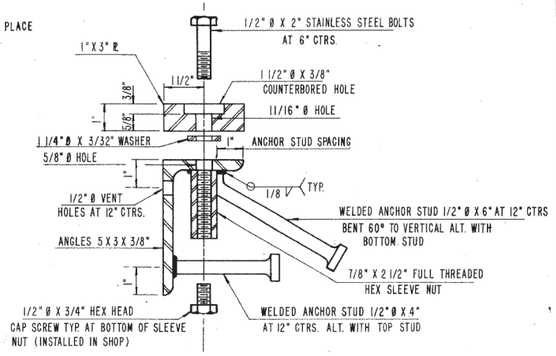
PICTORIAL VIEW
(90° JOINTS w/PARAPET)



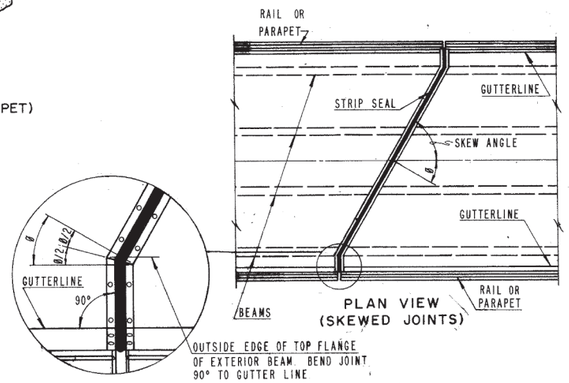
PICTORIAL VIEW
(SKEWED JT. w/PARAPET)



EXPANSION JOINT DETAIL
AT PARAPET



DETAIL OF JOINT STRUCTURAL STEEL



PLAN VIEW
(SKEWED JOINTS)

STRIP SEAL TYPE EXPANSION JOINT

THE STRIP-SEAL EXPANSION JOINT SHALL HAVE A MINIMUM MOVEMENT RANGE OF UP TO 4" AND SEAL THE DECK TO PREVENT MOISTURE OR OTHER CONTAMINANTS FROM DESCENDING ONTO THE LOWER STRUCTURE COMPONENTS. THE MAXIMUM EXPANSION LENGTH TO THE JOINT SHALL BE 320' FOR STEEL BEAM SPANS AND 440' FOR CONCRETE BEAM SPANS. OTHER STRIP-SEAL JOINTS MEETING THE MECHANICAL AND PHYSICAL REQUIREMENTS AS SHOWN OR NOTED ON THESE PLANS MAY BE USED WHEN APPROVED BY THE BRIDGE ENGINEER. THE TYPE OF STRIP-SEAL SELECTED FOR THE BRIDGE MUST BE USED FOR ALL STRIP-SEAL JOINTS ON THAT BRIDGE.

ELASTOMER: THE ELASTOMER SHEET SHALL BE 1/8" THICK 100% VIRGIN POLYISOPRENE OR 100% VIRGIN CHLOROPRENE REINFORCED WITH A NON-WICKING SYNTHETIC FABRIC, MEETING THE PROPERTIES SPECIFIED IN SECTION 733.05, AND HAVING A DUROMETER HARDNESS OF 70 TO 80. THE SHEET WIDTH SHALL CORRESPOND TO THE EMBEDDED ANGLE WIDTH PLUS THE MAXIMUM JOINT OPENING. THE SHEET SHALL BE COMPLETELY SEATED ON THE EMBEDDED ANGLES AND SHALL BE CONTINUOUS FOR THE FULL LENGTH OF THE JOINT INCLUDING CURBS OR PARAPET FACE. HOLES IN THE ELASTOMER SHEET SHALL BE SHOP PUNCHED 1 1/4" DIAMETER TO ACCEPT THE 1 1/4" x 3/32" WASHER. ALL LOCATIONS WHERE MATERIALS ARE SHOWN TO BE MITERED TO ACCOMODATE SHARP SKEWS, THE MATERIAL SHALL BE SCARFED AND HEAT VULCANIZED IN AN APPROVED MANNER. SPECIAL SHAPE GLANDS MAY ALSO BE USED FOR SHARP SKEWS.

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-183 OR ASTM A-36. 1/2" x 2" BOLTS SHALL BE TYPE 304 STAINLESS STEEL.

PAINT: THE ENTIRE STEEL ASSEMBLY SHALL RECEIVE A SHOP COAT OF INORGANIC ZINC PRIMER.

FABRICATION OF JOINT: SHOP DRAWINGS SHOWING DIMENSIONS AND DETAILS OF THE COMPLETE EXPANSION JOINT SHALL BE SUBMITTED TO THE BRIDGE ENGINEER FOR APPROVAL. WELDED STUDS, OR THREADED INSERTS SHALL BE ELECTRIC ARC AND WELDED TO THE ANGLES WITH COMPLETE FUSION. THREADED INSERTS SHALL BE CAPPED TO PREVENT CONCRETE INTERFERENCE WITH BOLTS.

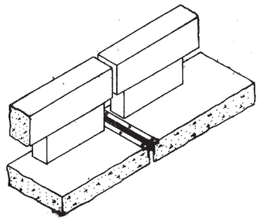
INSTALLATION OF JOINT: ELASTOMERIC SEAL AND CONTACTING STEEL SURFACES SHALL BE CLEANED PRIOR TO ASSEMBLY. THE JOINT SHALL BE SET TO ITS PROPER LINE, GRADE, AND OPENING AND SHALL BE ADEQUATELY BRACED IN A MANNER APPROVED BY THE ENGINEER. THE JOINT SHALL BE SET WITH AN OPENING OF 2 1/4" BASED ON A TEMPERATURE OF 60° FAHRENHEIT. FOR EACH 100' OF EXPANSION TO THE JOINT TO BE PROVIDED FOR, THE SETTING OF THE OPENING SHALL BE INCREASED 1/8" FOR EACH 15° FAHRENHEIT THE TEMPERATURE IS BELOW 60° FAHRENHEIT AND DECREASED 1/8" FOR EACH 15° FAHRENHEIT THE TEMPERATURE IS ABOVE 60° FAHRENHEIT.

BOLTS SHALL BE TIGHTENED TO A MINIMUM TORQUE OF 100 FOOT-POUNDS. AFTER SEVERAL BOLTS HAVE BEEN TIGHTENED, BOLTS PREVIOUSLY TIGHTENED SHALL BE CHECKED AGAIN UNTIL ALL ARE TIGHTENED THE PRESCRIBED AMOUNT. ALL BOLTS WILL AGAIN BE TIGHTENED TO 100 FOOT-POUNDS 24 HOURS AFTER ORIGINAL TIGHTENING.

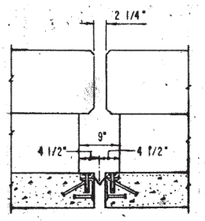
METHOD OF MEASUREMENT & BASIS OF PAYMENT: THE STRIP-SEAL TYPE EXPANSION JOINT SHALL BE MEASURED BY THE LINEAR FOOT ALONG THE CENTERLINE OF JOINT FROM END TO END OF JOINT AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR:

SP. STRIP SEAL TYPE EXPANSION JOINT LIN. FT.

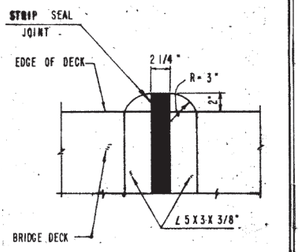
THE PRICE BID SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS IN THE COMPLETED JOINT INCLUDING ELASTOMER SHEET, STRUCTURAL STEEL, ANCHORS, WELDING, EQUIPMENT, LABOR, AND INCIDENTALS NECESSARY TO INSTALL THE JOINT COMPLETE IN PLACE.



PICTORIAL VIEW
(JOINTS w/CONC. TRAFFIC RAIL)

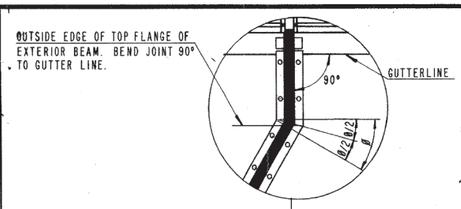


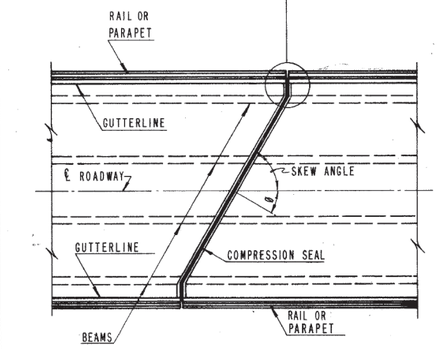
TYPICAL SECTION THRU
JOINT AT TRAFFIC
RAIL OPENING



PLAN
(TRAFFIC RAIL OMITTED FOR CLARITY)

STRIP SEAL TYPE EXPANSION JOINT





PLAN VIEW
(SKEWED JOINTS)

SCHEDULE OF COMPRESSION JOINT DIMENSIONS

SEAL WIDTH "A"	W *	JOINT OPENING (MIN.)	JOINT OPENING (MAX.)	JOINT MOVEMENT (TOTAL)	STEEL BM. SPANS MAX. EXP. LENGTH TO THE JOINT	CONC. BM. SPANS MAX. EXP. LENGTH TO THE JOINT
2 1/2"	1 7/16"	1"	2 1/8"	1 1/8"	UP TO 90'	UP TO 120'
3"	1 3/4"	1 1/4"	2 1/2"	1 1/4"	UP TO 100'	UP TO 135'
3 1/2"	2 1/8"	1 1/2"	3"	1 1/2"	UP TO 120'	UP TO 160'
4"	2 7/16"	1 3/4"	3 3/8"	1 5/8"	UP TO 130'	UP TO 175'
4 1/2"	2 3/4"	1 7/8"	3 7/8"	2"	UP TO 160'	UP TO 220'

* OPENING OF JOINT AT 60° FAHRENHEIT (INCLUDES ADDITIONAL 1/8" JOINT COMPRESSION)

COMPRESSION TYPE EXPANSION JOINT

THE COMPRESSION TYPE EXPANSION JOINT SHALL BE ASSEMBLED AS A UNIT IN THE SHOP WITH THE COMPRESSION SEAL PERMANENTLY AND COMPLETELY BONDED TO THE ANGLES WITH AN APPROVED LUBRICANT-ADHESIVE TO MAKE A MOISTURE PROOF JOINT. THE DEVICE SHALL BE FURNISHED WITH ANGLES ATTACHED FOR VERTICAL SEAL AND PLACED IN ONE PIECE FROM END TO END OF JOINT AS SHOWN. (GUTTER TO GUTTER + 10 3/4" EACH SIDE FOR STRUCTURES WITH CONCRETE PARAPET) (OUT TO OUT OF DECK + 2" EACH SIDE FOR STRUCTURES WITH CONCRETE TRAFFIC RAIL OR TUBULAR METAL TRAFFIC RAIL). SHOP DRAWINGS OF THE COMPLETE JOINT SHALL BE SUBMITTED TO THE BRIDGE ENGINEER FOR HIS APPROVAL.

COMPRESSION SEAL: THE PREFORMED ELASTOMERIC COMPRESSION JOINT SEALER SHALL CONFORM TO THE REQUIREMENTS AS SPECIFIED IN SECTION 701.08d OF THE OKLAHOMA STANDARD SPECIFICATIONS WITH DIMENSIONS AND TOLERANCES AS SHOWN. THE DESIGN, DIMENSIONS, AND DIMENSIONAL TOLERANCES OF THE SEALS FOR EACH JOINT SIZE SHALL BE SUBMITTED FOR APPROVAL. THE SEAL SHALL BE FURNISHED FULL LENGTH WITH NO SPLICES ALLOWED.

PAINT: THE ENTIRE STEEL ASSEMBLY SHALL RECEIVE A SHOP COAT OF INORGANIC ZINC PRIMER PRIOR TO INSTALLATION OF THE COMPRESSION SEAL.

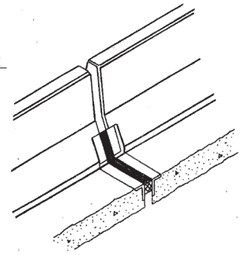
INSTALLATION OF JOINT: THE COMPRESSION TYPE EXPANSION JOINT AS RECEIVED FROM THE SHOP SHALL BE INSTALLED AT THE LOCATIONS SHOWN ON THE PLANS. CONCRETE SHALL INITIALLY BE PLACED ONLY ON THE FIXED SIDE OF THE DEVICE. AFTER CONCRETE HAS SET, THE COMPRESSION JOINT OPENING (W) SHALL BE SET BY REFERRING TO THE TABLE OF JOINT DIMENSIONS PLUS AN ADJUSTMENT IF NECESSARY FOR TEMPERATURE. THE JOINT OPENING WILL BE ADJUSTED BY VARYING THE SLOTTED HOLE OPENING PROVIDED FOR IN THE TEMPERATURE ADJUSTMENT PLATE. THE DIMENSION (W) IN THE TABLE IS BASED ON A RECOMMENDED OPENING FOR A TEMPERATURE OF 60° FAHRENHEIT PLUS AN ADDITIONAL 1/8" JOINT COMPRESSION. FOR EACH 100' OF EXPANSION TO THE JOINT TO BE PROVIDED FOR, THE SETTING OF THE OPENING (W) SHALL BE INCREASED 1/8" FOR EACH 15° FAHRENHEIT THE TEMPERATURE IS BELOW 60° FAHRENHEIT AND DECREASED 1/8" FOR EACH 15° FAHRENHEIT THE TEMPERATURE IS ABOVE 60° FAHRENHEIT. THE JOINT SHALL BE ADEQUATELY BRACED IN A MANNER APPROVED BY THE ENGINEER TO INSURE THAT THE JOINT HAS PROPER CROSS SLOPE AND GRADE PRIOR TO POURING BY CONCRETE ON THE SLOTTED SIDE OF THE DEVICE. AFTER CONCRETE HAS SET, THE TEMPORARY ADJUSTMENT PLATE SHALL BE REMOVED AND THE WELDED AREA GROUND SMOOTH.

BASIS OF PAYMENT: THE COMPRESSION TYPE EXPANSION JOINT SHALL BE MEASURED BY THE LINEAR FOOT ALONG CENTERLINE OF JOINT FROM END TO END OF SEAL AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR:

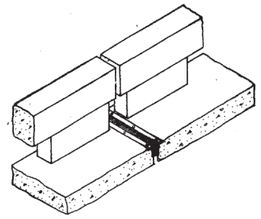
SP. 2½" COMPRESSION JOINT LIN. FT.
SP. 3" COMPRESSION JOINT LIN. FT.
SP. 3½" COMPRESSION JOINT LIN. FT.
SP. 4" COMPRESSION JOINT LIN. FT.
SP. 4½" COMPRESSION JOINT LIN. FT.

THE PRICE BID SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING ELASTOMERIC SEALER, LUBRICANT-ADHESIVE, ANCHORS, STRUCTURAL STEEL, EQUIPMENT, LABOR, PAINT, AND INCIDENTALS NECESSARY TO INSTALL THE JOINT COMPLETE IN PLACE.

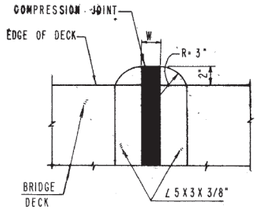
COMPRESSION SEAL TYPE EXPANSION JOINT



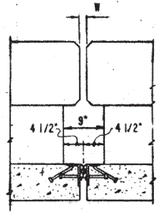
PICTORIAL VIEW
SHOWING JT. SEAL AT PARAPET



PICTORIAL VIEW
(JOINTS w/CONC. TRAFFIC RAIL)

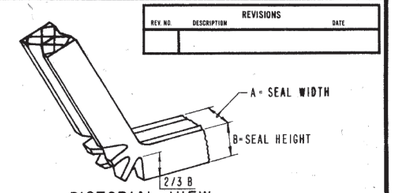


PLAN
(TRAFFIC RAIL OMITTED FOR CLARITY)

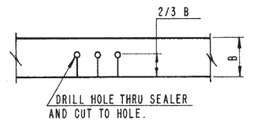


TYPICAL SECTION THRU
JOINT AT TRAFFIC
RAIL OPENING

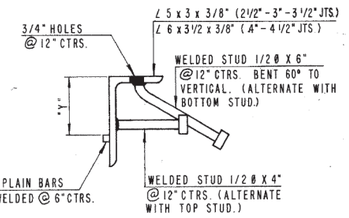
SECTION THRU JOINT
AT PARAPET



PICTORIAL VIEW

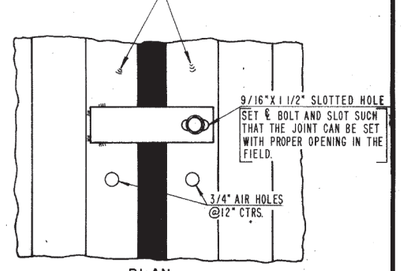


DETAIL OF COMPRESSION SEAL CUT
FOR BENDING IN VERTICAL DIRECTION

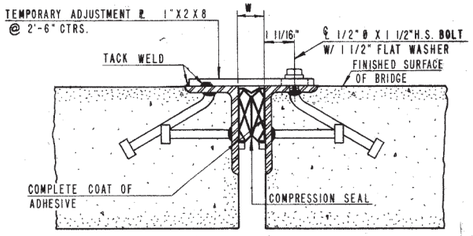


DETAIL OF JOINT STRUCTURAL STEEL (A-36)

NOTE: "Y" DIMENSION SHALL BE AS RECOMMENDED BY THE COMPRESSION SEAL MANUFACTURER. THE SEAL SHALL BE RECESSED A MIN. OF 1/4" FROM TOP OF ANGLE.



PLAN



TYPICAL SECTION THRU JOINT

BRIDGE
STANDARD DRAWING
EXP-1
EXPANSION JOINTS

Design		
Detail	S J K	2-80
Check	J. J. O.	11-82

APPROVED
BRIDGE ENGR.

STATE OF OKLAHOMA | DEPARTMENT OF TRANSPORTATION
STANDARD EXP-1 | 0

B-40

File

Wehe, Timothy

From: Wehe, Timothy
Sent: Thursday, January 30, 2020 8:13 AM
To: 'Mitchell Ferrell'
Subject: RE: Latest AS-BUILT Plans

Mitchell,
Thank you for your help locating plans for these projects. I looked over the plans you sent for the SH-62 project near Boynton and the plans appear to be ether too old or too far south. Could you look for plans that cover the highway from the south side of Boynton to about 1.5 miles south and from the north end of Boynton all the way up to SH-16. Thanks for your help of this.

Sincerely.

SCHEMMER | 60 YEARS

Timothy Wehe, E.I.
Transportation Designer

405.259.2000 Phone | 405.259.2007 Direct
SCHEMMER.COM

From: Mitchell Ferrell [mailto:MFERRELL@ODOT.ORG]
Sent: Thursday, January 9, 2020 9:20 AM
To: Wehe, Timothy <twehe@schemmer.com>; ODOT-PlansLibrary <ODOT-PlansLibrary@odot.org>
Subject: [EXTERNAL] RE: Latest AS-BUILT Plans

Hello,
I have located a multitude of plans for the areas requested.
Below is your download links for the compressed zip folders, which will need to be extracted before viewing/printing.

US-62.zip

Interstate 40.zip

Have a great day!

MITCHELL FERRELL
Administrative Assistant II
Office Services Division – Plans Library
200 NE 21st ST, Oklahoma City, OK 73105
Office: (405) 521-2586

From: Wehe, Timothy <twehe@schemmer.com>
Sent: Tuesday, January 7, 2020 11:07 AM
To: ODOT-PlansLibrary <ODOT-PlansLibrary@odot.org>
Subject: [External] Latest AS-BUILT Plans

To whom it my concern,
I am requesting the latest set of as built bridge and roadway plans for the projects outlined below. Please let me know if any further information is needed.

Project Locations

1. J/P 34334(04) Muskogee / Sequoyah County, I-40 Bridge and Approaches.
   Reconnaissance Limits:
   250' left and right of Highway I-40 centerline From 2000' West of the Bridge(NBI No. 17051) over the Arkansas River to 2000' East of said bridge.
   SEC 28, T12N, R21E
   SEC 29, T12N R21E

2. J/P 34349(04) Muskogee County. US-62 Widen and Resurface
   Reconnaissance Limits:
   200' left and right of US-62 centerline from end of shouldered section approximately 1.25 miles North of US-62 and N0970 junction, extending north to junction of US-62 and SH-16. Reconnaissance area excluding 0.35 miles of shouldered highway running through the City of Boynton.
   SEC 1, T 13 N, R 15 E
   SEC 6, T 13 N, R 16 E
   SEC 31, T 14 N, R 16 E
   SEC 30, T 14 N, R 16 E
   SEC 29, T 14 N, R 16 E
   SEC 20, T 14 N, R 16 E
   SEC 19, T 14 N, R 16 E
   SEC 18, T 14 N, R 16 E
   SEC 17, T 14 N, R 16 E
   SEC 8, T 14 N, R 16 E
   SEC 7, T 14 N, R 16 E
   SEC 6, T 14 N, R 16 E
   SEC 5, T 14 N, R 16 E
   SEC 32, T 15 N, R 16 E
   SEC 31, T 15 N, R 16 E

Sincerely.

SCHEMMER | 60 YEARS

Timothy Wehe, E.I.
Transportation Designer

405.259.2000 Phone | 405.259.2007 Direct
SCHEMMER.COM



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Wehe, Timothy

From: ODOT Plans Library <contentmanagement@odot.org>
Sent: Thursday, January 30, 2020 4:54 PM
To: Wehe, Timothy
Subject: [EXTERNAL] ODOT Plans Library OSD0000002884

Categories: Filed by Newforma

Hello Wehe, Timothy,

Your request (ID: OSD0000002884) has been entered into our queue to be resolved by a member of our team.

REQUEST SPECIFIC INFORMATION:

Sub-Task
CS - Project Research

Title:
[External] Latest AS-BUILT Plans

Description:
To whom it my concern, I am requesting the latest set of as built bridge and roadway plans for the intersection of SH-10 and I-40 in Sequoyah County. The project is outlined below . Please let me know if any further information is needed. Project Location 1. J/P 34334(04) Muskogee / Sequoyah County, I-40 Bridge and Approaches. Reconnaissance Limits: 250' left and right of Highway I-40 centerline From 2000' West of the Bridge(NBI No. 17051) over the Arkansas River to 5280' East of said bridge. SEC 27, T12N, R21E SEC 28, T12N, R21E

Created:
2020-01-30

The average time for Plan Research is three days. Should your request need to be escalated, please contact the Plans Library at the email address or phone number listed below.

Thank you!

ODOT PLANS LIBRARY
Office Services Division
200 NE 21st ST, Oklahoma City, OK 73105
Office: (405) 521-2528 Email: ODOT-PlansLibrary@odot.org

Where is your reqeust in our work queue? The ticket ID above is unique to your request. In order to see where your request is, please view our dashboard. Requests are worked in the order to which they are recieved and are based on priority.

Dashboard Link: https://app.smartsheet.com/b/publish?EQBCT=ff4bdc3b72284439b4398e14c56a7e82

(This is a an automated response, please do not reply to this message.)

Wehe, Timothy

From: Randy Loafman <RLOAFMAN@ODOT.ORG>
Sent: Tuesday, February 25, 2020 8:14 AM
To: Wehe, Timothy
Subject: I-40 at Arkansas River
Attachments: 20200224150258900.pdf

Your attachments have been security checked by Mimecast Attachment Protection. Files where no threat or malware was detected are attached.

I didn't find any plans under JP34334(04)

SECTION 3: PROPERTY IDENTIFICATION

PROPERTY OWNERSHIP

There are six properties within the boundaries of the study area. Table 3.1 provides a summary of these properties as well as the page reference number for each property card. See Exhibit 3.1 for more information

All property information was obtained from PVPlus or using county records.

Property boundaries where obtained from PVPlus maps and property card legal descriptions.

Table 3.1

Owner	Account Number	Page Number
SLOAN, ARTHUR & PHYLLIS TR LE	24314	163
SLOAN, ARTHUR & PHYLLIS TR LE	53049	164
SLOAN, ARTHUR W & PHYLLIS A LE	24308	165
SLOAN, ARTHUR W & PHYLLIS LE	24311	166
SEQUOYAH FUELS CORPORATION	0000-28-012-021-0-000-00	167
US ARMY CORPS OF ENGINEERS	N/A	168
US ARMY CORPS OF ENGINEERS	N/A	169

INDIAN & TRIBAL OWNERSHIP

No Indian or tribal ownership was found within the study area. Information obtained using property cards.

FEDERAL PROPERTIES AND EASEMENTS

U.S. Army Corps of Engineers land runs along both sides of the Arkansas River. Corp land contains the Sequoyah National Wildlife Refuge south of the I-40 Bridge. Information obtained using property cards and the U.S. Army Corps of Engineers website (https://www.swt.usace.army.mil/Missions/Recreation/Brush-Piles-and-Survey-Plats/Survey-Boundary-Plats/) (Exhibit 3.2 contains plat maps for Corps lands).

WETLAND RESERVE PROGRAM SITES

There were no Wetland Reserve Program (WRP) easements within the study area. (The nearest WRP property is approximately 4 miles west of the study area along I-40.)

Source: https://nrcsgeoservices.sc.egov.usda.gov/arcgis/services/easements/easements/MapServer (map last modified January 30, 2020).

PUBLIC PARKS AND RECREATIONAL AREAS

There were no public parks or recreational areas funded by the Land and Water Conservation Fund (LWCF) reported in or around the study area. Refer to email response from OTRD dated February 13, 2020. (Exhibit 3.3).

WILDLIFE REFUGES AND MANAGEMENT AREAS

The I-40/Arkansas River bridge appears to make up the northwest boundary to the Sequoyah National Wildlife Refuge. The refuge appears to be within the project boundary. Also, the McClellan-Kerr Wildlife Management Area is located roughly 0.5 mile upstream of the bridge. This wildlife area appears outside of the project area, however.

Source: www.wildlifedepartment.com/wildlife-management-areas, https://www.fws.gov/refuge/Sequoyah/map.html and https://viewer.nationalmap.gov/advanced-viewer/

CEMETERIES

There were no cemeteries listed within the study footprint. A private family cemetery, Hanks Family cemetery, occurs in a field immediately west of the Arkansas River, and north of I-40, but outside of the study footprint.

Source: http://www.interment.net/us/ok/mcintosh.htm.
Source: https://www.usgs.gov/core-science-systems/national-geospatial-program/national-map.

AIRPORTS

No airports where found within 4 miles of the reconnaissance site. Information obtained using www.aeronautics.state.ok.us, and https://www.arcgis.com/home/webmap/viewer.html?layers=e3b233a8408c4d098642742c698045d0

RAILROADS

No railroads where located within the project boundaries. http://www.okladot.state.ok.us/maps/railroad/2016-2017/RRmap1_2016-17_web.pdf.

OTA PROPERTIES

No Oklahoma Turnpike Authority Properties were found within the study area. Information obtained using Property Cards.

www.countyassessor.info
Muskogee County Records [OK]

SCHEMMER

Owner Information

SLOAN, ARTHUR & PHYLLIS TR LE
1601 N HWY 10

GORE, OK 74435-

Property Address

RURAL, OK 00000

Building No. **1**

Account Number **24314**

Sub Name: **12N-21E**
Lot: **N/A** Block: **N/A**
Area Name: **UNPLATTED TWP-RNG**
Section **29** Township: **12N** Range: **21E**

Taxable Market / Assessed Value

	Taxable Market		Assessed Value
Land	$8147		$896
Improved	$0		$0
Mobile	$0		$0
Total	$8147		$896
		Exemptions	$0
School District	6B	Net Assessed	$896
School Levy	$102.65	Estimated Taxes	**$91.97**

Sales Information

Sale Date	Sale Price	Book/Page	$/SF
20121019	0	4300/395	0
Grantor:			
Sale Date	Sale Price	Book/Page	$/SF
19920101	0	2122/37	0
Grantor:			
Sale Date	Sale Price	Book/Page	$/SF
19000101	0	0/0	0
Grantor:			

Building Elements

Type AGRICULTURAL
Style AGRICULTURE VACANT
Design N/A
Quality N/A Interior Finish N/A
Condition N/A
Roof N/A N/A
Exterior Wall N/A N/A
Foundation N/A Fireplace N/A
Heat N/A Air N/A
Beds 0 Baths 0 Total Rooms 0
Garage N/A Garage SF 0
Porch N/A Porch SF 0
Basement N/A Basement SF 0
Year Built **0** Eff Year Built **0** Year Remodeled **0**
Square Footage **0**

Land Information

Land Use: RURAL AGRICULTURAL

Lots	Acres	SF	Width	depth
0	39.9	0	0	0

Description AC

Mobile Home Information

Serial No.
Make
Tag No. LxW x

Commercial Elements

Stories N/A Story Height 00 Perimeter 0000
Units 0 Rent 000
Class Description N/A

Miscellaneous Structures

Description	Yrblt	LxW	Units
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0

Legal Description

T12N R21E S29 N½ SW LESS NORTH OF INTERSTATE HWY 40 LESS N330 NE SW & LESS 18.63 ACRES FOR HWY

www.countyassessor.info
Muskogee County Records [OK]

SCHEMMER

Owner Information

SLOAN, ARTHUR & PHYLLIS TR LE
PO BOX 475

GORE, OK 74435-

Property Address

RURAL, OK

Building No. **1**

Account Number **53049**

Sub Name: **12N-21E**
Lot: **N/A** Block: **N/A**
Area Name: **UNPLATTED TWP-RNG**
Section **29** Township: **12N** Range: **21E**

Taxable Market / Assessed Value

	Taxable Market		Assessed Value
Land	$4088		$450
Improved	$0		$0
Mobile	$0		$0
Total	$4088		$450
		Exemptions	$0
School District	6B	Net Assessed	$450
School Levy	$102.65	Estimated Taxes	**$46.19**

Sales Information

Sale Date	Sale Price	Book/Page	$/SF
20190708	0	4649/542	0
Grantor:			
Sale Date	Sale Price	Book/Page	$/SF
20121019	0	4300/395	0
Grantor:			
Sale Date	Sale Price	Book/Page	$/SF
00000000	0	0/0	0
Grantor:			

Land Information

Land Use: RURAL AGRICULTURAL

Lots	Acres	SF	Width	depth
0	11.47	0	0	0

Description AC

Mobile Home Information

Serial No.
Make
Tag No. LxW x

Building Elements

Type AGRICULTURAL
Style AGRICULTURE VACANT
Design N/A
Quality N/A Interior Finish N/A
Condition N/A
Roof N/A N/A
Exterior Wall N/A N/A
Foundation N/A Fireplace N/A
Heat N/A Air N/A
Beds 0 Baths 0 Total Rooms 0
Garage N/A Garage SF 0
Porch N/A Porch SF 0
Basement N/A Basement SF 0
Year Built **0** Eff Year Built **0** Year Remodeled **0**
Square Footage **0**

Commercial Elements

Stories N/A Story Height 00 Perimeter 0000
Units 0 Rent 000
Class Description N/A

Miscellaneous Structures

Description	Yrblt	LxW	Units
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0

Legal Description

T12N R21E S29 N½ SW LYING SOUTH OF INTERSTATE HWY 40

www.countyassessor.info
Muskogee County Records [OK]

SCHEMMER

Owner Information

SLOAN, ARTHUR W & PHYLLIS A LE
PO BOX 475

GORE, OK 74435-

Property Address

RURAL, OK 00000

Building No. **1**

Account Number **24308**

Sub Name: **12N-21E**
Lot: **N/A** Block: **N/A**
Area Name: **UNPLATTED TWP-RNG**
Section **29** Township: **12N** Range: **21E**

Taxable Market / Assessed Value

	Taxable Market	Assessed Value
Land	$35712	$3928
Improved	$0	$0
Mobile	$0	$0
Total	$35712	$3928
	Exemptions	$0
School District 6B	Net Assessed	$3928
School Levy $102.65	Estimated Taxes	**$403.21**

Sales Information

Sale Date	Sale Price	Book/Page	$/SF
20190708	0	4649/542	0
Grantor:			
Sale Date	Sale Price	Book/Page	$/SF
19920101	0	2122/37	0
Grantor:			
Sale Date	Sale Price	Book/Page	$/SF
19911201	0	2116/335	0
Grantor:			

Land Information

Land Use: RURAL AGRICULTURAL

Lots	Acres	SF	Width	depth
0	96.67	0	0	0

Description AC

Mobile Home Information

Serial No.
Make
Tag No. LxW x

Building Elements

Type AGRICULTURAL
Style AGRICULTURE VACANT
Design N/A
Quality N/A Interior Finish N/A
Condition N/A
Roof N/A N/A
Exterior Wall N/A N/A
Foundation N/A Fireplace N/A
Heat N/A Air N/A
Beds 0 Baths 0 Total Rooms 0
Garage N/A Garage SF 0
Porch N/A Porch SF 0
Basement N/A Basement SF 0
Year Built **0** Eff Year Built **0** Year Remodeled **0**
Square Footage **0**

Commercial Elements

Stories N/A Story Height 00 Perimeter 0000
Units 0 Rent 000
Class Description N/A

Miscellaneous Structures

Description	Yrblt	LxW	Units
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0

Legal Description

T12N R21E S29 W½ SE & LOT 4 & W20AC LOT 5 LESS 9.64AC USA & LESS 15.24AC HWY

www.countyassessor.info
Muskogee County Records [OK]

SCHEMMER

Owner Information
SLOAN, ARTHUR W & PHYLLIS LE
1601 N HWY 10

GORE, OK 74435-

Property Address
RURAL, OK 00000

Building No. 1

Account Number 24311

Sub Name: **12N-21E**
Lot: **N/A** Block: **N/A**
Area Name: **UNPLATTED TWP-RNG**
Section **29** Township: **12N** Range: **21E**

Taxable Market / Assessed Value

	Taxable Market		Assessed Value
Land	$7326		$806
Improved	$0		$0
Mobile	$0		$0
Total	$7326		$806
		Exemptions	$0
School District	6B	Net Assessed	$806
School Levy	$102.65	Estimated Taxes	**$82.74**

Sales Information

Sale Date	Sale Price	Book/Page	$/SF
20121019	0	4302/90-91	0
Grantor:			
Sale Date	Sale Price	Book/Page	$/SF
19920101	0	2122/37	0
Grantor:			
Sale Date	Sale Price	Book/Page	$/SF
19000101	0	0/0	0
Grantor:			

Building Elements

Type AGRICULTURAL
Style AGRICULTURE VACANT
Design N/A
Quality N/A Interior Finish N/A
Condition N/A
Roof N/A N/A
Exterior Wall N/A N/A
Foundation N/A Fireplace N/A
Heat N/A Air N/A
Beds 0 Baths 0 Total Rooms 0
Garage N/A Garage SF 0
Porch N/A Porch SF 0
Basement N/A Basement SF 0
Year Built **0** Eff Year Built **0** Year Remodeled **0**
Square Footage **0**

Land Information

Land Use: RURAL AGRICULTURAL

Lots	Acres	SF	Width	depth
0	20	0	0	0

Description AC

Mobile Home Information

Serial No.
Make
Tag No. LxW x

Commercial Elements

Stories N/A Story Height 00 Perimeter 0000
Units 0 Rent 000
Class Description N/A

Miscellaneous Structures

Description	Yrblt	LxW	Units
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0

Legal Description

T12N R21E S29 S½ SW NE LESS NE DIAG ½2 NE SE SW NE & SW DIAG ½2 SW NE SW NE

www.countyassessor.info
Sequoyah County Records [OK]

SCHEMMER

Owner Information
SEQUOYAH FUELS CORPORATION
BOX 610 F1

GORE, OK 74435-0000

Property Address
GORE

Building No. **001**

Account Number
0000-28-012-021-0-000-00

Sub Name: **UNPLATTED**
Lot: Block:
Area Name: **012-021**
Section **28** Township: **012** Range: **021**

Taxable Market / Assessed Value

	Taxable Market	Assessed Value
Land	$73300	$8063
Improved	$99600	$10956
Mobile	$0	$0
Total	$172900	$19019
	Exemptions	$0
School District I- 6 Rural	Net Assessed	$19019
School Levy $98.65	Estimated Taxes	**$1876.22**

Sales Information

Sale Date	Sale Price	Book/Page	$/SF
00000000	0	0/0	0
Grantor:			
00000000	0	0/0	0
Grantor:			
00000000	0	0/0	0
Grantor:			

Building Elements

Type SINGLE FAMILY
Style One Story
Design TRADITIONAL
Quality AVERAGE Interior Finish AVERAGE
Condition AVERAGE
Roof HIP COMP SHINGLE
Exterior Wall BRICK N/A
Foundation SLAB Fireplace N/A
Heat FORCED AIR Air FORCED AIR
Beds 3 Baths 1 Total Rooms 5
Garage ATT MASONRY Garage SF 324
Porch OPEN Porch SF 0
Basement N/A Basement SF 0
Year Built **1985** Eff Year Built **1996** Year Remodeled **1996**
Square Footage **1632**

Land Information

Land Use: RURAL COM

Lots	Acres	SF	Width	depth
0	307.69	0	0	0

Description ACRE

Mobile Home Information

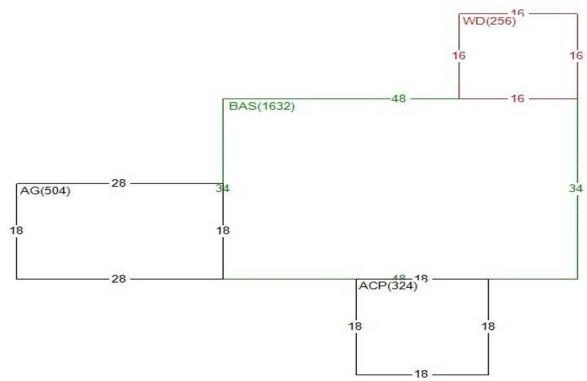
Serial No.
Make
Tag No. LxW x

Commercial Elements

Stories N/A Story Height 00 Perimeter 0000
Units 0 Rent 000
Class Description N/A

Miscellaneous Structures

Description	Yrblt	LxW	Units
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
N/A	0		0
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N/A	0		0
N/A	0		0
N/A	0		0





Legal Description

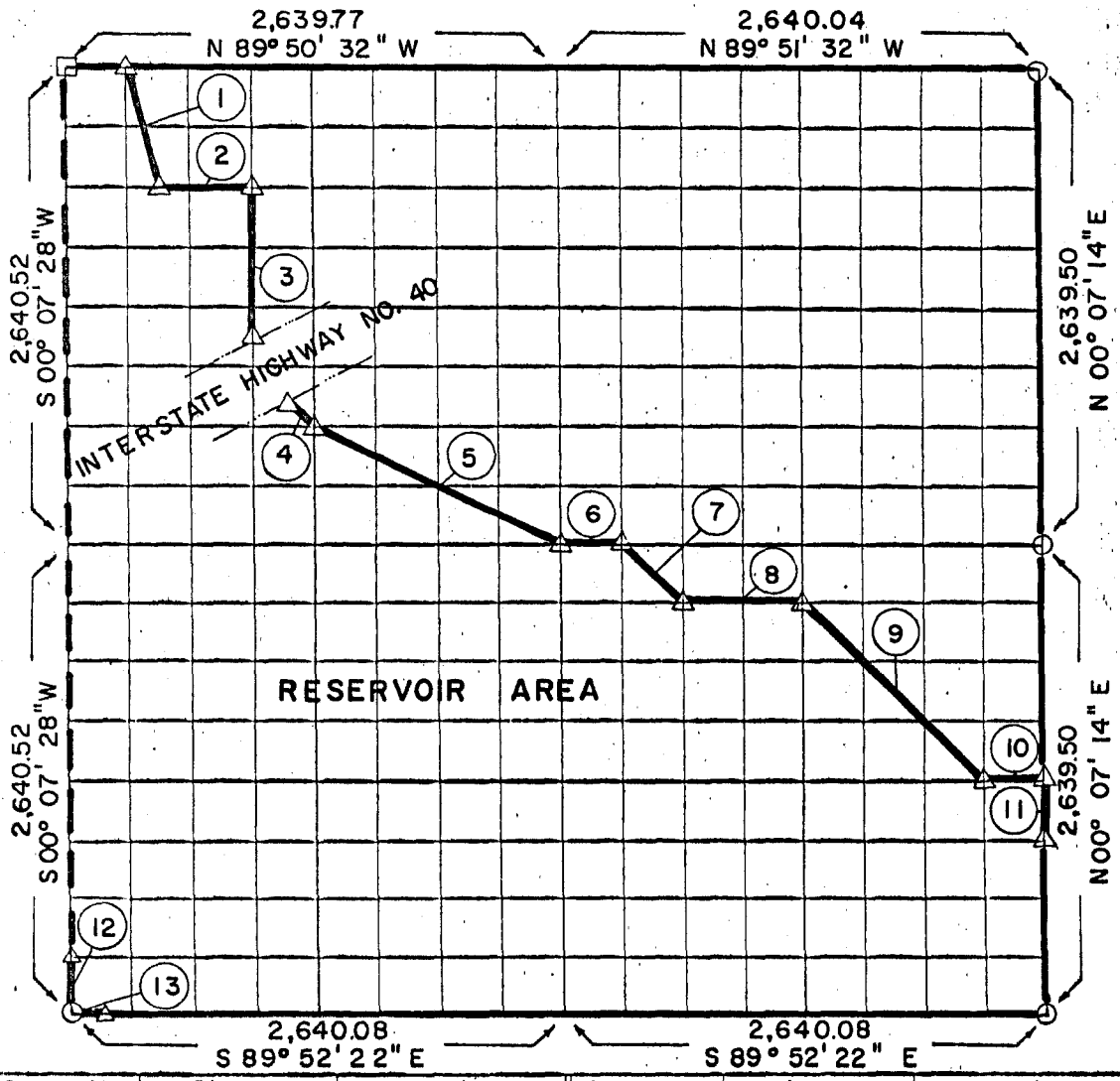
SW SE & N2 SE & SE NW & NE SW & LOT 1 & LOT 2 LESS PT TO HY & TO GOVT. 67A & N2 N2 160A & SE SE NE 10A & SW NE LESS .31A HY 39.69A & N2 SE NE & SW SE NE 30A & 1A IN NE NE SE BEG AT

SCHEMMER

PARTIAL BOUNDARY SURVEYS
ROBERT S. KERR LOCK & DAM 15
ARKANSAS RIVER, OKLAHOMA

Performed Under Contract Number DACW 56-68-C-0243

SEC 28 T-12-N R-21-E COUNTY SEQUOYAH



Course No.	Distance	Bearing	Course No.	Distance	Bearing
1.	680.50	S13°54'26"E			
2.	494.96	S89°50'46"E			
3.	865.06	S00°07'23"W			
4.	150.00	S44°51'40"E			
5.	1475.99	S63°17'39"E			
6.	330.01	S89°51'57"E			
7.	466.73	S44°52'33"E			
8.	660.02	S89°52'00"E			
9.	1400.12	S44°52'43"E			
10.	330.01	S89°52'09"E			
11.	329.94	S00°07'14"W			
12.	330.01	S00°07'28"W			
13.	165.00	S89°52'22"E			

Book No. A 2886 Date: November 14, 1968

△ Monument
□ Original Corner
○ Iron Pin

I, Jack R. Kalman, a Registered Professional Engineer, do hereby certify that the above plat is a true and accurate survey of Section 28, T-12-N, R-21-E as made under my supervision.

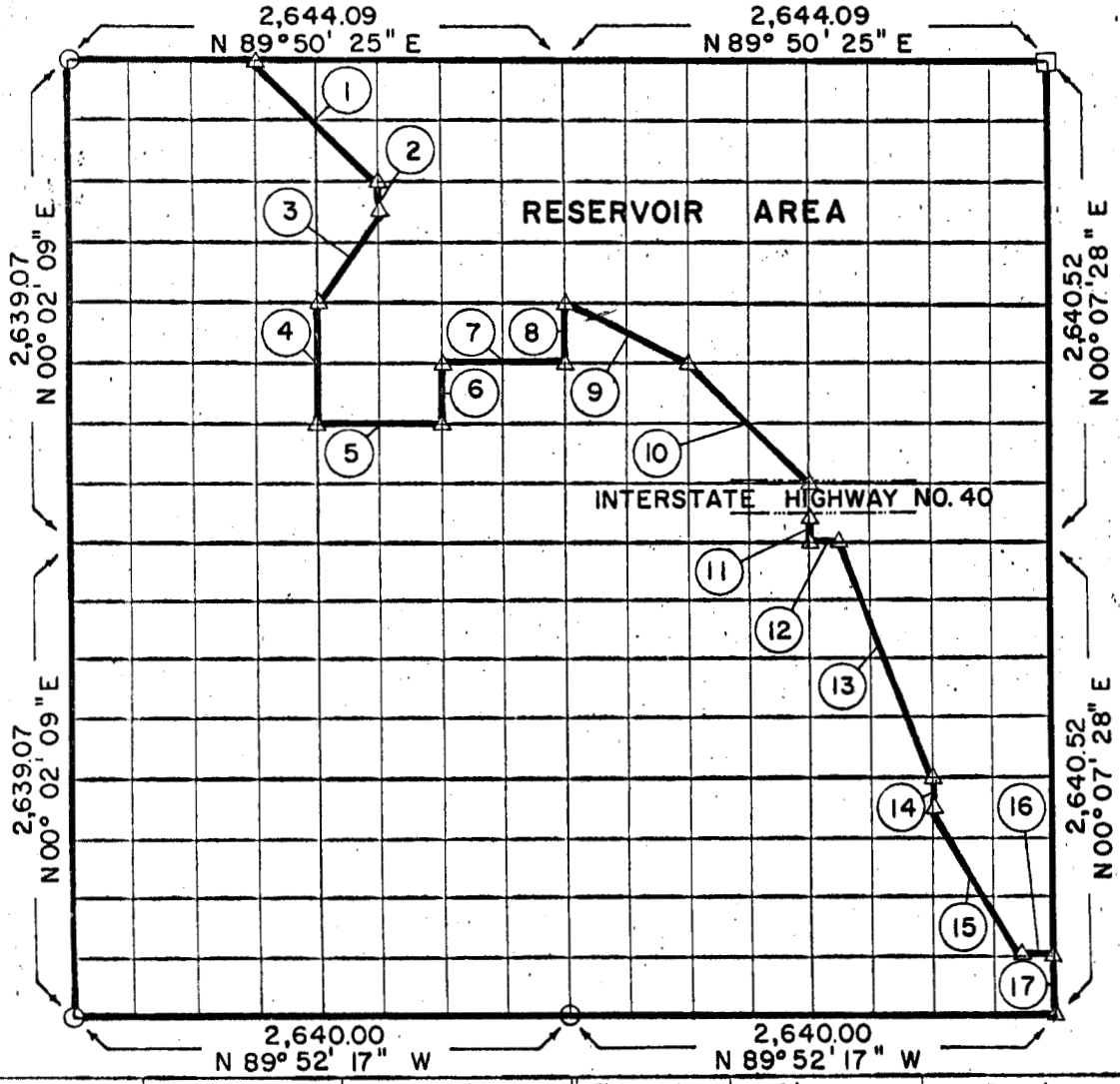
Jack R Kalman

JACK R. KALMAN
Reg. Prof. Engr. No. 2766

PARTIAL BOUNDARY SURVEYS
ROBERT S. KERR LOCK & DAM 15
ARKANSAS RIVER, OKLAHOMA

Performed Under Contract Number DACW 56-68-C-0243

SEC 29 T-12-N R-21-E COUNTY SEQUOYAH



Course No.	Distance	Bearing	Course No.	Distance	Bearing
1.	932.20	S45°05'52"E	14.	165.02	S00°06'48"W
2.	164.97	S00°03'49"W	15.	960.41	S30°54'51"E
3.	596.09	S33°43'21"W	16.	165.02	N89°52'10"E
4.	659.86	S00°03'29"W	17.	330.01	S00°07'28"W
5.	660.64	N89°51'07"E			
6.	329.95	N00°04'09"E			
7.	660.70	N89°51'00"E			
8.	329.97	N00°04'48"E			
9.	737.33	S63°33'55"E			
10.	931.85	S45°03'10"E			
11.	118.96	S00°06'08"W			
12.	165.13	N89°51'21"E			
13.	1407.97	S20°29'11"E			

Book No. A 2887 Date: November 14, 1968

△ Monument
□ Original Corner
○ Iron Pin

I, Jack R. Kalman, a Registered Professional Engineer, do hereby certify that the above plat is a true and accurate survey of Section 29, T-12-N, R-21-E as made under my supervision.

Jack R Kalman
JACK R. KALMAN
Reg. Prof. Engr. No. 2766

From: Eve Atkinson
To: Leah Peterson
Cc: Susan Henry
Subject: RE: re: Request for public parks/recreation areas for one ODOT project in Muskogee County
Date: Thursday, February 13, 2020 12:31:17 PM

Your project proposal for bridge work on the I-40 crossing over the Arkansas River below Webbers Falls, will have no significant adverse impact on any federally funded park or recreation area or state park, regarding the LWCF Act 54 U.S.C. 200305(f)(3) no land may be permanently used for private or non-outdoor recreation purposes (defined by the program).

Thank you for the opportunity to review your proposal.

Eve Atkinson
Planner II
Oklahoma Department of Tourism and Recreation
900 N. Stiles
Oklahoma City, OK 73104
405.522.9516.
Eve.Atkinson@travelok.com

From: Leah Peterson <Leah@ccenviro.net>
Sent: Friday, February 2, 2020 10:07 PM
To: Susan Henry <Susan.Henry@travelok.com>
Cc: Eve Atkinson <Eve.Atkinson@travelok.com>
Subject: [External] re: Request for public parks/recreation areas for one ODOT project in Muskogee County

Hello,

On be-half of the Oklahoma Department of Transportation (ODOT), our firm is collecting property data for a potential ODOT project. The roadway may need improved in the next several years and the ODOT is determining where to place any potential new structures and/or roadways. In particular, are there any public parks and/or recreation areas located near this project area? Upon initial desktop and field reconnaissance, the project footprint appears to make up the northwestern border for The Sequoyah National Wildlife Refuge along the Arkansas River, but any additional information you could provide to confirm or refute this would be very useful.

Project location: Muskogee County JPs 34334(04) on I-40 bridge over Arkansas River, and extending approximately 2000' east and west of the bridge edges. . Please see the attached Location and footprint overview maps for reference.

Thank you,
Leah

Leah M. Peterson
CC Environmental, LLC
3533 National Drive
P.O. Box 1292
Norman, OK 73069

Cell: 515-229-8401
Office: 405-321-8181

SECTION 4: UTILITY & TRADE FIXTURE (BILLBOARD) INFORMATION

UTILITY OWNERS

The utilities located within the study area are listed in Tables 4.1 through 4.5. Owners and utility locations provided by utility providers and confirmed during site visit. Utility bridge permit information can be found in Exhibit 4.1.

TRADE FIXTURE (BILLBOARD) INFORMATION

The site contains no trade fixtures. See Exhibit 4.2 for source information.

Table 4.1

Oil and Gas	
Type of Utility	Natural Gas Transmission Pipeline
Name and Address of Utility Owner	ONEOK Gas Transportation, LLC 100 W 5th St, Tulsa, OK 74103
Name and Phone Number of Contact Person	Robert Burkett (Staff Engineer) 918-732-1316 Robert.Burkett@oneok.com
Product Utility is Carrying	Natural Gas
Size and Material of Utility (If Applicable)	8 Inch Steel Pipline
General location of Utility	NW/4 Sec 28-T12N-R21E, perpendicular crossing of ROW on east side of bridge w/ parallel left (north) and right (south) offsets of approx. 150 ft (left headed east & right headed west).

Table 4.2

Communication	
Type of Utility	Fiber Optic
Name and Address of Utility Owner	CenturyLink 100 S Cincinnati Ave, Suite 1200 Tulsa, OK 74103
Name and Phone Number of Contact Person	Jordan Adams 918-547-0817 jordan.adams@centurylink.com
Product Utility is Carrying	Data
Size and Material of Utility (If Applicable)	N/A
General location of Utility	line runs approximately 10 feet inside south right of way line

Table 4.3

Communication	
Type of Utility	Fiber Optic
Name and Address of Utility Owner	Dobson Technologies, 14101 Wireless Way, Suite 300, Oklahoma City OK 73134
Name and Phone Number of Contact Person	Marshall Birchett Office 405.242.1115, Cell 405.821.6616
Product Utility is Carrying	High Speed Data
Size and Material of Utility (If Applicable)	168ct Fiber Optic Cable
General location of Utility	Paralleling southside of I-40 and attach to the bridge on the southside

Table 4.4

Communication	
Type of Utility	Fiber Optic
Name and Address of Utility Owner	MBO Networks 101 Cimarron Dr, Mannford, OK 74044
Name and Phone Number of Contact Person	Johnny Alexander 918-550-3433 jalexander@mbonetworks.com
Product Utility is Carrying	High Speed Data
Size and Material of Utility (If Applicable)	84 Fiber Optic Cable
General location of Utility	Paralleling southside of I-40 along R/W line and attach to the bridge on the southside

Table 4.5

Electric	
Type of Utility	Overhead Electric
Name and Address of Utility Owner	Cookson Hills Electric Cooperative PO box 539 Stigler ok 74462
Name and Phone Number of Contact Person	Jason Fontaine jfontaine@cooksonhills.com Kevin Hendrix 800-328-2368 Ext 6334 khendrix@cooksonhills.com
Product Utility is Carrying	Electric
Size and Material of Utility (If Applicable)	1/0 and #4 acsr wire
General location of Utility	line approximately 10 feet outside right of way line on North side of I-40 East of Arkansas river bridge.

Wehe, Timothy

From: Patty Defranco <pdefranco@odot.org>
Sent: Friday, January 31, 2020 8:51 AM
To: Wehe, Timothy
Subject: [EXTERNAL] Fwd: nbi 17051 Request for permit information from ODOT bridge division

Categories: Filed by Newforma

Timothy, see below the one utility that is permitted to be on our bridge. That does not mean that it is the only utility on the bridge.

Get Outlook for iOS

From: Carla Allen <CKALLEN@ODOT.ORG>
Sent: Thursday, January 30, 2020 2:52 PM
To: Patty Defranco
Subject: RE: nbi 17051 Request for permit information from ODOT bridge division

Patty,

The only Bridge Division Utility Attachment Agreement I could find for this NBI number was for a fiber optics attachment from 1998 with MBO Video, Inc. However, the agreement was between ODOT, the OTA, OSF, and MBO Video.

I thought we had other attachments, but I couldn't find any with this location or nbi number.

Thanks,
Carla

Carla Allen, CPO
Office Manager, Bridge Division
Oklahoma Department of Transportation
200 N.E. 21st Street, Room 2 - B3
Oklahoma City, Oklahoma 73105
Phone: (405) 521-2606
Fax: (405) 522-0134
Email: ckallen@odot.org

From: Patty Defranco
Sent: Tuesday, January 14, 2020 2:13 PM
To: Carla Allen
Subject: nbi 17051 Request for permit information from ODOT bridge division

Muskogee/Sequoyah County
I40 over Arkansas River
Nbi 17051

Carla, Timothy with Schemmer is requesting utility information on our I40 over Arkansas Bridge. Do we have any permits for utilities on the bridge?

Patty F. DeFranco, P.E.
OKLAHOMA DEPARTMENT OF TRANSPORTATION
Engineering Manager, Bridge Division
405.521.6488

From: Wehe, Timothy [mailto:twehe@schemmer.com]
Sent: Tuesday, January 14, 2020 1:57 PM
To: Patty Defranco
Subject: [External] RE: Request for permit information from ODOT bridge division

Patty,
Thanks for getting back with me. I am doing a reconnaissance project for ODOT and am required to find out if any utilities have permits to be attached to the bridge. I am not sure what type of utilities are allowed to be attached. I was simply directed to request the information from the ODOT Bridge division. Also I am not certain what ODOT is planning on doing on this site. The project description I was given only said bridge and approaches. Please let me know if you have any more questions or if I can be of any assistance.

Thanks.

Timothy Wehe, E.I.
Transportation Designer

405.259.2000 Phone | 405.259.2007 Direct
SCHEMMER.COM

From: Patty Defranco [mailto:pdefranco@odot.org]
Sent: Tuesday, January 14, 2020 1:29 PM
To: Wehe, Timothy <twehe@schemmer.com>
Subject: [EXTERNAL] FW: Request for permit information from ODOT bridge division

Timothy, Can you give me more of a project description? What type of utility are you talking about?

Patty F. DeFranco, P.E.
OKLAHOMA DEPARTMENT OF TRANSPORTATION
Engineering Manager, Bridge Division
405.521.6488

From: Brian Linam
Sent: Tuesday, January 14, 2020 11:01 AM
To: Patty Defranco
Subject: FW: Request for permit information from ODOT bridge division

Patty,

Could you please address the question below or forward to Simon if this is his wheelhouse?

Thank you,

Brian Linam
Division 1 Preconstruction Manager
Oklahoma Department of Transportation
Office: 405-522-7600
Mobile: 405-212-8043

From: Wehe, Timothy <twehe@schemmer.com>
Sent: Tuesday, January 14, 2020 10:58 AM
To: Brian Linam <BLINAM@ODOT.ORG>
Subject: [External] Request for permit information from ODOT bridge division

Brian,
I would like to request information from the ODOT bridge division on whether there are any permits allowing utility companies to attach utilities to the I-40 bridge over the Arkansas River. I have included a project description below. Please let me know if this needs to go through you or if I should send it directly to the bridge division.

Project Description

Muskogee / Sequoyah County I-40 bridge and approaches
Project begins 2,000 feet (along interstate centerline) southwest of west end of I-40 bridge over the Arkansas River. Project runs east to 2,000 feet northeast of eastern end of I-40 bridge over the Arkansas River following highway centerline. Project limits extend 250 feet right and left of the I-40 centerlines thought the project.

Thanks.

Timothy Wehe, E.I.
Transportation Designer

405.259.2000 Phone | 405.259.2007 Direct
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Wehe, Timothy

From: Brian Linam <BLINAM@ODOT.ORG>
Sent: Wednesday, December 18, 2019 8:58 AM
To: Wehe, Timothy
Subject: [EXTERNAL] RE: Request for traffic data, trade fixture data, and SI&A sheets

As far as I understand it.

Thank you,
Brian

From: Wehe, Timothy <twehe@schemmer.com>
Sent: Wednesday, December 18, 2019 8:51 AM
To: Brian Linam <BLINAM@ODOT.ORG>
Subject: [External] RE: Request for traffic data, trade fixture data, and SI&A sheets

Brian,
Thanks for checking on that. Just wanted to clarify that "no billboards" means that nether route is regulated.

Thanks.

Timothy Wehe, E.I.
Transportation Designer

405.259.2000 Phone | 405.259.2007 Direct
SCHEMMER.COM

From: Brian Linam [mailto:BLINAM@ODOT.ORG]
Sent: Wednesday, December 18, 2019 8:47 AM
To: Wehe, Timothy <twehe@schemmer.com>
Subject: [EXTERNAL] RE: Request for traffic data, trade fixture data, and SI&A sheets

Timothy,

This is the billboard information for the J/P's listed below.

J/P 34349(04): No Billboards.
J/P 34334(04): No Billboards.

Thank you,

Brian Linam

Project Manager, Division 1
Oklahoma Dept. of Transportation
200 N.E. 21st Street
Oklahoma City, OK 73105-3204
Office: (405) 522-7600
Mobile: (405) 212-8043

From: Wehe, Timothy <twehe@schemmer.com>
Sent: Monday, December 16, 2019 10:41 AM
To: Brian Linam <BLINAM@ODOT.ORG>
Subject: [External] Request for traffic data, trade fixture data, and SI&A sheets

Good morning Brian,
I am requesting the traffic and trade fixture data information as well as SI&A bridge sheets given below for both project locations also listed below. I have provided KMZ files to help locate the projects. Please let me know if any other information is needed.

Traffic Data

1. Current Average Annual Daily Traffic (AADT)
2. Projected AADT (20 years from known Let Date or 30 years from present)
3. K (DHV/ADT- Two Way)
4. D (Directional Distribution)
5. Percentage of Truck Traffic – T(DHV), T(ADT), and T3 (3 or more Axle)

Trade Fixture Data

Is the highway on a regulated route?

If regulated please provide the trade fixture (billboard) permit information for each legal trade fixture (billboard) or information relative to its illegal status.

Structure Inventory & Appraisal (SI&A) sheets

A copy of the most current structure inventory and appraisal sheet for each bridge within the project locations below.

Project Locations

1. J/P 34334(04) Muskogee / Sequoyah County, I-40 Bridge and Approaches.
   Reconnaissance Limits:
   250’ left and right of Highway I-40 centerline From 2000’ West of the Bridge(NBI No. 17051) over the Arkansas River to 2000’ East of said bridge.
   SEC 28, T12N, R21E
   SEC 29, T12N R21E

2. J/P 34349(04) Muskogee County. US-62 Widen and Resurface
   Reconnaissance Limits:
   200’ left and right of US-62 centerline from end of shouldered section approximately 1.25 miles North of US-62 and N0970 junction, extending north to junction of US-62 and SH-16. Reconnaissance area excluding 0.35 miles of shouldered highway running through the City of Boynton.

SEC 1, T 13 N, R 15 E
SEC 6, T 13 N, R 16 E
SEC 31, T 14 N, R 16 E
SEC 30, T 14 N, R 16 E
SEC 29, T 14 N, R 16 E
SEC 20, T 14 N, R 16 E
SEC 19, T 14 N, R 16 E
SEC 18, T 14 N, R 16 E
SEC 17, T 14 N, R 16 E
SEC 8, T 14 N, R 16 E
SEC 7, T 14 N, R 16 E
SEC 6, T 14 N, R 16 E
SEC 5, T 14 N, R 16 E
SEC 32, T 15 N, R 16 E
SEC 31, T 15 N, R 16 E

Sincerely.

Timothy Wehe, E.I.
Transportation Designer

405.259.2000 Phone | 405.259.2007 Direct
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SECTION 5: ACCIDENT HISTORY

Accident History

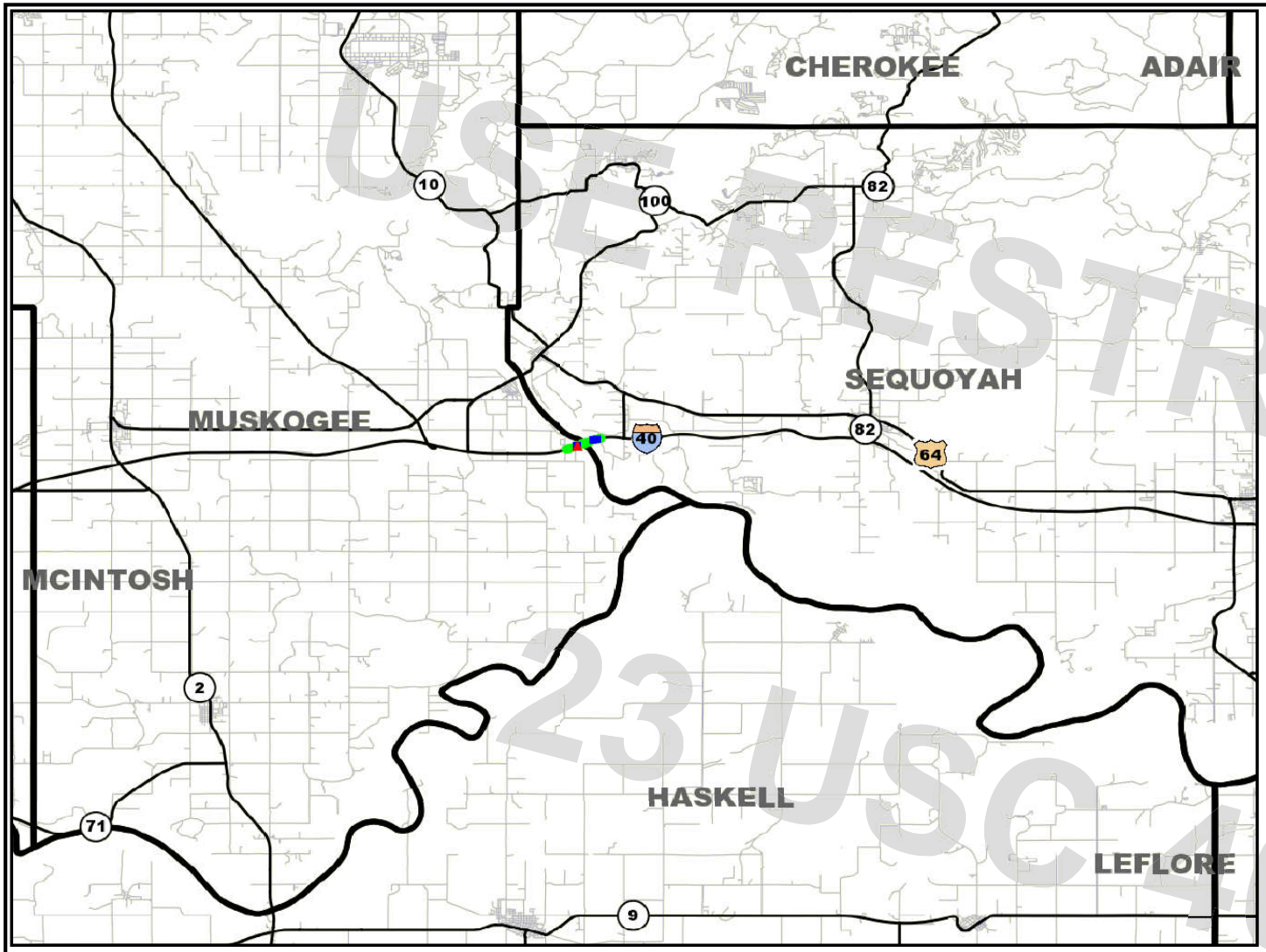
The accident history report from January 1, 2009 through December 31, 2018 or over approximately the last 10 years was obtained from the Oklahoma Department of Transportation's Traffic Engineering Division by Schemmer. A summary of the accident data is provided in Table 5.1. The accident history report is provided in Exhibit 5.1.

TABLE 5.1: Accident Data Summary

YEAR	FATAL	INJURY	PDO	TOTAL
2009	1	0	7	**8**
2010	0	0	1	**1**
2011	0	0	4	**4**
2012	0	0	3	**3**
2013	0	0	6	**6**
2014	0	1	0	**1**
2015	0	2	1	**3**
2016	0	0	1	**1**
2017	0	2	2	**4**
2018*	0	0	4	**4**
TOTAL	**1**	**5**	**29**	**35**

PDO = Property Damage Only
*** Denotes a year for which data may be incomplete**

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Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 01/14/2020
by Jessica Avery

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

N
W E
S

Remarks:
NONE

JP 34334(04)

Date Range: 01-01-2009 thru 12-31-2018

	2009						2010						2011					
	Fat	SRS Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	SRS Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	SRS Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	1				7	8					1	1					4	4
Persons	1					1						0						0

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STUDY TOTALS (CONT.)

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

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Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 01/14/2020 by Jessica Avery

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	2012						2013						2014					
	Fat	SRSIni	Non-Incap Ini	Poss Ini	PD	Tot	Fat	SRSIni	Non-Incap Ini	Poss Ini	PD	Tot	Fat	SRSIni	Non-Incap Ini	Poss Ini	PD	Tot
Collisions					3	3					6	6			1			1
Persons						0						0			1			1

	2015						2016						2017					
	Fat	SRSIni	Non-Incap Ini	Poss Ini	PD	Tot	Fat	SRS Ini	Non-Incap Ini	Poss Ini	PD	Tot	Fat	SRSIni	Non-Incap Ini	Poss Ini	PD	Tot
Collisions				2	1	3					1	1			2		2	4
Persons				2		2						0			4			4

	2018*					
	Fat	SRSIni	Non-Incac Ini	Poss Ini	PD	Tot
Collisions					4	4
Persons						0

•DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Suspected Serious Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	1		3	2	29	35
Persons	1		5	2		8

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Created: 01/14/2020 by Jessica Avery

STUDY TOTALS - BY CITY AND HWY CLASS

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

USE RESTRICTED
23 USC 409

STUDY TOTALS

	HIGHWAY COLLISIONS				CITY STREET COLLISIONS				COUNTY ROAD COLLISIONS				TOTAL COLLISIONS			
Year	Fat	Inj •	PD	Tot	Fat	Inj •	PD	Tot	Fat	Inj •	PD	Tot	Fat	Inj •	PD	Tot
2009	1		7	8									1		7	8
2010			1	1											1	1
2011			4	4											4	4
2012			3	3											3	3
2013			6	6											6	6
2014		1		1										1		1
2015		2	1	3										2	1	3
2016			1	1											1	1
2017		2	2	4										2	2	4
2018 *			4	4											4	4
Total:	1	5	29	35				0				0	1	5	29	35

• DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

County: (51) MUSKOGEE

	HIGHWAY COLLISIONS				CITY STREET COLLISIONS				COUNTY ROAD COLLISIONS				TOTAL COLLISIONS			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
(60) WEBBERS FALLS	1	1	10	12									1	1	10	12

County: (68) SEQUOYAH

	HIGHWAY COLLISIONS				CITY STREET COLLISIONS				COUNTY ROAD COLLISIONS				TOTAL COLLISIONS			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
(00) • RURAL •		4	19	23										4	19	23

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

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ABULATION OF COLLISIONS

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 01/14/2020 by Jessica Avery

USE RESTRICTED
23 USC 409

Collisions By Type Of Collision

Type Of Collision	2009				2010				2011				2012				2013			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
Rear-End (front-to-rear)	1			1							1	1							1	1
Head-On (front-to-front)																				
Right Angle (front-to-side)																				
Angle Turning																				
Other Angle																				
Sideswipe Same Direction			1	1			1	1												
Sideswipe Opposite Direction																				
Fixed Object			3	3							3	3			2	2			3	3
Pedestrian																				
Pedal Cycle																				
Animal																				
Overturn/Rollover			2	2																
Vehicle-Train																				
Other Single Vehicle Crash			1	1											1	1			1	1
Other																			1	1
Total	1		7	8			1	1			4	4			3	3			6	6
Percent	2.9		20.0	22.9			2.9	2.9			11.4	11.4			8.6	8.6			17.1	17.1

Collisions By Type Of Collision

Type Of Collision	2014				2015				2016				2017				2018*			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
Rear-End (front-to-rear)		1		1		1		1			1	1		1		1				
Head-On (front-to-front)																				
Right Angle (front-to-side)																				
Angle Turning																				
Other Angle																				
Sideswipe Same Direction							1	1							1	1			1	1
Sideswipe Opposite Direction																				
Fixed Object																			2	2
Pedestrian																				
Pedal Cycle																				
Animal																			1	1
Overturn/Rollover														1	1	2				
Vehicle-Train																				
Other Single Vehicle Crash						1		1												
Other																				
Total		1		1		2	1	3			1	1		2	2	4			4	4
Percent		2.9		2.9		5.7	2.9	8.6			2.9	2.9		5.7	5.7	11.4			11.4	11.4

*** INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.**

SCHEMMER

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 01/14/2020 by Jessica Avery

ABULATION OF COLLISIONS

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

USE RESTRICTED
23 USC 409

Collisions By Type Of Collision

Type Of Collision	Total				
	Fat	Inj *	PD	Tot	Pct
Rear-End (front-to-rear)	1	3	3	7	20.0
Head-On (front-to-front)					
Right Angle (front-to-side)					
Angle Turning					
Other Angle					
Sideswipe Same Direction			5	5	14.3
Sideswipe Opposite Direction					
Fixed Object			13	13	37.1
Pedestrian					
Pedal Cycle					
Animal			1	1	2.9
Overturn/Rollover		1	3	4	11.4
Vehicle-Train					
Other Single Vehicle Crash		1	3	4	11.4
Other			1	1	2.9
Total	1	5	29	35	100
Percent	2.9	14.3	82.9	100	

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

SCHEMMER

ABULATION OF COLLISIONS

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 01/14/2020 by Jessica Avery

USE RESTRICTED
23 USC 409

Units By Unit Type

Unit Type	2009				2010				2011				2012				2013			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
Train																				
Pedestrian																				
Animal																				
Pedal Cycle																				
Parked Vehicle																				
CMV	2		4	6															3	3
Other Single Vehicle			3	3							3	3			3	3			4	4
Other Multi-Vehicle	1		1	2			2	2			2	2							1	1
Total	3		8	11			2	2			5	5			3	3			8	8
Percent	5.8		15.4	21.2			3.8	3.8			9.6	9.6			5.8	5.8			15.4	15.4

Units By Unit Type

Unit Type	2014				2015				2016				2017				2018*			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
Train																				
Pedestrian																				
Animal																			1	1
Pedal Cycle																				
Parked Vehicle														1		1				
CMV															2	2			1	1
Other Single Vehicle						1		1						1		1			2	2
Other Multi-Vehicle		2		2		2	2	4			2	2		3	1	4			2	2
Total		2		2		3	2	5			2	2		5	3	8			6	6
Percent		3.8		3.8		5.8	3.8	9.6			3.8	3.8		9.6	5.8	15.4			11.5	11.5

*** INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.**

SCHEMMER

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 01/14/2020 by Jessica Avery

ABULATION OF COLLISIONS

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

USE RESTRICTED
23 USC 409

Units By Unit Type

Unit Type	Total				
	Fat	Inj *	PD	Tot	Pct
Train					
Pedestrian					
Animal			1	1	1.9
Pedal Cycle					
Parked Vehicle		1		1	1.9
CMV	2		10	12	23.1
Other Single Vehicle		2	15	17	32.7
Other Multi-Vehicle	1	7	13	21	40.4
Total	3	10	39	52	100
Percent	5.8	19.2	75.0	100	

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SCHEMMER

ABULATION OF COLLISIONS

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

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USE RESTRICTED
23 USC 409

Vehicles By Vehicle Type

Vehice Type	2009				2010				2011				2012				2013			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
Passenger Vehicle-2 Door															1	1				
Passenger Vehicle-4 Door			3	3			1	1			2	2			1	1			4	4
Passenger Vehicle-Convertible																				
Pickup Truck							1	1			2	2							1	1
Single-Unit Truck (2 axles)																				
Single-Unit Truck (3 or more axles)																				
School Bus																				
Truck/Trailer																				
Truck-Tractor (bobtail)																				
Truck-Tractor/Semi-Trailer			5	5															3	3
Truck-Tractor/Double																				
Truck-Tractor/Triple																				
Bus/Large Van (9-15 seats)																				
Bus (16+ seats)																				
Motorcycle	1			1																
Motor Scooter/Moped																				
Motor Home																				
Farm Machinery																				
ATV																				
Sport Utility Vehicle (SUV)			1	1							1	1								
Passenger Van																				
Truck More Than 10,000 lbs.																				
Van (10,000 lbs. or less)															1	1				
Other			1	1																
Total	1		10	11			2	2			5	5			3	3			8	8
Percent	2.0		19.6	21.6			3.9	3.9			9.8	9.8			5.9	5.9			15.7	15.7

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SCHEMMER

ABULATION OF COLLISIONS

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

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Collision Analysis and Safety Branch
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USE RESTRICTED
23 USC 409

Vehicles By Vehicle Type

Vehice Type	2014				2015				2016				2017				2018*			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
Passenger Vehicle-2 Door														1		1				
Passenger Vehicle-4 Door						1		1			1	1		1	2	3			1	1
Passenger Vehicle-Convertible																				
Pickup Truck						1	1	2			1	1		1	1	2			2	2
Single-Unit Truck (2 axles)																				
Single-Unit Truck (3 or more axles)																				
School Bus																				
Truck/Trailer																				
Truck-Tractor (bobtail)																				
Truck-Tractor/Semi-Trailer															2	2			1	1
Truck-Tractor/Double																				
Truck-Tractor/Triple																				
Bus/Large Van (9-15 seats)																				
Bus (16+ seats)																				
Motorcycle																				
Motor Scooter/Moped																				
Motor Home																				
Farm Machinery																				
ATV																				
Sport Utility Vehicle (SUV)		1	1	2			2	2											1	1
Passenger Van																				
Truck More Than 10,000 lbs.																				
Van (10,000 lbs. or less)																				
Other																				
Total		1	1	2		2	3	5			2	2		3	5	8			5	5
Percent		2.0	2.0	3.9		3.9	5.9	9.8			3.9	3.9		5.9	9.8	15.7			9.8	9.8

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ABULATION OF COLLISIONS

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

USE RESTRICTED
23 USC 409

Vehicles By Vehicle Type

Vehice Type	Total				
	Fat	Inj *	PD	Tot	Pct
Passenger Vehicle-2 Door		1	1	2	3.9
Passenger Vehicle-4 Door		2	15	17	33.3
Passenger Vehicle-Convertible					
Pickup Truck		2	9	11	21.6
Single-Unit Truck (2 axles)					
Single-Unit Truck (3 or more axles)					
School Bus					
Truck/Trailer					
Truck-Tractor (bobtail)					
Truck-Tractor/Semi-Trailer			11	11	21.6
Truck-Tractor/Double					
Truck-Tractor/Triple					
Bus/Large Van (9-15 seats)					
Bus (16+ seats)					
Motorcycle	1			1	2.0
Motor Scooter/Moped					
Motor Home					
Farm Machinery					
ATV					
Sport Utility Vehicle (SUV)		1	6	7	13.7
Passenger Van					
Truck More Than 10,000 lbs.					
Van (10,000 lbs. or less)			1	1	2.0
Other			1	1	2.0
Total	1	6	44	51	100
Percent	2.0	11.8	86.3	100	

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

SCHEMMER

ABULATION OF COLLISIONS

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

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USE RESTRICTED
23 USC 409

Day And Time Of Occurrence Of Collisions

Day	Hour Of The Day																								
	AM												PM												
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	Tot	Pcnt
Sunday		1							1							1				2					5	14.3
Monday	1											1							1		1	1			5	14.3
Tuesday					2										2		1	1					1		7	20.0
Wednesday		1									1			2				2							6	17.1
Thursday								1		2		1							1						5	14.3
Friday							1						2		1		1					1			6	17.1
Saturday								1																	1	2.9
	Early Morning - Sunrise						Morning Peak			Mid Morning/Afternoon						PM Peak			Evening - Late Night						Tot	100
Total	5						4			12						6			8						35	
Percent	14.3						11.4			34.3						17.1			22.9						100	

Roadway/Lighting

Roadway Conditions	Lighting Conditions					Total	Percent
	Daylight	Darkness	Twilight	Lighted	Unknown		
Dry	13	10				23	65.7
Wet (Water)	6	1	1		1	9	25.7
Ice, Snow, or Slush	1	2				3	8.6
Mud, Dirt, Gravel, or Sand							
Other							
Total	20	13	1		1	35	100
Percent	57.1	37.1	2.9		2.9	100	

Weather Conditions

Weather Conditions	Total	Percent
Clear	15	42.9
Clouds Present	11	31.4
Raining/Fog	7	20.0
Snowing/Sleet/Hail	2	5.7
Other		
Total	35	100

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ABULATION OF COLLISIONS

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

USE RESTRICTED
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Drivers By Driver Conditions

Unsafe/Unlawful	Apparently Normal			Alcohol Involved						Sleep Suspected			Drug Use Indicated			Unknown Condition			Total				
				Ability Impaired			Odor Detected																
	Fat	Inj *	PD	Fat	Inj *	PD	Fat	Inj *	PD	Fat	Inj *	PD	Fat	Inj *	PD	Fat	Inj *	PD	Fat	Inj *	PD	Total	Pcnt
Failed to Yield																							
Failed to Stop																							
Failed to Signal																							
Improper Turn																							
Improper Start																							
Improper Stop																							
Improper Backing																							
Improper Parking																							
Improper Passing																							
Improper Lane Change			2																		2	2	4.0
Left of Center																							
Following Too Close	1																		1			1	2.0
Unsafe Speed		1	9																	1	9	10	20.0
DWI					1	2									1					1	3	4	8.0
Inattention		1	6									2						1		1	9	10	20.0
Negligent Driving			1																		1	1	2.0
Defective Vehicle		1																		1		1	2.0
Wrong Way																							
No Improper Action	1	5	13													1			2	5	13	20	40.0
Other			1																		1	1	2.0
Total	2	8	32		1	2					2		1	1		1	3	9	38	50	100		
Percent	4.0	16.0	64.0		2.0	4.0					4.0			2.0	2.0		2.0	6.0	18.0	76.0	100		

Severities Indicate Highest Severity in Collision

Collisions By Special Feature

Special Feature	Total			
	Fat	Inj *	PD	Tot
Bridge		2	5	7
Work Zone			3	3
Cross Median				
Train Collision				

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

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Traffic Engineering Division
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HIGHWAY SYSTEM COLLISION LISTING

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

USE RESTRICTED
23 USC 409

Cnty	City	CS #	Int. #	Mile Post	Location	Features	Int. Related	On Map	Dir. 1	Dir. 2	# Veh.	# Inj.*	# Fat.	Type of Collision	Unsafe Unlawful	Lighting Cond.	Roadway Cond.	Severity	Date
(51) MUSKOGEE				(60) WEBBERS FALLS	HWY: 1-40					AT: 290.00,				MM290					
51	60	15		13.76	MM290		NO	y	E	·	1			F-0 BARR-CONCRETE	IMP-LN-CHG	DARK	DRY	PDQ	12-21-2011
51	60	15		13.76	MM290		NO	y	W	W	2			SIDESWIPE-SAME	UNSAF-SPD	DYLGT	WET	PDO	12-14-2018
(51) MUSKOGEE				(60) WEBBERS FALLS	HWY: 1-40					AT: 290.01,				00.01 after MM 290					
51	60	115		113.77			NO	y	W	W	2			REAR-END	INATT	DYLGT	DRY	PDQ	05.23.2013
(51) MUSKOGEE				(60) WEBBERS FALLS	HWY: 1-40					AT: 290.06,				00.06 after MM 290					
51	60	15		13.82			NO	y	W	-	1			F-0 BARR-CONCRETE	UNSAF-SPD	DYLGT	WET	PDQ	10-05-2013
(51) MUSKOGEE				(60) WEBBERS FALLS	HWY: 1-40					AT: 290.08,				00.08 after MM 290					
51	1 60	115	1	113.84			NO	y	E	·	1			ROLLOVER	INATT	DYLGT	DRY	PDQ	11-26-2009 1
(51) MUSKOGEE				(60) WEBBERS FALLS	HWY: 1-40					AT: 290.09,				00.09 after MM 290					
51	1 60	115	1	113.85	1		NO	y	E	·	1			OTH-SINGLE-VEH	NO-IMP-ACT	DYLGT	DRY	PDQ	103-01-2013
(51) MUSKOGEE				(60) WEBBERS FALLS	HWY: 1-40					AT: 290.20,				00.20 after MM 290					
51	1 60	115	1	113.96	1		NO	y	E	·	1			F-0 GUARDRL-END	SLEEPY	DARK	DRY	PDQ	101-20-2009 1
(51) MUSKOGEE				(60) WEBBERS FALLS	HWY: 1-40					AT: 290.29,				00.29 after MM 290					
51	60	15		14.05			NO	y	E	E	3		1	REAR-END	FOL-CLOSE	DARK	DRY	FAT	05-13-2009
51	60	15		14.05		INCIDENT	NO	y	W	·	1			OTH-SINGLE-VEH	NO-IMP-ACT	DYLGT	DRY	PDQ	05-20-2012
51	60	15		14.05			NO	y	W	·	1			F-O BARR-CABLE	SLEEPY	DARK	DRY	PDO	06-30-2013
51	60	15		14.05			NO	y	W	W	2	1		REAR-END	INATT	DYLGT	DRY	PINJ	01.()4-2015
51	60	15		14.05			NO	y	W	W	2			SIDESWIPE-SAME	D-W-1	DYLGT	DRY	PDO	06-10-2015
(68) SEQUOYAH				(00)	HWY: 1-40					AT: 290.36,				ARKANSAS RIVER BR.					
68		22		00.00	ARKANSAS RIVER BR.	BRIDGE	NO	y	W	·	1			F-O BR-RAIL	UNSAF-SPD	DARK	ICE	PDO	12-06-2011
68		22		00.00	ARKANSAS RIVER BR.	BRIDGE	NO	y	W	·	1			F-0 BR-RAIL	D-W-1	DARK	DRY	PDQ	12-09-2012
68		22		00.00	ARKANSAS RIVER BR.	BRIDGE	NO	y	E	E	2			OTHER	NEG-DRYING	DAWN	WET	PDO	01-18-2013
68		22		00.00	ARKANSAS RIVER BR.	BRIDGE	NO	y	W	·	1	1		OTH-SINGLE-VEH	DEF-VEH	DYLGT	DRY	PINJ	02-09-2015
68		22		00.00	ARKANSAS RIVER BR.	BRIDGE	NO	y	W	W	4	2		REAR-END	IMP-PARK	DARK	DRY	N•IINJ	05-01-2017
68		22		00.00	ARKANSAS RIVER BR.	BRIDGE	NO	y	E	E	2			SIDESWIPE-SAME	IMP-LN-CHG	DYLGT	DRY	PDQ	05-11-2017
(68) SEQUOYAH				(00)	HWY: 1-40					AT: 290.50,				00.14 after ARKANSAS RIVER BR.					
68		22		00.14			NO	y	W	-	1			F-O GUARDRL-FACE	UNSAF-SPD	DYLGT	DRY	PDO	06-10-2009
68		22		00.14			NO	y	W	-	1			F-0 BARR-CABLE	UNSAF-SPD	DYLGT	WET	PDQ	05-20-2011
(68) SEQUOYAH				(00)	HWY: 1-40					AT: 290.56,				00.20 after ARKANSAS RIVER BR.					
68		22		1 00.20	1		NO	y	W	W	2			REAR-END	INATT	DYLGT	DRY	PDQ	12-06-2016I
(68) SEQUOYAH				(00)	HWY: 1-40					AT: 290.60,				00.24 after ARKANSAS RIVER BR.					
68		22		1 00.24	1		NO	y	W	W	2			SIDESWIPE-SAME	INATT	DYLGT	DRY	PDO	105-26-2009 1
(68) SEQUOYAH				(00)	HWY: 1-40					AT: 290.70,				00.30 before MM 291					

* INCLUDES SUSPECTED SERIOUS, NON NCAPACITATING, AND POSSIBLE INJURIES.

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HIGHWAY SYSTEM COLLISION LISTING

JP 34334(04)

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USE RESTRICTED
23 USC 409

				HIGHWAY COLLISIONS		CITY STREET COLLISIONS	COUNTY ROAD COLLISIONS							TOTAL COLLISIONS					
Cnty	City	CS #	Int. #	Mile Post	Location	Features	Int. Related	On Map	Dir. 1	Dir. 2	# Veh.	# Inj.*	# Fat.	Type of Collision	Unsafe Unlawful	Lighting Cond.	Roadway Cond.	Severity	Date
68		22		00.34			NO	y	W	-	1			ROLLOVER	UNSAF-SPD	DARK	DRY	PDO	03-21-2017
(68) SEQUOYAH				(OD)	HWY: I-40						AT: 290.80,			00.20 before MM 291					
68		22		1 oo.44	1		NO	y	W	-	1	2		ROLLOVER	D-W-1	DARK	DRY	N-IINJ	110-02-2011 1
(68) SEQUOYAH				(DD)	HWY: I-40						AT: 290.86,			00.14 before MM 291					
68		22		1 oo.5o	1		NO	y	E	E	2			SIDESWIPE-SAME	SLEEPY	DARK	DRY	PDO	101-18-2010 1
(68) SEQUOYAH				(DD)	HWY: I-40						AT: 290.90,			00.1 D before MM 291					
68		22		00.54		WKZONE X-MEDIAN	NO	y	W	-	1			OTH-SINGLE-VEH	INATT	DARK	WET	PDO	09-22-2009
68		22		00.54		WKZONE	NO	y	W	-	1			ROLLOVER	NO-IMP-ACT	DYLGT	DRY	PDO	09-30-2009
68		22		00.54			NO	y	W	W	2			REAR-END	D-W-1	DYLGT	DRY	PDO	12-27-2011
68		22		00.54			NO	y	W	-	1			F-0 BARR-CONCRETE	UNSAF-SPD	DYLGT	SNOW	PDO	02-20-2013
68		22		00.54			NO	y	W	W	2	1		REAR-END	UNSAF-SPD	DARK	SNOW	N-IINJ	11-16-2014
68		22		00.54			NO	y	E	-	1			F-0 BARR-CONCRETE	INATT	DYLGT	WET	PDO	10-09-2018
68		22		00.54			NO	y	W	-	1			ANIMAL	DEER	DARK	DRY	PDO	11-09-2018
(68) SEQUOYAH				(DD)	HWY: I-40						AT: 290.95,			00.05 before MM 291					
68		22		1 oo.59	1	BRIDGE	NO	y	W	-	1			F-0 BR-RAIL	UNSAF-SPD	OTHER	WET	PDO	105.24-2018 1
(68) SEQUOYAH				(DD)	HWY: I-40						AT: 290.98,			00.02 before MM 291					
68		22		1 00.62	1		NO	y	W	-	1			F-OTREE	UNSAF-SPD	DYLGT	WET	PDO	110-12-2012 1
(68) SEQUOYAH				(DD)	HWY: I-40						AT: 291.D0,			MM291					
68		22		1 oo.64	1	MM291 WKZONE	NO	y	W	-	1			F-0 DITCH	OTHER	DYLGT	WET	PDO	110-01-2009 1

*** INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.**

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STUDY CRITERIA

JP 34334(04)

Date Range: 01-01-2009 Thru 12-31-2018

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USE RESTRICTED
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ROADWAY/ REGION

	QUERY OVER	SELECTIONS
1	Control Section	County: 68, Control Section: 22, CS Type: hwy, CS Query On: range, Mile Start: 00.00, Mile End: 00.64
2	Control Section	County: 51, Control Section: 15, CS Type: hwy, CS Query On: range, Mile Start: 13.76, Mile End: 14.06

DATE

Date Range	101-01-2009 to 12-31.2018

REPORT SECTIONS

Collision Map & Study Totals	(Included)
Collision Analysis Tables	(Included)
• Totals By City, Hwy Class	Checked
- Other Analysis Tables	Checked
Collision Listing	(Included)
• Highway Collision Listing	Checked, By Control Section
- City Street Collision Listing	Checked
• County Road Collision Listing	Checked
Query Criteria	(Included)

FILTER COLLISIONS

Roadway Type	All Collision Data
Incl. Crashes Assoc. w/ Every Int.	Checked
Environment Fields	

REPORT FORMAT OPTIONS

Print Watermark	Checked
Print DPS Case Numbers	Unchecked

SECTION 6: EXISTING BRIDGE CONDITION AND HYDROLOGICAL DATA

BRIDGE STRUCTURES

One bridges lies within the study limits and carries I-40 over the Arkansas River. The bridge's National Bridge Inventory (NBI) number is 17051. The bridge inspection report is located in Exhibit 6.1.

DRAINAGE AREAS

- The drainage area associated with the bridge over the Arkansas River is approximately 86,849.27 square miles and is primarily to the north and west of the bridges location. Delineated area obtained from https://streamstats.usgs.gov/ss/ since hand delineation was considered impractical due to drainage basin size.
- Approximately 1,389.58 square miles of the drainage area is regulated by NRCS floodwater retarding structures. Regulated area was also obtained from https://streamstats.usgs.gov/ss/.
- Effective area is approximately 85,459.69 square miles.

FEMA FIRMETTE

Federal Emergency Management Agency (FEMA) FIRMattes for the study area are located in Exhibits 6.2 through 6.4.

USGS GAUGE DATA

No USGS gauge information was found for the study limits.

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Oklahoma Dept. of Transportation - Bridge Inspection Report

NBI No.:	Structure No.:	Local ID:	Suff. Rating:	
17051	6822 0000 X	-1	83.00	ND

IDENTIFICATION

Bridge Description:

3-125ft. P/S CONCRETE GIRDERS, 3-CONT. PLATE GIRDER SPANS (200ft. -330ft.-200), 4-125ft., 3-125ft. CONT. PLATE GIRDER SPANS

1. State: Oklahoma
2. Division: Division 1
3. County: SEQUOYAH
4. City: Unknown
Admin Area: Unknown
5a. On/Under: Route On Structure
5b. Kind of Hwy: Interstate Hwy
5c. Lvl of Srvc: Mainline
5d. Route No.: 00040
5e. Dir. Sufx: N/A (NBI)
7. Facility Carried : I-40
6. Feat. Intersect: ARKANSAS RIVER
9. Location: SEQUOYAH-MUSKOGEE CC
11. Mile Post: NA
13. LRS Inv. / Sub Rte: 6822 0000 / 01
16. Latitude: 35° 29' 16.49"
17. Longitude: 095° 05' 38.05"
98. Border Brdg: Unknown (P)
% Responsible: 0.00
99. Border Brdg #: Unknown

INSPECTION

Type	Insp. Req.	Insp. Done	Freq.	Insp. Date	Next Insp.
NBI:		1	24 months	8/9/2019	08/09/2021
FC:	Y	1	24 months	8/9/2019	8/9/2021
UW:	Y	0	60 months	8/5/2015	8/5/2020
OS:	Y	0	24 months	8/9/2018	8/9/2020

CLASSIFICATION

12.Base Hwy Net.: On Base Network
20. Toll Facility: On free road
21. Custodian: State
22. Owner: State
26. Function Class: 01 Rural Interstate
37. Historical Sig.: Not eligible for NRHP
100. Def. Hwy: On Interstate STRAHNE
101. Parallel Str.: No || bridge exists
102. Traffic Dir.: 2-way traffic
103. Temp. Str.: Not Applicable (P)
104. Hwy System: On the NHS
105. Fed Land Hwy: IRR-Indian Res Rd
110. Defense Hwy: On Interstate STRAHNE
112. NBIS Length: Long Enough

STRUCTURE TYPE AND MATERIALS

43a/b. Main Span: Steel Cont. / Girder-Floorbeam
44a/b. Appr. Span: P/S Conc. / Stringer/Girder
45. # of Main Spans: 10
46. # of Appr. Spans: 3
107. Deck Type: Concrete-Cast-in-Place
108a. Wearing Surface: Low Slump Concrete
108b. Membrane: Unknown
108c. Deck protection: Unknown

CONDITION

58.Deck: 6 Satisfactory
59.Sup.: 6 Satisfactory
60.Sub: 6 Satisfactory
62.Culvert: N/A (NBI)
61.Chan./Chan. Prot.: 6 Bank Slumping

Flowline Notes

Refer to 2010 UW inspection report.

AGE AND SERVICE

19. Detour Length: 5.0 mi
27. Year Built: 1967
28a/b. Lanes on/und: 4 / 0
29. ADT: 15,900
30. Year of ADT: 2017
106. Year Reconst.: 1983
109. Truck ADT: 36%
42a/b. Type of Svc on/und: Highway / Waterway

LOAD RATING AND POSTING

31. Design Load: MS 18 (HS 20)
41. Post. Status: A Open, no restriction
70. Posting: 5 At/Above Legal Loads
Date Rated: 10/01/2006
63.Op / 65.Inv. Rating Meth.: 1 LF Load Factor / 1 LF Load Factor

	H	HS	3-3	EV3	SHV
64. Operating Rating (tons):	30.42	54.68	92.82	0.00	0.00
66. Inventory Rating (tons):	18.19	32.85	55.67	-1.00	

GEOMETRIC DATA

10. Vert. Clearance: 99.99 ft
32. Appr Rwy Width: 69.91 ft
33. Median: Closed Med w/o Barri
34. Skew: 0.00°
35. Struct. Flared: No flare
47Horizontal Clr: 30.00 ft
48. Length Max Span: 330.00 ft
49. Struct. Length: 1,989.00 ft
50a. Curb/Sdwlk Width L: 3.00 ft
50b. Curb/Sdwlk Width R: 3.00 ft
51. Width Curb to Curb: 60.00 ft
52. Width Out to Out: 68.50 ft
Deck Area: 136,247.76 sq. ft
53. Min.Vert.Cl.Ovr Brg: 99.99 ft
54a.Min.Vt.Undclr.Ref.: N Feature not hwy c
54b. Min. Vert. Undclr.: 0.00 ft
55a. Min.Lat.Undclr.Ref: N Feature not hwy
55. Min.Lat.Underclr. R: 99.90 ft
56. Min.Lat.Underclr. L: 99.90 ft

APPRAISAL

36a. Brdg Rail: 1 Meets Standards
36b. Transition: 1 Meets Standards
36c. Appr. Rail: 1 Meets Standards
36d. Appr.Rail Ends: 1 Meets Standarc
67. Str Evaluation: 6 Equal Min Criteria
68. Deck Geom.: 4 Tolerable
69. Vert./Horiz. Undclr: Not applicable (NB
71. Waterway Adeq: 8 Equal Desirable
72. Appr. Alignment: 7 Above Min Criteria
113. Scour Critical: 8 Stable Above Footin

PROPOSED IMPROVEMENTS

94. Bridge Cost: $20,219,922
95. Roadway Cost: $4,500,000
96. Total Cost: $26,119,163
97. Yr.of Cost Est.: 2015
75. Type of Work: 31 Repl-Load Capacity
76. Lngth of Improvement: 1,989.0 ft
114. Future ADT: 25,440
115. Yr.of Future ADT: 2037

NAVIGATION DATA

38. Nav. Control: Permit Required
39. Vert. Clearance: 52.0 ft
40. Horiz. Clearance: 300.0 ft
111. Pier Protect.: 2 In-Place, Function
116. Lift Bridge Vert. Clr.: 0.0 ft

OKLAHOMA ITEMS

200c. Temperature: 88
200d. Weather: Ptly Cloudy
201. Struc.Stl. ASTM Desig.: A-36 / -1
202. Waterprf.Membrane: -1
Date Installed: 01/01/1901
203. Type Exp. Device: Modular
204. Type of Railing: PTR-1 (round hand rail)
205. Material Quantity: -3.00
208a. Type of Abutment: Skeleton
b. Type of Found.: Steel Piling
209. Type of Pier/Found.: 2 / Yes
No Piling/Drilled Shaft
210. Foundation Elev.: 4,300.00 / 4,240.00 / -1.00 / 4,290.00 / -1.00
211. Wear.Surf.Prot.Sys: Silane
Date Installed: 01/01/1901
213. Utilities Attached: Communication

214a. Posted Weight Limit: NR
b. Posted Speed Limit: 70
c. Narrow/1way Brdg Sign: NA
d. Vertical Clr. Sign: NA
Adv. Warning Sign: NA
e. Navigation Lights?: Yes
Working/Not Working: No
215. Overpass: INTERSTATE
221. Substr.Cond.(U/W):
222. Fill Over RCB:
223. Appr.Slab/Rwy Cond.: 6
225. Paint Type/Ovrct: Inorganic Zinc 3Coat Sys
N/A
226. Date Painted: 2010
227. Paint Color: Gray
233. Deck Forming:
238. School Bus Rte.: Current & Desired route
240. Appr. Rwy Type.: Asphalt/Bituminous
243. Grdr Spacing/No.: /

244. Span Lengths: 125 / 125 / 125 / 200 / 330 / 200 / 125 / 125
245. Girder Depth:
246a. Type of Ovelay: NA
b. Overlay Thickness: 0.00
c. Overlay Date: 01/01/1901
d. Ovly Depth Changed >1":
247. Protective Systems:

248. # Field Splices w/ Corrosion:
249. Scour Crit. POA Exists?:
250. Headwall:
254. Thru Truss Type:
257a. OkiePROS Truck Routing: Yes
258. Plans w/Found.in ODOT File:
259. Scour Eval. in ODOT File:
263. Interchange at Intersection: No
264. Interstate Milepoint: 290.66

SCHEMMER

Oklahoma Dept. of Transportation - Bridge Inspection Report

NBI No.:	Structure No.:	Local ID:	Suff. Rating:	
17051	6822 0000 X	-1	83.00	ND

Inspection Date: 8/9/19 Brendan Prendeville

Invoice No.: 891921 Inspected With:

BRIDGE NOTES:

3-125' P/S Concrete girders, (200'-330'-200')4-125',3-125' Continuous plate girder spans 2-30' roadways. w/ 18 inch safety curbs & 4' median
OS Inspection Items Include:
Monitor: all locations of cracks in the girders at the ends of stiffeners; Fractured and cracked transverse separation beam in modular joint at pier 6; Cracking of modular joint bearing boxes at pier 3; Misaligned joint support bars and cracked/broken off equidistant control bars at piers 3, 6 and 10; Crack in poor quality weld between the lower lateral bracing gusset plate and the vertical web stiffener for girder 3 at floor beam 5, span 6; Lower lateral bracing gusset plate at floor beam 4, girder 3, in span 8; Elastomeric bearings for span 4 at pier 3; Lateral and longitudinal movement of bearings at east abutment; Undermining/erosion of aprons at both abutments and exposed steel pile under beam 5 where undermining occurs at west abutment.

INSPECTION NOTES: 8/9/19

PX-Reconnect metal bridge railing at two adjacent locations over pier 12 and replace the missing railing posts near midspan of span 13 and patch adjacent spalled concrete.
PX-Patch spalls with exposed reinforcement in the bridge rail.
PX-Patch spalls in driving surface near pourable control joints as listed in the table in the "Driving Surface" section of the report.
PX-Repair cracks in the bearing boxes at the modular joint supports at pier 3. Install shim plates below the bearing blocks to prevent future cracking.
PX-Repair the cracked and broken modular support bars and equidistant control bars at piers 6 and 10. Install countermeasures to keep the joint supports in place to prevent further cracking.
PX-Repair transverse separation beam at support box 2 of pier 6.
PX-Repair/replace the modular joint seals over piers 3 6 and 10 to prevent water from leaking into superstructure.
PX-Replace pourable joint seal at the abutments.
PX-Replace missing bolts at stringer connections.
PX-Drill out end of crack in the stringer diaphragm over floor beam 5 span 6 between stringers 3 and 4.
PX-Consider drilling out the ends of the cracks in the lower lateral bracing gusset plates at locations as listed in the "Floor Bracing System" below.
PX-Reattach the dampener rod bolts/nuts at missing locations and replace dampener rod where fractured.
PX-Consider patching the large spall at pier 6 at the base of the north column.
PX-Repair the broken seismic cable anchorages.
PX-Reset the elastomeric bearings for girder 1 for span 4 at pier 3 and remove paint from the stainless steel sliding surface of the elastomeric bearings at pier 3.
PX-Remove paint from the stainless steel sliding surfaces of the elastomeric bearings at pier 3.
PX-Removing the pack rust from below the rocker bearings to allow proper movement of the bearings.
FX-Monitor full depth transverse cracking in original portion of the deck for growth and change in density.
FX-Monitor sagging middle transverse separation beam of pier 6 joint.
FX-Monitor the locations of cracks which have been retrofitted with drilled holes for signs of crack propagation beyond the drilled holes.
FX-Monitor lateral bracing gusset plate connections to girder webs at undercuts and flame cuts.
FX-Monitor possible crack at the end of the weld for the vertical stiffener under floor beam 7 girder 4 span 6.
FX-Monitor crack in poor quality weld between the lower lateral bracing gusset plate and the vertical web stiffener for girder 3 at floor beam 5 span 6 for propagation into the girder base-metal.
FX-Monitor lamination and/or undercut at the girder web adjacent to the end of the lower lateral bracing gusset plate weld at girder 4 south face of floor beam 2 span 6.
FX-Monitor exposed ends of tendons for corrosion.
FX-Monitor crack in the vertical web stiffener of girder 3 at floor beam 2 span 8.
FX-Monitor pack rust between stringer top flanges floor beam top flanges and diaphragm top flanges and the deck soffit for growth and possible affects to driving surface.
FX-Monitor gouge in floor beam 3 span 6 near girder 2 for cracking.
FX-Monitor pack rust between floor beam webs and gusset plateS especially near piers.
FX-Monitor the corrosion hole in the lower lateral bracing gusset plate at girder 4 span 6 over pier 6 for growth or deterioration.
FX-Monitor the erosion that has developed adjacent to the south end of the east abutment apron.
FX-Monitor corrosion to east abutment bearings.
FX-Monitor cracking in approach slabs for potholes.
FX-Monitor girder webs for signs of distress in locations with gouging.
FX-Monitor pack rust between girder vertical web stiffeners and floor beam truss lower chord gusset plates for growth and distortion.
FX-Monitor girder bottom flange splice plate for pack rust initiation.
FX-Monitor region of painted over pitting that is reactivating on the bottom flange of girder 4 south face at floor beam 6 span 4.

ELEMENT CONDITION STATE DATA

Elem. / Env	Description	Unit	Total Qty	% 1	Qty. 1	% 2	Qty. 2	% 3	Qty. 3	% 4	Qty. 4
12 / 4	Re Concrete Deck	sq.ft	119,340.00	70%	83,538.00	30%	35,802.00	0%	0.00	0%	0.00

SCHEMMER

Oklahoma Dept. of Transportation - Bridge Inspection Report

NBI No.:	Structure No.:	Local ID:	Suff. Rating:	ND
17051	6822 0000 X	-1	83.00	

PX – The original portion of the deck (spans 5-12 and 80 feet of span 4) has control joints at every second or third floor beam. The pourable joint sealant has typically failed; allowing water to drain onto the floor system. Small spalls are typical along control joints. Deck patches are common along these joints; and many patched areas exhibit recent spalling and heavy cracking. Multiple areas previously mentioned as being deteriorated have been patched. Areas specifically listed in the previous report but not repaired include:
Span 4; Pier 4; Westbound; 8-inch wide x 6-inch long patch along centerline with an 8-square-foot spall in westbound lane.
Span 4; Floor beam 7; Westbound; 4 square-foot spall in south lane.
Span 5; Floor beam 0; Westbound; 8 square-foot spall near center line.
Span 5; Floor beam 9; Westbound; 3 square-foot spall in south lane.
Span 7; Floor beam 3; Westbound; 4 square-foot spall in south lane.
Span 8; Floor beam 1; Westbound; 2 square-foot spall at the center line.
Span 9; Floor beam 1; Westbound; 3 square-foot spall in the north lane.
Span 9; Floor beam 4; Westbound; 5 square-foot spall in the north lane.
Span 10; Floor beam 2; Westbound; 20 square-foot spall in north lane.
The newer portion of the deck in spans 1-3 and approximately 125 feet of span 4; exhibits moderate transverse cracking up to 0.020 inches wide; spaced at 3-5 feet in isolated locations. Hairline map cracking is typical. Span 3 exhibits diagonal cracking for westbound lanes also up to 0.030 inches. Some of the wider cracks have been sealed.
Original portion of the deck (spans 5-12 along with approximately 80 feet of span 4) typically exhibits transverse cracking up to 0.030 inches spaced at 5-10 feet. Many of the cracks are full depth and can be seen in the soffit.
Pavement markers near floor beam 7 in span 4 and span 5 mid span are broken.
The north edge of the deck at the west abutment is in contact with the backwall; causing the edge of the deck to spall.
Minor debris exists along deck at the median.

107 / 4	Steel Opn Girder/Beam	ft	5,540.00	91%	5,038.00	9%	500.00	0%	2.00	0%	0.00	

Oklahoma Dept. of Transportation - Bridge Inspection Report

NBI No.:	Structure No.:	Local ID:	Suff. Rating:	ND
17051	6822 0000 X	-1	83.00	

FX – Several cracks and possible cracks exist at the ends of the horizontal stiffeners at the splices. Several of these cracks have been arrested by drilled holes and the locations are as follows:
Sp 4; G2; Near Fb5; 2 cracks; 1-in long and 1 1/2-in long at the top and bottom respectively. Arrested by drilled holes
Sp 4; G4; Near Fb 5; 2 cracks; 1-in long and 1 1/2-in long at the top and bottom respectively. Arrested by drilled holes
Sp 4; G4; Near Fb 5; Lower web contains 7/16-in vertical through crack. Arrested by drilled hole. No crack in upper web but arrestor hole in place.
Sp 5; G1; Near Fb 11; Upper web contains a 3/4-in long crack stopping short of the arrestor hole. Crack in bottom web is 1 1/4-in long arrested by two 1/2-in drilled holes.
Sp 5; G2; Near Fb 0; 2-in long area of lack of fusion on south face at end of LLB gusset plate.
Sp 5; G2; Near Fb 11; 2-in long crack in upper girder web. No growth since the 2014 OS although crack has grown 1 1/2 in since 2013. This crack has been retrofitted with a crack arrest bushing by the DOT.
Sp 5; G3; Near Fb 11; 7/8-in long crack in upper web with arrestor hole. Crack has not reached arrestor hole.
Sp 5; G4; Near Fb 3; 5/8-in long (above longitudinal stiffener) and 1-in long (below longitudinal stiffener) cracks arrested with drilled holes. No changes.
Sp 5; G4; Near Fb 11; 1-in long crack arrested with a drilled hole.
Sp 6; G1; Near Fb 3; 2 cracks arrested by 2-in diameter arrestor holes. No change.
Sp 6; G2; Near Fb 3; 1-in long crack in upper web. Crack has not grown since the 2014 OS. This crack has been retrofitted with a crack arrest bushing by the DOT.
Sp 6; G3; Near Fb 3; No change to paint crack in upper girder web.
Sp 6; G4; Near Fb 3; 1 1/4-in long crack arrested with drilled holes
FX – The lower lateral bracing gusset plates are welded to the girder webs with the use of 1/4-in thick backer bars to weld between the gaps. Many of these welds appear to have undercut the girder web base metal. Holes have been drilled in the girder webs at the ends of the lower lateral bracing gusset plates at following locations:
Sp 10; G1; Near Fb4; no visible crack.
Sp 11; G1; Near Fb1; no visible crack.
Sp 11; G2; Near Fb3; no visible crack.
Sp 12; G2; Near Fb1; no visible crack.
Sp 12; G2; Near Fb2; no visible crack.
Weld material has also spilled behind the backer bars along the girder webs.
FX – At several locations; the lower lateral bracing gusset plates have been flame cut and reattached to the girder webs with bolted angles. Gouges in the girder webs up to 1/4-in deep exist along the original lower lateral bracing weld lines.
FX – A crack was observed at the toe of the top weld for the vertical web stiffener on span 8; girder 3; north face at floor beam 2. The crack currently measures 1 1/2 in (3/8-in growth) in length.
FX – Pack rust up to 1/2-in thick exists between some girder vertical web stiffeners and floor beam truss lower chord gusset plates and between horizontal splice flanges. Minor pack rust up to 1/4-in thick is developing at girder bottom flange splice plates where girder ends butt up against each other. Pack rust is active in many locations and worse at expansion joints.
FX – A paint crack exists at the end of the weld for the vertical stiffener under floor beam 7; girder 4; span 6. This is a paint crack but should be monitored in future inspections.
FX – An approximately 3-in long crack exists through the poor quality weld between the lower lateral bracing gusset plate and the vertical web stiffener for girder 3 at floor beam 5; in span 6.
FX – An undercut exists in the girder web adjacent to the end of the lower lateral bracing gusset plate weld at girder 4; south face of floor beam 2; span 6.
One missing bolt is present in the girder 3 splice near floor beam 3; span 5.
Tri-axial welds exist at intersections between the webs; flanges and stiffeners. No cracked welds are noted at this time.

515 / 4	Steel Protective Coating	sq.ft	330,000.00	0%	0.00	100%	330,000.00	0%	0.00	0%	0.00

The paint system is generally in satisfactory condition with the exception of isolated areas of reactivating painted over pack rust; minor surface corrosion; and flaking or peeling paint most common near the piers.

109 / 4	Pre Opn Conc Girder/Beam	ft	4,140.00	100%	4,140.00	0%	0.00	0%	0.00	0%	0.00

No significant deficiencies were observed to the prestressed concrete girders in spans 1-3.

113 / 4	Steel Stringer	ft	5,540.00	98%	5,438.00	2%	100.00	0%	2.00	0%	0.00

PX – Bolts and/or nuts are missing in the connections to the floor beams at the following locations:
Two missing at span 6; west side of floor beam 1; stringer 1.
Missing nut at span 6; east side of floor beam 1; north face of stringer 3.
Three missing or not fully seated bolts at span 7; floor beam 2; stringer 4.
One missing bolt at span 8; west face of floor beam 0; stringer 3.
PX – There is an 8 1/2-inch long crack in the stringer diaphragm over floor beam 5; in span 6; between stringers 3 and 4. The crack was 6 inches long during the 2016 OS inspection; however; no growth was noted during this inspection.
FX – The deck is lifting off the stringers at several locations. This separation can eventually cause an uneven riding surface increasing impact on the superstructure and further accelerating deck deterioration.
Stringer 2 diaphragm connection on the north face at floor beam 1; span 8 exhibits 5 of 7 connection bolts not fully seated.
The stringers are generally in good condition with negligible surface corrosion in isolated locations; usually near expansion joints.

152 / 4	Steel Floor Beam	ft	3,536.00	0%	0.00	95%	3,359.00	5%	177.00	0%	0.00

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17051	6822 0000 X	-1	83.00	

FX – Floor beam 3 in span 6 between girders 1 and 2 has a 1/2-inch long x 3/16-inch deep gouge in the bottom flange approximately 2 feet from girder 2. The floor beam also has an approximate 1/4-inch global lateral sweep in the bottom flange to the east. This sweep appears to be from construction; has not changed from prior inspections; and it is assumed that the cross framing provides additional support to the floor beam.
FX – At floor beam 6 in span 4 between girders 3 and 4; 1/2-thick painted over pack rust exists between the floor beam web and the connection plate at girder 4. Similar condition at floor beam 8 at girder 4 over pier 6; in span 6. Similar conditions occur sporadically but with less severity.
FX – Floor beam 8 between girders 3 and 4 over pier 6; span 6; the floor beam truss lower chord exhibits pack rust up to 1/2 inch between the center gusset plate and the lower chord angle with 1/16-inch deep section loss to the gusset plate. Similar condition in span 7 over pier 6.
FX – Pack rust is typically developing between the diaphragm top flange and the deck soffits; up to 1/16-inch at random locations.
Floor beam 3 in span 7 at girder 2 exhibits one missing and one loose bolt at the top row of connection bolts.
Fretting corrosion is present at the isolated upper floor beam connections to the girders. The movement may be due to a loose connection.

Floor System Bracing
PX – Fatigue cracks are present on welds for the lower lateral bracing gusset plates at multiple locations. These include:
Sp 5; G2; Fb0; 2-inch long area of lack of fusion at the toe of the gusset plate on the south face of the girder.
Sp 5; G2; Fb4; Area of lack of fusion observed along the gusset plate weld on the south face of the girder web at the west end of the plate.
Sp 6; G4; Fb7; 8 1/2-inch long paint crack due to undercut weld.
Sp 8; G3; Fb4; 2 fatigue cracks. One crack is 8 1/2 inches long and runs tangent to the corner of the lower lateral bracing member weld. The second crack is 3 1/2 inches long and runs along the floor beam bottom flange. No change from the previous inspection.
Sp 9; G3; Fb4; 3 3/8-inch crack along the lower lateral bracing connection plate weld on the girder web. No change from previous inspection.
Sp 10; G2; Fb2; 18-inch crack along the weld on the south face of girder on east end of plate. No change from previous inspection.
Sp 11; G2; Fb1; 8-inch along weld on south face of girder on east end of plate. Previously noted as 8 1/2 inches long; however; no change present.
Sp 11; G2; Fb1; 6-inch along the weld on south face of girder on west end of plate. No change from previous inspection.
PX – The lower lateral bracing dampeners have fractured in a couple locations. These include:
Span 4 near floor beam
Span 4; between girders 1 and 2; between floor beams 5 and 6
Span 4 near floor beam 7
Span 4; between girders 1-2 and girders 3-4; between floor beam 7 and pier 5; fractured just above the bolted connection.
FX – A corrosion hole measuring 8 inches long x 1-3/4 inches wide exists on the lateral bracing gusset plate in span 6; girder 4; at pier 6.
Small distortions in the lower lateral bracing angles are common most likely due to erection damage.

205 / 4	Re Conc Column	each	23.00	87%	20.00	9%	2.00	4%	1.00	0%	0.00

PX – The north column of pier 6 exhibits a 5-square foot spall with exposed and corroding reinforcing steel exists at the base of the column.

210 / 4	Re Conc Pier Wall	ft	94.00	100%	94.00	0%	0.00	0%	0.00	0%	0.00

Minor hairline cracking exists in the concrete pier walls.
Pier 4 exhibits some water staining and vertical cracks to the stem wall.

215 / 4	Re Conc Abutment	ft	152.00	97%	147.00	3%	4.00	1%	1.00	0%	0.00

FX – The east abutment slope exhibits a 4-foot deep erosion hole exists adjacent to the south end of the east abutment apron with up to 32 inches of penetration due to active erosion. Undermining up to 20 inches deep exists sporadically along the length of the west abutment breastwall. This erosion has slightly changed since the previous inspection.
The east abutment exhibits random hairline cracking up to 0.020 inches wide.
The east abutment seat exhibits moderate debris accumulation up to 9 inches deep around girders 2 and 3 to the failed joint above. An isolated location of rust staining exists due to shallow rebar.
West abutment exhibits random hairline cracking along the backwall.

234 / 4	Re Conc Pier Cap	ft	837.00	33%	280.00	66%	550.00	1%	7.00	0%	0.00

PX – Seismic restraints; consisting of cable anchorages attached between the girder bottom flanges and the pier caps; exist at piers 6 and 10. Several of the cable anchorages are broken and are no longer functioning. At pier 6; this condition exists at girder 4. At pier 10; this condition exists at girders 1; 2; and 3.
Pier 6 cap exhibits rust staining throughout.
Pier 10 cap exhibits a wide crack and delamination to the bottom west edge between girders 3 and 4.

300 / 4	Strip Seal Exp Joint	ft	69.00	0%	0.00	0%	0.00	0%	0.00	100%	69.00

Jt at east abutment.
PX - Joint at east abutment closed and covered in asphalt in westbound lane.

303 / 4	Assem Jnt With Seal	ft	207.00	0%	0.00	0%	0.00	0%	0.00	100%	207.00

Oklahoma Dept. of Transportation - Bridge Inspection Report

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17051	6822 0000 X	-1	83.00	

Modular joints exist above piers 3, 6 and 10.
PX – The support boxes at pier 3 appear to be supported by a thin layer of concrete which does not provide adequate support. Bottom plates of support box fractured at support assembly 3, 4, 7 and 15. West support box is only supported by one edge at support assembly 8, 15, 16, and 17. The modular joint at pier 3 was also observed to be closed and the neoprene joint seals are cracked.
PX – Cantilevered equidistant control bars at piers 6 and 10 and the support bar welds are cracked or broken at the following locations: Jt. 6 - Support Assemblies 1, 2, 3, 4 (Equidistant bars are missing), 10, 11, 12, 13 and 14; Jt 10 - Support Assemblies 4, 12 (Equidistant bars are missing), 13 (Equidistant bars are missing) and 14.
PX – The transverse separation beam at support box 2 at pier 6 has fractured full height and previous plate repair has failed.
PX – The modular joint seals over piers 3, 6, and 10 are bulging and torn along the full length of the joints in the westbound lanes and along the curbs of the eastbound lanes.
FX – The middle transverse separation beam of the modular expansion joint near the north curb at pier 6 is sagging.

310 / 4	Elastomeric Bearing	each	76.00	97%	74.00	0%	0.00	3%	2.00	0%	0.00

PX – The elastomeric bearing for girder 1 of span 4 at pier 3 has rotated between the Teflon pad and the steel bearing assembly. The rotation has caused the southeast corner of the elastomeric bearing to pull away from the sole plate; with up to 2 1/2 inches (1-inch increase since previous inspection) of overhang at the southeast corner of the bearing. The steel bearing assembly is at the limits of expansion with the anchor bolts bent. This condition may be due to the steel bearing assembly not being aligned parallel with the girder before being welded to the bottom flange. The twisted steel bearing assembly is restrained by the anchor bolt slots (also not parallel with the girder) causing binding against the anchor bolts. Similar misalignment between the girder and steel bearing assembly was observed at girder 3 of span 4 at pier 3.
PX – The stainless steel sliding surface for the girder bearings of span 4 at pier 3 have been painted. This condition has compromised the low friction sliding surface of the bearings; causing longitudinal movements to be accommodated by deformation of the elastomeric bearings.

311 / 4	Moveable Bearing	each	24.00	0%	0.00	63%	15.00	38%	9.00	0%	0.00

PX – The rocker bearings at piers 4; 6; 10 and at the east abutment have pack rust between the rockers and the masonry plates. The lead bearing pads below the masonry plates are extruding out from under the masonry plates; suggesting the bearings are being loaded longitudinally as a result of the inability of the rockers to rotate. Several rocker bearing bolts are broken or missing; especially at pier 6.
FX – East abutment bearings typically exhibit surface corrosion on the rocker and the masonry plate with up to 1/16-inch active corrosion and painted over pitting. Anchor bolts are typically bent and/or broken due to expansion. The bearings for girders 1 through 4 at the east abutment have shifted up to 1 inches to the south. Additionally; the bearings for girders 1 and 2 have shifted 1-inch to the north.
The rocker bearings for span 6 at pier 6 are rocked 10° maximum in expansion at 85°F. All anchor bolts for the span 6 rocker bearings at pier 6 are missing.
The rocker bearings at pier 10 are rotated between 6 and 10 degrees in expansion at 80°F.
The bearing for girder 3 at pier 4 is rotated out of alignment relative to the bearings for the other girders. This appears to be due to construction as no correlating signs of distress were noted. The misalignment will tend to transfer higher longitudinal forces to the pier.

313 / 4	Fixed Bearing	each	24.00	0%	0.00	100%	24.00	0%	0.00	0%	0.00

No significant deficiencies.

321 / 4	Re Conc Approach Slab	sq.ft	4.00	0%	0.00	75%	3.00	25%	1.00	0%	0.00

FX – The west approach slab exhibits longitudinal and map cracking throughout up to 1/16-inch max. Minor edge spalls exists along the approach slab adjacent to the joint. Debris exists along the shoulders. East approach slab exhibits wide longitudinal cracking.
Poured joint seals between the approach slab and approach roadway exhibit areas of missing joint material or depressed areas into the slab.
Both approaches exhibit wide longitudinal cracking in the approach wearing surface.
The asphalt concrete approach pavement in the westbound lanes exhibits longitudinal and transverse cracking with minor settlement at both ends.

330 / 4	Metal Bridge Railing	ft	3,978.00	100%	3,976.00	0%	0.00	0%	2.00	0%	0.00

PX – The metal bridge railing is disconnected at two adjacent locations over pier 12. This has not changed since the previous inspection.
PX – The north bridge rail over floor beam 2 in span 12 has 3 missing rail posts along the top of the concrete railing.
A gap in the metal railing exists at the south rail over piers 6 and 7; and in the north rail over floor beam 4 in span 9.
East approach; north railing exhibits impact damage to steel approach rail. Very minor impact damage was noted at other locations.

919 / 4	St.(Rail) Prot. Coat	(SF)	7,500.00	0%	0.00	100%	7,500.00	0%	0.00	0%	0.00

Isolated areas of surface corrosion especially around areas of traffic impact.

331 / 4	Re Conc Bridge Railing	ft	5,967.00	0%	0.00	100%	5,953.00	0%	14.00	0%	0.00

PX – The north bridge rail over floor beam 2 in span 12 has 3 missing rail posts along the top of the concrete railing. Spalls with exposed reinforcing steel exist in the locations of the old rail posts.
PX – Concrete bridge railing and curb typically exhibits 0.020 to 0.030-inch wide cracking spaced at 3-5 feet with leaching and minor rust staining. There are isolated locations of spalling with exposed reinforcing steel. Minor impact damage to the north rail exists in span 3; span 4; at the north face of the median railing over pier 10; and the north face of the median railing at pier 12. Areas of impact damage exhibit heavy cracking.

819 / 4	PS Conc.Gird.End(5Ft	(LF)	360.00	99%	356.00	1%	4.00	0%	0.00	0%	0.00

FX – End faces of the beam exhibit spalling with exposed tendons at the following locations:
Beam 1; span 1 at pier 1 – crack extending 30 inches up the web and spall to bottom flange exposing 9 tendons.
Beam 1; span 3 at pier 2 – crack extending 31 inches down the web and spall exposing 3 tendons.
Beam 12; span 2 at pier 2 – spalling to bottom flange with 23 exposed tendons.
Beam 12; span 3 at pier 3 – spall to the bottom flange exposing 22 tendons.
Some of the girder ends exhibit hairline cracking with rust and efflorescence staining from the deck.

859 / 4	Soffit	(EA)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00

NBI No.:	Structure No.:	Local ID:	Suff. Rating:	ND
17051	6822 0000 X	-1	83.00	

FX – Original portion of the deck exhibits full depth; full width transverse cracking up to 0.030 inches wide spaced at 2-5 feet with minor efflorescence; heavier over piers.
Shallow spalls exist sporadically adjacent to girder top flanges throughout the main spans.
Soffit between girders 2 and 3 exhibits rust staining and small popouts due to shallow cover of reinforcing steel chairs.
Stay in place forums typically exhibit areas of surface and laminating corrosion near the interface with the original deck surface.
The soffit below the median in span 4 over pier 3 exhibits a 2 –square-foot spall with exposed and corroded reinforcing steel.

865 / 4	St.Open Gird End(5Ft	(LF)	120.00	50%	60.00	50%	60.00	0%	0.00	0%	0.00

FX – Pack rust up to 1/2in thick exists between some girder vertical web stiffeners and floor beam truss lower chord gusset plates and between horizontal splice flanges. Minor pack rust up to 1/4in thick is developing at girder bottom flange splice plates where girder ends butt up against each other. Pack rust is active in many locations and worse at expansion joints.

870 / 4	Concrete Wingwall	(EA)	4.00	100%	4.00	0%	0.00	0%	0.00	0%	0.00

No significant deficiencies.

872 / 4	St.Gird Und Const.Jt	(LF)	760.00	74%	560.00	26%	200.00	0%	0.00	0%	0.00

FX – Several cracks and possible cracks exist at the ends of the horizontal stiffeners at the splices. Several of these cracks have been arrested by drilled holes and the locations are as follows:
Sp 4; G2; Near Fb5; 2 cracks; 1-in long and 1 1/2-in long at the top and bottom respectively. Arrested by drilled holes
Sp 4; G4; Near Fb 5; 2 cracks; 1-in long and 1 1/2-in long at the top and bottom respectively. Arrested by drilled holes
Sp 4; G4; Near Fb 5; Lower web contains 7/16-in vertical through crack. Arrested by drilled hole. No crack in upper web but arrestor hole in place.
Sp 5; G1; Near Fb 11; Upper web contains a 3/4-in long crack stopping short of the arrestor hole. Crack in bottom web is 1 1/4-in long arrested by two 1/2-in drilled holes.
Sp 5; G2; Near Fb 0; 2-in long area of lack of fusion on south face at end of LLB gusset plate.
Sp 5; G2; Near Fb 11; 2-in long crack in upper girder web. No growth since the 2014 OS although crack has grown 1 1/2 in since 2013. This crack has been retrofitted with a crack arrest bushing by the DOT.
Sp 5; G3; Near Fb 11; 7/8-in long crack in upper web with arrestor hole. Crack has not reached arrestor hole.
Sp 5; G4; Near Fb 3; 5/8-in long (above longitudinal stiffener) and 1-in long (below longitudinal stiffener) cracks arrested with drilled holes. No changes.
Sp 5; G4; Near Fb 11; 1-in long crack arrested with a drilled hole.
Sp 6; G1; Near Fb 3; 2 cracks arrested by 2-in diameter arrestor holes. No change.
Sp 6; G2; Near Fb 3; 1-in long crack in upper web. Crack has not grown since the 2014 OS. This crack has been retrofitted with a crack arrest bushing by the DOT.
Sp 6; G3; Near Fb 3; No change to paint crack in upper girder web.
Sp 6; G4; Near Fb 3; 1 1/4-in long crack arrested with drilled holes

877 / 4	St. Stringer End(5Ft)	(LF)	120.00	50%	60.00	33%	40.00	17%	20.00	0%	0.00

The stringers are generally in good condition with negligible surface corrosion in isolated locations; usually near expansion joints.

879 / 4	St.Strng.Un Const.Jt	(LF)	7.60	100%	7.60	0%	0.00	0%	0.00	0%	0.00

FeW locations of minor painted over pitting at stringer ends. Sporadic locations of minor pack rust adjacent to joints.

890 / 4	Steel SIP Form	(LF)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00

Minor surface corrosion and evidence of oxidation at west abutment and adjacent to piers 1 and 2.

906 / 4	Sealed Exp.Jt.(SEJ-3	(LF)	69.00	100%	69.00	0%	0.00	0%	0.00	0%	0.00

At pier 1 - No significant deficiencies.

909 / 4	Pourable Fix Jt.Seal	(LF)	1,311.00	0%	0.00	0%	0.00	0%	0.00	100%	1,311.00

Fixed poured seal joints at west abutment, pier 2, and deck control joints.
PX – The pourable fixed joint seal at the west abutment has missing seal in westbound and eastbound lanes.

916 / 4	St.Bearing Assembly	(LF)	76.00	97%	74.00	0%	0.00	3%	2.00	0%	0.00

Bearings showed some surface corrosion and some pack rust between assemblies.

956 / 4	St. Cracking/Fatigue	(SF)	1.00	0%	0.00	0%	0.00	100%	1.00	0%	0.00

NBI No.:	Structure No.:	Local ID:	Suff. Rating:	ND
17051	6822 0000 X	-1	83.00	

FX – Several cracks and possible cracks exist at the ends of the horizontal stiffeners at the splices. Several of these cracks have been arrested by drilled holes and the locations are as follows:
Sp 4; G2; Near Fb5; 2 cracks; 1-in long and 1 1/2-in long at the top and bottom respectively. Arrested by drilled holes
Sp 4; G4; Near Fb 5; 2 cracks; 1-in long and 1 1/2-in long at the top and bottom respectively. Arrested by drilled holes
Sp 4; G4; Near Fb 5; Lower web contains 7/16-in vertical through crack. Arrested by drilled hole. No crack in upper web but arrestor hole in place.
Sp 5; G1; Near Fb 11; Upper web contains a 3/4-in long crack stopping short of the arrestor hole. Crack in bottom web is 1 1/4-in long arrested by two 1/2-in drilled holes.
Sp 5; G2; Near Fb 0; 2-in long area of lack of fusion on south face at end of LLB gusset plate.
Sp 5; G2; Near Fb 11; 2-in long crack in upper girder web. No growth since the 2014 OS although crack has grown 1 1/2 in since 2013. This crack has been retrofitted with a crack arrest bushing by the DOT.
Sp 5; G3; Near Fb 11; 7/8-in long crack in upper web with arrestor hole. Crack has not reached arrestor hole.
Sp 5; G4; Near Fb 3; 5/8-in long (above longitudinal stiffener) and 1-in long (below longitudinal stiffener) cracks arrested with drilled holes. No changes.
Sp 5; G4; Near Fb 11; 1-in long crack arrested with a drilled hole.
Sp 6; G1; Near Fb 3; 2 cracks arrested by 2-in diameter arrestor holes. No change.
Sp 6; G2; Near Fb 3; 1-in long crack in upper web. Crack has not grown since the 2014 OS. This crack has been retrofitted with a crack arrest bushing by the DOT.
Sp 6; G3; Near Fb 3; No change to paint crack in upper girder web.
Sp 6; G4; Near Fb 3; 1 1/4-in long crack arrested with drilled holes.
FX – A crack was observed at the toe of the top weld for the vertical web stiffener on span 8; girder 3; north face at floor beam 2. The crack currently measures 1 1/2 in (3/8-in growth) in length.
FX – A paint crack exists at the end of the weld for the vertical stiffener under floor beam 7; girder 4; span 6. This is a paint crack but should be monitored in future inspections.
FX – An approximately 3-in long crack exists through the poor quality weld between the lower lateral bracing gusset plate and the vertical web stiffener for girder 3 at floor beam 5; in span 6.

PX – There is an 8 1/2-inch long crack in the stringer diaphragm over floor beam 5; in span 6; between stringers 3 and 4. The crack was 6 inches long during the 2016 OS inspection; however; no growth was noted during this inspection.

PX – Fatigue cracks are present on welds for the lower lateral bracing gusset plates at multiple locations. These include:
Sp 5; G2; Fb0; 2-inch long area of lack of fusion at the toe of the gusset plate on the south face of the girder.
Sp 5; G2; Fb4; Area of lack of fusion observed along the gusset plate weld on the south face of the girder web at the west end of the plate.
Sp 6; G4; Fb7; 8 1/2-inch long paint crack due to undercut weld.
Sp 8; G3; Fb4; 2 fatigue cracks. One crack is 8 1/2 inches long and runs tangent to the corner of the lower lateral bracing member weld. The second crack is 3 1/2 inches long and runs along the floor beam bottom flange. No change from the previous inspection.
Sp 9; G3; Fb4; 3 3/8-inch crack along the lower lateral bracing connection plate weld on the girder web. No change from previous inspection.
Sp 10; G2; Fb2; 18-inch crack along the weld on the south face of girder on east end of plate. No change from previous inspection.
Sp 11; G2; Fb1; 8-inch along weld on south face of girder on east end of plate. Previously noted as 8 1/2 inches long; however; no change present.
Sp 11; G2; Fb1; 6-inch along the weld on south face of girder on west end of plate. No change from previous inspection.

957 / 4	Pack Rust Smart Flag	(EA)	1.00	0%	0.00	0%	0.00	100%	1.00	0%	0.00

FX – Pack rust up to 1/2-in thick exists between some girder vertical web stiffeners and floor beam truss lower chord gusset plates and between horizontal splice flanges. Minor pack rust up to 1/4-in thick is developing at girder bottom flange splice plates where girder ends butt up against each other. Pack rust is active in many locations and worse at expansion joints.
FX – At floor beam 6 in span 4 between girders 3 and 4; 1/2-thick painted over pack rust exists between the floor beam web and the connection plate at girder 4. Similar condition at floor beam 8 at girder 4 over pier 6; in span 6. Similar conditions occur sporadically but with less severity.
FX – Floor beam 8 between girders 3 and 4 over pier 6; span 6; the floor beam truss lower chord exhibits pack rust up to 1/2 inch between the center gusset plate and the lower chord angle with 1/16-inch deep section loss to the gusset plate. Similar condition in span 7 over pier 6.
FX – Pack rust is typically developing between the diaphragm top flange and the deck soffits; up to 1/16-inch at random locations.

958 / 4	Concrete Cracking SF	(EA)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00

FX – Original portion of the deck exhibits full depth; full width transverse cracking up to 0.030 inches wide spaced at 2-5 feet with minor efflorescence; heavier over piers.
The newer portion of the deck in spans 1-3 and approximately 125 feet of span 4; exhibits moderate transverse cracking up to 0.020 inches wide; spaced at 3-5 feet in isolated locations. Hairline map cracking is typical. Span 3 exhibits diagonal cracking for westbound lanes also up to 0.030 inches. Some of the wider cracks have been sealed.
Original portion of the deck (spans 5-12 along with approximately 80 feet of span 4) typically exhibits transverse cracking up to 0.030 inches spaced at 5-10 feet. Many of the cracks are full depth and can be seen in the soffit.

963 / 4	Steel Section Loss SF	(EA)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00

Areas of painted over pitting are present throughout the bridge primary members. Minor section loss is active at areas of pack rust, generally at deck joints.

968 / 4	Erosion SF	(EA)	1.00	100%	1.00	0%	0.00	0%	0.00	0%	0.00

FX – A 4-foot wide x 12-foot long x 28-inch deep erosion hole exists adjacent to the south end of the east abutment apron with up to 32 inches of penetration. No exposed piles at the time of the inspection.

Oklahoma Dept. of Transportation - Bridge Inspection Report

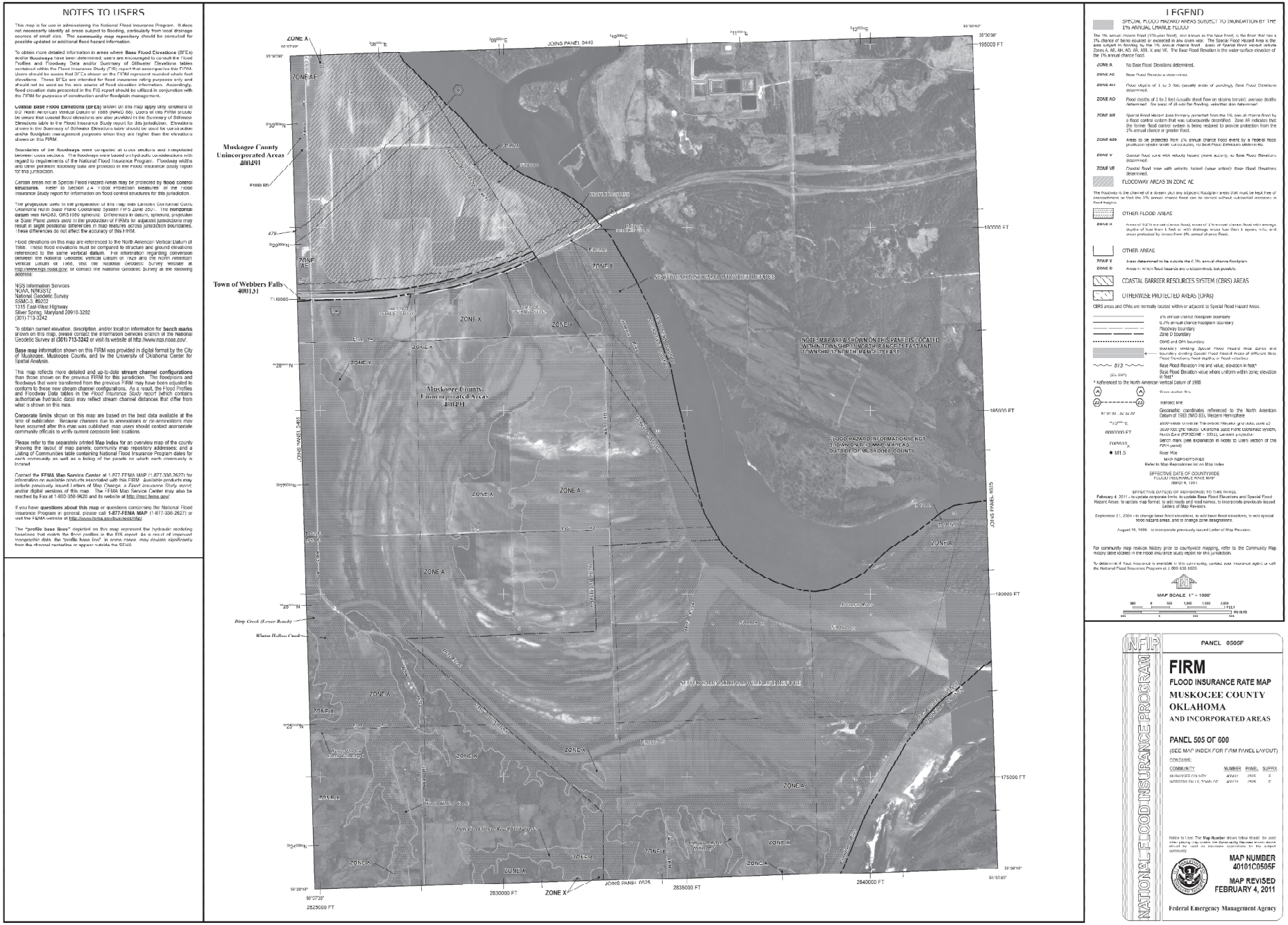
NBI No.:	Structure No.:	Local ID:	Suff. Rating:	ND
17051	6822 0000 X	-1	83.00	

969 / 4	OutOfPlane Dist./Load	(EA)	1.00	100%	1.00	0%	0.00	0%	0.00	0%	0.00

FX – Floor beam 3 in span 6 between girders 1 and 2 has a 1/2-inch long x 3/16-inch deep gouge in the bottom flange approximately 2 feet from girder 2. The floor beam also has an approximate 1/4-inch global lateral sweep in the bottom flange to the east. This sweep appears to be from construction; has not changed from prior inspections; and it is assumed that the cross framing provides additional support to the floor beam.

974 / 4	Straight Gird.Diaphr	(EA)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00

PX – There is an 8 1/2-inch long crack in the stringer diaphragm over floor beam 5; in span 6; between stringers 3 and 4. The crack was 6 inches long during the 2016 OS inspection; however; no growth was noted during this inspection.
FX – Pack rust is typically developing between the diaphragm top flange and the deck soffits; up to 1/16-inch at random locations.


NOTES TO USERS
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Coastal base flood elevations (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.
Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.
Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.
The projection used in the preparation of this map was Lambert Conformal Conic. Oklahoma North State Plane Coordinate System FIPS Zone 3501. The horizontal datum was NAD83, GRS 1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMS for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.
Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:
NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242
To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at http://www.ngs.noaa.gov/.
Base map information shown on this FIRM was provided in digital format by the City of Muskogee, Muskogee County, and by the University of Oklahoma Center for Spatial Analysis.
This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.
Please refer to the separately printed Map Index for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.
Contact the FEMA Map Service Center at 1-877-FEMA MAP (1-877-336-2627) for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov/.
If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.
The "profile base lines" depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the "profile base line" in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.
ZONE A
ZONE AE
ZONE X
JOHNS PANEL 0440
JOHNS PANEL 0525
JOHNS PANEL 0485
Muskogee County Unincorporated Areas 400491
Town of Webbers Falls 400131
NEOSHO NATIONAL WILDLIFE REFUGE
NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 15 NORTH RANGE 21 EAST AND TOWNSHIP 15 NORTH RANGE 20 EAST.
FLOOD HAZARD INFORMATION IS NOT SHOWN ON THIS MAP IN AREAS OUTSIDE OF MUSKOGEE COUNTY.
Dirty Creek (Lower Reach)
Water Hollow Creek
Horn Creek (Lower Reach)
Horn Creek (Upper Reach)
Arkansas River
195000 FT
190000 FT
185000 FT
180000 FT
175000 FT
2830000 FT
2835000 FT
2840000 FT
2825000 FT
LEGEND
SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
ZONE A — No Base Flood Elevations determined.
ZONE AE — Base Flood Elevations determined.
ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR — Special Flood Hazard Area formerly protected from the 1% ann al chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99 — Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
FLOODWAY AREAS IN ZONE AE
OTHER FLOOD AREAS
ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D — Areas in which flood hazards are undetermined, but possible.
COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
OTHERWISE PROTECTED AREAS (OPAs)
CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513 — Base Flood Elevation line and value; elevation in feet*
(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*
* Referenced to the North American Vertical Datum of 1988
Transect line
Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
1000-meter Universal Transverse Mercator grid ticks, zone 15
5000-foot grid ticks: Oklahoma State Plane coordinate system, North Zone (FIPSZONE = 3501), Lambert projection
BM 5 — Bench mark (see explanation in notes to users section of this FIRM panel)
River Mile
MAP REPOSITORIES
Refer to Map Repositories list on Map Index
EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
March 5, 1991
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
February 4, 2011 - to update corporate limits, to update Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, to incorporate previously issued Letters of Map Revision.
September 21, 2004 - to change base flood elevations, to add base flood elevations, to add special flood hazard areas, and to change zone designations.
August 16, 1996 - to incorporate previously issued Letter of Map Revision.
For community map revision history prior to countywide mapping, refer to the Community Map History table located in the flood insurance study report for this jurisdiction.
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.
MAP SCALE 1" = 1000'
500 0 500 1000 1500 2000 FEET
150 0 150 300 METERS
PANEL 0500F
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
MUSKOGEE COUNTY
OKLAHOMA
AND INCORPORATED AREAS
PANEL 505 OF 600
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
MUSKOGEE COUNTY 400491 0505 F
WEBBERS FALLS, TOWN OF 400131 0505 F
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
40101C0505F
MAP REVISED
FEBRUARY 4, 2011
Federal Emergency Management Agency

SCHEMMER

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Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Oklahoma North State Plane Coordinate System. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided in digital format by the Oklahoma Department of Transportation, Sequoyah County 911 and the University of Oklahoma Center for Spatial Analysis.

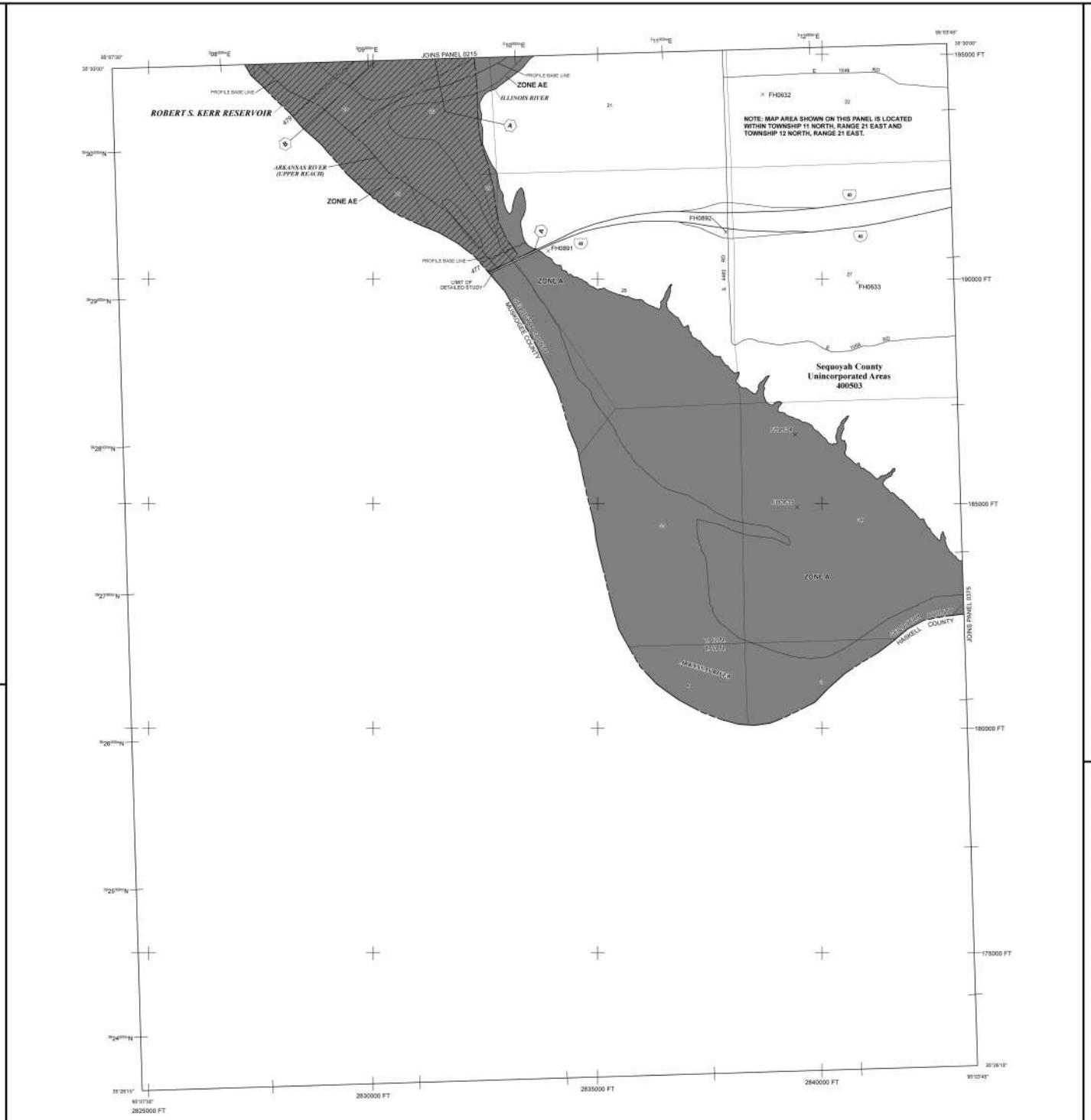
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A — No Base Flood Elevations determined.

ZONE AE — Base Flood Elevations determined.

ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 — Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities

513 — Base Flood Elevation line and value; elevation in feet*

(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A — A — Cross section line

23 — 23 — Transect line

97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

4°75'000"E — 1000-meter Universal Transverse Mercator grid ticks, zone 15

6000000 FT — 5000-foot grid values: Oklahoma State Plane coordinate system, North Zone (FIPSZONE = 3501), Lambert projection

DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)

M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
January 2, 1991

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
May 4, 1992
September 21, 2001
September 29, 2010 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to reflect the incorporation of the Town of Paradise Hill.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0355F

FIRM

FLOOD INSURANCE RATE MAP

SEQUOYAH COUNTY, OKLAHOMA

AND INCORPORATED AREAS

PANEL 355 OF 625

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SEQUOYAH COUNTY UNINCORPORATED AREAS	400503	0355	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
40135C0355F

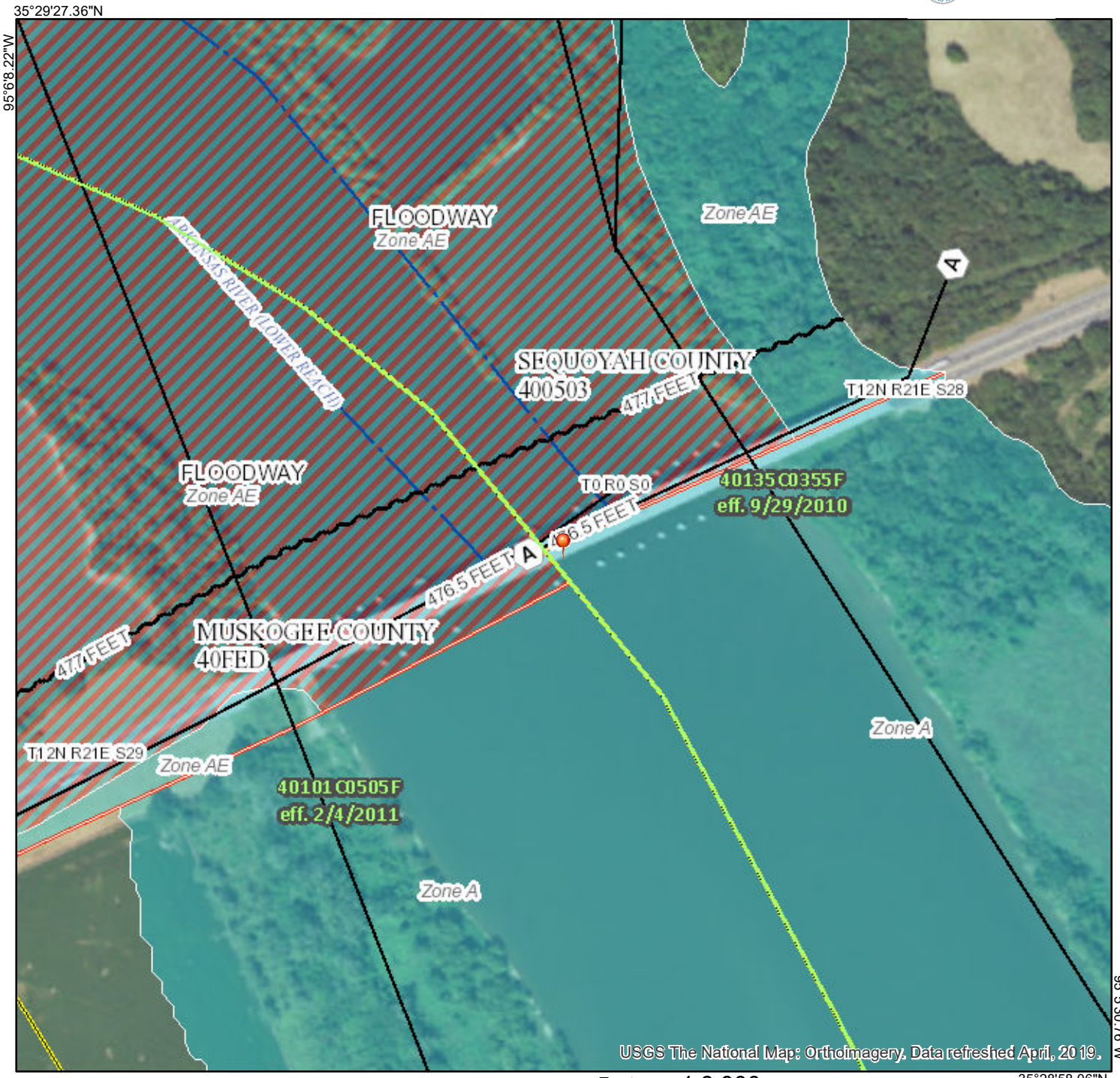
REVISED DATE
SEPTEMBER 29, 2010

Federal Emergency Management Agency

National Flood Hazard Layer FIRMette

FEMA

SCHEMMER



Feet

0 250 500 1,000 1,500 2,000

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/13/2020 at 3:08:39 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Exhibit 6.4: Muskogee & Sequoya County FIRMette map

SECTION 7: CULTURAL RESOURCES

An ODOT Cultural Resources Program (ODOT-CRP) Project Reconnaissance Review was conducted on January 16, 2020. Findings are presented in the following subsections and the entire report is attached at the end of this section (Exhibit 7.1).

HISTORIC PROPERTIES / STRUCTURES

- Properties Listed in the National Register of Historic Places (NRHP)
  There are no historic properties listed in the NRHP located within the study area.
- Properties Eligible for the NRHP
  There are no properties eligible for listing in the NRHP within the study area.
- Segments of Route 66 NRHP Eligible
  No part of Route 66 falls within the study area.
- Historic Bridges Listed in the NRHP
  There were no listed historic bridges within the study area.
- Historic Bridges Eligible for the NRHP
  The study area included one bridge listed on the National Bridge Inventory (NBI# 17051); however, this bridge is considered to be exempt from documentation of further review because it is part of the Interstate Highway System.

ARCHAEOLOGICAL SITES

- Recorded Prehistoric & Archaeological Sites
  There were no listed prehistoric or archaeological sites within the study area.
- Government Land Office (GLO) Sites
  There were no early historic or GLO sites reported within the study area.
- Previously Surveyed Cultural Sites
  There have been no prior cultural resource surveys within the recon area.

HISTORIC CEMETERIES

No historic cemeteries were located within the reconnaissance study area.

ADDITIONAL COMMENTS

ODOT-CRP stated that the archaeological sites within the vicinity of the recon area are primarily Woodland through mid-20th century occupations reported to the OAS in the 1960s by local collectors or recorded by the U.S. Army Corps of Engineers between the 1970s and 1990s. These sites have predominately been found on the high eastern terrace flanking the Arkansas River or across the river floodplain and alongside river tributaries west of the existing channel. The likelihood of encountering additional properties like these within the recon corridor is "moderate", however, the likelihood of these types of sites being eligible for inclusion within the NRHP is "minimal".

County:	Muskogee/Sequoyah	**JP No:**	34334(04)
Project No:	Not Assigned	**Date of Field Reconnaissance:**	**Not Conducted:File Review Only**
Preparer:	Mike McKay	**Report Date:**	January 16, 2020

Project Description: BRIDGE & APPROACHES – I-40: OVER THE ARKANSAS RIVER, BEGINNING AT MP 290, EXTENDING EAST 1.0 MILES.

Definition of Recon Area: Recon area is approximately 1.0 miles long extending 250 feet on both sides of the existing roadway midline.

1. Historic Properties/Structures within the Reconnaissance Area:

NO **Properties and districts listed in the National Register of Historic Places (NRHP)**

Comments No additional comments.

NO **Properties and districts determined eligible to be listed in the NRHP**

Comments No additional comments.

NO **Segments of Route 66 eligible to be listed in the NRHP**

Comments No additional comments.

YES **Bridges**

ODOT No.	NBI No.	Const. Date	Bridge Type	NRHP Status
6822 0000X	17051	1967	Steel Girder/Floorbeam	Exempt from Further Review

Comments In accordance with the March 2005 ACHP Section 106 Exemption regarding effects to the Interstate Highway System, this bridge does not require documenting and review.

2. Archaeological Sites within the Reconnaissance Area:

NO **Prehistoric through 21st Century archaeological sites recorded with the Office of the OAS**

Comments No additional comments.

NO **Late 19th through Early 20th Century (GLO) mapped properties**

Comments No additional comments.

NO **Prior cultural resources surveys within the recon area**

Comments No additional comments.

NO **Cemeteries in the recon area**

Comments No additional comments.

3. Additional comments regarding undocumented moderate or high probability properties

Archaeological sites within the vicinity of the recon area are primarily Woodland through mid-20th century occupations reported to the OAS in the 1960s by local collectors or recorded by the U.S. Army Corps of Engineers between the 1970s and 1990s. These sites have predominantly been found on the high eastern terrace flanking the Arkansas River or across the river floodplain and alongside river tributaries west of the existing channel. The likelihood of encountering additional properties like these within the recon corridor is moderate, however; the likelihood of these types of sites being eligible for inclusion within the NRHP is minimal.

4.	**Additional Comments:**	No additional comments.

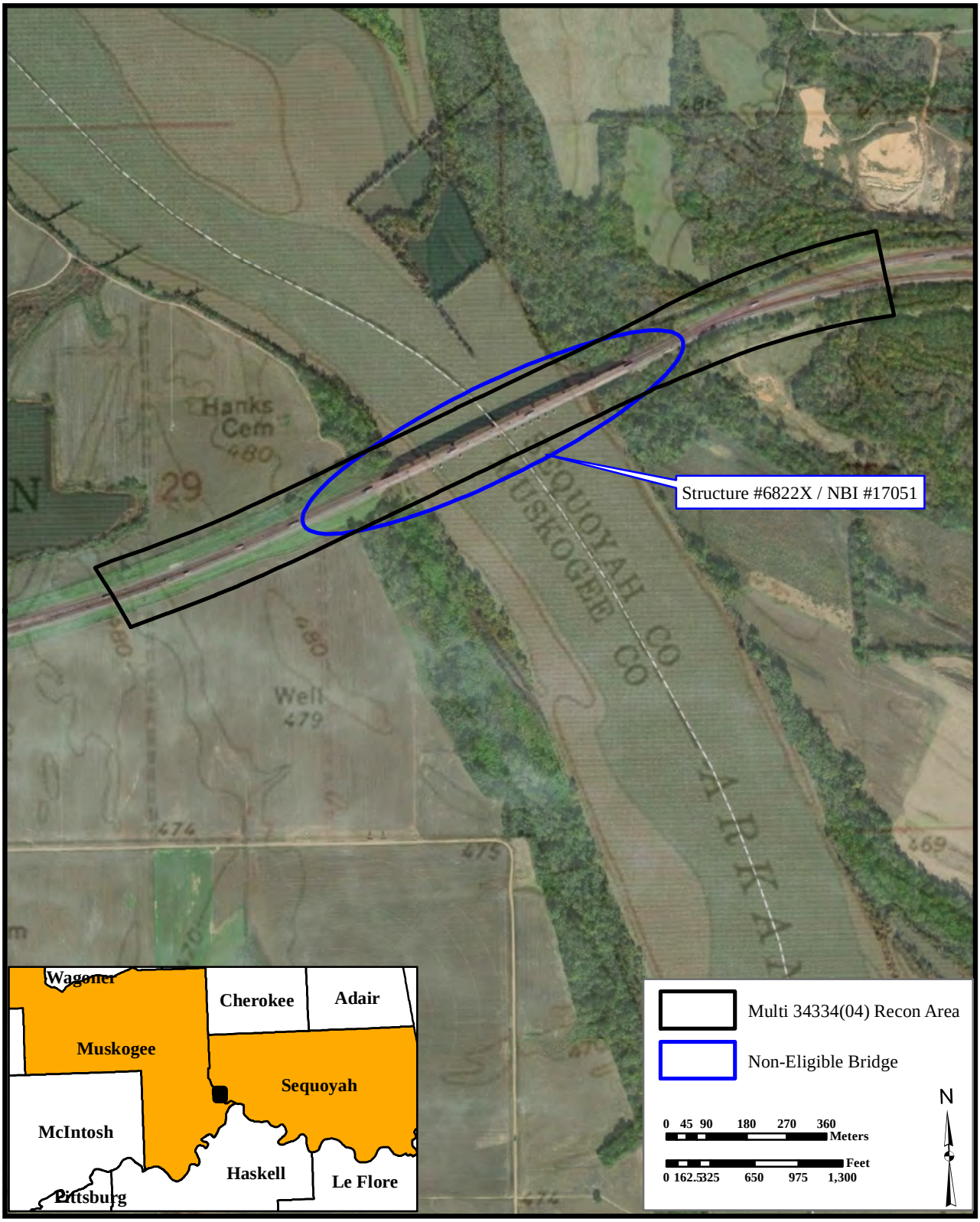


Figure 1. General reconnaissance area for the Muskogee / Sequoyah County project JP 34334(04); Bridge replacement along I-40 over the Arkansas River.

Geospatial Imagery Data: Stigler NE (1963; PR 1979) USGS 7.5' Quadrangle; T12N, R21E, Sections 28 & 29.

SECTION 8: HAZARDOUS WASTE/LUST SITES

An environmental database search was conducted by Environmental Data Resources, Inc. (EDR) on January 13, 2020 (Inquiry Number: 5932697.2s). Additional information was collected from the Oklahoma Corporation Commission (OCC), and other sources. The following sections summarize relevant aspects related to the project. The EDR Data Map (Figure 8-1a) is included below (Exhibit 8.1), but the full EDR report is only attached as part of the electronic submission (Exhibit 8.2).

HAZARDOUS WASTE SITES

There were no superfund sites, voluntary cleanup program (VCP) sites, brownfields, treatment, storage or disposal (TSD) facilities, or large quantity generators located within the reconnaissance review area or general vicinity. However, there were two SEMS Archive sites identified in the vicinity. The Gore Riverbed site, archived in 1993, and the Sequoyah Fuels Corporation site, archived in 1988, were located to the north and northeast of study area. These locations are important given the proximity to the reconnaissance area. It is possible that the study area has been impacted by historic releases of radioactive materials from the Sequoyah Fuels Corporation and Gore Riverbed sites. Radioactive contamination may be present in shallow soils across the study area, in the shallow groundwater (approximately 8 to 11 feet), and in Arkansas riverbed sediments. (See Figure 8-1b for site location).

Mr. Philip Ofosu of the EPA was contacted on January 14, 2020 to inquire about the sites. Mr. Ofosu stated that since the sites were archived, the EPA in not involved with the sites.

Mr. Jason Caldwell with the ODEQ was contacted on January 15, 2020 to inquire about the sites. Mr. Caldwell was not familiar with the Gore Riverbed site, but did have information on the Sequoyah Fuels Corporation site. Mr. Caldwell stated that approximately 11,000 tons of contaminated soil had been removed from the site, and that the remaining contaminated soil was being placed in an onsite disposal cell. He stated that the contaminated soils were concentrated in the vicinity of the former building and settling ponds. He also stated that groundwater radiation was at background levels at the river.

Sequoyah Fuels Corporation/Gore Riverbed Site – Background Overview:
Kerr McGee began operations of the Sequoyah Fuels Corporation facility southeast of the town of Gore, OK near Interstate I-40 and the confluence of the Illinois and Arkansas River in April 1970. According to Nuclear Regulatory Commission (NRC) records, on January 4, 1986, a tank ruptured at the facility releasing nearly 30,000 pounds of gaseous uranium hexafluoride. It was reported that half of the released chemical was washed into the onsite emergency pond while the other half remained as a gaseous plume of uranylfluoride and hydrofluoric acid. Based on reconstruction of the events that took place at the time of the release, it is suspected that the gaseous plume traveled as much as 29 km south of the plant, across I-40 and over a sparsely populated residential area. In 1988, Sequoyah Fuels Corporation was purchased by General Atomics. Another release occurred in 1992 while under operation by General Atomics and by 1993 the plant was shut down permanently to begin the decommissioning process. Although both the Gore Riverbed and Sequoyah Fuels Corporation (same location) sites were not added to the Environmental Protection Agency's (EPAs) National Priority List and they were archived, they are currently under NRC regulation and cleanup.

At the time of facility closure, contamination at the site exceeded NRC radiological criteria for decommissioning which requires remediation and reclamation of the site. Site decommissioning activities include dismantlement and removal of systems and equipment, demolition of structures, removal and treatment of sludges, remediation of contaminated soils, and treatment of wastewater. In November 2009, an 8.3 million cubic foot onsite disposal cell was constructed for permanent disposal of residual radioactive waste materials. As of today, groundwater underlying the onsite disposal cell has been contaminated. Site closure is estimated to be December 2022 (Exhibit 8.3).

ABOVEGROUND STORAGE TANKS, LEAKING ABOVEGROUND STORAGE TANKS, UNDERGROUND STORAGE TANKS, LEAKING UNDERGROUND STORAGE TANKS, & OIL WELLS

ASTs, LAST, USTs, & LUST Sites

According to EDR, there were no underground storage tanks (UST) facilities, no leaking underground storage tank (LUST) facilities, and no AST facilities identified within the search radius.

The Oklahoma Water Resources Board (OWRB) database was reviewed for the presence of monitoring wells. Monitoring wells may indicate a tank release of some kind. No monitoring wells were located within or adjoining the reconnaissance area. However, there were at least 44 monitoring wells and borings associated with the Sequoyah Fuels Corporation site in Section 21-12N-21E. (Refer to Exhibit 8.4 for additional information).

Source: http://www.owrb.ok.gov/wd/search/search.php (January 2020).

Oilfield Wells

The reconnaissance study area is not located in a named oil or gas field. Source: Brittany N. Pritchett, (2015) "Map of Oklahoma Oil and Gas Fields" Map GM-39, Oklahoma Geological Survey.

According to the records information provided on the Oklahoma Corporation Commission's (OCC) webpage, there were no oil and gas related wells within a 1/8-mile of the study area boundary. No others were located in the general area. Please note—record information obtained from OCC well database is known to be inaccurate and incomplete. (Refer to Exhibit 8.5 for additional information).

A natural gas pipeline operated by ONEOK Gas Transportation, LLC was located south of the highway. According to the National Pipeline Mapping System website, there have been no incidents associated with the pipeline in the study area. (Refer to Exhibit 8.6 for additional information).

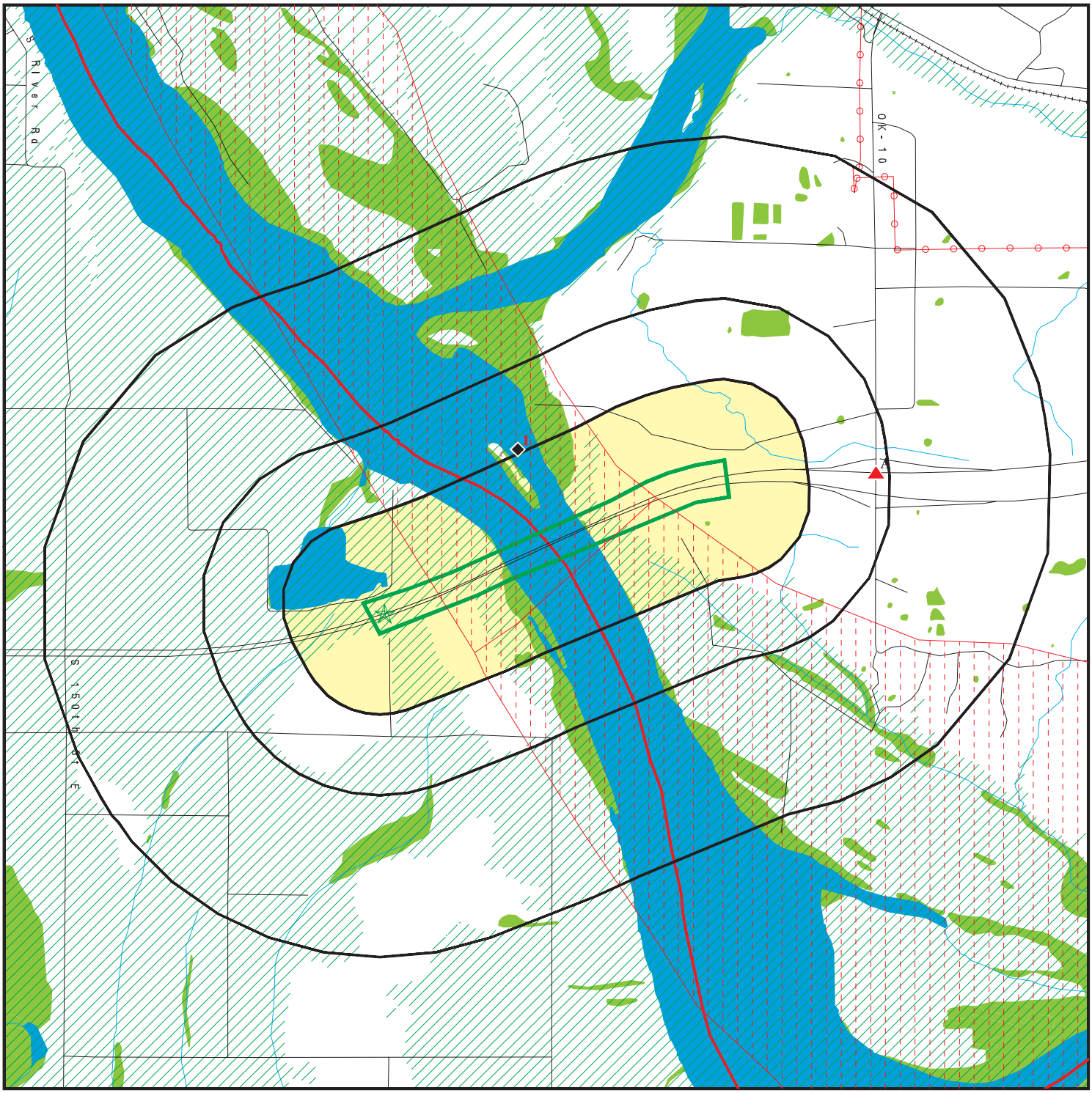
CURRENT / ABANDONED COAL MINES

Muskogee and Sequoyah Counties have a history of coal mining activity. No mining activity was observed in the vicinity of the reconnaissance footprint and there are no reported coal reserves in this area.

(Source: http://ogs.ou.edu/docs/miscmaps/MM17.pdf; and http://ogs.ou.edu/docs/bulletins/B140.pdf accessed 1/2020).

SCHEMMER

OVERVIEW MAP - 5932697.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory

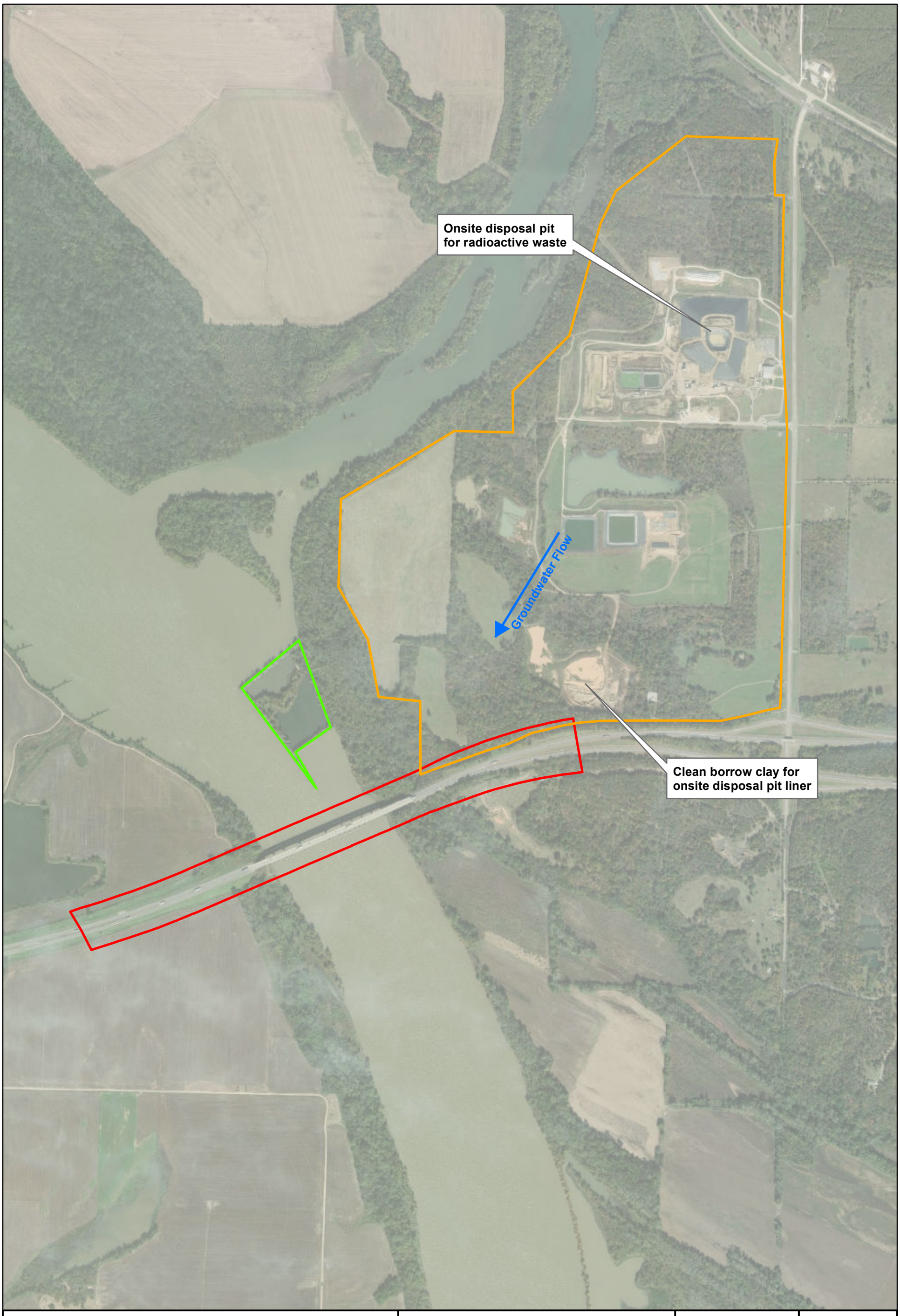
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	I-40 Over Arkansas River	CLIENT:	CC Environmental LLC
ADDRESS:	-40 Webbers Falls OK 74470	CONTACT:	Geoff Canty
LAT/LONG:	35.483671 / 95.106183	INQUIRY #:	5932697.2s
		DATE:	January 13, 2020 10:11 am

FIGURE 8-1a

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SCHEMMER



COMMENTS/LEGEND

- Study Area
- Gore Riverbed Site
- Sequoyah Fuels Corporation Site

N

0 215 430 860 1,290 1,720 Feet

Environmental Database Review Sites

Bridge & Approaches
I-40 over Arkansas River
Muskogee/Sequoyah Co.
J/P 34334(04)

Environmental

DRAWN BY: CKP
APPRV BY:

SOURCE: DEQ, Tiger 2000, USGS

FIGURE 8-1b

Date: 2/21/2020

SCHEMMER

I-40 Over Arkansas River
-40
Webbers Falls, OK 74470

Inquiry Number: 5932697.2s
January 13, 2020

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

SCHEMMER

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Detail Map	3
Map Findings Summary	4
Map Findings	8
Orphan Summary	22
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

-40
WEBBERS FALLS, OK 74470

COORDINATES

Latitude (North):	35.4836710 - 35° 29' 1.21''
Longitude (West):	95.1061830 - 95° 6' 22.25''
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	308926.5
UTM Y (Meters):	3928522.5
Elevation:	470 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5927242 STIGLER NE, OK
Version Date:	2012
North Map:	5926506 GORE, OK
Version Date:	2012
Southwest Map:	5693280 HOLT MOUNTAIN, OK
Version Date:	2012
Northwest Map:	5926552 WEBBERS FALLS, OK
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150809
Source:	USDA

SCHEMMER

MAPPED SITES SUMMARY

Target Property Address:
-40
WEBBERS FALLS, OK 74470

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
Reg	ROBERT S. KERR LAKE		DOD	Same	1 ft.
Reg	ROBERT S. KERR LAKE		DOD	Same	1 ft.
1	GORE RIVERBED	2.75 MILES SOUTHEAST	SEMS-ARCHIVE	Lower	1385, 0.262, NE
A2	SEQUOYAH FUELS CORPO	I-40 & HWY 10	SEMS-ARCHIVE, ICIS	Higher	2426, 0.459, ENE
A3	SEQUOYAH FUELS CORP	HWY 10 I-40	CORRACTS, RCRA NonGen / NLR, RAATS, PADS	Higher	2426, 0.459, ENE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent CERCLIS

SHWS ---------- The Land Report

EXECUTIVE SUMMARY

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Permitted Solid Waste Disposal & Processing Facilities

State and tribal leaking storage tank lists

LUST ---------- Leaking Underground Storage Tank List
LAST ---------- Leaking Aboveground Storage Tanks List
INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

FEMA UST ---------- Underground Storage Tank Listing
UST ---------- Underground Storage Tank Listing
AST ---------- Aboveground Storage Tanks
INDIAN UST ---------- Underground Storage Tanks on Indian Land

State and tribal institutional control / engineering control registries

INST CONTROL ---------- Institutional Control Sites

State and tribal voluntary cleanup sites

VCP ---------- Voluntary Cleanup Site Inventory
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ---------- Brownfield Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY ---------- Recycling Facilities
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
ODI ---------- Open Dump Inventory
IHS OPEN DUMPS ---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---------- Delisted National Clandestine Laboratory Register
US CDL ---------- National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

HIST UST ---------- Underground Storage Tank List, List II Version

Local Land Records

LIENS 2 ---------- CERCLA Lien Information

EXECUTIVE SUMMARY

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
OK COMPLAINT	Oklahoma Complaint System Database

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
ECHO	Enforcement & Compliance History Information
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing
AIRS	Permitted AIRS Facility Listing
DRYCLEANERS	Drycleaner Facility Listing
Financial Assurance	Financial Assurance Information Listing
TIER 2	Tier 2 Data Listing
UIC	Underground Injection Wells Database Listing
MINES MRDS	Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants

EXECUTIVE SUMMARY

EDR Hist Auto ---------- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner ---------- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS ---------- Recovered Government Archive State Hazardous Waste Facilities List
RGA LF ---------- Recovered Government Archive Solid Waste Facilities List
RGA LUST ---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

A review of the SEMS-ARCHIVE list, as provided by EDR, and dated 10/25/2019 has revealed that there are 2 SEMS-ARCHIVE sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SEQUOYAH FUELS CORPO Site ID: 0603655 EPA Id: OKD981517279	***I-40 & HWY 10***	***ENE 1/4 - 1/2 (0.459 mi.)***	***A2***	***10***

Lower Elevation	Address	Direction / Distance	Map ID	Page
GORE RIVERBED	2.75 MILES SOUTHEAST	NE 1/4 - 1/2 (0.262 mi.)	1	8

EXECUTIVE SUMMARY

Site ID: 0604474
EPA Id: OKD987087566

Federal RCRA CORRACTS facilities list

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 12/16/2019 has revealed that there is 1 CORRACTS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SEQUOYAH FUELS CORP EPA ID:: OKD051961183	***HWY 10 I-40***	***ENE 1/4 - 1/2 (0.459 mi.)***	***A3***	***13***

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there are 2 DOD sites within approximately 1 mile of the target property.

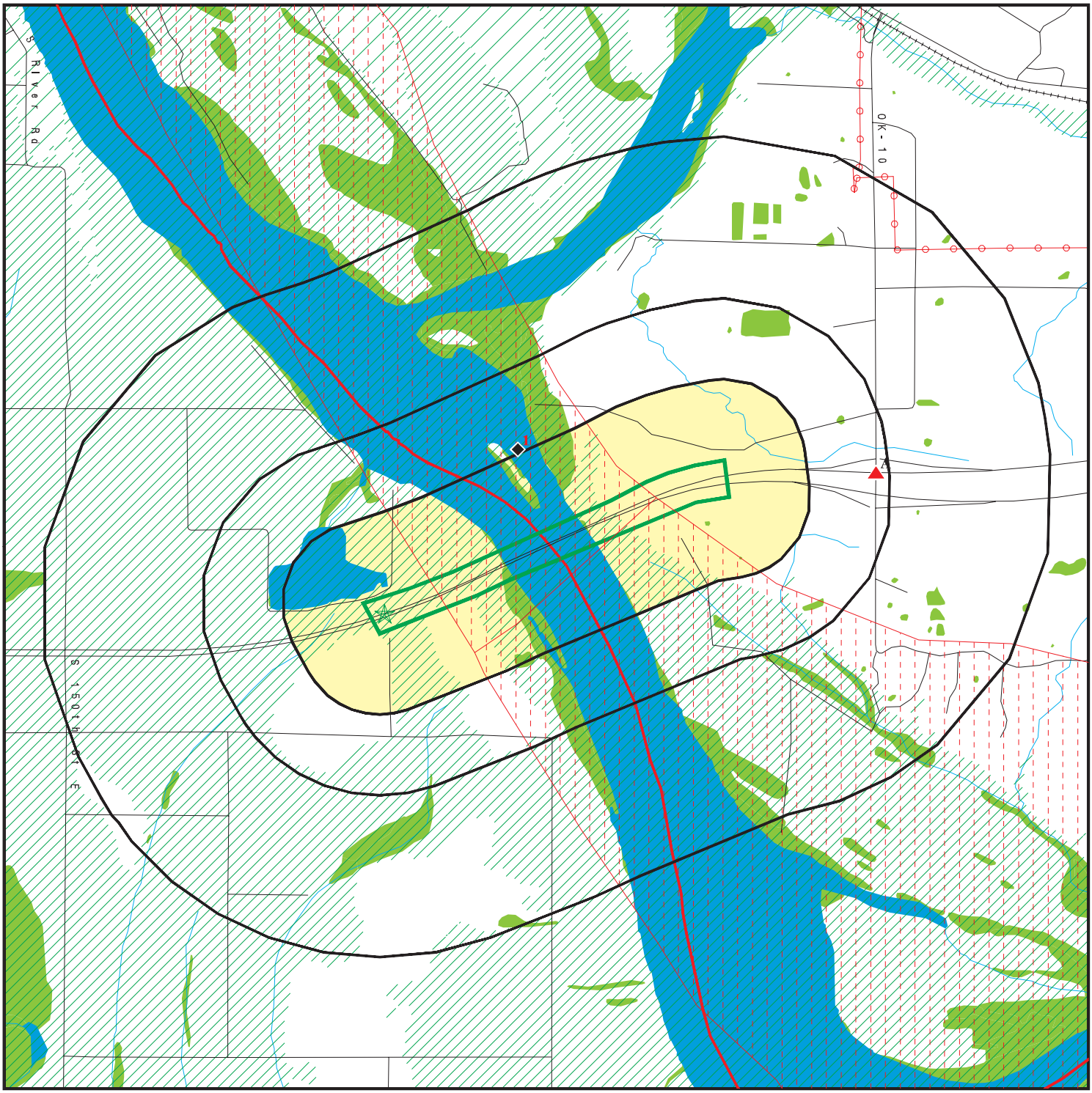
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ROBERT S. KERR LAKE		0 - 1/8 (0.000 mi.)	0	8
ROBERT S. KERR LAKE		0 - 1/8 (0.000 mi.)	0	8

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

SCHEMMER

OVERVIEW MAP - 5932697.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory

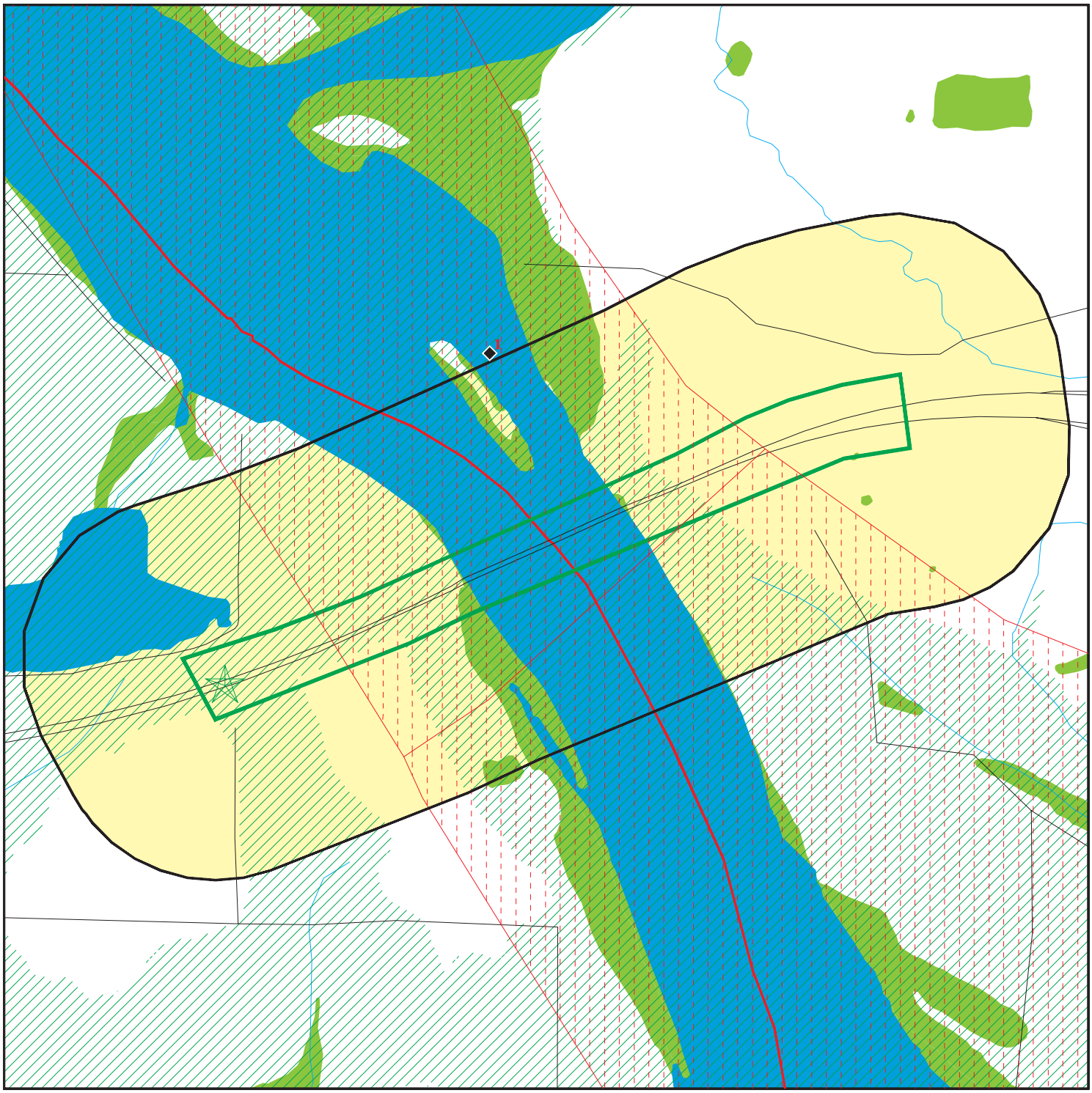
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: I-40 Over Arkansas River ADDRESS: -40 Webbers Falls OK 74470 LAT/LONG: 35.483671 / 95.106183	CLIENT: CC Environmental LLC CONTACT: Geoff Canty INQUIRY #: 5932697.2s DATE: January 13, 2020 10:11 am

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SCHEMMER

DETAIL MAP - 5932697.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: I-40 Over Arkansas River	CLIENT: CC Environmental LLC
ADDRESS: -40	CONTACT: Geoff Canty
Webbers Falls OK 74470	INQUIRY #: 5932697.2s
LAT/LONG: 35.483671 / 95.106183	DATE: January 13, 2020 10:12 am

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SCHEMMER

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	2	NR	NR	2
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	1	0	NR	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SHWS	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0
LAST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0

SCHEMMER

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
HIST UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
OK COMPLAINT	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		2	0	0	0	NR	2
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0

SCHEMMER

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
TIER 2	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
MINES MRDS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA HWS	TP		NR	NR	NR	NR	NR	0

SCHEMMER

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		0	2	0	3	0	0	5

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
DOD Region	**ROBERT S. KERR LAKE**	**DOD**	**CUSA139327** **N/A**
< 1/8 **1 ft.**	**ROBERT S. KERR LAKE (County), OK**		

DOD:

Feature 1:	Army Corps of Engineers DOD
Feature 2:	National Wildlife Refuge FWS
Feature 3:	Not reported
URL:	Not reported
Name 1:	Robert S. Kerr Lake
Name 2:	Sequoyah National Wildlife Refuge
Name 3:	Not reported
State:	OK
DOD Site:	Yes
Tile name:	OKSEQUOYAH

DOD Region	**ROBERT S. KERR LAKE**	**DOD**	**CUSA139132** **N/A**
< 1/8 **1 ft.**	**ROBERT S. KERR LAKE (County), OK**		

DOD:

Feature 1:	Army Corps of Engineers DOD
Feature 2:	Not reported
Feature 3:	Not reported
URL:	Not reported
Name 1:	Robert S. Kerr Lake
Name 2:	Not reported
Name 3:	Not reported
State:	OK
DOD Site:	Yes
Tile name:	OKSEQUOYAH

---

1 **NE** **1/4-1/2** **0.262 mi.** **1385 ft.**	**GORE RIVERBED** **2.75 MILES SOUTHEAST OF GORE** **GORE, OK 74435**	**SEMS-ARCHIVE**	**1003875754** **OKD987087566**
Relative: **Lower** **Actual:** **460 ft.**			

SEMS Archive:

Site ID:	0604474
EPA ID:	OKD987087566
Cong District:	02
FIPS Code:	40135
FF:	N
NPL:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information

SEMS Archive Detail:

Region:	06
Site ID:	0604474
EPA ID:	OKD987087566
Site Name:	GORE RIVERBED
NPL:	N
FF:	N
OU:	00

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

GORE RIVERBED (Continued) **1003875754**

Action Code:	SI
Action Name:	SI
SEQ:	1
Start Date:	1993-02-01 05:00:00
Finish Date:	1993-02-01 05:00:00
Qual:	N
Current Action Lead:	Tr Perf
Region:	06
Site ID:	0604474
EPA ID:	OKD987087566
Site Name:	GORE RIVERBED
NPL:	N
FF:	N
OU:	00
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	1992-01-17 05:00:00
Finish Date:	1992-01-17 05:00:00
Qual:	Not reported
Current Action Lead:	Tr Perf
Region:	06
Site ID:	0604474
EPA ID:	OKD987087566
Site Name:	GORE RIVERBED
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	1992-04-21 04:00:00
Finish Date:	1992-04-21 04:00:00
Qual:	H
Current Action Lead:	Tr Perf
Region:	06
Site ID:	0604474
EPA ID:	OKD987087566
Site Name:	GORE RIVERBED
NPL:	N
FF:	N
OU:	00
Action Code:	VS
Action Name:	ARCH SITE
SEQ:	1
Start Date:	Not reported
Finish Date:	1993-02-01 05:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf In-Hse

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A2	**SEQUOYAH FUELS CORPORATION**	**SEMS-ARCHIVE**	**1003875423**
ENE	**I-40 & HWY 10**	**ICIS**	**OKD981517279**
1/4-1/2	**GORE, OK 74435**		
0.459 mi.			
2426 ft.	**Site 1 of 2 in cluster A**		

Relative:
Higher

Actual:
536 ft.

SEMS Archive:

Site ID:	0603655
EPA ID:	OKD981517279
Cong District:	02
FIPS Code:	40135
FF:	N
NPL:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information

SEMS Archive Detail:

Region:	06
Site ID:	0603655
EPA ID:	OKD981517279
Site Name:	KERR-MCGEE SEQUAYAH FACILITY
NPL:	N
FF:	N
OU:	00
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	1987-11-01 05:00:00
Finish Date:	1987-11-01 05:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf

Region:	06
Site ID:	0603655
EPA ID:	OKD981517279
Site Name:	KERR-MCGEE SEQUAYAH FACILITY
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	1988-03-01 05:00:00
Finish Date:	1988-03-01 05:00:00
Qual:	N
Current Action Lead:	EPA Perf

Region:	06
Site ID:	0603655
EPA ID:	OKD981517279
Site Name:	KERR-MCGEE SEQUAYAH FACILITY
NPL:	N
FF:	N
OU:	00
Action Code:	VS
Action Name:	ARCH SITE
SEQ:	1
Start Date:	Not reported
Finish Date:	1988-03-01 05:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf In-Hse

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number

SEQUOYAH FUELS CORPORATION (Continued) **1003875423**

ICIS:

Enforcement Action ID:	06-2009-0951
FRS ID:	110001224719
Action Name:	Sequoyah Fuels
Facility Name:	SEQUOYAH FUELS CORPORATION
Facility Address:	I-40 & HWY 10 GORE, OK 74435
Enforcement Action Type:	RCRA 3013A AO For Testing & Reporting
Facility County:	SEQUOYAH
Program System Acronym:	RCRAINFO
Enforcement Action Forum Desc:	Administrative - Formal
EA Type Code:	3013A
Facility SIC Code:	Not reported
Federal Facility ID:	Not reported
Latitude in Decimal Degrees:	35.502414
Longitude in Decimal Degrees:	-95.086303
Permit Type Desc:	Not reported
Program System Acronym:	OKD051961183
Facility NAICS Code:	Not reported
Tribal Land Code:	Not reported

Enforcement Action ID:	06-1994-0124
FRS ID:	110001224719
Action Name:	SEQUOYAH FUELS CORPORATION
Facility Name:	SEQUOYAH FUELS CORPORATION
Facility Address:	I-40 & HWY 10 GORE, OK 744350610
Enforcement Action Type:	RCRA 3008H AO For Corrective Action
Facility County:	SEQUOYAH
Program System Acronym:	ICIS
Enforcement Action Forum Desc:	Administrative - Formal
EA Type Code:	3008H
Facility SIC Code:	2819
Federal Facility ID:	Not reported
Latitude in Decimal Degrees:	35.501763
Longitude in Decimal Degrees:	-95.081346
Permit Type Desc:	Not reported
Program System Acronym:	34522
Facility NAICS Code:	Not reported
Tribal Land Code:	Y003

Facility Name:	SEQUOYAH FUELS CORPORATION
Address:	I-40 & HWY 10
Tribal Indicator:	N
Fed Facility:	No
NAIC Code:	Not reported
SIC Code:	Not reported

Facility Name:	SEQUOYAH FUELS CORPORATION
Address:	I-40 & HWY 10
Tribal Indicator:	N
Fed Facility:	No
NAIC Code:	Not reported
SIC Code:	Not reported

Facility Name:	SEQUOYAH FUELS CORPORATION

SCHEMMER

Map ID Direction Distance Elevation	Site	MAP FINDINGS Database(s)	EDR ID Number EPA ID Number

SEQUOYAH FUELS CORPORATION (Continued) **1003875423**

Address: I-40 & HWY 10
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: Not reported

Facility Name: SEQUOYAH FUELS CORPORATION
Address: I-40 & HWY 10
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: Not reported

Facility Name: SEQUOYAH FUELS CORPORATION
Address: I-40 & HWY 10
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: Not reported

Facility Name: SEQUOYAH FUELS CORPORATION
Address: I-40 & HWY 10
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 2819

Facility Name: SEQUOYAH FUELS CORPORATION
Address: I-40 & HWY 10
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 2819

Facility Name: SEQUOYAH FUELS CORPORATION
Address: I-40 & HWY 10
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 2819

Facility Name: SEQUOYAH FUELS CORPORATION
Address: I-40 & HWY 10
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 2819

Facility Name: SEQUOYAH FUELS CORPORATION
Address: I-40 & HWY 10
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 2819

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A3	**SEQUOYAH FUELS CORP**	**CORRACTS**	**1000426580**
ENE	**HWY 10 I-40**	**RCRA NonGen / NLR**	**OKD051961183**
1/4-1/2	**GORE, OK 74435**	**RAATS**	
0.459 mi.		**PADS**	
2426 ft.	**Site 2 of 2 in cluster A**		

Relative:
Higher

Actual:
536 ft.

CORRACTS:

EPA ID:	OKD051961183
EPA Region:	06
Area Name:	ENTIRE FACILITY
Actual Date:	2002-01-29 00:00:00.0
Action:	CA075LO - CA Prioritization, Facility or area was assigned a low corrective action priority
NAICS Code(s):	325188 All Other Basic Inorganic Chemical Manufacturing
Original schedule date:	Not reported
Schedule end date:	Not reported

EPA ID:	OKD051961183
EPA Region:	06
Area Name:	ENTIRE FACILITY
Actual Date:	1997-10-27 00:00:00.0
Action:	CA340 - CMS Report Received
NAICS Code(s):	325188 All Other Basic Inorganic Chemical Manufacturing
Original schedule date:	Not reported
Schedule end date:	Not reported

EPA ID:	OKD051961183
EPA Region:	06
Area Name:	ENTIRE FACILITY
Actual Date:	1997-06-24 00:00:00.0
Action:	CA193
NAICS Code(s):	325188 All Other Basic Inorganic Chemical Manufacturing
Original schedule date:	Not reported
Schedule end date:	Not reported

EPA ID:	OKD051961183
EPA Region:	06
Area Name:	ENTIRE FACILITY
Actual Date:	1996-10-14 00:00:00.0
Action:	CA192
NAICS Code(s):	325188 All Other Basic Inorganic Chemical Manufacturing
Original schedule date:	Not reported
Schedule end date:	Not reported

EPA ID:	OKD051961183
EPA Region:	06
Area Name:	ENTIRE FACILITY
Actual Date:	1996-08-13 00:00:00.0
Action:	CA191
NAICS Code(s):	325188 All Other Basic Inorganic Chemical Manufacturing
Original schedule date:	Not reported
Schedule end date:	Not reported

EPA ID:	OKD051961183

Map ID Direction Distance Elevation	Site	MAP FINDINGS Database(s)	EDR ID Number EPA ID Number

SEQUOYAH FUELS CORP (Continued) **1000426580**

EPA Region: 06
Area Name: ENTIRE FACILITY
Actual Date: 1995-12-28 00:00:00.0
Action: CA190 - RFI Report Received
NAICS Code(s): 325188
All Other Basic Inorganic Chemical Manufacturing
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: OKD051961183
EPA Region: 06
Area Name: ENTIRE FACILITY
Actual Date: 1994-12-27 00:00:00.0
Action: CA180 - RFI Supplemental Implementation Begun
NAICS Code(s): 325188
All Other Basic Inorganic Chemical Manufacturing
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: OKD051961183
EPA Region: 06
Area Name: ENTIRE FACILITY
Actual Date: 1994-12-23 00:00:00.0
Action: CA150 - RFI Workplan Approved
NAICS Code(s): 325188
All Other Basic Inorganic Chemical Manufacturing
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: OKD051961183
EPA Region: 06
Area Name: ENTIRE FACILITY
Actual Date: 1994-08-25 00:00:00.0
Action: CA140 - RFI Workplan Notice Of Deficiency Issued
NAICS Code(s): 325188
All Other Basic Inorganic Chemical Manufacturing
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: OKD051961183
EPA Region: 06
Area Name: ENTIRE FACILITY
Actual Date: 1994-01-31 00:00:00.0
Action: CA110 - RFI Workplan Received
NAICS Code(s): 325188
All Other Basic Inorganic Chemical Manufacturing
Original schedule date: 1994-01-31 00:00:00.0
Schedule end date: Not reported

EPA ID: OKD051961183
EPA Region: 06
Area Name: ENTIRE FACILITY
Actual Date: 1993-11-01 00:00:00.0
Action: CA103
NAICS Code(s): 325188
All Other Basic Inorganic Chemical Manufacturing
Original schedule date: Not reported

Map ID / Direction / Distance / Elevation	Site	MAP FINDINGS Database(s)	EDR ID Number / EPA ID Number

SEQUOYAH FUELS CORP (Continued) **1000426580**

Schedule end date: Not reported

EPA ID: OKD051961183
EPA Region: 06
Area Name: ENTIRE FACILITY
Actual Date: 1993-08-03 00:00:00.0
Action: CA050 - RFA Completed
NAICS Code(s): 325188
All Other Basic Inorganic Chemical Manufacturing
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: OKD051961183
EPA Region: 06
Area Name: ENTIRE FACILITY
Actual Date: 1993-08-03 00:00:00.0
Action: CA600T - Stabilization Measures Implemented, Other activity
NAICS Code(s): 325188
All Other Basic Inorganic Chemical Manufacturing
Original schedule date: 1993-08-03 00:00:00.0
Schedule end date: Not reported

EPA ID: OKD051961183
EPA Region: 06
Area Name: ENTIRE FACILITY
Actual Date: 1993-08-03 00:00:00.0
Action: CA225NR - Stabilization Measures Evaluation, This facility is, not amenable to stabilization activity at the, present time for reasons other than (1) it appears to be technically, infeasible or inappropriate (NF) or (2) there is a lack of technical, information (IN). Reasons for this conclusion may be the status of, closure at the facility, the degree of risk, timing considerations, the status of corrective action work at the facility, or other, administrative considerations
NAICS Code(s): 325188
All Other Basic Inorganic Chemical Manufacturing
Original schedule date: 1993-08-03 00:00:00.0
Schedule end date: Not reported

EPA ID: OKD051961183
EPA Region: 06
Area Name: ENTIRE FACILITY
Actual Date: 1993-08-03 00:00:00.0
Action: CA100 - RFI Imposition
NAICS Code(s): 325188
All Other Basic Inorganic Chemical Manufacturing
Original schedule date: 1993-08-03 00:00:00.0
Schedule end date: Not reported

RCRA NonGen / NLR:
Date form received by agency: 1998-07-29 00:00:00.0
Facility name: SEQUOYAH FUELS CORP
Facility address: HWY 10 & I-40
GORE, OK 74435-0610
EPA ID: OKD051961183
Mailing address: PO BOX 610
GORE, OK 74435-0610

MAP FINDINGS

Map ID / Direction / Distance / Elevation | Site | Database(s) | EDR ID Number / EPA ID Number

SEQUOYAH FUELS CORP (Continued) **1000426580**

Contact: JOHN ELLIS
Contact address: PO BOX 610
GORE, OK 74435-0610
Contact country: US
Contact telephone: 918-489-3390
Contact email: Not reported
EPA Region: 06
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: KERR MCGEE NUCLEAR CORP
Owner/operator address: BOX 25861
OKLAHOMA CITY, OK 73125
Owner/operator country: Not reported
Owner/operator telephone: 405-270-1313
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: SEQUOYAH FUEL INTERNATIONAL CORP
Owner/operator address: PO BOX 610
GORE, OK 74435
Owner/operator country: Not reported
Owner/operator telephone: 918-489-5511
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

MAP FINDINGS

Map ID
Direction
Distance
Elevation | Site | Database(s) | EDR ID Number
EPA ID Number

SEQUOYAH FUELS CORP (Continued) **1000426580**

Historical Generators:
Date form received by agency: 1994-01-05 00:00:00.0
Site name: SEQUOYAH FUELS CORPORATION
Classification: Large Quantity Generator

Date form received by agency: 1992-02-28 00:00:00.0
Site name: SEQUOYAH FUELS CORP.
Classification: Large Quantity Generator

Hazardous Waste Summary:

. Waste code: D000
. Waste name: Not Defined

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D004
. Waste name: ARSENIC

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Corrective Action Summary:
Event date: 1993-08-03 00:00:00.0
Event: RFA COMPLETED

MAP FINDINGS

Map ID / Direction / Distance / Elevation | Site | Database(s) | EDR ID Number / EPA ID Number

SEQUOYAH FUELS CORP (Continued) **1000426580**

Event date: 1993-08-03 00:00:00.0
Event: INVESTIGATION IMPOSITION

Event date: 1993-08-03 00:00:00.0
Event: STABILIZATION/INTERIM MEASURES DECISION-OTHER

Event date: 1993-08-03 00:00:00.0
Event: STABILIZATION MEASURES EVALUATION-FACILITY NOT AMENABLE TO STABILIZATION

Event date: 1993-11-01 00:00:00.0
Event: ADMINISTRATIVE FINDING AGAINST FACILITY

Event date: 1994-01-31 00:00:00.0
Event: INVESTIGATION WORKPLAN RECEIVED

Event date: 1994-08-25 00:00:00.0
Event: INVESTIGATION WORKPLAN NOTICE OF DEFICIENCY ISSUED

Event date: 1994-12-23 00:00:00.0
Event: INVESTIGATION WORKPLAN APPROVED

Event date: 1994-12-27 00:00:00.0
Event: INVESTIGATION IMPLEMENTATION BEGUN

Event date: 1995-12-28 00:00:00.0
Event: INVESTIGATION REPORT RECEIVED

Event date: 1996-08-13 00:00:00.0
Event: RFI DRAFT REPORT COMMENTS

Event date: 1996-10-14 00:00:00.0
Event: RFI FINAL REPORT RECEIVED

Event date: 1997-06-24 00:00:00.0
Event: RFI REPORT APPROVED

Event date: 1997-10-27 00:00:00.0
Event: CMS REPORT RECEIVED

Event date: 2002-01-29 00:00:00.0
Event: CA PRIORITIZATION-LOW CA PRIORITY

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: TSD - General Facility Standards
Date violation determined: 1992-03-17 00:00:00.0
Date achieved compliance: 1992-05-29 00:00:00.0
Violation lead agency: State
Enforcement action: COMPLIANCE EVALUATION INSPECTION ON-SITE
Enforcement action date: 1992-05-01 00:00:00.0
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 81000
Final penalty amount: 81000
Paid penalty amount: Not reported

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number

SEQUOYAH FUELS CORP (Continued) **1000426580**

Regulation violated: Not reported
Area of violation: TSD - General Facility Standards
Date violation determined: 1992-03-17 00:00:00.0
Date achieved compliance: 1992-05-29 00:00:00.0
Violation lead agency: State
Enforcement action: COMPLIANCE EVALUATION INSPECTION ON-SITE
Enforcement action date: 1993-08-03 00:00:00.0
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 20000
Paid penalty amount: 20000

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 1991-06-16 00:00:00.0
Date achieved compliance: 1991-08-13 00:00:00.0
Violation lead agency: State
Enforcement action: COMPLIANCE EVALUATION INSPECTION ON-SITE
Enforcement action date: 1991-07-11 00:00:00.0
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 1991-06-16 00:00:00.0
Date achieved compliance: 1991-08-13 00:00:00.0
Violation lead agency: State
Enforcement action: COMPLIANCE EVALUATION INSPECTION ON-SITE
Enforcement action date: 1993-08-03 00:00:00.0
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 20000
Paid penalty amount: 20000

Evaluation Action Summary:
Evaluation date: 1991-05-15 00:00:00.0
Evaluation: FINAL 3008(A) COMPLIANCE ORDER
Area of violation: TSD - General Facility Standards
Date achieved compliance: 1992-05-29 00:00:00.0
Evaluation lead agency: State

Evaluation date: 1991-05-15 00:00:00.0
Evaluation: FINAL 3008(H) I.S. CA ORDER
Area of violation: Generators - General
Date achieved compliance: 1991-08-13 00:00:00.0
Evaluation lead agency: State

Evaluation date: 1991-05-15 00:00:00.0
Evaluation: WRITTEN INFORMAL

SEQUOYAH FUELS CORP (Continued) **1000426580**

Area of violation: Generators - General
Date achieved compliance: 1991-08-13 00:00:00.0
Evaluation lead agency: State

Evaluation date: 1991-05-15 00:00:00.0
Evaluation: FINAL 3008(H) I.S. CA ORDER
Area of violation: TSD - General Facility Standards
Date achieved compliance: 1992-05-29 00:00:00.0
Evaluation lead agency: State

RAATS:
Entry No: 1
Facility ID: OKD051961183
Type: Not reported
Docket No: VI-005(H)93-H
Region: 06
Issue Date: Not reported
Final Date: 08/03/1993
Status: On Consent (Corrective Action)
Additional: Not reported
Action ID: 000003603
Action: 3008 (H)
Violation No: Not reported
Viol No Cited: Not reported
Total No Cited: Not reported
Reg Type: Not reported
Prop. Penalty: Not reported
Final Penalty: Not reported
Total Prop. Penalty: Not reported
Comments: 3008(H) ADMINISTRATIVE ORDER ON CONSENT

PADS:
Name: SEQUOYAH FUELS CORP.
Address: CARLILE ROAD, BETWEEN U.S. HWY 64 A
Address 2: Not reported
City,State,Zip: GORE, OK 74435
EDR ID: 1000426580
EPAID: OKD051961183
Region: 6
Generator: Y
Storer: N
Disposer: N
Transporter: N
Smelter: N
Research Facility: N
Mailing Address: P.O. BOX 610
Mailing Address 2: Not reported
Mailing City: GORE
Mailing State: OK
Mailing Zip: 74435
Mailing Country: US
Owner Name: GENERAL ATOMICS
Certification Date: 08/24/2004
Contact Name: JOHN ELLIS
Contact Title: Not reported
Contact Telephone: 918-489-5511
Contact Text: 13

SCHEMMER

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
	SEQUOYAH FUELS CORP (Continued)		**1000426580**
	Contact Email: Not reported		

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/25/2019
Date Data Arrived at EDR: 11/07/2019
Date Made Active in Reports: 11/20/2019
Number of Days to Update: 13

Source: EPA
Telephone: N/A
Last EDR Contact: 01/03/2020
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/25/2019
Date Data Arrived at EDR: 11/07/2019
Date Made Active in Reports: 11/20/2019
Number of Days to Update: 13

Source: EPA
Telephone: N/A
Last EDR Contact: 01/03/2020
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/25/2019
Date Data Arrived at EDR: 11/07/2019
Date Made Active in Reports: 11/20/2019
Number of Days to Update: 13

Source: EPA
Telephone: N/A
Last EDR Contact: 01/03/2020
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2019
Date Data Arrived at EDR: 11/07/2019
Date Made Active in Reports: 11/21/2019
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 01/03/2020
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 10/25/2019
Date Data Arrived at EDR: 11/07/2019
Date Made Active in Reports: 11/21/2019
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 01/03/2020
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/16/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 214-665-6444
Last EDR Contact: 12/16/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 214-665-6444
Last EDR Contact: 12/16/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 214-665-6444
Last EDR Contact: 12/16/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 214-665-6444
Last EDR Contact: 12/16/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/13/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/07/2019
Next Scheduled EDR Contact: 02/24/2020
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/22/2019
Next Scheduled EDR Contact: 03/09/2020
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/22/2019
Next Scheduled EDR Contact: 03/09/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/09/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 14

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

SHWS: Voluntary Cleanup & Superfund Site Status Report
Land restoration projects carried out in several DEQ programs.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 05/28/2010
Date Made Active in Reports: 07/13/2010
Number of Days to Update: 46

Source: Department of Environmental Quality
Telephone: 405-702-5100
Last EDR Contact: 11/11/2019
Next Scheduled EDR Contact: 02/24/2020
Data Release Frequency: Varies

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Permitted Solid Waste Disposal & Processing Facilities
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 01/29/2019
Date Data Arrived at EDR: 11/01/2019
Date Made Active in Reports: 12/11/2019
Number of Days to Update: 40

Source: Department of Environmental Quality
Telephone: 405-702-5184
Last EDR Contact: 11/01/2019
Next Scheduled EDR Contact: 02/10/2020
Data Release Frequency: Annually

State and tribal leaking storage tank lists

LAST: Leaking Aboveground Storage Tanks List
Leaking aboveground storage tank site locations.

Date of Government Version: 09/09/2019
Date Data Arrived at EDR: 09/25/2019
Date Made Active in Reports: 11/25/2019
Number of Days to Update: 61

Source: Oklahoma Corporation Commission
Telephone: 405-522-4640
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Varies

LUST: Leaking Underground Storage Tank List
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 09/09/2019
Date Data Arrived at EDR: 09/25/2019
Date Made Active in Reports: 11/25/2019
Number of Days to Update: 61

Source: Oklahoma Corporation Commission
Telephone: 405-521-3107
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

SCHEMMER

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/12/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 12/03/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/08/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 79

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 05/02/2019
Date Data Arrived at EDR: 10/22/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 20

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/16/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/25/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 07/02/2019
Date Data Arrived at EDR: 10/16/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 8

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 08/27/2019
Date Data Arrived at EDR: 08/28/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 75

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/07/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Varies

UST: Underground Storage Tank Listing
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 09/09/2019
Date Data Arrived at EDR: 09/25/2019
Date Made Active in Reports: 11/25/2019
Number of Days to Update: 61

Source: Oklahoma Corporation Commission
Telephone: 405-521-3107
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Varies

AST: Aboveground Storage Tanks
Registered Aboveground Storage Tanks.

Date of Government Version: 09/09/2019
Date Data Arrived at EDR: 09/25/2019
Date Made Active in Reports: 11/25/2019
Number of Days to Update: 61

Source: Oklahoma Corporation Commission
Telephone: 405-521-3107
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 04/12/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 12/03/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/08/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 05/02/2019
Date Data Arrived at EDR: 10/22/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 20

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 79

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 05/02/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/16/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 79

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal institutional control / engineering control registries

INST CONTROL: Institutional Control Sites
Sites with institutional controls in place.

Date of Government Version: 12/28/2018
Date Data Arrived at EDR: 08/13/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 65

Source: Department of Environmental Quality
Telephone: 405-702-5100
Last EDR Contact: 11/13/2019
Next Scheduled EDR Contact: 02/24/2020
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Site Inventory
Investigations and cleanups by groups or individuals participating in the Voluntary Cleanup Program (VCP).

Date of Government Version: 05/29/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 08/29/2019
Number of Days to Update: 77

Source: Department of Environmental Quality
Telephone: 405-702-5100
Last EDR Contact: 11/13/2019
Next Scheduled EDR Contact: 02/24/2020
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/17/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfield Sites
Brownfields are defined by Oklahoma law as abandoned, idled or under used industrial or commercial facilities or other real property at which expansion or redevelopment of the real property is complicated by environmental contamination caused by regulated substances. This program provides a means for private parties and government entities to voluntarily investigate and if warranted, clean up properties that may be contaminated with hazardous wastes. The formal Brownfields Program provides specific state liability relief and protects the property from federal Superfund actions.

Date of Government Version: 09/07/2012
Date Data Arrived at EDR: 09/07/2012
Date Made Active in Reports: 10/10/2012
Number of Days to Update: 33

Source: Department of Environmental Quality
Telephone: 405-702-5100
Last EDR Contact: 11/08/2019
Next Scheduled EDR Contact: 02/24/2020
Data Release Frequency: No Update Planned

BROWNFIELDS 2: Brownfields Public Record Listing
The Brownfields program provides a means for private parties and government entities to voluntarily investigate and if warranted, clean up properties that may be contaminated with hazardous wastes. The formal Brownfields Program provides specific state liability relief and protects the property from federal Superfund actions.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 08/14/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 64

Source: Department of Environmental Quality
Telephone: 405-702-5100
Last EDR Contact: 11/11/2019
Next Scheduled EDR Contact: 02/24/2020
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/16/2019
Next Scheduled EDR Contact: 03/30/2020
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: Recycling Facilities

A listing of recycling facility locations.

Date of Government Version: 07/10/2019
Date Data Arrived at EDR: 07/17/2019
Date Made Active in Reports: 08/29/2019
Number of Days to Update: 43

Source: Department of Environmental Quality
Telephone: 405-702-5100
Last EDR Contact: 10/18/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/28/2019
Next Scheduled EDR Contact: 02/10/2020
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 11/01/2019
Next Scheduled EDR Contact: 02/10/2020
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/20/2019
Next Scheduled EDR Contact: 03/09/2020
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/20/2019
Next Scheduled EDR Contact: 03/09/2020
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

HIST UST: Underground Storage Tank List, List II Version

This underground storage tank listing includes tank information through March 2003. This listing is no longer updated by the Oklahoma Corporation Commission.

Date of Government Version: 03/21/2003
Date Data Arrived at EDR: 04/28/2003
Date Made Active in Reports: 05/27/2003
Number of Days to Update: 29

Source: Oklahoma Corporation Commission
Telephone: 405-521-3107
Last EDR Contact: 01/19/2009
Next Scheduled EDR Contact: 04/19/2009
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/25/2019
Date Data Arrived at EDR: 11/07/2019
Date Made Active in Reports: 11/20/2019
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/03/2020
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/26/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 89

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/06/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

OK COMPLAINT: Oklahoma Complaint System Database
Environmental complaints reported to the Oklahoma Corporation Commission.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 06/17/2019
Number of Days to Update: 6

Source: Oklahoma Conservation Commission
Telephone: 405-521-4828
Last EDR Contact: 11/21/2019
Next Scheduled EDR Contact: 02/24/2020
Data Release Frequency: Annually

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 214-665-6444
Last EDR Contact: 12/16/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 05/15/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 79

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 11/19/2019
Next Scheduled EDR Contact: 03/02/2020
Data Release Frequency: Varies

DOD: Department of Defense Sites
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/10/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/09/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 12/02/2019
Next Scheduled EDR Contact: 02/24/2020
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 09/23/2019
Date Data Arrived at EDR: 09/24/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 10/31/2019
Next Scheduled EDR Contact: 02/17/2020
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 11/08/2019
Next Scheduled EDR Contact: 02/17/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/20/2019
Next Scheduled EDR Contact: 03/30/2020
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 11/16/2018
Date Made Active in Reports: 11/21/2019
Number of Days to Update: 370

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/22/2019
Next Scheduled EDR Contact: 03/02/2020
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 09/30/2018
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 106

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/23/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 10/25/2019
Date Data Arrived at EDR: 11/07/2019
Date Made Active in Reports: 11/20/2019
Number of Days to Update: 13

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 01/03/2020
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Annually

RMP: Risk Management Plans

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/25/2019
Date Data Arrived at EDR: 05/02/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/21/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2019
Date Data Arrived at EDR: 11/07/2019
Date Made Active in Reports: 11/21/2019
Number of Days to Update: 14

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 01/03/2020
Next Scheduled EDR Contact: 02/17/2020
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/09/2019
Date Data Arrived at EDR: 10/11/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 70

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/10/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 01/06/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/20/2019
Date Data Arrived at EDR: 06/20/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 49

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 10/25/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 11/25/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 11/06/2019
Next Scheduled EDR Contact: 02/17/2020
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

SCHEMMER

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 12/20/2019
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/31/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 85

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 10/29/2019
Next Scheduled EDR Contact: 02/10/2020
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2019
Date Data Arrived at EDR: 10/09/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 72

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/06/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 12/16/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Biennially

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/07/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 11/04/2019
Next Scheduled EDR Contact: 02/17/2020
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/01/2019
Date Data Arrived at EDR: 08/21/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 82

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 11/15/2019
Next Scheduled EDR Contact: 03/02/2020
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 10/25/2019
Date Data Arrived at EDR: 11/07/2019
Date Made Active in Reports: 11/20/2019
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/03/2020
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

SCHEMMER

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/01/2019
Date Data Arrived at EDR: 08/27/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 76

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 11/25/2019
Next Scheduled EDR Contact: 03/09/2020
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 09/17/2019
Date Data Arrived at EDR: 09/18/2019
Date Made Active in Reports: 12/03/2019
Number of Days to Update: 76

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 12/02/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/22/2019
Next Scheduled EDR Contact: 03/09/2020
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/22/2019
Next Scheduled EDR Contact: 03/09/2020
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/10/2019
Date Data Arrived at EDR: 09/10/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 37

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/12/2019
Date Data Arrived at EDR: 09/04/2019
Date Made Active in Reports: 12/03/2019
Number of Days to Update: 90

Source: EPA
Telephone: (214) 665-2200
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 74

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 10/10/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/20/2019
Next Scheduled EDR Contact: 03/09/2020
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 10/06/2019
Date Data Arrived at EDR: 10/08/2019
Date Made Active in Reports: 01/02/2020
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 01/07/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 83

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/19/2019
Next Scheduled EDR Contact: 03/02/2020
Data Release Frequency: Quarterly

AIRS: Permitted AIRS Facility Listing

A listing of permitted AIRS facility locations.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/23/2019
Date Data Arrived at EDR: 09/24/2019
Date Made Active in Reports: 11/22/2019
Number of Days to Update: 59

Source: Department of Environmental Quality
Telephone: 405-702-4100
Last EDR Contact: 12/17/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

DRYCLEANERS: Drycleaner Facilities
A listing of drycleaner facility locations.

Date of Government Version: 09/23/2019
Date Data Arrived at EDR: 09/24/2019
Date Made Active in Reports: 11/22/2019
Number of Days to Update: 59

Source: Department of Environmental Quality
Telephone: 405-702-9100
Last EDR Contact: 12/17/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information.

Date of Government Version: 07/25/2014
Date Data Arrived at EDR: 11/06/2014
Date Made Active in Reports: 01/13/2015
Number of Days to Update: 68

Source: Department of Environmental Quality
Telephone: 405-702-5105
Last EDR Contact: 11/08/2019
Next Scheduled EDR Contact: 02/24/2020
Data Release Frequency: No Update Planned

Financial Assurance 2: Financial Assurance Information Listing
Financial Assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 12/10/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 01/24/2014
Number of Days to Update: 43

Source: Department of Environmental Quality
Telephone: 405-702-5100
Last EDR Contact: 11/08/2019
Next Scheduled EDR Contact: 02/24/2020
Data Release Frequency: No Update Planned

TIER 2: Tier 2 Data Listing
A listing of facilities which store or manufacture hazardous materials and submit a chemical inventory report.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 09/10/2019
Date Made Active in Reports: 11/21/2019
Number of Days to Update: 72

Source: Department of Environmental Quality
Telephone: 405-702-1000
Last EDR Contact: 12/06/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Annually

UIC: Underground Injection Wells Database Listing
Class I injection wells. CLASS I wells are used to inject liquid hazardous and non-hazardous wastes beneath the lower most Underground Sources of Drinking Water (USDW).

Date of Government Version: 10/15/2019
Date Data Arrived at EDR: 10/17/2019
Date Made Active in Reports: 12/11/2019
Number of Days to Update: 55

Source: Department of Environmental Quality
Telephone: 405-702-5188
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 11/22/2019
Next Scheduled EDR Contact: 03/09/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Oklahoma.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 186

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Oklahoma.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/20/2014
Number of Days to Update: 203

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Oklahoma Corporation Commission in Oklahoma.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/27/2013
Number of Days to Update: 179

Source: Oklahoma Corporation Commission
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/14/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 83

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/11/2019
Next Scheduled EDR Contact: 02/24/2020
Data Release Frequency: No Update Planned

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 06/21/2019
Number of Days to Update: 51

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 10/29/2019
Next Scheduled EDR Contact: 02/10/2020
Data Release Frequency: Quarterly

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/18/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Day Care Centers
Source: Department of Human Services
Telephone: 405-521-3561

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

I-40 OVER ARKANSAS RIVER
-40
WEBBERS FALLS, OK 74470

TARGET PROPERTY COORDINATES

Latitude (North):	35.483671 - 35° 29' 1.22''
Longitude (West):	95.106183 - 95° 6' 22.26''
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	308926.5
UTM Y (Meters):	3928522.5
Elevation:	470 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5927242 STIGLER NE, OK
Version Date:	2012
North Map:	5926506 GORE, OK
Version Date:	2012
Southwest Map:	5693280 HOLT MOUNTAIN, OK
Version Date:	2012
Northwest Map:	5926552 WEBBERS FALLS, OK
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

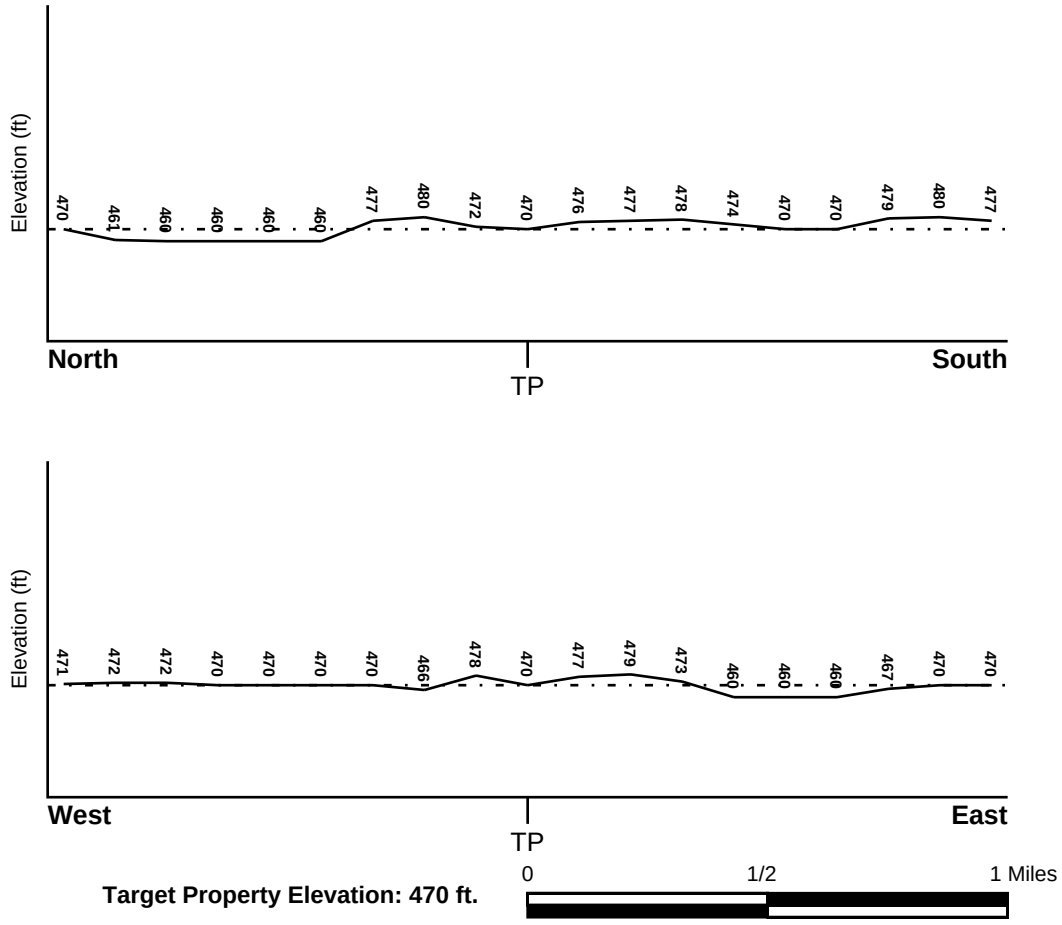
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 470 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
40101C0505F	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
STIGLER NE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Paleozoic
System:	Pennsylvanian
Series:	Atokan and Morrowan Series
Code:	PP1 *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	CHOSKA
Soil Surface Texture:	very fine sandy loam
Hydrologic Group:	Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class:	Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	LOW
Depth to Bedrock Min:	> 60 inches
Depth to Bedrock Max:	> 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	14 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 2.00 Min: 0.60	Max: 7.80 Min: 6.10
2	14 inches	48 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 2.00 Min: 0.60	Max: 8.40 Min: 6.60
3	48 inches	66 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 8.40 Min: 6.60

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures:
silt loam
loamy fine sand
silty clay loam
clay
fine sandy loam
silty clay

Surficial Soil Types:
silt loam
loamy fine sand
silty clay loam
clay
fine sandy loam
silty clay

Shallow Soil Types:
No Other Soil Types

Deeper Soil Types:
stratified
silt loam
clay
silty clay loam
loam
sandy clay loam
silty clay

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

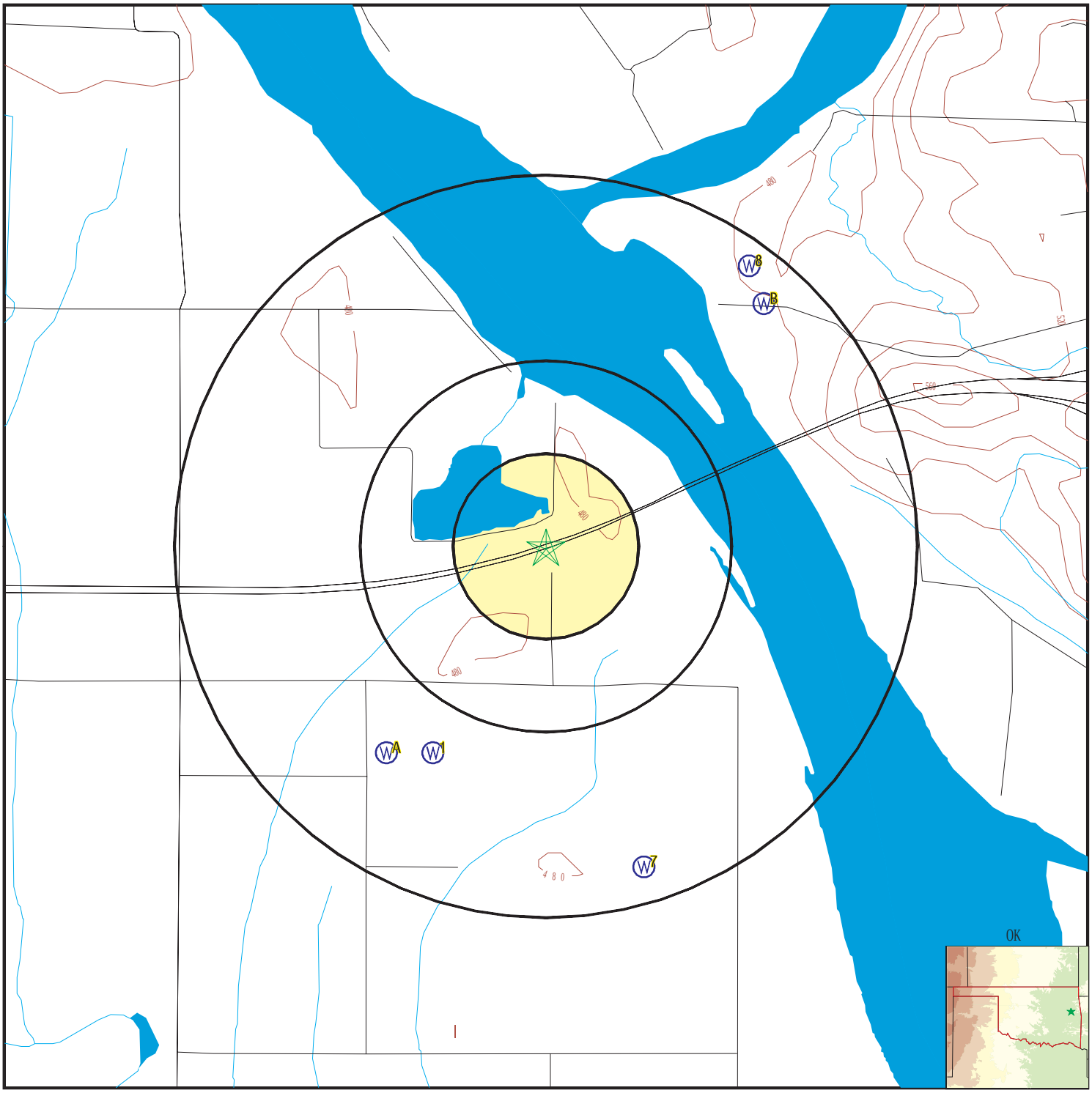
Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	OK6000000070730	1/2 - 1 Mile SSW
A2	OK6000000034721	1/2 - 1 Mile SW
A3	OK6000000070726	1/2 - 1 Mile SW
B4	OK6000000099572	1/2 - 1 Mile NE
B5	OK6000000099574	1/2 - 1 Mile NE
B6	OK6000000170467	1/2 - 1 Mile NE
7	OK6000000091476	1/2 - 1 Mile SSE
8	OK6000000170468	1/2 - 1 Mile NE

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PHYSICAL SETTING SOURCE MAP - 5932697.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- Oil, gas or related wells

SITE NAME:	I-40 Over Arkansas River	CLIENT:	CC Environmental LLC
ADDRESS:	-40 Webbers Falls OK 74470	CONTACT:	Geoff Canty
LAT/LONG:	35.483671 / 95.106183	INQUIRY #:	5932697.2s
		DATE:	January 13, 2020 10:12 am

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SSW
1/2 - 1 Mile
Higher

OK WELLS **OK6000000070730**

Well ID:	68585	Permit #:	Not Reported
Well Owner:	STAN SHEFFIELD	Well Type:	Groundwater Well
Water Use:	Domestic	Elevation:	0
Total Well Depth:	58	Depth to First Water:	0
Approximate Yield:	0	Construction Date:	1997 311
Aquifer Code:	Not Reported	Basin Code:	Not Reported
URL:	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=68585		

A2
SW
1/2 - 1 Mile
Higher

OK WELLS **OK6000000034721**

Well ID:	36835	Permit #:	Not Reported
Well Owner:	STAN SHEFFIELD	Well Type:	Groundwater Well
Water Use:	Irrigation	Elevation:	0
Total Well Depth:	46	Depth to First Water:	11
Approximate Yield:	0	Construction Date:	1997 328
Aquifer Code:	Not Reported	Basin Code:	Not Reported
URL:	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=36835		

A3
SW
1/2 - 1 Mile
Higher

OK WELLS **OK6000000070726**

Well ID:	68581	Permit #:	Not Reported
Well Owner:	STAN SHEFFIELD	Well Type:	Groundwater Well
Water Use:	Domestic	Elevation:	0
Total Well Depth:	53	Depth to First Water:	0
Approximate Yield:	0	Construction Date:	1997 3 4
Aquifer Code:	Not Reported	Basin Code:	Not Reported
URL:	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=68581		

B4
NE
1/2 - 1 Mile
Higher

OK WELLS **OK6000000099572**

Well ID:	100170	Permit #:	Not Reported
Well Owner:	Seqouyah Fuels Corp.	Well Type:	Monitoring Well
Water Use:	Water Quality	Elevation:	0
Total Well Depth:	93.5	Depth to First Water:	0
Approximate Yield:	0	Construction Date:	2006 124
Aquifer Code:	Not Reported	Basin Code:	Not Reported
URL:	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=100170		

SCHEMMER

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

B5
NE
1/2 - 1 Mile
Higher

OK WELLS **OK6000000099574**

Well ID:	100172	Permit #:	Not Reported
Well Owner:	Seqouyah Fuels Corp.	Well Type:	Monitoring Well
Water Use:	Water Quality	Elevation:	0
Total Well Depth:	53	Depth to First Water:	0
Approximate Yield:	0	Construction Date:	2006 124
Aquifer Code:	Not Reported	Basin Code:	Not Reported
URL:	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=100172		

B6
NE
1/2 - 1 Mile
Higher

OK WELLS **OK6000000170467**

Well ID:	172772	Permit #:	Not Reported
Well Owner:	Sequoyah Fuels Corp.	Well Type:	Monitoring Well
Water Use:	Site Assessment	Elevation:	0
Total Well Depth:	25	Depth to First Water:	0
Approximate Yield:	0	Construction Date:	2016 226
Aquifer Code:	Not Reported	Basin Code:	Not Reported
URL:	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=172772		

7
SSE
1/2 - 1 Mile
Higher

OK WELLS **OK6000000091476**

Well ID:	93250	Permit #:	Not Reported
Well Owner:	Steve Slaon	Well Type:	Groundwater Well
Water Use:	Irrigation	Elevation:	0
Total Well Depth:	44	Depth to First Water:	44
Approximate Yield:	550	Construction Date:	2005 121
Aquifer Code:	Not Reported	Basin Code:	Not Reported
URL:	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=93250		

8
NE
1/2 - 1 Mile
Higher

OK WELLS **OK6000000170468**

Well ID:	172773	Permit #:	Not Reported
Well Owner:	Sequoyah Fuels Corp.	Well Type:	Monitoring Well
Water Use:	Site Assessment	Elevation:	0
Total Well Depth:	25	Depth to First Water:	0
Approximate Yield:	0	Construction Date:	2016 226
Aquifer Code:	Not Reported	Basin Code:	Not Reported
URL:	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=172773		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: OK Radon

Radon Test Results

Zipcode	Num Tests	# > 4 pCi/L	Maximum	Average
74470	1	0	0.9	0.9

Federal EPA Radon Zone for MUSKOGEE County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 74470

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.200 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Reported Well Locations in Oklahoma
Source: Oklahoma Water Resources Board
Telephone: 405-530-8800

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Listing
Source: Oklahoma Corporation Commission
Telephone: 405-521-3636
Oil and gas well locations in the state.

Oil and Gas Well Listing
Source: Osage Nation Environmental and Natural Resources
Telephone: 918-287-5333
Oil and gas well locations.

RADON

State Database: OK Radon
Source: Department of Environmental Quality
Telephone: 405-702-5100
Radon Information

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

STREET AND ADDRESS INFORMATION

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Sequoyah Uranium Recovery Facility

Site Location and Facility Description

The former Sequoyah Fuels Corporation (SFC) facility is located in Sequoyah County in mideastern Oklahoma about 150 miles east of Oklahoma City, Oklahoma; 40 miles west of Fort Smith, Arkansas; 25 miles southeast of Muskogee, Oklahoma; and 2.5 miles southeast of Gore, Oklahoma (Figure 1). The 600-acre facility site is situated above the east bank of the Illinois River at its confluence with the Arkansas River. This area is owned by the Federal Government and managed by the U.S. Army Corps of Engineers.

The SFC site (within the institutional control boundary; Figure 2) includes an 85-acre Process Area where high-purity uranium hexafluoride (UF6) was produced from yellowcake; the remaining portion was used to manage storm water and store byproduct materials. Most of the land outside of the institutional control boundary is used either for grazing cattle or producing forage. In addition to the main processing facilities, the site also included (i) a yellowcake storage area, (ii) a yellowcake sampling facility, (iii) a bulk chemicals storage area, (iv) a fluorine production facility, (v) treatment systems and storage ponds for liquid effluent streams, and (vi) an ammonium nitrate recovery facility. Other facilities within the site included a yellowcake drum storage area, electrical substation, UF6 cylinder storage area, tank farm for liquid chemicals and fuel oil, cooling tower, sanitary sewage facilities, retention ponds for sludge and fertilizer processing, and an emergency water supply reservoir.

Facility Licensing and Operating History

The facility was constructed in 1969 and operated as a uranium conversion facility providing purification and conversion of yellowcake to UF6 for private nuclear utilities from 1970 to 1992. SFC ceased operating the facility in 1993. In December 2002, the U.S. Nuclear Regulatory Commission (NRC) issued a license amendment to allow possession of byproduct material. The facility is now in decommissioning status, and the estimated closure date is December 2022. Site decommissioning includes dismantlement and removal of systems and equipment, demolition of structures, removal and treatment of sludges and sediments, remediation of contaminated soils, and treatment of wastewater. In November 2009, SFC began construction of the 8.3-million-cubic-foot onsite disposal cell in which most of the residual waste material is placed for permanent disposal (Figures 2 and 3).

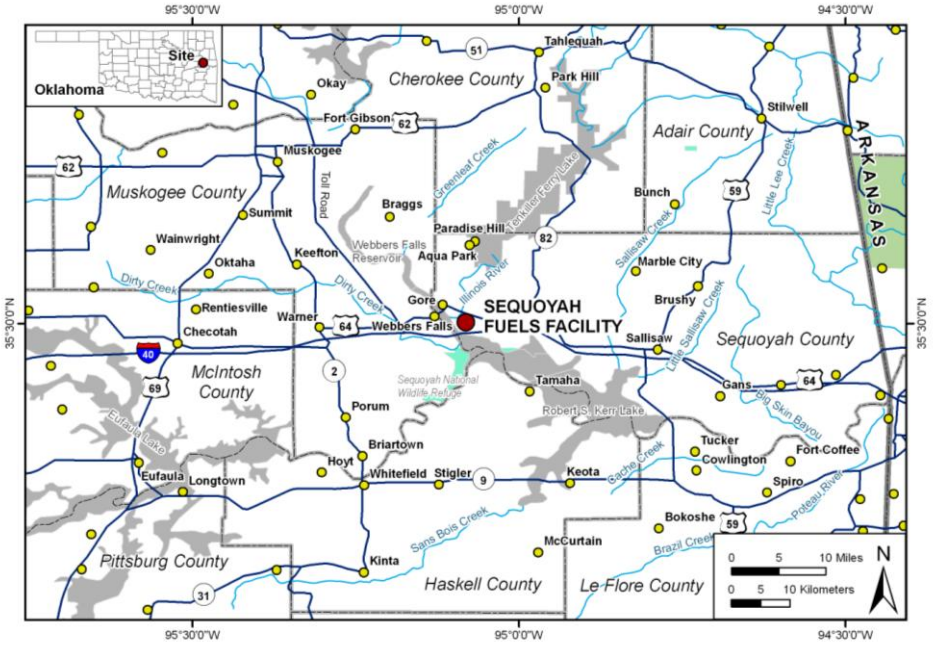


Figure 1. Sequoyah Fuels Facility Site Location Map

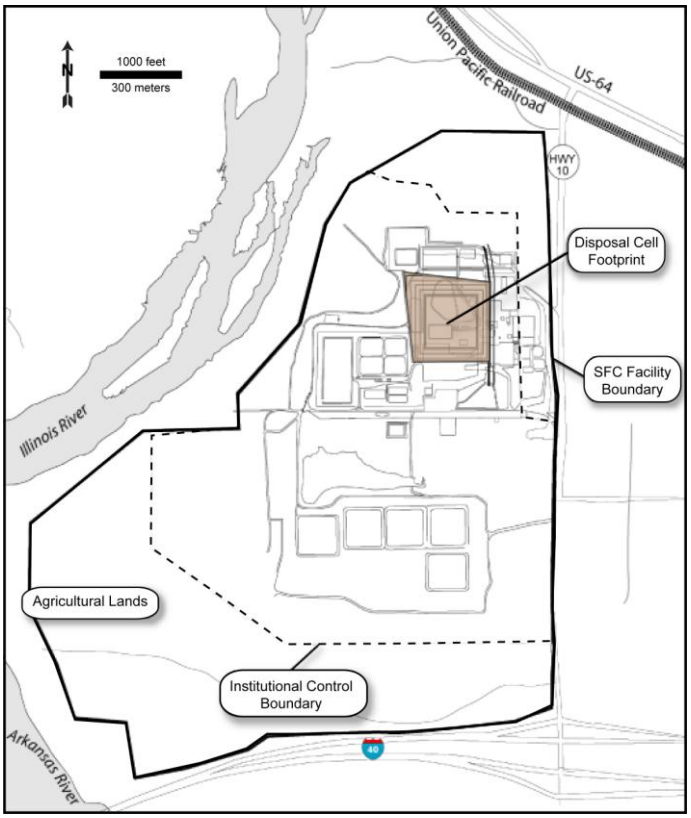


Figure 2. Sequoyah Fuels Facility Site Layout[1]

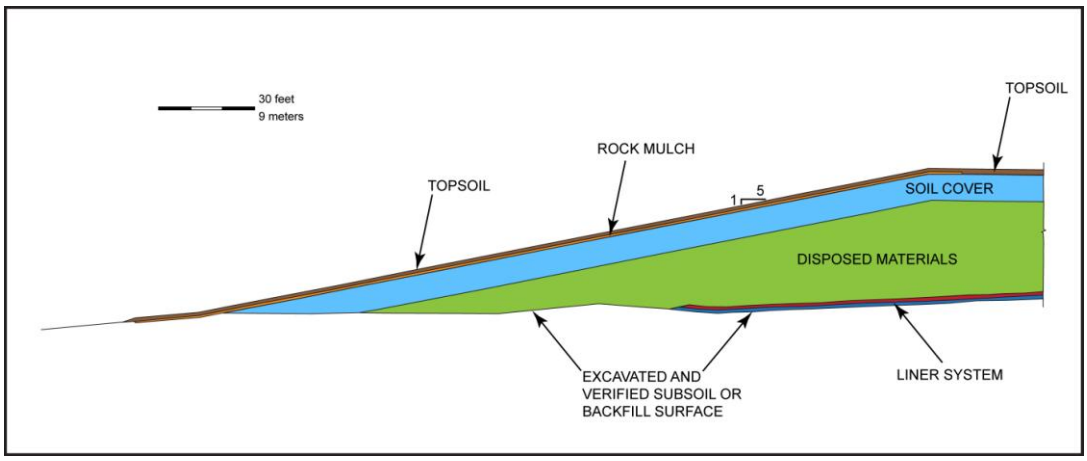


Figure 3. Schematic Cross Section of the Onsite Disposal Cell[2]

[1]Source: U.S. Nuclear Regulatory Commission. "Final Safety Evaluation Report for the Proposed Reclamation Plan for the Sequoyah Fuels Corporation Site in Gore, Oklahoma; Materials License No. SUB–1010." Washington, DC: U.S. Nuclear Regulatory Commission. 2009.
[2]Source: MFG, Inc. "Prelininary Design Report for the Disposal Cell at the Sequoyah Fuels Corporation Facility." Fort Collins, Colorado: MFG, Inc. 2002.

Tailings Management and Disposal

The site is on gently rolling to level land with several steep slopes to the northwest and wooded lands to the north and south. Slopes over most of the upland areas of the site are less than 7 percent. Steeper slopes in creek ravines and on hillsides average roughly 28 percent. Slopes are very steep near the Robert S. Kerr Reservoir southeast of the site. Site hydrogeologic units are classified into four regimes: terrace, alluvial, shallow, and deep bedrock groundwater systems. The terrace groundwater system is the uppermost regime and contains the terrace deposits and the Unit 1 Shale. Depth to groundwater varies from 8 to 11 feet; however, a few unsaturated zones exist in this system near the Solvent Extraction Building, Pond 2 area, and southwest and west of the Fluoride Holding Basin No. 2. Groundwater appears to flow radially northwest to southwest from the area beneath the Main Processing Building. Recharge to this system occurs as infiltrating precipitation. However, artificial recharge from leaks in the fire suppression system and unlined ponds has occurred in the past. Groundwater underlying the onsite disposal cell area has been contaminated.

Additional Information

For more information about the former SFC facility, visit the NRC uranium recovery website at https://www.nrc.gov/info-finder/materials/uranium/ or contact the NRC facility project manager, Kenneth Kalman, at (301) 415-6664 or kenneth.kalman@nrc.gov.

No Results

We have completed the water well search within your area of interest, '28,29, 12N, 21EI' in Oklahoma and no water wells records were found in this area.

This search does not necessarily contain information about all of the water wells within the area of interest. The multi-purpose well completion report database consists of information submitted to the Board for all well data reported by licensed firms since 1982 and monitoring well data reported since 1988. There could be other wells in the area, which are not included in our database. Wells drilled prior to the licensing requirements for well drillers would not necessarily have had a well log submitted to the OWRB. A field survey may need to be conducted to verify the presence or absence of other water wells.
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View Drought Monitoring Map and Water Level Graphs — Help & Search Results Key

Search Results for 21, 12N, 21EI — Displaying Results 1 through 40 of 44.

Well ID	County	Owner Name	Qtrs	SEC-TWP-RGE	Date Const	Well Type	Use	TD (ft)	Static WL	First Zone	Meas. WL	Est. Yld	WL Graph
63048	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	05/30/01	Monitoring Well	Water Quality	32.4	n/a	n/a	n/a	n/a	
63049	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	06/03/01	Monitoring Well	Water Quality	14.2	n/a	n/a	n/a	n/a	
63050	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	05/31/01	Geotechnical Boring	Soil Evaluation	20.2	n/a	n/a	n/a	n/a	
63051	Sequoyah	Seguoyah Fuels Corp.	NWSENE	21-12N-21EI	06/04/01	Monitoring Well	Water Quality	7.3	n/a	n/a	n/a	n/a	
63052	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	05/20/01	Geotechnical Boring	Soil Evaluation	28	n/a	n/a	n/a	n/a	
62934	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	05/21/01	Geotechnical Boring	Soil Evaluation	16	n/a	n/a	n/a	n/a	
62935	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	06/05/01	Monitoring Well	Water Quality	15	n/a	n/a	n/a	n/a	
62937	Sequoyah	Sequoyah Fuels Corp.	NESWNE	21-12N-21EI	06/01/01	Geotechnical Boring	Soil Evaluation	14	n/a	n/a	n/a	n/a	
62938	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	05/20/01	Geotechnical Boring	Soil Evaluation	42	n/a	n/a	n/a	n/a	
62939	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	06/02/01	Monitoring Well	Site Assessment	15	n/a	n/a	n/a	n/a	
62951	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	05/24/01	Geotechnical Boring	Soil Evaluation	n/a	n/a	n/a	n/a	n/a	
62952	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	06/01/01	Monitoring Well	Site Assessment	42	n/a	n/a	n/a	n/a	
62957	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	06/06/01	Monitoring Well	Site Assessment	24.5	n/a	n/a	n/a	n/a	
62958	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	06/02/01	Monitoring Well	Water Quality	39	n/a	n/a	n/a	n/a	
62959	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	05/30/01	Monitoring Well	Water Quality	38.5	n/a	n/a	n/a	n/a	
62960	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	05/18/01	Geotechnical Boring	Soil Evaluation	47	n/a	n/a	n/a	n/a	
62961	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	06/03/01	Monitoring Well	Site Assessment	16	n/a	n/a	n/a	n/a	
62962	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	05/23/01	Geotechnical Boring	Soil Evaluation	23.5	n/a	n/a	n/a	n/a	
62963	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	06/03/01	Geotechnical Boring	Soil Evaluation	15.5	n/a	n/a	n/a	n/a	
62992	Sequoyah	Sequoyah Fuels Corp.	NESWNE	21-12N-21EI	06/02/01	Geotechnical Boring	Soil Evaluation	6	n/a	n/a	n/a	n/a	
62993	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	05/18/01	Geotechnical Boring	Soil Evaluation	53.5	n/a	n/a	n/a	n/a	
62994	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	06/02/01	Geotechnical Boring	Soil Evaluation	49	n/a	n/a	n/a	n/a	
62995	Sequoyah	Sequoyah Fuels Corp.	NWSENE	21-12N-21EI	05/17/01	Geotechnical Boring	Soil Evaluation	41	n/a	n/a	n/a	n/a	
100002	Sequoyah	Seqouyah Fuels Corp.	NWNWSE	21-12N-21EI	02/01/06	Monitoring Well	Water Quality	15	n/a	n/a	n/a	n/a	
100003	Sequoyah	Seqouyah Fuels Corp.	NWNWSE	21-12N-21EI	02/01/06	Monitoring Well	Water Quality	28	n/a	n/a	n/a	n/a	
100004	Sequoyah	Seqouyah Fuels Corp.	NWNWSE	21-12N-21EI	02/01/06	Monitoring Well	Water Quality	10	n/a	n/a	n/a	n/a	
100005	Sequoyah	Seqouyah Fuels Corp.	NESESW	21-12N-21EI	02/01/06	Monitoring Well	Water Quality	19	n/a	n/a	n/a	n/a	
100178	Sequoyah	Seqouyah Fuels Corp.	SWSENE	21-12N-21EI	01/19/06	Monitoring Well	Pump and Treat	22.2	n/a	n/a	n/a	n/a	
100164	Sequoyah	Seqouyah Fuels Corp.	NESWSE	21-12N-21EI	02/01/06	Monitoring Well	Water Quality	45	n/a	n/a	n/a	n/a	
100166	Sequoyah	Seqouyah Fuels Corp.	NESESW	21-12N-21EI	02/01/06	Monitoring Well	Water Quality	42	n/a	n/a	n/a	n/a	
100167	Sequoyah	Seqouyah Fuels Corp.	SENWNE	21-12N-21EI	02/01/06	Monitoring Well	Water Quality	18	n/a	n/a	n/a	n/a	
100170	Sequoyah	Seqouyah Fuels Corp.	SWSWSW	21-12N-21EI	01/24/06	Monitoring Well	Water Quality	93.5	n/a	n/a	n/a	n/a	
100172	Sequoyah	Seqouyah Fuels Corp.	SWSWSW	21-12N-21EI	01/24/06	Monitoring Well	Water Quality	53	n/a	n/a	n/a	n/a	
100174	Sequoyah	Seqouyah Fuels Corp.	NENESW	21-12N-21EI	02/01/06	Monitoring Well	Water Quality	23	n/a	n/a	n/a	n/a	
100175	Sequoyah	Seqouyah Fuels Corp.	NESESW	21-12N-21EI	02/01/06	Monitoring Well	Water Quality	13.5	n/a	n/a	n/a	n/a	
100176	Sequoyah	Seqouyah Fuels Corp.	SENWNE	21-12N-21EI	01/25/06	Monitoring Well	Pump and Treat	52	n/a	n/a	n/a	n/a	

100177	Sequoyah	Seqouyah Fuels Corp.	SWNENE	21-12N-21EI	01/30/06	Monitoring Well	Pump and Treat	52.5	n/a	n/a	n/a	n/a	
100179	Sequoyah	Seqouyah Fuels Corp.	SWSENE	21-12N-21EI	01/19/06	Monitoring Well	Pump and Treat	20	n/a	n/a	n/a	n/a	
100180	Sequoyah	Seqouyah Fuels Corp.	SWSENE	21-12N-21EI	01/19/06	Monitoring Well	Pump and Treat	19.3	n/a	n/a	n/a	n/a	
100181	Sequoyah	Seqouyah Fuels Corp.	NWSENE	21-12N-21EI	01/23/06	Monitoring Well	Pump and Treat	20.5	n/a	n/a	n/a	n/a	

Help & Search Results Key Go To Results: **41-44**

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View Drought Monitoring Map and Water Level Graphs — Help & Search Results Key

Search Results for 21, 12N, 21EI — Displaying Results 41 through 44 of 44.

Well ID	County	Owner Name	Qtrs	SEC-TWP-RGE	Date Const	Well Type	Use	TD (ft)	Static WL	First Zone	Meas. WL	Est. Yld	WL Graph
100182	Sequoyah	Seqouyah Fuels Corp.	NENESW	21-12N-21EI	02/01/06	Monitoring Well	Pump and Treat	21.8	n/a	n/a	n/a	n/a	☐
190542	Sequoyah	Sequoyah Fuels Corporation	NWSWNE	21-12N-21EI	11/26/18	Monitoring Well	Site Assessment	10	n/a	n/a	n/a	n/a	☐
172772	Sequoyah	Sequoyah Fuels Corp.	SWSWSW	21-12N-21EI	02/26/16	Monitoring Well	Site Assessment	25	24	n/a	n/a	n/a	☐
172773	Sequoyah	Sequoyah Fuels Corp.	SWSWSW	21-12N-21EI	02/26/16	Monitoring Well	Site Assessment	25	22	n/a	n/a	n/a	☐

Help & Search Results Key **Go To Results: 1-40**

This search does not necessarily contain information about all of the water wells within the area of interest. The multi-purpose well completion report database consists of information submitted to the Board for all well data reported by licensed firms since 1982 and monitoring well data reported since 1988. There could be other wells in the area, which are not included in our database. Wells drilled prior to the licensing requirements for well drillers would not necessarily have had a well log submitted to the OWRB. A field survey may need to be conducted to verify the presence or absence of other water wells.
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Oklahoma Corporation Commission
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Zero Records returned, please change your search criteria.

Welcome to the Oklahoma Corporation Commission's Well Data System.

Home

Well Name/Number

Well Name	Well Number

API Number

API Number

Ex: 35003; 3500300001; 35003000010000

Location

County	Section	Township	Range	Meridian	Quarters	
SEQUOYAH	28	12n	21e	im		
	Ex: 29	Ex: 06S	Ex: 13E	Ex: IM		

(•) Surface Hole ( ) Bottom Hole

Operator Name/Number

Operator Name	Operator #

Search Clear

Oklahoma Corporation Commission
ENERGY • TRANSPORTATION • UTILITIES

Zero Records returned, please change your search criteria.

Welcome to the Oklahoma Corporation Commission's Well Data System.

Home

Well Name/Number

Well Name	Well Number

API Number

API Number

Ex: 35003; 3500300001; 35003000010000

Location

County	Section	Township	Range	Meridian	Quarters	
MUSKOGEE	29	12n	21e	im		
	Ex: 29	Ex: 06S	Ex: 13E	Ex: IM		

(•) Surface Hole ( ) Bottom Hole

Operator Name/Number

Operator Name	Operator #

Search Clear



Legend

- Accidents (Liquid)
- Incidents (Gas)
- Gas Transmission Pipelines
- Hazardous Liquid Pipelines

500 m
1000 ft

Pipelines depicted on this map represent gas transmission and hazardous liquid lines only. Gas gathering and gas distribution systems are not represented.

This map should never be used as a substitute for contacting a one-call center prior to excavation activities. Please call 811 before any digging occurs.

Questions regarding this map or its contents can be directed to npms@dot.gov.

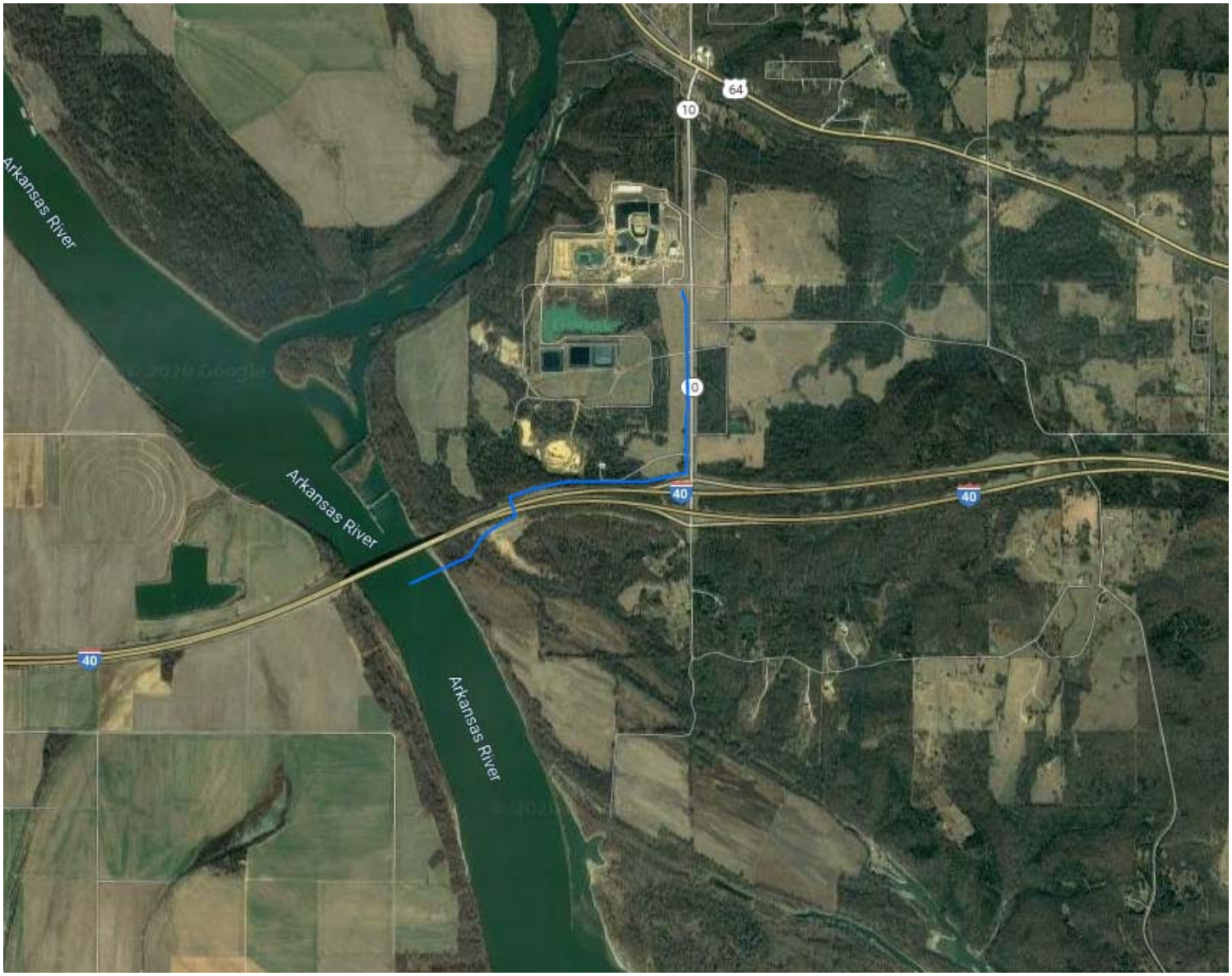
Projection: Geographic

Datum: NAD83

Map produced by the Public Viewer application at www.npms.phmsa.dot.gov

Date Printed: Jan 15, 2020

811 Know what's below. Call before you dig.



Legend

- Accidents (Liquid)
- Incidents (Gas)
- Gas Transmission Pipelines
- Hazardous Liquid Pipelines

500 m
1000 ft

Pipelines depicted on this map represent gas transmission and hazardous liquid lines only. Gas gathering and gas distribution systems are not represented.

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Date Printed: Jan 15, 2020

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SECTION 9: NATURAL RESOURCES

FEDERALLY LISTED SPECIES & CRITICAL HABITAT

The Endangered Species Act of 1973 (ESA) provides for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend. Current federally listed threatened, endangered, and candidate species within the reconnaissance study area were obtained from the US Fish and Wildlife Service's Information, Planning, and Conservation (IPaC) System. The IPaC report is attached at the end of this section, and listed species information is summarized in Table 9-1. Additional Information was gathered from the Oklahoma Department of Wildlife Conservation (ODWC), the Oklahoma Natural Heritage Inventory (ONHI), and preliminary field review. A biological assessment for potential impacts was not performed as part of this study; therefore, the habitat assessments are preliminary.

According to the USFWS' Information Planning and Conservation (IPaC) decision making process, nine (9) threatened and endangered species were identified (i.e., interior least tern, piping plover, red knot, whooping crane, gray bat, Ozark big-eared bat, Indiana bat, northern long-eared bat, and American burying beetle), but no Critical Habitat was found within the project area. (Refer to Table 9-1.) Suitable habitat will have to be field-determined to assess actual impacts, but based on preliminary field review, there appeared to be some suitable habitat for the piping plover, red knot, whooping crane, gray bat, Ozark big-eared bat, Indiana bat, northern long-eared bat, and American burying beetle. (Refer to Exhibit 9.1 for species list.)

Table 9.1

TABLE 9-1: FEDERALLY-LISTED THREATENED, ENDANGERED & CANDIDATE SPECIES

Species	Status	Habitat Requirements	Critical Habitat	Preliminary Habitat Assessment within Reconnaissance Area
Interior Least Tern *(Sterna antillarum)*	Endangered	Habitat includes islands or sandbars along large rivers, mostly clear of vegetation for nesting and loafing and with shallow water nearby for fishing.	No	No habitat was observed for the species within the study area. The study area occurs *within* a federally listed aquatic-dependent species watershed for the interior least tern, but lacked any nesting, foraging, and loafing habitat; also lacking sandbars surrounded by shallow river channel.
Piping Plover (*Charadrius melodus*)	Threatened	Migratory stopover habitat includes sparsely vegetated, sandy, or gravelly shorelines and islands associated with major river systems	No	Some potential habitat observed in the form of sandy/gravelly river shoreline with open grassland areas, suitable for stopover habitat.
Red Knot (*Calidris canutus rufa*)	Threatened	Migratory stopover habitat includes grassland, wetland, salt flats, and mudflats associated with reservoirs.	No	Some potential habitat observed, project area is immediately adjacent to larger reservoir with muddy shorelines, surrounded by open grassland, suitable for stopover habitat.

TABLE 9-1: FEDERALLY-LISTED THREATENED, ENDANGERED & CANDIDATE SPECIES				
Species	**Status**	**Habitat Requirements**	**Critical Habitat**	**Preliminary Habitat Assessment within Reconnaissance Area**
Whooping Crane (*Grus americana)*	Endangered	Foraging habitat includes primarily croplands. Roosting habitat includes shallowly-submerged sandbars in large river channels and large palustrine wetlands close to feeding areas	No	Some potential foraging habitat observed. Study area included open crop land near major river system and large pond.
Northern Long-eared Bat (*Myotis septentrionalis*)	Threatened	Roosting and reproductive habitat includes limestone caves as well as the loose bark of large dead or dying trees or in tree cavities. Species has also been known to roost in barns and sheds. Foraging habitats include riparian areas, upland forests, ponds and fields.	No	Suitable habitat observed within the study area in the form of mature woody species suitable for roosting and reproduction, estimated to be more than 12 acres (exhibited on Exhibit 9.4).
Indiana bat (*Myotis sodalist*)	Endangered	Roosting and reproductive habitat include limestone caves as well as the loos bark of large dead or dying trees or in tree cavities. Foraging habitats include riparian areas, upland forests, ponds, and fields.	No	Suitable habitat observed within the study area in the form of mature woody species suitable for roosting and reproduction, estimated to be more than 12 acres (exhibited on Exhibit 9.4).
Gray Bat (*Myotis grisecens*)	Endangered	Roosting and reproductive habitat includes limestone and mature, forested riparian corridors. The species forages on aquatic and terrestrial insects near streams and rivers.	No	Suitable habitat observed within the study area in the form of mature riparian forests a major river system. The project occurs *within* a federally-listed aquatic dependent species watershed for the gray bat.
Ozark Big-Eared Bat (*Corynorhinus townsendii ingens)*	Endangered	Roosting habitat includes limestone caves, particularly in mature oak-hickory forests. The species forages on aquatic and terrestrial insects along the margins of forests and intermittent streams.	No	Potential foraging habitat observed within the study area in the form of mature oak-hickory forests alongside a major river. However, project lacks suitable roosting habitat such as limestone rock or karst features.

TABLE 9-1: FEDERALLY-LISTED THREATENED, ENDANGERED & CANDIDATE SPECIES				
Species	**Status**	**Habitat Requirements**	**Critical Habitat**	**Preliminary Habitat Assessment within Reconnaissance Area**
American burying beetle (*Nicrophorus americanus*)	Endangered	Found in oak-pine woodlands, open fields, oak-hickory forest, open grasslands, and edge habitat.	No	Potential habitat observed within the study area in the more level deciduous woodlands/forested areas. Much of the woodland areas occurred on steep rocky slopes not suitable for ABB foraging and reproduction. Potential habitat upland woodland areas and overgrown pastures with potential habitat were estimated to be approximately 9 acres (exhibited in Exhibit 9.5). Furthermore, the study area occurs *within* an ABB Conservation Priority Area (CPA) and there are known records of ABB occurrences within the vicinity (Refer to ONHI Exhibit 9.2).

(Source: http://ecos.fws.gov/ipac/, accessed February 2020).

The Oklahoma Natural Heritage Inventory (ONHI) was consulted as part of this review. According to their correspondence, there are three recorded occurrences of American burying beetle, as well as two recorded occurrences of Neosho madtom (threatened species listed in Sequoyah County, but was not identified on the IPaC for the study area). The absence from the ONHI database does not preclude any listed species from occurring in the area. (Refer to Exhibit 9.2, email dated February 8, 2020).

The reconnaissance area is located in a "federally-listed aquatic dependent species watershed" for the Interior Least Tern and the gray bat, but not in any "federally-listed aquatic species watershed" or "federal aquatic candidate species watershed". (Refer to Exhibit 9.3, Figures 9-3a, -3b, and -3c.)
Source:
https://www.fws.gov/southwest/es/oklahoma/Documents/TE_Species/Maps/Aquatic%20Species%20Sensitive%20Watersheds%2026April2010.pdf (January 2020)

The bald eagle is protected under the Bald and Golden Eagle Protection Act, and other species (e.g., swallows and wading birds) are protected by the Migratory Bird Treaty Act. A preliminary habitat assessment did not identify eagles or eagle nests, but suitable perching, foraging, and nesting habitat was observed. Additionally, there has been seven recorded occurrences of bald eagles within the vicinity of the study area (refer to Exhibit 9.2, ONHI email). Lastly, the Arkansas River bridge exhibited indications of swallow nesting and may require netting or seasonal avoidance during construction.

POTENTIALLY JURISDICTIONAL WETLANDS

Wetland and potentially jurisdictional water impacts were initially assessed by reviewing the National Wetland Inventory (NWI) maps, United States Geological Survey (USGS) topographic maps, and preliminary field assessment. Review of the USGS quadrangle 1:24,000 scale topographic map (Stigler NE, 1979) indicated that there was one mapped (aka "blue-line") stream crossing (Arkansas River- a navigable waterway) within the study area. In addition to the stream that crossed the study area, two wetland features were identified on the NWI maps, but were not

observed in study area upon field investigation. However, one wetland feature was delineated adjacent to the Arkansas River during the site reconnaissance. (Refer to Exhibit 9.6.) (Field-confirmed wetlands are presented on the geo-referenced graphics presented in Section 1.)

The Arkansas River is classified as permanently flooded limnetic lacustrine stream (L1UBHh) that has been partially diked or impounded around the project study area and crosses under NBI# 17051. During preliminary field assessment, bed and bank features and an OHWM were well defined, with a bed approximately 1,500 feet wide, with deep, slow-moving water. Although, the field review should not be considered a formal jurisdictional assessment, the Arkansas River in the study area is considered a navigable waterway and thus under the jurisdiction of the U.S. Army Corps of Engineers (USACE).

Outside of the OHWM of Arkansas River, the study area includes two NWI mapped features: an emergent wetland along the southwest river shoreline that was instead observed to be a gravel access road, and a small, constructed palustrine pond south of I-40, east of the river which could not be identified in the field. One additional forested wetland was observed east of the river, underneath the I-40 bridge and was identified by saturated soils and hydrophilic species. This feature appears to be a floodplain riverine wetland receiving seasonal overbank flow. Lastly, a non-mapped drainage feature was observed on the western edge of the footprint that appears to drain a reservoir north of the interstate, into Dirty Creek (south of the study area). Although the field review should not be considered a formal jurisdictional assessment, the non-mapped wetland and the non-mapped drainage feature may be considered jurisdictional because of their hydrological connection to USGS mapped streams. The two NWI mapped wetland features could not be verified in the field and would therefore, not likely be considered jurisdictional.

Source: http://www.fws.gov/wetlands/data/mapper.HTML accessed January 2020

SOILS

Several soils were identified within the reconnaissance footprint as well as the general area. Mapped soils within the study area, obtained from the Natural Resource Conservation Service (NRCS) web soil survey, are presented in Table 9.2. (Refer to Exhibit 9.7)

Table 9.2

TABLE 9-2: NRCS WEB SOIL SURVEY RECONNAISSANCE REVIEW AREA SOILS INFORMATION

Map Unit ID	Soil Name	Approximate % of Review Area	Comments[1]
28	Keo very fine sandy loam, 0 to 1 percent slopes, rarely flooded	0.0%	• All areas are prime Farmland • Not listed as hydric
29	Kiomatia loamy fine sand, 0 to 1 percent slopes, frequently flooded,	0.4%	• Not Prime Farmland • Not listed as hydric
30	Kiomata fine sandy loam, 0 to 2 percent slopes	4.0%	• Not Prime Farmland • Not listed as hydric
60	Roxana very fine sandy loam, 0 to 1 percent slopes, rarely flooded	3.0%	• All areas are prime Farmland • Not listed as hydric
61	Roxana very fine sandy loam, 1 to 3 percent slopes, rarely flooded	18.2%	• All areas are prime Farmland • Not listed as hydric
62	Severn very fine sandy loam, 0 to 1 percent slopes	10.4%	• All areas are prime Farmland • Not listed as hydric
W	Water	9.3%	N/A

1: Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding

long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation

Source: http://websoilsurvey.nrcs.usda.gov/app/ (February 2020)

SPECIAL WATERS

Critical Resource Water

No critical resources waters were identified within the review area. However, the Lower Illinois River is listed an Outstanding Resource Water (ORW) and High Quality Water (HQW), from the headwaters at Arkansas River (which occurs approximately 0.5 miles upstream of the study area), upstream to Tenkiller Dam. Critical Resource Waters (CRWs) in Oklahoma currently include Outstanding Resource Waters (ORWs) and High Quality Waters (HQWs) as identified and designated in Oklahoma Water Quality Standards (OWQS), OAC 785: Chapter 45, Appendix A (July 10, 2009).

Source: https://www.swt.usace.army.mil/portals/41/docs/missions/regulatory/wqc/crw.pdf

Section 10 Waters

The Arkansas River meets the definition of a Section 10 river defined by the USACE in Section 10 of the Rivers and Harbors Act.

Source: https://www.swt.usace.army.mil/Portals/41/docs/missions/regulatory/links/Section_10.pdf

Scenic Rivers

No Scenic Rivers were identified within the review area.

Aquifers

The study area is located within the major, bedrock "Roubidoux" aquifer and the minor Northeastern Oklahoma Pennsylvanian minor bedrock aquifer. Also, the majority of the study area occurs in the Arkansas River major alluvial aquifer.

Source: "Oklahoma Groundwater Resources; Major Aquifers of Oklahoma" – www.owrb.ok.gov (February 2020)

OKLAHOMA 2014 303(d) LIST

2014 303(d) Listed Stream

No waterbodies within the study area are listed on the 2018 303(d) list of Impaired Waterbodies. However, the Illinois River (WBID# OK121700010010_00) which empties into the Arkansas 0.5 mile upstream of the study area is listed for dissolved oxygen and impaired trout use. Also, the Robert S. Kerr Lake (WBID# OK220200020020_00) occurs approximately 2.5 miles downstream of the study area and is a 303(d) listed stream for turbidity. The Illinois River has a Total Maximum Daily Load (TMDL) priority status of 3 and expected to be completed between 2024-2026, while Robert S. Kerr Lake has a TMDL priority status of 2, and is expected to be completed between 2021-2023.

Source: "Oklahoma Department of Environmental Quality data viewer" – https://gis.deq.ok.gov/maps/ (February 2020) and https://www.deq.ok.gov/wp-content/uploads/water-division/Draft-2018-Appendix-C.pdf

Municipal Separate Storm Sewer Systems (MS4)

The study area *does not* fall within a city or town; therefore, MS4 regulations would not apply.

Source: http://www.deq.state.ok.us/WQDNew/stormwater/ms4/DEQSmallMS4Factsheet_OCT_2015.pdf & https://gis.deq.ok.gov/maps/ (January 2020)

OKLAHOMA SENSITIVE WATER & WATERSHED

The review area *does not* fall within a sensitive water and watershed.

Source: DEQ's General Permit OKR10 for Storm Water Discharges from Construction Activities Within the State of Oklahoma-http://www.deq.state.ok.us/wqdnew/stormwater/construction/2017/Final%20CGP%202017.pdf (January 2020)

IPaC **U.S. Fish & Wildlife Service**

Last login February 11, 2020 10:55 AM MST

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Muskogee and Sequoyah counties, Oklahoma



Local office

Oklahoma Ecological Services Field Office

(918) 581-7458
(918) 581-7467

9014 East 21st Street
Tulsa, OK 74129-1428

http://www.fws.gov/southwest/es/Oklahoma/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

NOT FOR CONSULTATION

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Gray Bat Myotis grisescens — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6329

Indiana Bat Myotis sodalis — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/5949

Northern Long-eared Bat Myotis septentrionalis — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9045

Ozark Big-eared Bat Corynorhinus (=Plecotus) townsendii ingens — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7245

Birds

NAME	STATUS

Least Tern Sterna antillarum — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/8505

Piping Plover Charadrius melodus — Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/6039

Red Knot Calidris canutus rufa — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1864

Whooping Crane Grus americana — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/758

Insects

NAME	STATUS

American Burying Beetle Nicrophorus americanus — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/66

NOT FOR CONSULTATION

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

NOT FOR CONSULTATION

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

American Golden-plover Pluvialis dominica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
American Kestrel Falco sparverius paulus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 1 to Aug 31
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Kentucky Warbler Oporornis formosus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prairie Warbler Dendroica discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler Protonotaria citrea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31

NOT FOR CONSULTATION

Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

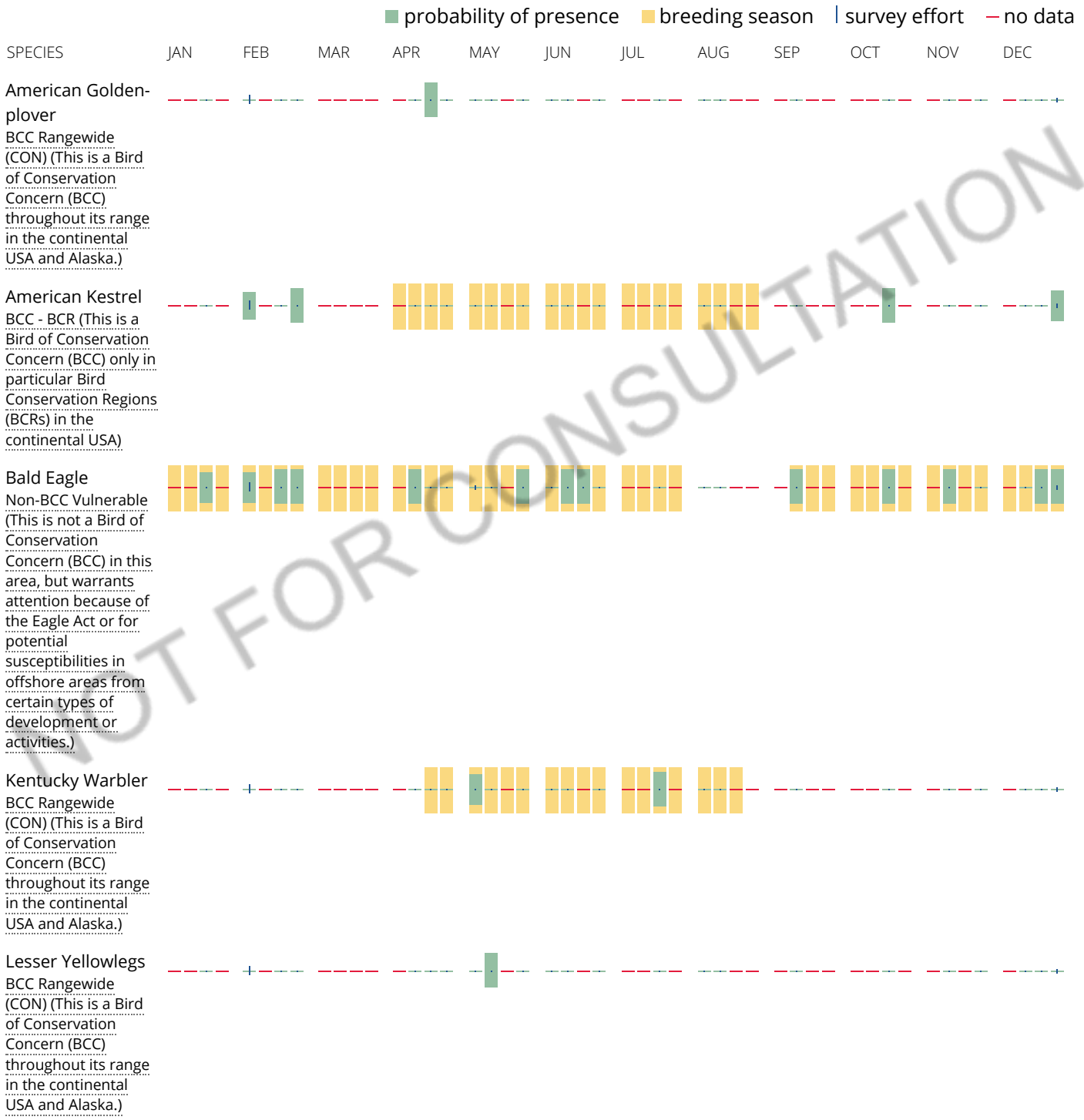
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

NOT FOR CONSULTATION

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



NOT FOR CONSULTATION



Prairie Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Prothonotary Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Red-headed Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Semipalmated Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

NOT FOR CONSULTATION

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

NOT FOR CONSULTATION

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

NOT FOR CONSULTATION

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

This location overlaps the following National Wildlife Refuge lands:

LAND	ACRES
Sequoyah National Wildlife Refuge	20,917.94 acres

(918) 773-5251
(918) 773-5598

107993 S 4520 Road
Vian, OK 74962-6062

https://www.fws.gov/refuges/profiles/index.cfm?id=21640

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

NOT FOR CONSULTATION

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

OBS Ref. 2020-095-BUS-CCE

Dear Ms. Peterson, Feb. 8, 2020

We have reviewed occurrence information on federal and state threatened, endangered or candidate species, as well as non-regulatory rare species and ecological systems of importance currently in the Oklahoma Natural Heritage Inventory database for the following location you provided:

Sec. 28 and 29-T12N-R21E, Sequoyah County

We found 12 occurrence(s) of relevant species within the vicinity of the project location as described.

Species Name	Common Name	Federal Status
Noturus placidus	**Neosho madtom**	**Threatened**
County	***TRS***	***Count***
Sequoyah	Sec. 9-T12N-R21E	1
Sequoyah	Sec. 16-T12N-R21E	1
Nicrophorus americanus	**American burying beetle**	**Endangered**
County	***TRS***	***Count***
Sequoyah	Sec. 16-T12N-R21E	1
Sequoyah	Sec. 21-T12N-R21E	1
Sequoyah	Sec. 28-T12N-R21E	1
Haliaeetus leucocephalus	**Bald Eagle**	**Protected**
County	***TRS***	***Count***
Sequoyah	Sec. 16-T12N-R21E	1
Sequoyah	Sec. 17-T12N-R21E	1
Sequoyah	Sec. 18-T12N-R21E	1
Sequoyah	Sec. 2018-T12N-R21E	1
Sequoyah	Sec. 21-T12N-R21E	1
Sequoyah	Sec. 28-T12N-R21E	1
Muskogee	Sec. 3-T11N-R21E	1

Additionally, absence from our database does not preclude such species from occurring in the area.

If you have any questions about this response, please send me an email, or call us at the number given below.

Although not specific to your project, you may find the following links helpful.

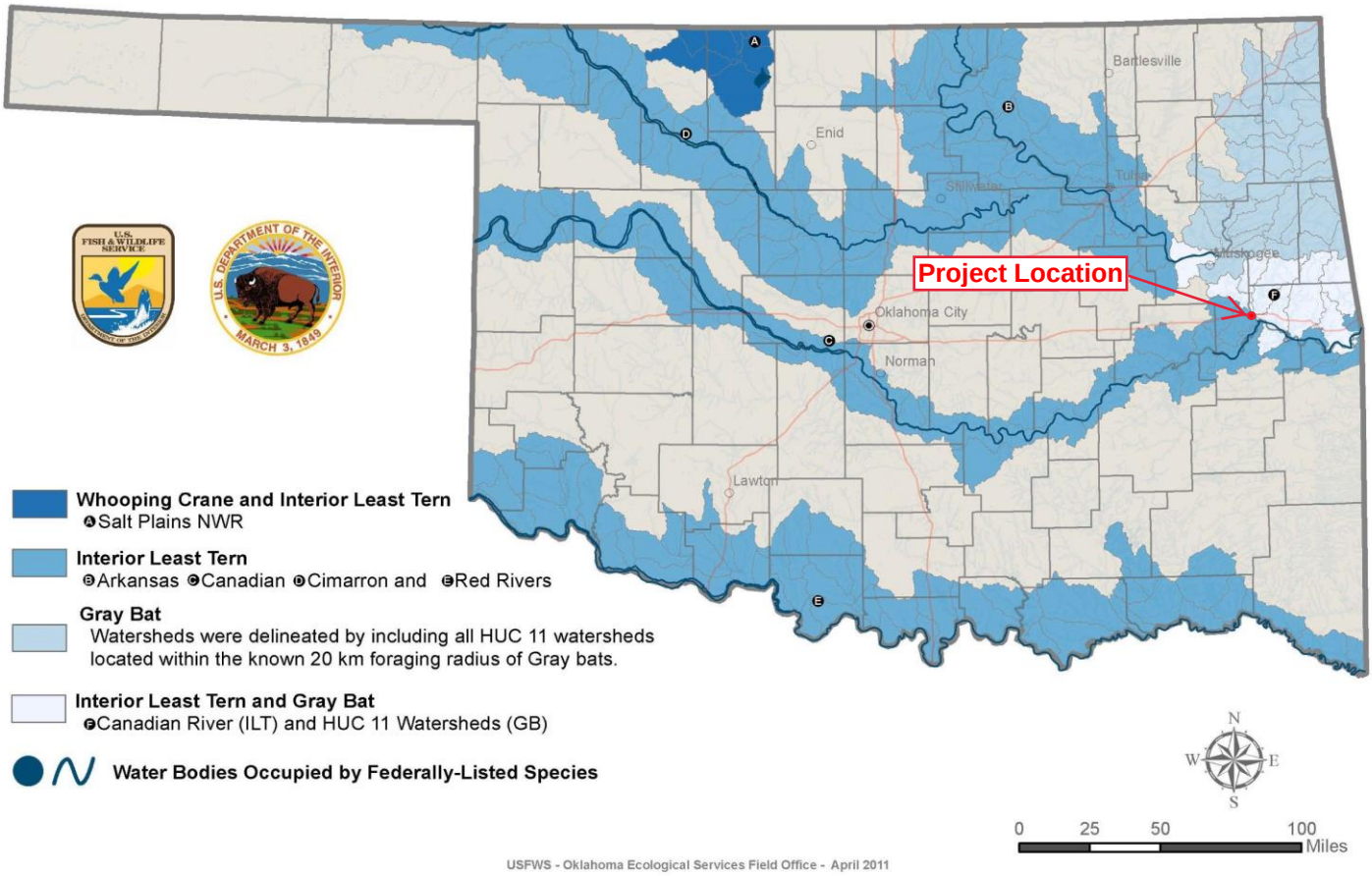
ONHI, guide to ranking codes for endangered and threatened species:
http://vmpincel.ou.edu/heritage/ranking_guide.html

Information regarding the Oklahoma Natural Areas Registry:
http://www.oknaturalheritage.ou.edu/registry_faq.htm

Todd Fagin
Oklahoma Natural Heritage Inventory
(405) 325-4700
tfagin@ou.edu

Federally-Listed Aquatic Dependent Species Watersheds of Oklahoma

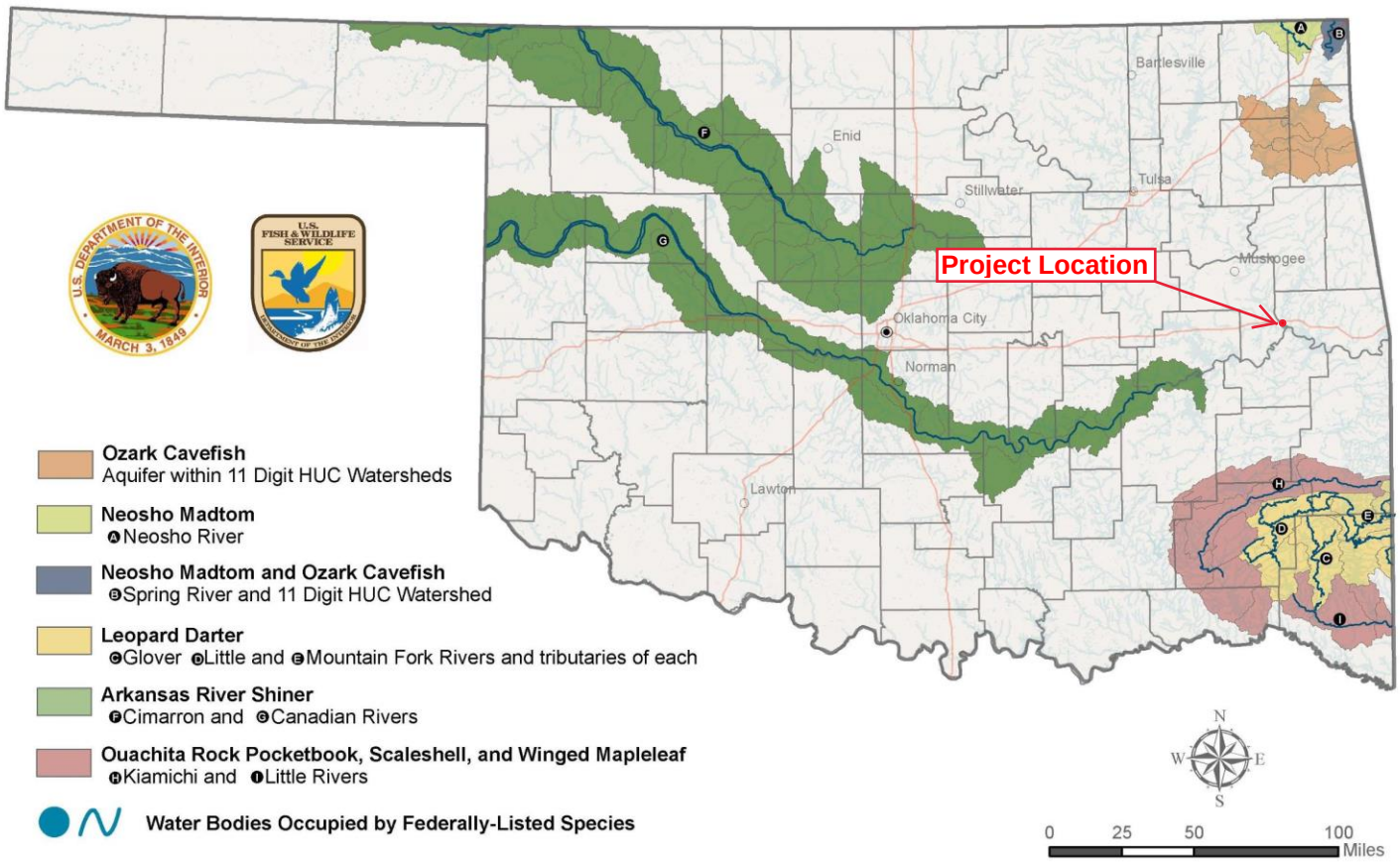
These watersheds were delineated using 11 digit Hydrologic Unit Code (HUC) watersheds. All watersheds adjacent to water bodies occupied by federally-listed species are included in the delineation, as well as those 11 digit HUC watersheds within 10 miles of the occupied water body. Please note that not all 11 digit HUC watersheds that feed into sensitive occupied water bodies are included in this delineation and effects to those watersheds outside of this delineation could impact sensitive water bodies.



COMMENTS/LEGEND	AQUATIC DEPENDENT SPECIES WATERSHEDS J/P 34334(04) I-40 Bridge over Arkansas River Muskogee County, OK		Figure 9-3a
	Environmental PO BOX 1292 NORMAN OK 73070	DRWN BY: LMP APPRVD BY: CHKD BY: SOURCE: USFWS	1/27/2020

Federally-Listed Aquatic Species Watersheds of Oklahoma

These watersheds were delineated using 11 digit Hydrologic Unit Code (HUC) watersheds. All watersheds adjacent to water bodies occupied by federally-listed species are included in the delineation, as well as those 11 digit HUC watersheds within 10 miles of the occupied water body. Please note that not all 11 digit HUC watersheds that feed into sensitive occupied water bodies are included in this delineation and effects to those watersheds outside of this delineation could impact sensitive water bodies.

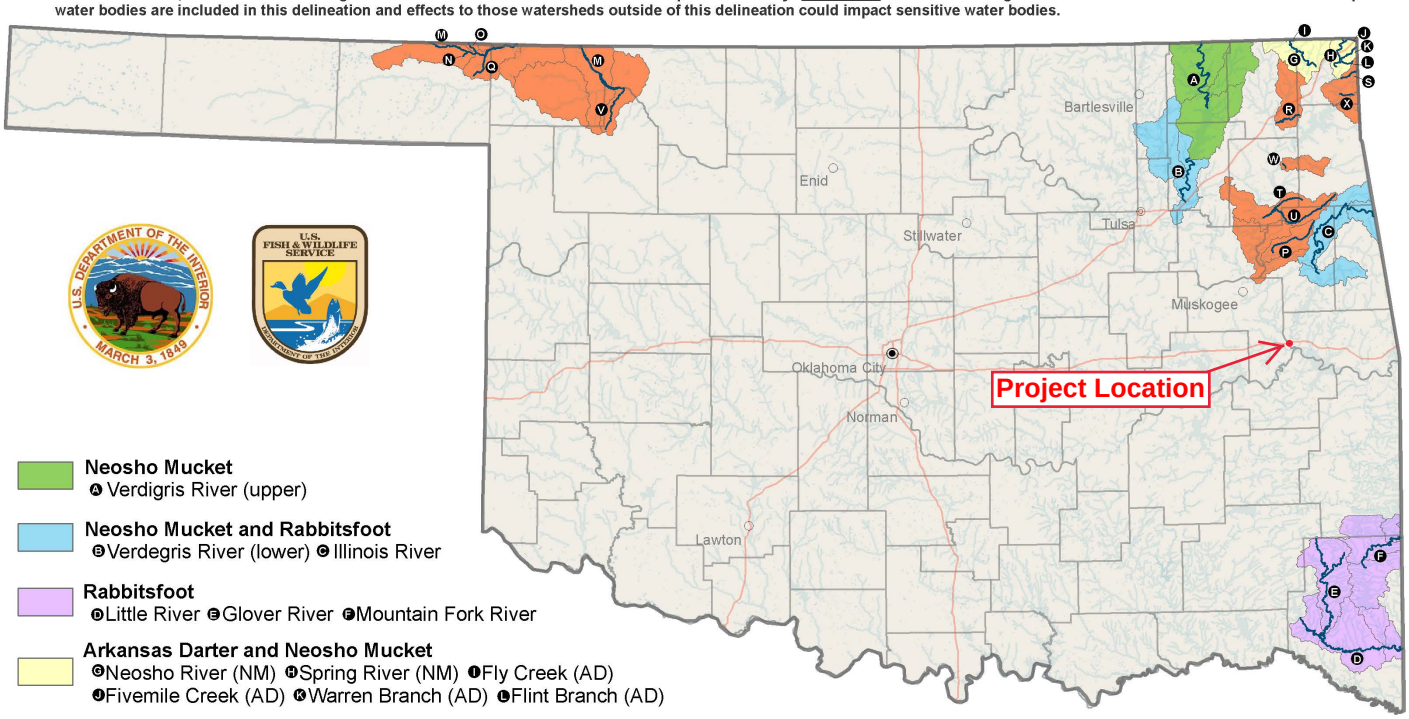


USFWS - Oklahoma Ecological Services Field Office - April 2010

COMMENTS/LEGEND	AQUATIC SPECIES WATERSHEDS J/P 34334(04) I-40 Bridge over Arkansas River Muskogee County, OK		Figure 9-3b
	Environmental PO BOX 1292 NORMAN OK 73070	DRWN BY: LMP APPRVD BY: CHKD BY: SOURCE: USFWS	1/27/2020

Federal Candidate Aquatic Species Watersheds of Oklahoma

These watersheds were delineated using 11 digit Hydrologic Unit Code (HUC) watersheds. All watersheds adjacent to water bodies occupied by federal candidate species are included in the delineation, as well as those 11 digit HUC watersheds within 10 miles of the occupied water body. Please note that not all 11 digit HUC watersheds that feed into sensitive occupied water bodies are included in this delineation and effects to those watersheds outside of this delineation could impact sensitive water bodies.



Neosho Mucket
Ⓐ Verdigris River (upper)

Neosho Mucket and Rabbitsfoot
Ⓑ Verdegris River (lower) Ⓒ Illinois River

Rabbitsfoot
Ⓓ Little River Ⓔ Glover River Ⓕ Mountain Fork River

Arkansas Darter and Neosho Mucket
Ⓖ Neosho River (NM) Ⓗ Spring River (NM) Ⓘ Fly Creek (AD)
Ⓙ Fivemile Creek (AD) Ⓚ Warren Branch (AD) Ⓛ Flint Branch (AD)

Arkansas Darter
Ⓜ Cimarron River Ⓝ Cottonwood Ⓞ Crooked Ⓟ Fourteenmile Ⓠ Horse Ⓡ Locust Ⓢ Lost Ⓣ Snake Ⓤ Spring Ⓥ Traders Creeks and their associated tributaries and unnamed tributary of Ⓦ Spavinaw Creek and Ⓧ Grand Lake

Water Bodies Occupied by Federal Candidate Species

USFWS - Oklahoma Ecological Services Field Office - April 2010

COMMENTS/LEGEND	CANDIDATE SPECIES WATERSHEDS J/P 34334(04) I-40 Bridge over Arkansas River Muskogee County, OK		Figure 9-3c
	Environmental PO BOX 1292 NORMAN OK 73070	DRWN BY: LMP APPRVD BY: CHKD BY: SOURCE: USFWS	1/27/2020

SCHEMMER

COMMENTS/LEGEND

Study Area

Potential Bat Habitat

N

0 130 260 520 780 1,040 Feet

Preliminary Bat Habitat

Bridge & Approaches
I-40 over Arkansas River
Muskogee/Sequoyah Co.
J/P 34334(04)

Environmental

DRAWN BY: CKP
APPRV BY:

SOURCE: DEQ, Tiger 2000, USGS

FIGURE 9-4

Date: 2/13/2020

SCHEMMER



COMMENTS/LEGEND

Study Area

Potential ABB Habitat

N

0 130 260 520 780 1,040 Feet

Preliminary ABB Habitat

Bridge & Approaches
I-40 over Arkansas River
Muskogee/Sequoyah Co.
J/P 34334(04)

Environmental

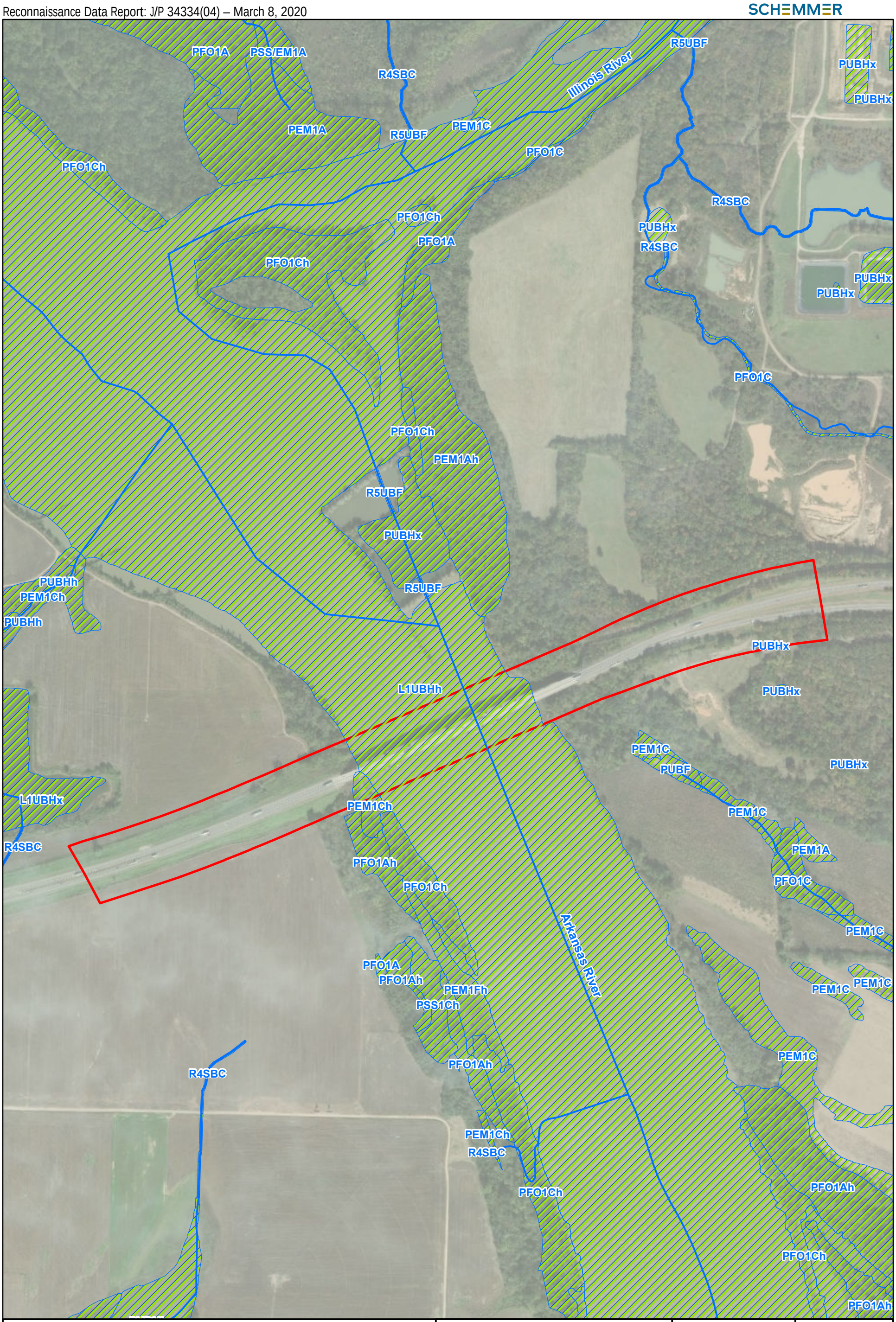
DRAWN BY: CKP
APPRV BY:

SOURCE: DEQ, Tiger 2000, USGS

FIGURE 9-5

Date: 2/13/2020

SCHEMMER



COMMENTS/LEGEND

Study Area

Mapped Streams

NWI

N

0 140 280 560 840 1,120 Feet

NWI Wetlands Map

Bridge & Approaches
I-40 over Arkansas River
Muskogee/Sequoyah Co.
J/P 34334(04)

Environmental

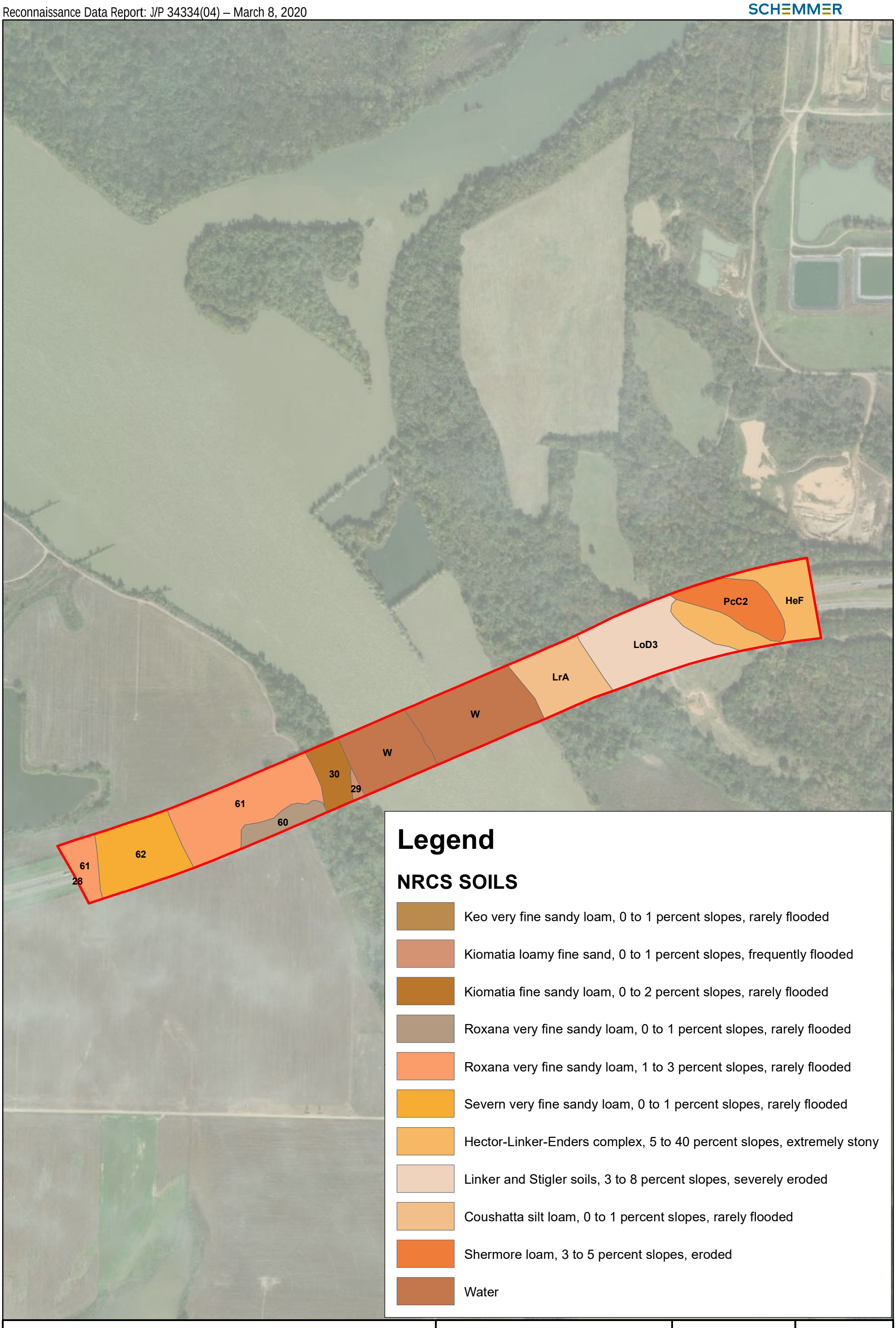
DRAWN BY: CKP
APPRV BY:

SOURCE: DEQ, Tiger 2000, USGS

FIGURE 9-6

Date: 2/13/2020

SCHEMMER



Legend

NRCS SOILS

- Keo very fine sandy loam, 0 to 1 percent slopes, rarely flooded
- Kiomatia loamy fine sand, 0 to 1 percent slopes, frequently flooded
- Kiomatia fine sandy loam, 0 to 2 percent slopes, rarely flooded
- Roxana very fine sandy loam, 0 to 1 percent slopes, rarely flooded
- Roxana very fine sandy loam, 1 to 3 percent slopes, rarely flooded
- Severn very fine sandy loam, 0 to 1 percent slopes, rarely flooded
- Hector-Linker-Enders complex, 5 to 40 percent slopes, extremely stony
- Linker and Stigler soils, 3 to 8 percent slopes, severely eroded
- Coushatta silt loam, 0 to 1 percent slopes, rarely flooded
- Shermore loam, 3 to 5 percent slopes, eroded
- Water

COMMENTS/LEGEND

Study Area

N

0 140 280 560 840 1,120 Feet

SOILS MAP

Bridge & Approaches
I-40 over Arkansas River
Muskogee/Sequoyah Co.
J/P 34334(04)

Environmental

DRAWN BY: CKP
APPRV BY:

SOURCE: DEQ, Tiger 2000, USGS

FIGURE 9-7

Date: 2/12/2020

SECTION 10: EXISTING FACILITY DATA

FUNCTIONAL CLASSIFICATION AND ROADWAY CHARACTERISTICS

Classification data and roadway characteristics where obtained using ODOT's ArcGIS website (https://okdot.maps.arcgis.com).
Traffic data was received from the ODOT traffic analyst of the engineering services branch.

CLASSIFICATION DATA

Table 10.1 shows the summary of roadway characteristics while Table 10.2 provides a detailed list of roadway data.

PAVEMENT QUALITY DATA

Data for the pavement of the applicable section of I-40 is contained in Table 10.3. All data was confirmed during the site visit.

SIDEWALKS

No sidewalks are contained within the project limits.

TRAFFIC DATA

Traffic data for this study area was provided by the ODOT Traffic Analysis Branch. A summary of the information is provided in Table 10.4. The original data and traffic maps are provided in Exhibit 10.1 and Exhibit 10.2 respectively.

AGENCIES ASSOCIATED WITH THE STUDY AREA

The project lies within the jurisdiction of the Eastern Oklahoma Development District (EODD). (Exhibit 10.3)
No Metropolitan Planning Organizations (MPO) contain this project location.
The project site lies outside any Oklahoma Turnpike Authority property.
The site is Within the Tribal Boundaries of the Cherokee Nation Oklahoma. (Exhibit 10.4)
Sections of this project also fall within the Sequoyah National Wildlife Refuge and Corps of Engineers land.

TABLE 10.1

ATTRIBUTES	SEC 1	SEC 2	SEC 3	SEC 4
AREA TYPE	RURAL	RURAL	RURAL	RURAL
TERRAIN TYPE	FLAT	ROLLING	ROLLING	ROLLING
ACCESS CONTROL	FULL ACCESS CONTROL	FULL ACCESS CONTROL	FULL ACCESS CONTROL	FULL ACCESS CONTROL
HIGHWAY TYPE	INTERSTATE	INTERSTATE	INTERSTATE	INTERSTATE
HIGHWAY CLASSIFICATION	INTERSTATE	INTERSTATE	INTERSTATE	INTERSTATE
NHS/Non-NHS	NON-CONNECTOR NHS	NON-CONNECTOR NHS	NON-CONNECTOR NHS	NON-CONNECTOR NHS
STRAHNET	REGULAR STRAHNET	REGULAR STRAHNET	REGULAR STRAHNET	REGULAR STRAHNET
NUMBER OF LANES	4 LANE FACILITY	4 LANE FACILITY	4 LANE FACILITY	4 LANE FACILITY
MEDIAN TYPE	CABLE BARRIER	BARRIER WALL	BARRIER WALL	CABLE BARRIER
PAVEMENT MATERIAL	ASPHALT CONCRETE	ASPHALT CONCRETE	ASPHALT CONCRETE	ASPHALT CONCRETE
INSIDE SHOULDER WIDTH	4	4	4	4
OUTSIDE SHOULDER WIDTH	10	10	10	10
SHOULDER MATERIAL TYPE	PAVED	PAVED	PAVED	PAVED

ATTRIBUTES	SEC 5	SEC 6	SEC 7	SEC 8
AREA TYPE	RURAL	RURAL	RURAL	RURAL
TERRAIN TYPE	ROLLING	ROLLING	ROLLING	FLAT
ACCESS CONTROL	FULL ACCESS CONTROL	FULL ACCESS CONTROL	FULL ACCESS CONTROL	FULL ACCESS CONTROL
HIGHWAY TYPE	INTERSTATE	INTERSTATE	INTERSTATE	INTERSTATE
HIGHWAY CLASSIFICATION	INTERSTATE	INTERSTATE	INTERSTATE	INTERSTATE
NHS/Non-NHS	NON-CONNECTOR NHS	NON-CONNECTOR NHS	NON-CONNECTOR NHS	NON-CONNECTOR NHS
STRAHNET	N/A	N/A	N/A	N/A
NUMBER OF LANES	4 LANE FACILITY	4 LANE FACILITY	4 LANE FACILITY	4 LANE FACILITY
MEDIAN TYPE	CABLE BARRIER	BARRIER WALL	BARRIER WALL	CABLE BARRIER
PAVEMENT MATERIAL	ASPHALT CONCRETE	ASPHALT CONCRETE	ASPHALT CONCRETE	ASPHALT CONCRETE
INSIDE SHOULDER WIDTH	4	4	4	4
OUTSIDE SHOULDER WIDTH	10	10	10	10
SHOULDER MATERIAL TYPE	PAVED	PAVED	PAVED	PAVED

TABLE 10.2

I-40 EAST SEC 1 FROM MP 13.53 TO MP 14.05					
Route ID	5100015HX0000	Fabric Reinforcement		Remarks	SEQUOYAH CO LINE
From Measure	13.53	Facility Type	Two-Way Roadway	Street Name	
To Measure	14.05	FHWA Primary Route	I040	Reservation	Not in any Reservation
County Number	MUSKOGEE	FHWA Route Qualifier	No Qualifier or Not Signed	Right-of-Way Width	340
Control Section	15	FHWA Route Signing	Interstate	Rural or Municipal	Rural-Roadway Section is not inside any incorporated
SUFFIX	H - Highway	Follow Route 1		SFC	Interstate
Lane ID	Inventory Direction	Follow Route 2		Inside Shoulder Type	Paved
Break Point	0	Follow Route 3		Inside Shoulder Width	4
Annual Average Daily Traffic	20,800	Follow Route 4		Outside Shoulder Type	Paved
AADT Year	2018	Highway Commissioner District	Highway Commissioner District 1	Outside Shoulder Wdith	10
AADT Effective Date	12/31/2018, 6:00 PM	HPMS Sample ID		Speed Limit	55
AADT Expiration Date	12/30/2019, 6:00 PM	Jurisdiction	State Highway Comm	Status Control	Free Open
Access Control	Full Access Control	Maintenance Date	9/30/2009, 7:00 PM	STRAHNET Route	Regular STRAHNET
Base Thickness	8	Maintenance Division	Maintenance Division 1	Subsection Type	
Base Type	Hot Sand-fine aggr	Maintenance Responsibility	STATE	Exposed Surface Type	I - Asph. Conc. S4 (Type B)
Base Width	38	Median Type	Cable Barrier	Original Surface Type	H - Asph. Conc. S5 (Type C)
City FIPS Number	0	Median Width	76	Primary Surface Type	I - Asph. Conc. S4 (Type B)
Construction Date	8/31/1965, 7:00 PM	Functional Class	Interstate	Surface Thickness	over 9 inches
County Commissioner District	District 2	National Highway System	Non-connector NHS	Surface Width	24
County FIPS Number	MUSKOGEE	National Highway Route Number	2	Terrain Type	Flat
County Number	MUSKOGEE	Number of Lanes	4 Lane Facility	Toll ID	
County Line Road		ODOT Route	I040	Truck Route	Yes
Alternate Credit County FIPS Number		ODOT Route Class	Interstate	Urban Area Type	Rural Area
Alternate Credit County Number		State House District	15	Urban FIPS Number	RURAL
Crew Type	0113B - Sallisaw Interstate Unit 11	State Senate District	8	US Congress District	2
Defense Route Number	270	Parking Type	Open Type Section	MLENGTH	0.52
Defense Route Direction	With Inventory	Population Group	0 to 2,499	REPORTDATE	1/31/2020, 7:25 PM
Control Side	South Side Control	County Action		INVENTORYDATE	1/31/2020, 7:25 PM

TABLE 10.2 continued

I-40 EAST SEC 2 FROM MP 0.00 TO MP 0.19					
Route ID	6800022HX0000	Fabric Reinforcement	Yes	Remarks	BEG IMG-40-6(353)
From Measure	0	Facility Type	Two-Way Roadway	Street Name	
To Measure	0.19	FHWA Primary Route	I040	Reservation	Not in any Reservation
County Number	SEQUOYAH	FHWA Route Qualifier	No Qualifier or Not Signed	Right-of-Way Width	300
Control Section	22	FHWA Route Signing	Interstate	Rural or Municipal	Rural-Roadway Section is not inside any incorporated
SUFFIX	H - Highway	Follow Route 1		SFC	Interstate
Lane ID	Inventory Direction	Follow Route 2		Inside Shoulder Type	Paved
Break Point	0	Follow Route 3		Inside Shoulder Width	4
Annual Average Daily Traffic	21,800	Follow Route 4		Outside Shoulder Type	Paved
AADT Year	2018	Highway Commissioner District	Highway Commissioner District 1	Outside Shoulder Wdith	10
AADT Effective Date	12/31/2018, 6:00 PM	HPMS Sample ID		Speed Limit	55
AADT Expiration Date	12/30/2019, 6:00 PM	Jurisdiction	State Highway Comm	Status Control	Free Open
Access Control	Full Access Control	Maintenance Date	9/30/2009, 7:00 PM	STRAHNET Route	Regular STRAHNET
Base Thickness	7	Maintenance Division	Maintenance Division 1	Subsection Type	
Base Type	Black Base	Maintenance Responsibility	STATE	Exposed Surface Type	I - Asph. Conc. S4 (Type B)
Base Width	38	Median Type	Barrier Wall	Original Surface Type	H - Asph. Conc. S5 (Type C)
City FIPS Number	0	Median Width	10	Primary Surface Type	H - Asph. Conc. S5 (Type C)
Construction Date	2/28/1969, 6:00 PM	Functional Class	Interstate	Surface Thickness	over 9 inches
County Commissioner District		National Highway System	Non-connector NHS	Surface Width	24
County FIPS Number	SEQUOYAH	National Highway Route Number	2	Terrain Type	Rolling
County Number	SEQUOYAH	Number of Lanes	4 Lane Facility	Toll ID	
County Line Road		ODOT Route	I040	Truck Route	Yes
Alternate Credit County FIPS Number		ODOT Route Class	Interstate	Urban Area Type	Rural Area
Alternate Credit County Number		State House District	15	Urban FIPS Number	RURAL
Crew Type	0113B - Sallisaw Interstate Unit 11	State Senate District	8	US Congress District	2
Defense Route Number	270	Parking Type	Open Type Section	MLENGTH	0.19
Defense Route Direction	With Inventory	Population Group	0 to 2,499	REPORTDATE	1/31/2020, 7:25 PM
Control Side	South Side Control	County Action		INVENTORYDATE	1/31/2020, 7:25 PM

TABLE 10.2 continued

I-40 EAST SEC 3 FROM MP 0.19 TO MP 0.55					
Route ID	6800022HX0000	Fabric Reinforcement	Yes	Remarks	BEG IMG-40-6(353)
From Measure	0.19	Facility Type	Two-Way Roadway	Street Name	
To Measure	0.55	FHWA Primary Route	I040	Reservation	Not in any Reservation
County Number	SEQUOYAH	FHWA Route Qualifier	No Qualifier or Not Signed	Right-of-Way Width	300
Control Section	22	FHWA Route Signing	Interstate	Rural or Municipal	Rural-Roadway Section is not inside any incorporated
SUFFIX	H - Highway	Follow Route 1		SFC	Interstate
Lane ID	Inventory Direction	Follow Route 2		Inside Shoulder Type	Paved
Break Point	0	Follow Route 3		Inside Shoulder Width	4
Annual Average Daily Traffic	21,800	Follow Route 4		Outside Shoulder Type	Paved
AADT Year	2018	Highway Commissioner District	Highway Commissioner District 1	Outside Shoulder Wdith	10
AADT Effective Date	12/31/2018, 6:00 PM	HPMS Sample ID		Speed Limit	55
AADT Expiration Date	12/30/2019, 6:00 PM	Jurisdiction	State Highway Comm	Status Control	Free Open
Access Control	Full Access Control	Maintenance Date	9/30/2009, 7:00 PM	STRAHNET Route	Regular STRAHNET
Base Thickness	7	Maintenance Division	Maintenance Division 1	Subsection Type	
Base Type	Black Base	Maintenance Responsibility	STATE	Exposed Surface Type	I - Asph. Conc. S4 (Type B)
Base Width	38	Median Type	Barrier Wall	Original Surface Type	H - Asph. Conc. S5 (Type C)
City FIPS Number	0	Median Width	10	Primary Surface Type	H - Asph. Conc. S5 (Type C)
Construction Date	2/28/1969, 6:00 PM	Functional Class	Interstate	Surface Thickness	over 9 inches
County Commissioner District		National Highway System	Non-connector NHS	Surface Width	24
County FIPS Number	SEQUOYAH	National Highway Route Number	2	Terrain Type	Rolling
County Number	SEQUOYAH	Number of Lanes	4 Lane Facility	Toll ID	
County Line Road		ODOT Route	I040	Truck Route	Yes
Alternate Credit County FIPS Number		ODOT Route Class	Interstate	Urban Area Type	Rural Area
Alternate Credit County Number		State House District	15	Urban FIPS Number	RURAL
Crew Type	0113B - Sallisaw Interstate Unit 11	State Senate District	4	US Congress District	2
Defense Route Number	270	Parking Type	Open Type Section	MLENGTH	0.36
Defense Route Direction	With Inventory	Population Group	0 to 2,499	REPORTDATE	1/31/2020, 7:25 PM
Control Side	South Side Control	County Action		INVENTORYDATE	1/31/2020, 7:25 PM

TABLE 10.2 continued

I-40 EAST SEC 4 FROM MP 0.55 TO MP 1.24					
Route ID	6800022HX0000	Fabric Reinforcement	Yes	Remarks	JCT SH 10
From Measure	0.55	Facility Type	Two-Way Roadway	Street Name	
To Measure	1.24	FHWA Primary Route	I040	Reservation	Not in any Reservation
County Number	SEQUOYAH	FHWA Route Qualifier	No Qualifier or Not Signed	Right-of-Way Width	300
Control Section	22	FHWA Route Signing	Interstate	Rural or Municipal	Rural-Roadway Section is not inside any incorporated
SUFFIX	H - Highway	Follow Route 1		SFC	Interstate
Lane ID	Inventory Direction	Follow Route 2		Inside Shoulder Type	Paved
Break Point	0	Follow Route 3		Inside Shoulder Width	4
Annual Average Daily Traffic	20,100	Follow Route 4		Outside Shoulder Type	Paved
AADT Year	2018	Highway Commissioner District	Highway Commissioner District 1	Outside Shoulder Wdith	10
AADT Effective Date	12/31/2018, 6:00 PM	HPMS Sample ID		Speed Limit	55
AADT Expiration Date	12/30/2019, 6:00 PM	Jurisdiction	State Highway Comm	Status Control	Free Open
Access Control	Full Access Control	Maintenance Date	9/30/2009, 7:00 PM	STRAHNET Route	Regular STRAHNET
Base Thickness	7	Maintenance Division	Maintenance Division 1	Subsection Type	
Base Type	Black Base	Maintenance Responsibility	STATE	Exposed Surface Type	I - Asph. Conc. S4 (Type B)
Base Width	38	Median Type	Cable Barrier	Original Surface Type	H - Asph. Conc. S5 (Type C)
City FIPS Number	0	Median Width	40	Primary Surface Type	H - Asph. Conc. S5 (Type C)
Construction Date	2/28/1969, 6:00 PM	Functional Class	Interstate	Surface Thickness	over 9 inches
County Commissioner District		National Highway System	Non-connector NHS	Surface Width	24
County FIPS Number	SEQUOYAH	National Highway Route Number	2	Terrain Type	Rolling
County Number	SEQUOYAH	Number of Lanes	4 Lane Facility	Toll ID	
County Line Road		ODOT Route	I040	Truck Route	Yes
Alternate Credit County FIPS Number		ODOT Route Class	Interstate	Urban Area Type	Rural Area
Alternate Credit County Number		State House District	15	Urban FIPS Number	RURAL
Crew Type	0113B - Sallisaw Interstate Unit 11	State Senate District	4	US Congress District	2
Defense Route Number	270	Parking Type	Open Type Section	MLENGTH	0.69
Defense Route Direction	With Inventory	Population Group	0 to 2,499	REPORTDATE	1/31/2020, 7:25 PM
Control Side	South Side Control	County Action		INVENTORYDATE	1/31/2020, 7:25 PM

TABLE 10.2 continued

I-40 WEST SEC 5 FROM MP 1.24 TO MP 0.55					
Route ID	6800022HN0000	Fabric Reinforcement	Yes	Remarks	JCT SH 10
From Measure	0.55	Facility Type	Non Inventory Direction	Street Name	
To Measure	1.24	FHWA Primary Route	I040	Reservation	Not in any Reservation
County Number	SEQUOYAH	FHWA Route Qualifier	No Qualifier or Not Signed	Right-of-Way Width	300
Control Section	22	FHWA Route Signing	Interstate	Rural or Municipal	Rural-Roadway Section is not inside any incorporated
SUFFIX	H - Highway	Follow Route 1		SFC	Interstate
Lane ID	North Side Control	Follow Route 2		Inside Shoulder Type	Paved
Break Point	0	Follow Route 3		Inside Shoulder Width	4
Annual Average Daily Traffic		Follow Route 4		Outside Shoulder Type	Paved
AADT Year		Highway Commissioner District	Highway Commissioner District 1	Outside Shoulder Wdith	10
AADT Effective Date		HPMS Sample ID		Speed Limit	70
AADT Expiration Date		Jurisdiction	State Highway Comm	Status Control	Free Open
Access Control	Full Access Control	Maintenance Date	9/30/2009, 7:00 PM	STRAHNET Route	
Base Thickness	7	Maintenance Division	Maintenance Division 1	Subsection Type	
Base Type	Black Base	Maintenance Responsibility	STATE	Exposed Surface Type	I - Asph. Conc. S4 (Type B)
Base Width	38	Median Type	Cable Barrier	Original Surface Type	H - Asph. Conc. S5 (Type C)
City FIPS Number	0	Median Width	40	Primary Surface Type	H - Asph. Conc. S5 (Type C)
Construction Date	2/28/1969, 6:00 PM	Functional Class	Interstate	Surface Thickness	8-9 inches
County Commissioner District		National Highway System	Non-connector NHS	Surface Width	24
County FIPS Number	SEQUOYAH	National Highway Route Number	2	Terrain Type	Rolling
County Number	SEQUOYAH	Number of Lanes	4 Lane Facility	Toll ID	
County Line Road		ODOT Route	I040	Truck Route	Yes
Alternate Credit County FIPS Number		ODOT Route Class	Interstate	Urban Area Type	Rural Area
Alternate Credit County Number		State House District	15	Urban FIPS Number	RURAL
Crew Type	0113B - Sallisaw Interstate Unit 11	State Senate District	4	US Congress District	2
Defense Route Number	270	Parking Type	Open Type Section	MLENGTH	0.69
Defense Route Direction	With Inventory	Population Group	0 to 2,499	REPORTDATE	1/31/2020, 7:25 PM
Control Side	North Side Control	County Action		INVENTORYDATE	1/31/2020, 7:25 PM

TABLE 10.2 continued

I-40 WEST SEC 6 FROM MP 0.55 TO MP 0.19					
Route ID	6800022HN0000	Fabric Reinforcement	Yes	Remarks	BEG IMG-40-6(353)
From Measure	0.19	Facility Type	Non Inventory Direction	Street Name	
To Measure	0.55	FHWA Primary Route	I040	Reservation	Not in any Reservation
County Number	SEQUOYAH	FHWA Route Qualifier	No Qualifier or Not Signed	Right-of-Way Width	300
Control Section	22	FHWA Route Signing	Interstate	Rural or Municipal	Rural-Roadway Section is not inside any incorporated
SUFFIX	H - Highway	Follow Route 1		SFC	Interstate
Lane ID	North Side Control	Follow Route 2		Inside Shoulder Type	Paved
Break Point	0	Follow Route 3		Inside Shoulder Width	4
Annual Average Daily Traffic		Follow Route 4		Outside Shoulder Type	Paved
AADT Year		Highway Commissioner District	Highway Commissioner District 1	Outside Shoulder Wdith	10
AADT Effective Date		HPMS Sample ID		Speed Limit	70
AADT Expiration Date		Jurisdiction	State Highway Comm	Status Control	Free Open
Access Control	Full Access Control	Maintenance Date	9/30/2009, 7:00 PM	STRAHNET Route	
Base Thickness	7	Maintenance Division	Maintenance Division 1	Subsection Type	
Base Type	Black Base	Maintenance Responsibility	STATE	Exposed Surface Type	I - Asph. Conc. S4 (Type B)
Base Width	38	Median Type	Barrier Wall	Original Surface Type	H - Asph. Conc. S5 (Type C)
City FIPS Number	0	Median Width	10	Primary Surface Type	H - Asph. Conc. S5 (Type C)
Construction Date	2/28/1969, 6:00 PM	Functional Class	Interstate	Surface Thickness	8-9 inches
County Commissioner District		National Highway System	Non-connector NHS	Surface Width	24
County FIPS Number	SEQUOYAH	National Highway Route Number	2	Terrain Type	Rolling
County Number	SEQUOYAH	Number of Lanes	4 Lane Facility	Toll ID	
County Line Road		ODOT Route	I040	Truck Route	Yes
Alternate Credit County FIPS Number		ODOT Route Class	Interstate	Urban Area Type	Rural Area
Alternate Credit County Number		State House District	15	Urban FIPS Number	RURAL
Crew Type	0113B - Sallisaw Interstate Unit 11	State Senate District	4	US Congress District	2
Defense Route Number	270	Parking Type	Open Type Section	MLENGTH	0.36
Defense Route Direction	With Inventory	Population Group	0 to 2,499	REPORTDATE	1/31/2020, 7:25 PM
Control Side	North Side Control	County Action		INVENTORYDATE	1/31/2020, 7:25 PM

TABLE 10.2 continued

I-40 WEST SEC 7 FROM MP 0.19 TO MP 0.00					
Route ID	6800022HN0000	Fabric Reinforcement	Yes	Remarks	BEG IMG-40-6(353)
From Measure	0	Facility Type	Non Inventory Direction	Street Name	
To Measure	0.19	FHWA Primary Route	I040	Reservation	Not in any Reservation
County Number	SEQUOYAH	FHWA Route Qualifier	No Qualifier or Not Signed	Right-of-Way Width	300
Control Section	22	FHWA Route Signing	Interstate	Rural or Municipal	Rural-Roadway Section is not inside any incorporated
SUFFIX	H - Highway	Follow Route 1		SFC	Interstate
Lane ID	North Side Control	Follow Route 2		Inside Shoulder Type	Paved
Break Point	0	Follow Route 3		Inside Shoulder Width	4
Annual Average Daily Traffic		Follow Route 4		Outside Shoulder Type	Paved
AADT Year		Highway Commissioner District	Highway Commissioner District 1	Outside Shoulder Wdith	10
AADT Effective Date		HPMS Sample ID		Speed Limit	70
AADT Expiration Date		Jurisdiction	State Highway Comm	Status Control	Free Open
Access Control	Full Access Control	Maintenance Date	9/30/2009, 7:00 PM	STRAHNET Route	
Base Thickness	7	Maintenance Division	Maintenance Division 1	Subsection Type	
Base Type	Black Base	Maintenance Responsibility	STATE	Exposed Surface Type	I - Asph. Conc. S4 (Type B)
Base Width	38	Median Type	Barrier Wall	Original Surface Type	H - Asph. Conc. S5 (Type C)
City FIPS Number	0	Median Width	10	Primary Surface Type	H - Asph. Conc. S5 (Type C)
Construction Date	2/28/1969, 6:00 PM	Functional Class	Interstate	Surface Thickness	8-9 inches
County Commissioner District		National Highway System	Non-connector NHS	Surface Width	24
County FIPS Number	SEQUOYAH	National Highway Route Number	2	Terrain Type	Rolling
County Number	SEQUOYAH	Number of Lanes	4 Lane Facility	Toll ID	
County Line Road		ODOT Route	I040	Truck Route	Yes
Alternate Credit County FIPS Number		ODOT Route Class	Interstate	Urban Area Type	Rural Area
Alternate Credit County Number		State House District	15	Urban FIPS Number	RURAL
Crew Type	0113B - Sallisaw Interstate Unit 11	State Senate District	8	US Congress District	2
Defense Route Number	270	Parking Type	Open Type Section	MLENGTH	0.19
Defense Route Direction	With Inventory	Population Group	0 to 2,499	REPORTDATE	1/31/2020, 7:25 PM
Control Side	North Side Control	County Action		INVENTORYDATE	1/31/2020, 7:25 PM

TABLE 10.2 continued

I-40 WEST SEC 8 FROM MP 14.04 TO MP 13.51					
Route ID	5100015HN0000	Fabric Reinforcement		Remarks	SEQUOYAH CO LINE
From Measure	13.51	Facility Type	Non Inventory Direction	Street Name	
To Measure	14.04	FHWA Primary Route	I040	Reservation	Not in any Reservation
County Number	MUSKOGEE	FHWA Route Qualifier	No Qualifier or Not Signed	Right-of-Way Width	340
Control Section	15	FHWA Route Signing	Interstate	Rural or Municipal	Rural-Roadway Section is not inside any incorporated
SUFFIX	H - Highway	Follow Route 1		SFC	Interstate
Lane ID	North Side Control	Follow Route 2		Inside Shoulder Type	Paved
Break Point	0	Follow Route 3		Inside Shoulder Width	4
Annual Average Daily Traffic		Follow Route 4		Outside Shoulder Type	Paved
AADT Year		Highway Commissioner District	Highway Commissioner District 1	Outside Shoulder Wdith	10
AADT Effective Date		HPMS Sample ID		Speed Limit	70
AADT Expiration Date		Jurisdiction	State Highway Comm	Status Control	Free Open
Access Control	Full Access Control	Maintenance Date	9/30/2009, 7:00 PM	STRAHNET Route	
Base Thickness	8	Maintenance Division	Maintenance Division 1	Subsection Type	
Base Type	Hot Sand-fine aggr	Maintenance Responsibility	STATE	Exposed Surface Type	I - Asph. Conc. S4 (Type B)
Base Width	38	Median Type	Cable Barrier	Original Surface Type	H - Asph. Conc. S5 (Type C)
City FIPS Number	0	Median Width	76	Primary Surface Type	I - Asph. Conc. S4 (Type B)
Construction Date	8/31/1965, 7:00 PM	Functional Class	Interstate	Surface Thickness	over 9 inches
County Commissioner District	District 2	National Highway System	Non-connector NHS	Surface Width	24
County FIPS Number	MUSKOGEE	National Highway Route Number	2	Terrain Type	Flat
County Number	MUSKOGEE	Number of Lanes	4 Lane Facility	Toll ID	
County Line Road		ODOT Route	I040	Truck Route	Yes
Alternate Credit County FIPS Number		ODOT Route Class	Interstate	Urban Area Type	Rural Area
Alternate Credit County Number		State House District	15	Urban FIPS Number	RURAL
Crew Type	0113B - Sallisaw Interstate Unit 11	State Senate District	8	US Congress District	2
Defense Route Number	270	Parking Type	Open Type Section	MLENGTH	0.52
Defense Route Direction	With Inventory	Population Group	0 to 2,499	REPORTDATE	1/31/2020, 7:25 PM
Control Side	North Side Control	County Action		INVENTORYDATE	1/31/2020, 7:25 PM

TABLE 10.3

	I-40 EAST SEC 1 FROM MP 13.53 TO MP 14.06	I-40 EAST SEC 2 FROM MP 0.00 TO MP 0.55	I-40 EAST SEC 3 FROM MP 0.55 TO MP 1.24	I-40 WEST SEC 4 FROM MP 1.24 TO MP 0.55	I-40 WEST SEC 5 FROM MP 0.55 TO MP 0.00	I-40 WEST SEC 6 FROM MP 14.06 TO MP 13.53
Subsection	5115 00001353	6822 00000000	6822 00000055	6822 N00000055	6822 N00000000	5115 N00001353
Control Section	5115 0000	6822 0000	6822 0000	6822 N0000	6822 N0000	5115 N0000
Maintenance Div.	1	1	1	1	1	1
Route	I040	I040	I040	I040	I040	I040
LR Beg. Milepoint	13.53	0	0.55	0.55	0	13.53
LRS End Milepoint	14.06	0.55	1.24	1.24	0.55	14.06
LRS Length	0.53	0.55	0.69	0.69	0.55	0.53
Pavement Type	AC	AC	AC	AC	AC	AC
PQI Index	74	72	74	73	68	60
PQI Rating	Poor	Poor	Poor	Poor	Poor	Poor
Struct. Index	64	50	44	45	56	52
Ride Index	78	71	86	85	66	60
Faulting Index	0	0	0	0	0	0
Funct. Index	67	79	75	69	73	71
Rutting Index	82	86	81	82	77	56
Slab Index	0	0	0	0	0	0
Joint Index	0	0	0	0	0	0
Under Construction						
Analysis Year	2019	2019	2019	2019	2019	2019

TABLE 10.4

I-40 TRAFFIC DATA	
COUNTY	MUSKOGEE
JP NUMBER	34334(09)
HIGHWAY	I 40
2019 AADT	21000
2039 AADT	29000
K	10%
D	57%
T (AADT)	30%
T (DHV)	27%
T3	24%

Wehe, Timothy

From: Brian Linam <BLINAM@ODOT.ORG>
Sent: Monday, December 30, 2019 7:01 AM
To: Wehe, Timothy
Subject: [EXTERNAL] FW: 34349(04) & 34334(04) Request for traffic data, trade fixture data, and SI&A sheets

Timothy,

See below for Traffic Counts.

Thank you,

Brian Linam
Division 1 Project Manager
Oklahoma Department of Transportation
Office: 405-522-7600
Mobile: 405-212-8043

From: Matthew Blakeslee <MBLAKESLEE@ODOT.ORG>
Sent: Monday, December 23, 2019 12:33 PM
To: Brian Linam <BLINAM@ODOT.ORG>; Patty Defranco <pdefranco@odot.org>; Barbara Hoppes <BHOPPES@ODOT.ORG>
Subject: RE: Request for traffic data, trade fixture data, and SI&A sheets

County: Muskogee
JP No.: 34349(04)
Highway: US 62

2019 AADT = 2400
2039 AADT = 3300
K = 12%
D = 58%
T (AADT) = 17%
T (DHV) = 14%
T3 = 11%

County: Muskogee
JP No.: 34334(04)
Highway: I 40

2019 AADT = 21000
2039 AADT = 29000
K = 10%
D = 57%
T (AADT) = 30%
T (DHV) = 27%

Matthew Blakeslee, PE
Traffic Management Branch Manager
Strategic Asset & Performance Management Division
Oklahoma Dept. of Transportation
405.522.6713 I mblakeslee@ODOT.ORG
AADT Traffic Counts

From: Brian Linam <BLINAM@ODOT.ORG>
Sent: Tuesday, December 17, 2019 7:30 AM
To: Matthew Blakeslee <MBLAKESLEE@ODOT.ORG>; Patty Defranco <pdefranco@odot.org>; Barbara Hoppes <BHOPPES@ODOT.ORG>
Subject: FW: Request for traffic data, trade fixture data, and SI&A sheets

All,

Please see below requests for Traffic Data, Billboard Info, and Bridge SI&A sheets.

Thank you,
Brian Linam
Division 1 Project Manager
Oklahoma Department of Transportation
Office: 405-522-7600
Mobile: 405-212-8043

From: Wehe, Timothy <twehe@schemmer.com>
Sent: Monday, December 16, 2019 10:41 AM
To: Brian Linam <BLINAM@ODOT.ORG>
Subject: [External] Request for traffic data, trade fixture data, and SI&A sheets

Good morning Brian,
I am requesting the traffic and trade fixture data information as well as SI&A bridge sheets given below for both project locations also listed below. I have provided KMZ files to help locate the projects. Please let me know if any other information is needed.

Traffic Data

1. Current Average Annual Daily Traffic (AADT)
2. Projected AADT (20 years from known Let Date or 30 years from present)
3. K (DHV/ADT- Two Way)
4. D (Directional Distribution)
5. Percentage of Truck Traffic – T(DHV), T(ADT), and T3 (3 or more Axle)

Trade Fixture Data

Is the highway on a regulated route?

If regulated please provide the trade fixture (billboard) permit information for each legal trade fixture (billboard) or information relative to its illegal status.

Structure Inventory & Appraisal (SI&A) sheets

A copy of the most current structure inventory and appraisal sheet for each bridge within the project locations below.

Project Locations

1. J/P 34334(04) Muskogee / Sequoyah County, I-40 Bridge and Approaches.
   Reconnaissance Limits:
   250' left and right of Highway I-40 centerline From 2000' West of the Bridge(NBI No. 17051) over the Arkansas River to 2000' East of said bridge.
   SEC 28, T12N, R21E
   SEC 29, T12N R21E

2. J/P 34349(04) Muskogee County. US-62 Widen and Resurface
   Reconnaissance Limits:
   200' left and right of US-62 centerline from end of shouldered section approximately 1.25 miles North of US-62 and N0970 junction, extending north to junction of US-62 and SH-16. Reconnaissance area excluding 0.35 miles of shouldered highway running through the City of Boynton.
   SEC 1, T 13 N, R 15 E
   SEC 6, T 13 N, R 16 E
   SEC 31, T 14 N, R 16 E
   SEC 30, T 14 N, R 16 E
   SEC 29, T 14 N, R 16 E
   SEC 20, T 14 N, R 16 E
   SEC 19, T 14 N, R 16 E
   SEC 18, T 14 N, R 16 E
   SEC 17, T 14 N, R 16 E
   SEC 8, T 14 N, R 16 E
   SEC 7, T 14 N, R 16 E
   SEC 6, T 14 N, R 16 E
   SEC 5, T 14 N, R 16 E
   SEC 32, T 15 N, R 16 E
   SEC 31, T 15 N, R 16 E

Sincerely.

Timothy Wehe, E.I.
Transportation Designer

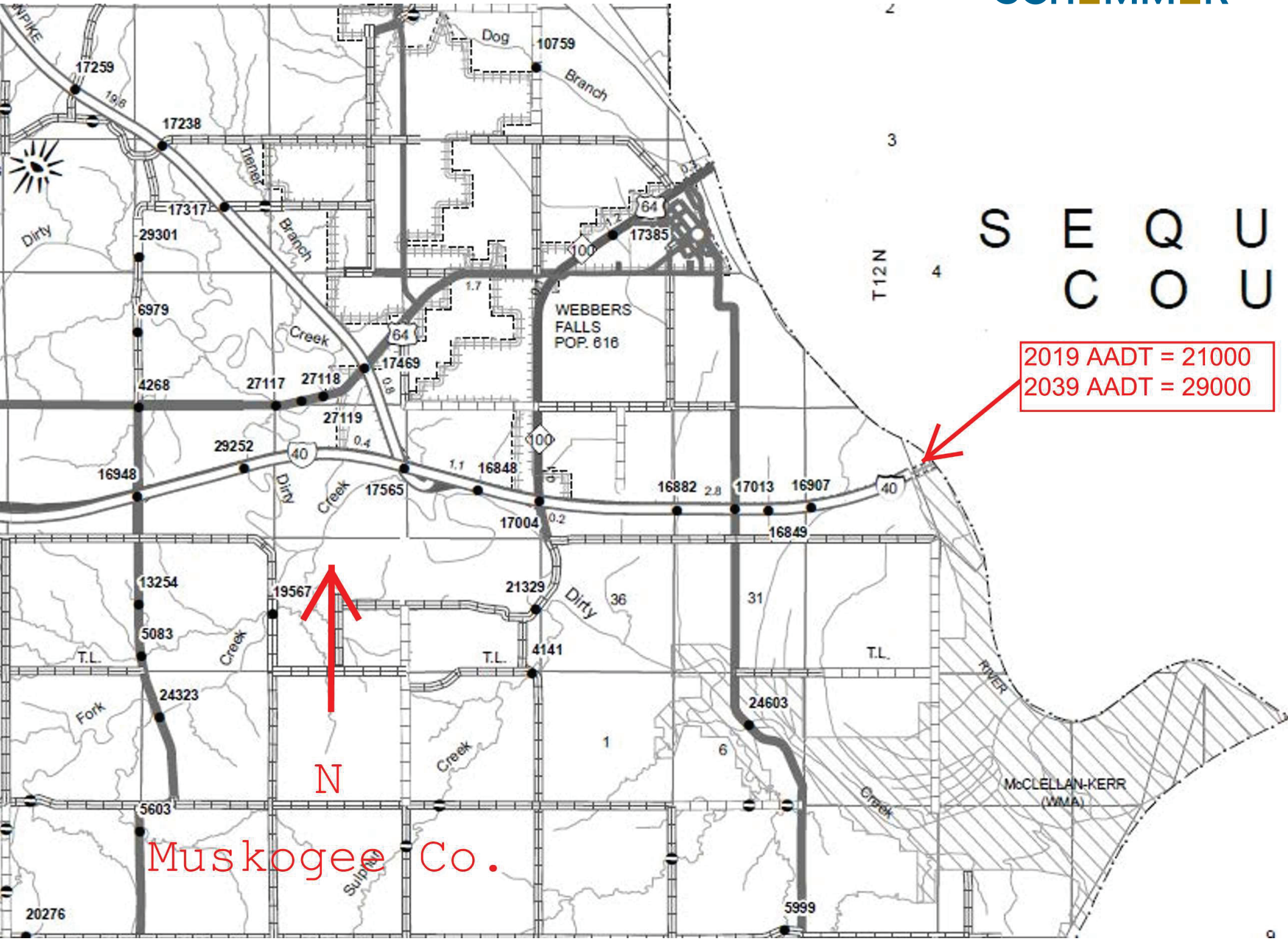
405.259.2000 Phone | 405.259.2007 Direct
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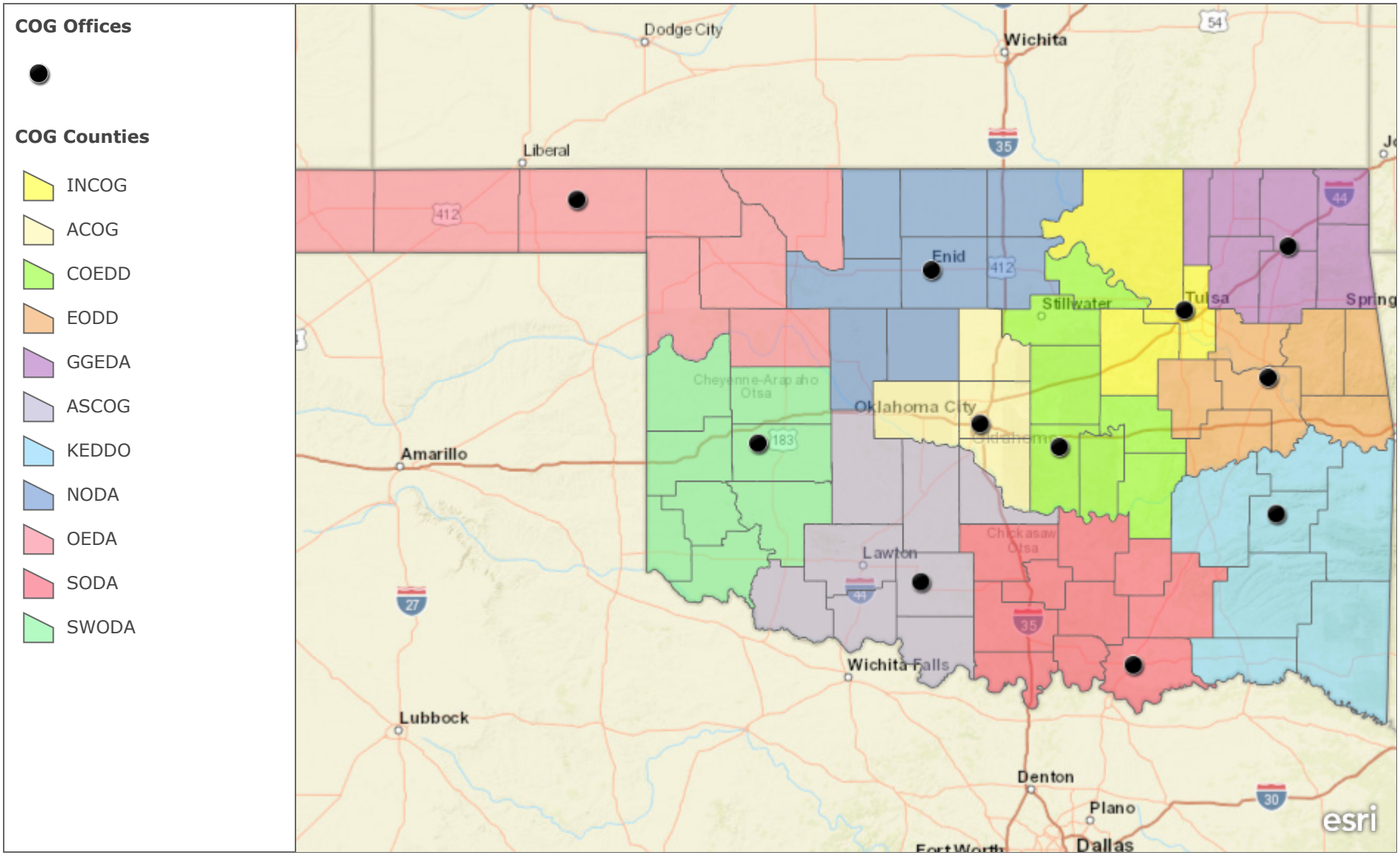
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2019 AADT = 21000
2039 AADT = 29000
N
Muskogee Co.
WEBBERS FALLS POP. 616
T12N
SEQU
COU
Dog Branch
Tierney Branch
Dirty Creek
Dirty Fork Creek
Sulphur Creek
McCLELLAN-KERR (WMA)
RIVER
T.L.
17259
17238
17317
29301
6979
4268
27117
27118
27119
17469
17385
29252
16948
16848
17565
16882
17013
16907
17004
16849
13254
19567
21329
5083
4141
24323
24603
5603
20276
5999
64
100
40

Oklahoma COGs



Oklahoma's 11 Regional Councils of Government

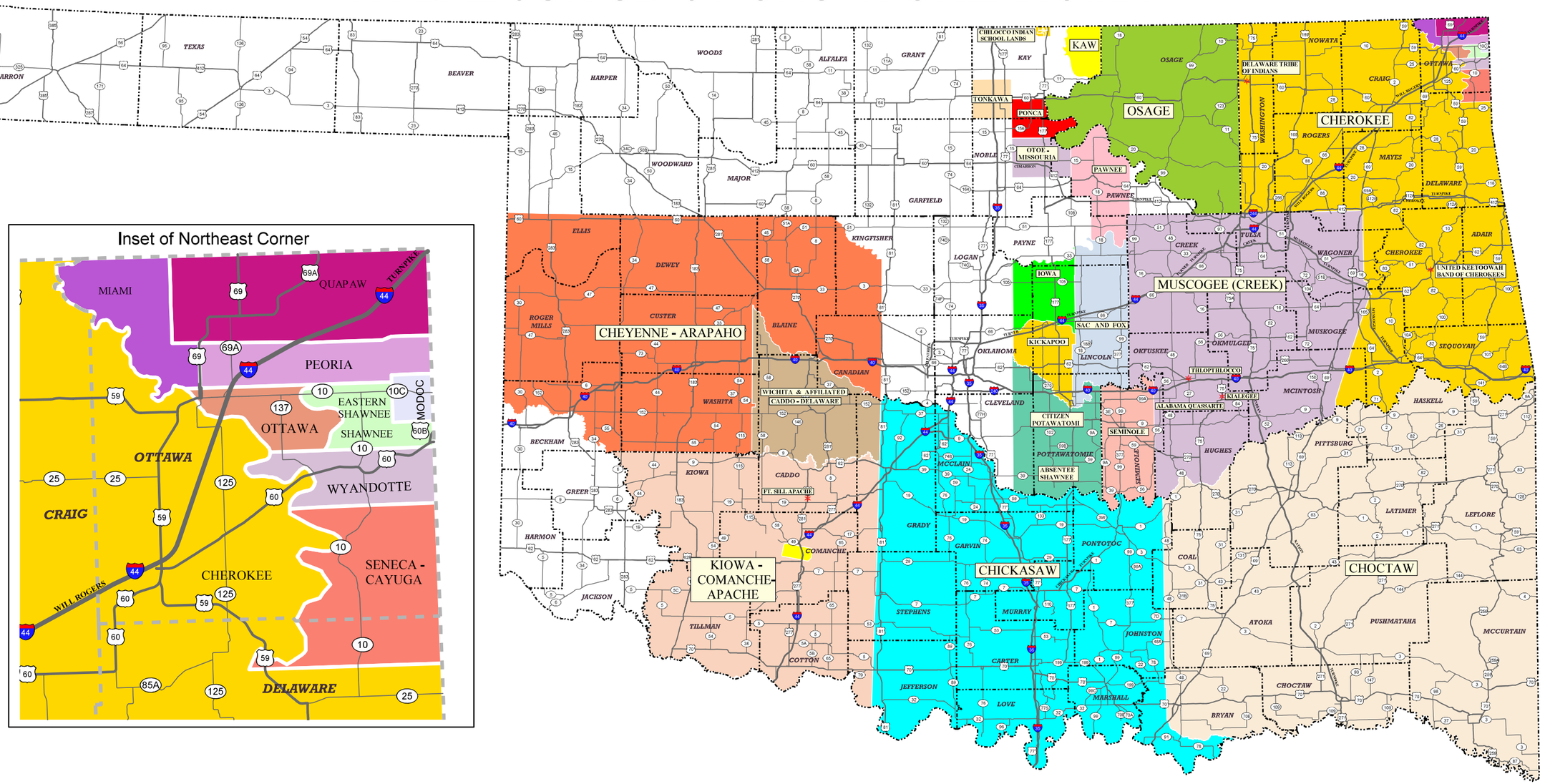
OKLAHOMA COUNCILS OF GOVERNMENT
http://oarcok.org/about

- Oklahoma Economic Development Authority (OEDA)
- Northern Oklahoma Development Authority (NODA)
- Grand Gateway Economic Development Association (GGEDA)
- South Western Oklahoma Development Authority (SWODA)
- Association of South Central Oklahoma (ASCOG)
- Southern Oklahoma Development Association (SODA)
- Central Oklahoma Economic Development District (COEDD)
- Eastern Oklahoma Development District (EODD)
- Kiamichi Economic Development District of Oklahoma (KEDDO)
- Association of Central Oklahoma Governments (ACOG)
- Indian Nations Council of Governments (INCOG)

Esri, HERE, Garmin, NGA, USGS, NPS

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TRIBAL JURISDICTIONS IN OKLAHOMA



38 FEDERALLY RECOGNIZED TRIBES (Tribal Boundaries provided by the Bureau of Land Management)

ABSENTEE SHAWNEE TRIBE	CHOCTAW NATION	IOWA TRIBE	MUSCOGEE (CREEK) NATION	QUAPAW TRIBE	UNITED KEETOOWAH BAND OF CHEROKEES
ALABAMA QUASSARTE TRIBAL TOWN	CITIZEN POTAWATOMI TRIBE	KAW NATION	OSAGE NATION	SAC AND FOX NATION	WICHITA & AFFILIATED TRIBE
APACHE TRIBE	COMANCHE NATION	KIALEGEE TRIBAL TOWN	OTOE - MISSOURIA TRIBE	SEMINOLE NATION	WYANDOTTE NATION
CADDO TRIBE	DELAWARE NATION	KICKAPOO TRIBE	OTTAWA TRIBE	SENECA - CAYUGA TRIBE	
CHEROKEE NATION	DELAWARE TRIBE OF INDIANS	KIOWA TRIBE	PAWNEE NATION	SHAWNEE TRIBE	
CHEYENNE - ARAPAHO TRIBES	EASTERN SHAWNEE TRIBE	MIAMI NATION	PEORIA TRIBE	THLOPTHLOCCO TRIBAL TOWN	
CHICKASAW NATION	FT. SILL APACHE	MODOC TRIBE	PONCA NATION	TONKAWA TRIBE	

OKLAHOMA DEPARTMENT OF TRANSPORTATION
PLANNING & RESEARCH DIVISION
GIS MANAGEMENT BRANCH
200 N.E. 21ST. STREET
OKLAHOMA CITY, OKLAHOMA 73105

2010

G:/TRIBAL_JURISDICTIONS.gws

Exhibit 10.4: Tribal Jurisdiction in Oklahoma Map

SECTION 11: CENSUS DATA

CENSUS DATA BLOCK GROUPS

Census data including Median Income, Poverty Ratio, Limited English Proficiency (LEP), Minority Population, and Social Vulnerability Index (SVI), were analyzed and mapped for the population block group in which the study area lies. Data was collected and analyzed from the United States Census Bureau American Community Survey 5-year estimate (2009-2017), with the exception of the SVI, which could only be collected for population tract, in which the study area lies.

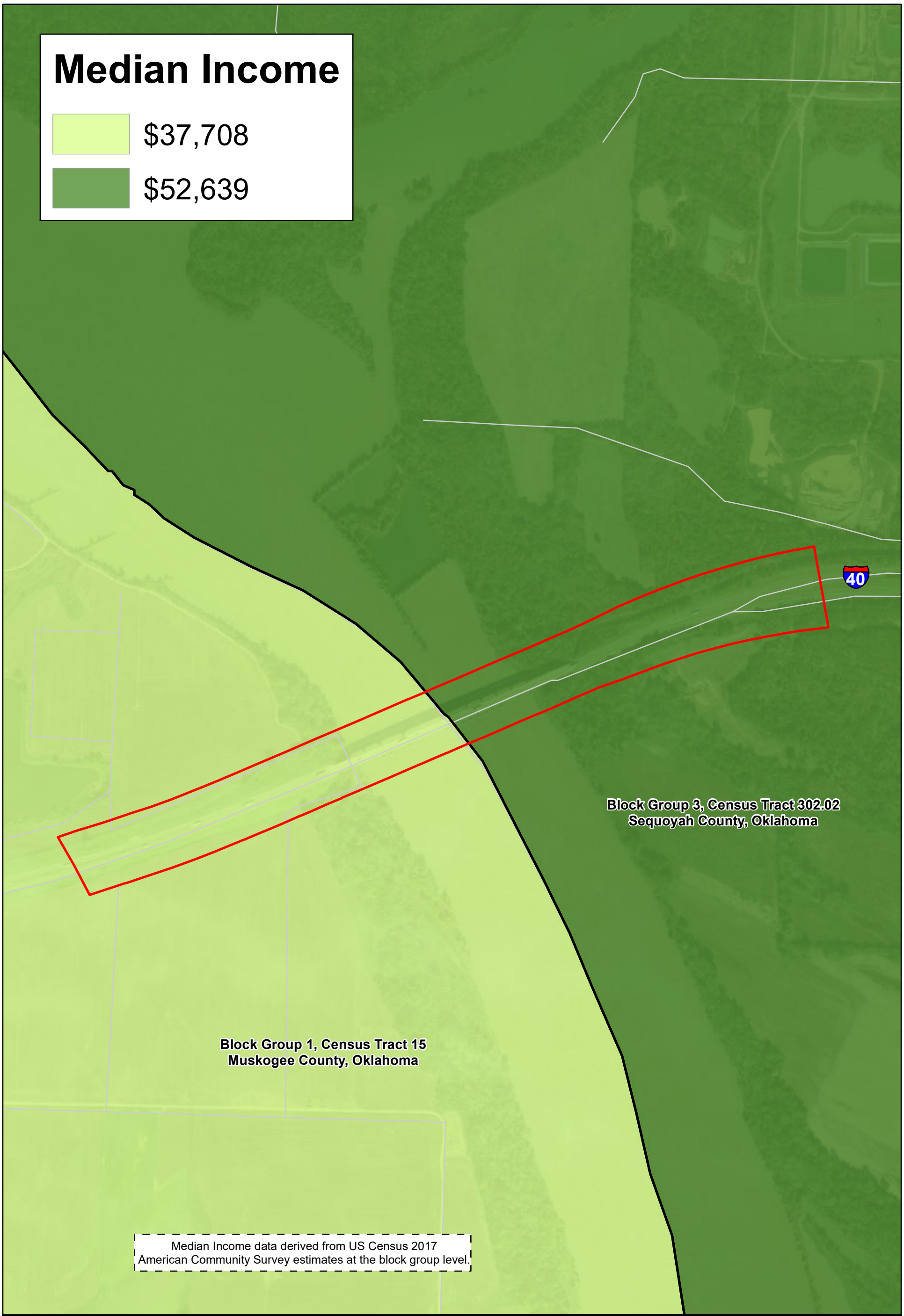
Table 11.1 summarizes the data represented on Figures 11-1a, -1b, -1c, -1d, and -1e (refer to Exhibit 11.1). The project study area occurs in Block Group 3, Census Tract 302.02 in Muskogee County, and Block Group 1, Census Tract 15 in Sequoyah County.

Table 11.1

TABLE 11-1: CENSUS DATA		
	BG-3, Tract 302.02 (GEO-ID: 401350302023)	BG-1, Tract 15 (GEO-ID: 401010015001)
Total Population (# of people)	1,622	1,499
Total # Households	595	603
Median Income	$52,639	$37,708
Poverty Ratio (ratio above:below poverty line)	13:1 to 25:1	Less than 7:1
Limited English Proficiency (LEP)	1.89%	1.64%
Minority Population (%)	32.4%	38.2%
SVI (range)	0.7501-1 (Highest)	0.7501-1 (Highest)

Source: US Census Bureau https://www.census.gov/geo/maps-data/data/geocoder.html (January 2020)

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COMMENTS/LEGEND

Study Area

Block Group Boundaries

Roadways

N

0 140 280 560 840 1,120 Feet

Median Income

Bridge & Approaches
I-40 over Arkansas River
Muskogee/Sequoyah Co.
J/P 34334(04)

Environmental

DRAWN BY: CKP
APPRV BY:

SOURCE: DEQ, Tiger 2000, USGS

Figure 11-1a

Date: 2/13/2020

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Poverty Ratio

Block Groups

Ratio of Households Above Poverty to Below

- Less than 7:1
- 7:1 to 12:1
- 13:1 to 25:1
- 26:1 to 50:1
- More than 50:1

40

Block Group 3, Census Tract 302.02
Sequoyah County, Oklahoma

Block Group 1, Census Tract 15
Muskogee County, Oklahoma

This map compares the number of households living above the poverty line to the number of households living below. In the U.S. overall, there are 6.2 households living above the poverty line for every 1 household living below. The map shades areas in green which have a higher than normal number of households living above compared to below poverty. Areas in brown have a higher than normal number of households living below the poverty line compared to those above in that same area.

COMMENTS/LEGEND

- Study Area
- Block Group Boundaries
- Roadways

N

0 140 280 560 840 1,120 Feet

Poverty Ratio

Bridge & Approaches
I-40 over Arkansas River
Muskogee/Sequoyah Co.
J/P 34334(04)

Environmental

DRAWN BY: CKP
APPRV BY:

SOURCE: DEQ, Tiger 2000, USGS

Figure 11-1b

Date: 2/13/2020

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Limited English Proficiency Percentage

LEP

1.64%

1.89%

40

Block Group 3, Census Tract 302.02
Sequoyah County, Oklahoma

Block Group 1, Census Tract 15
Muskogee County, Oklahoma

Language data derived from US Census 2013-2017 American Community Survey estimates at the block group level. Percentages were calculated as the number of households with limited English language, divided by the total numberof households in the block group.

COMMENTS/LEGEND

Study Area

Block Group Boundaries

Roadways

N

0 140 280 560 840 1,120 Feet

English Proficiency

Bridge & Approaches
I-40 over Arkansas River
Muskogee/Sequoyah Co.
J/P 34334(04)

Environmental

DRAWN BY: CKP
APPRV BY:

SOURCE: DEQ, Tiger 2000, USGS

Figure 11-1c

Date: 2/13/2020

SCHEMMER

Minority Percentage of Total Population

Percentage

32.4%

38.18%

Block Group 3, Census Tract 302.02
Sequoyah County, Oklahoma

Block Group 1, Census Tract 15
Muskogee County, Oklahoma

Population data derived from US Census 2013-2017 American Community Survey estimates at the block group level. Percentages were calculated as the number of people of non-white race, divided by the total population in the block group.

COMMENTS/LEGEND

Study Area

Block Group Boundaries

Roadways

N

0 140 280 560 840 1,120 Feet

Minority Population

Bridge & Approaches
I-40 over Arkansas River
Muskogee/Sequoyah Co.
J/P 34334(04)

Environmental

DRAWN BY: CKP
APPRV BY:

SOURCE: DEQ, Tiger 2000, USGS

Figure 11-1d

Date: 2/13/2020

SCHEMMER

Social Vulnerability Index

Overall 2014 Tracts

- 0 - 0.25 | Lowest Vulnerability
- 0.2501 - 0.5
- 0.5001 - 0.75
- 0.7501 - 1 | Highest Vulnerability
- Data Unavailable

40

Block Group 3, Census Tract 302.02
Sequoyah County, Oklahoma

Block Group 1, Census Tract 15
Muskogee County, Oklahoma

Social vulnerability refers to the resilience of communities when confronted by external stresses on human health, stresses such as natural or human-caused disasters, or disease outbreaks. Reducing social vulnerability can decrease both human suffering and economic loss. CDC's Social Vulnerability Index uses 15 U.S. census variables at tract level to help local officials identify communities that may need support in preparing for hazards; or recovering from disaster.

COMMENTS/LEGEND

- Study Area
- Block Group Boundaries
- Roadways

N

0 140 280 560 840 1,120 Feet

Social Vulnerability Index

Bridge & Approaches
I-40 over Arkansas River
Muskogee/Sequoyah Co.
J/P 34334(04)

Environmental

DRAWN BY: CKP
APPRV BY:

SOURCE: DEQ, Tiger 2000, USGS

Figure 11-1e

Date: 2/13/2020