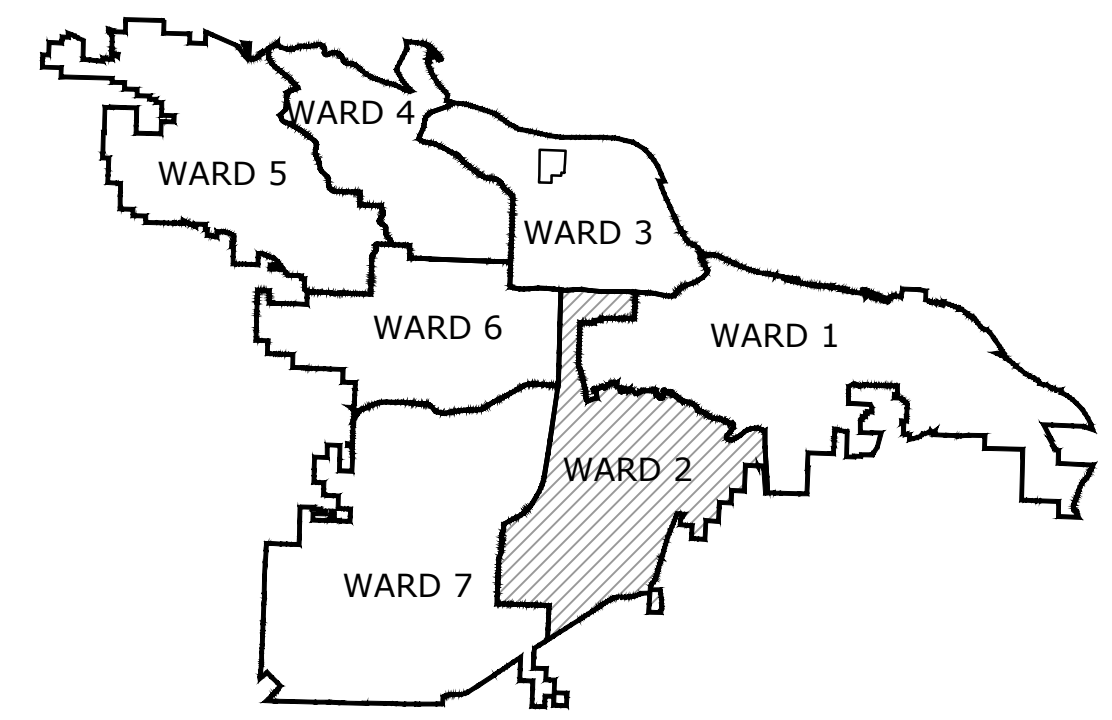
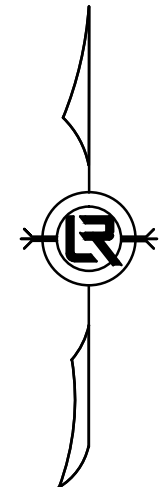
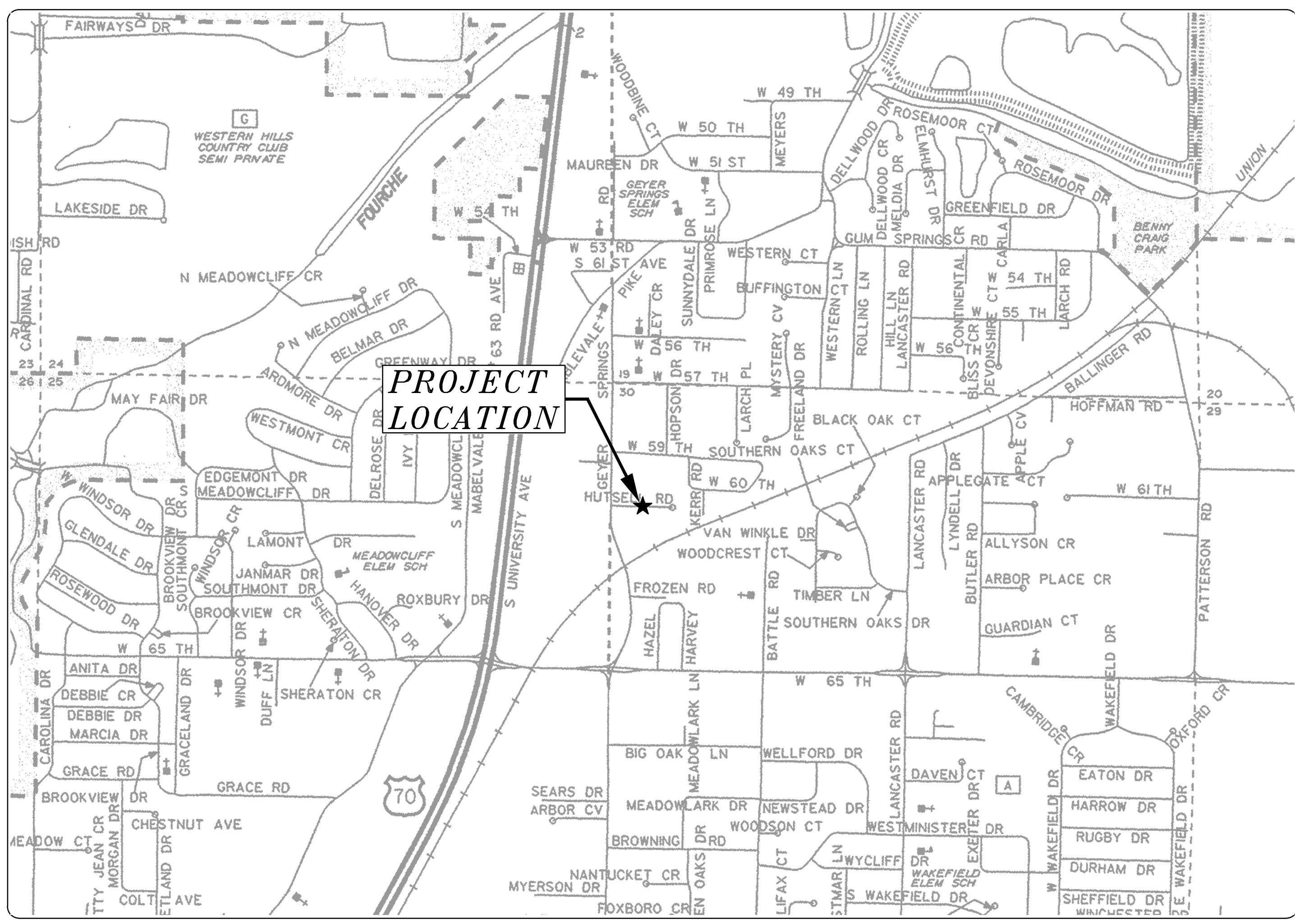


JOB #16-2-DR-25 HUTSELL ROAD DRAINAGE IMPROVEMENTS LITTLE ROCK, ARKANSAS



PROJECT LOCATION - WARD 2

SHEET NO.	TITLE
C1	COVER SHEET
C2	LEGEND AND QUANTITIES
C3	TOPOGRAPHIC SURVEY
C4	PROJECT OVERVIEW
C5	DRAINAGE PLAN AND PROFILE
C6	DRAINAGE CROSS SECTIONS
C7	EASEMENT PLAN
C8	MAINTENANCE OF TRAFFIC PHASE I
C9	MAINTENANCE OF TRAFFIC PHASE II
C10	AHTD STANDARD DRAWING PBC-1 PRECAST CONCRETE BOX CULVERTS

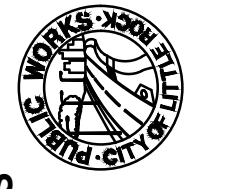


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LITTLE ROCK, ARKANSAS 72201



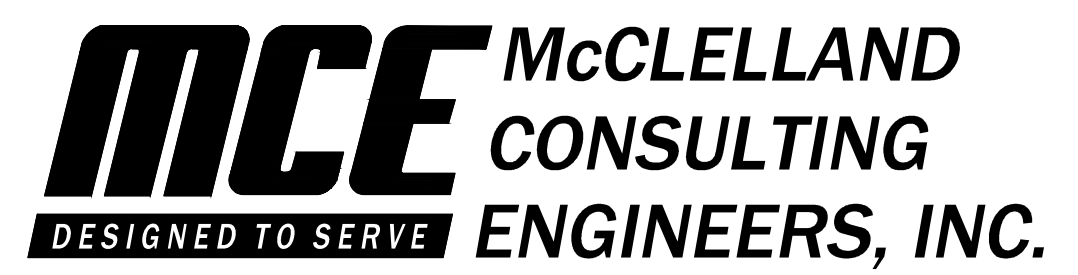
REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS
HUTSELL ROAD DRAINAGE IMPROVEMENTS
COVER SHEET


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 LITTLE ROCK, ARKANSAS 72201



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SCALE	NTS
PROJECT NO.	16-2-DR-25
SHEET NO.	C1



1810 N. College Fayetteville, AR 72702 PH# 479-443-2377
 7302 Kanis Rd. Little Rock, AR 72204 PH# 501-371-0272
 4606 S. Garnett Rd. Ste. 401 Tulsa, OK 74146 PH# 918-619-6803

<http://www.mce.us.com>

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CITY OF LITTLE ROCK, ARKANSAS
HUTSELL ROAD DRAINAGE IMPROVEMENTS
LEGEND AND QUANTITIES

QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	TOTAL QTY.
2.01	Site Preparation	LS	1.00
3.01	Unclassified Excavation	CY	150.00
4.01	Aggregate Base Course (Class 7)	TON	45.00
6.01	Asphaltic Surface Course	TON	20.00
7.01	Concrete Driveway Apron (6" Thick)	SY	60.00
11.01	Concrete, Reinforced Retaining Wall	CY	20.00
11.10	Reinforced Concrete	CY	10.00
13.18	Storm Drain Pipe 18" RCP (Side Drain)	LF	8.00
14.01	Solid Sodding	SY	350.00
16.01	Maintenance of Traffic	LS	1.00
18.08	Grouted Rip Rap	SY	125.00
19.01	Final Cleanup	LS	1.00
24.01	Silt Fence	LF	200.00
24.03	Rock Dam	EA	2.00
26.01	Trench or Excavation Safety Systems	LS	1.00
32.18	Flared End Section 18"	EA	1.00
45.00	Precast Reinforced Box Culvert (10'x4')	LF	84.00
47.00	Geotextile Fabric	SY	170.00
49.00	Top Soil	CY	30.00
52.00	Project Information Kiosk	LS	1.00
SP	8" Class 52 Ductile Iron Pipe with Polyethylene Encasement	LF	40.00

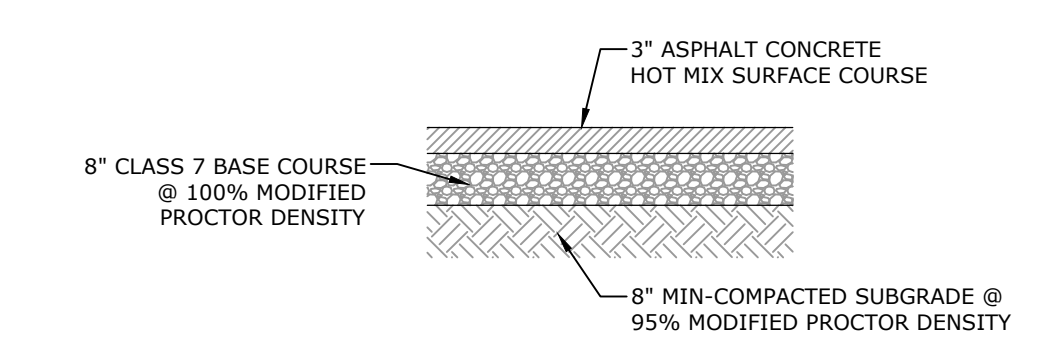
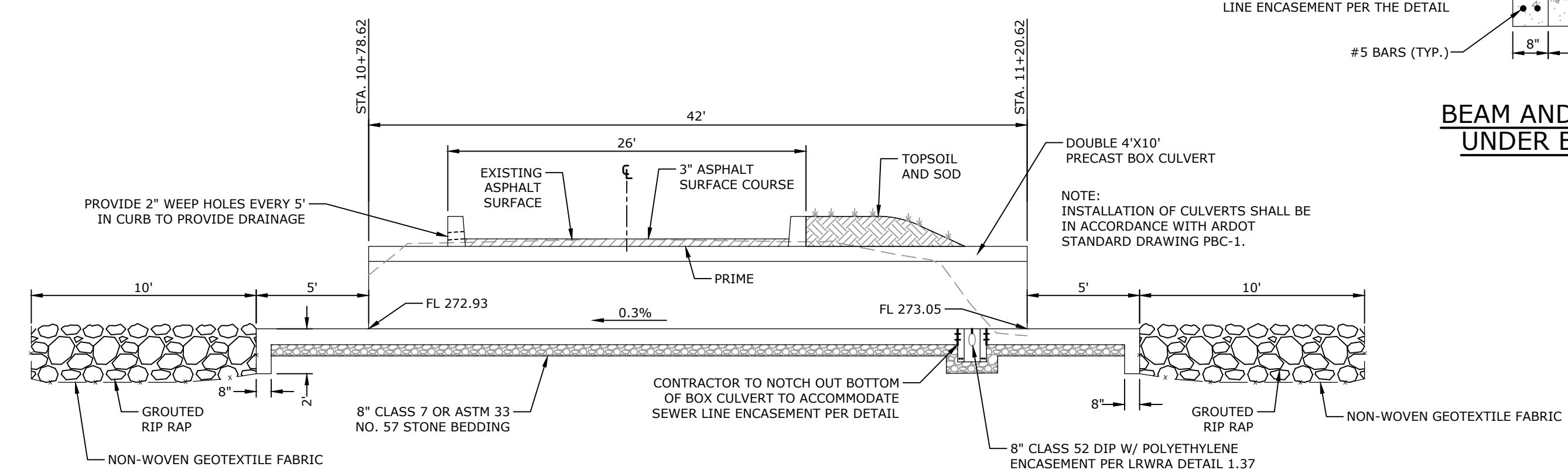
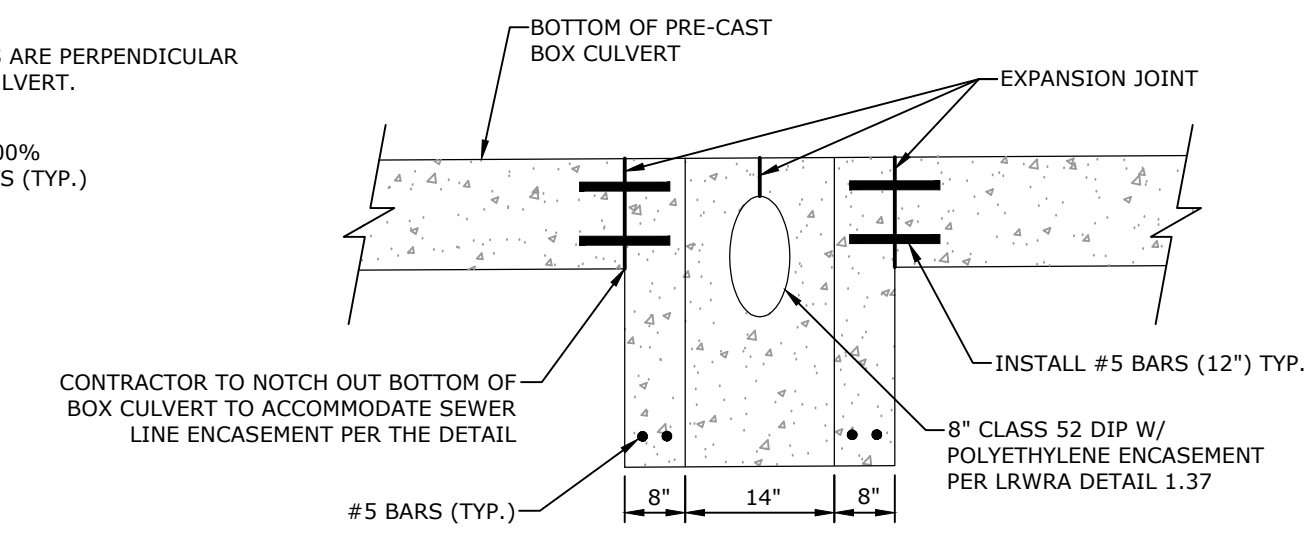
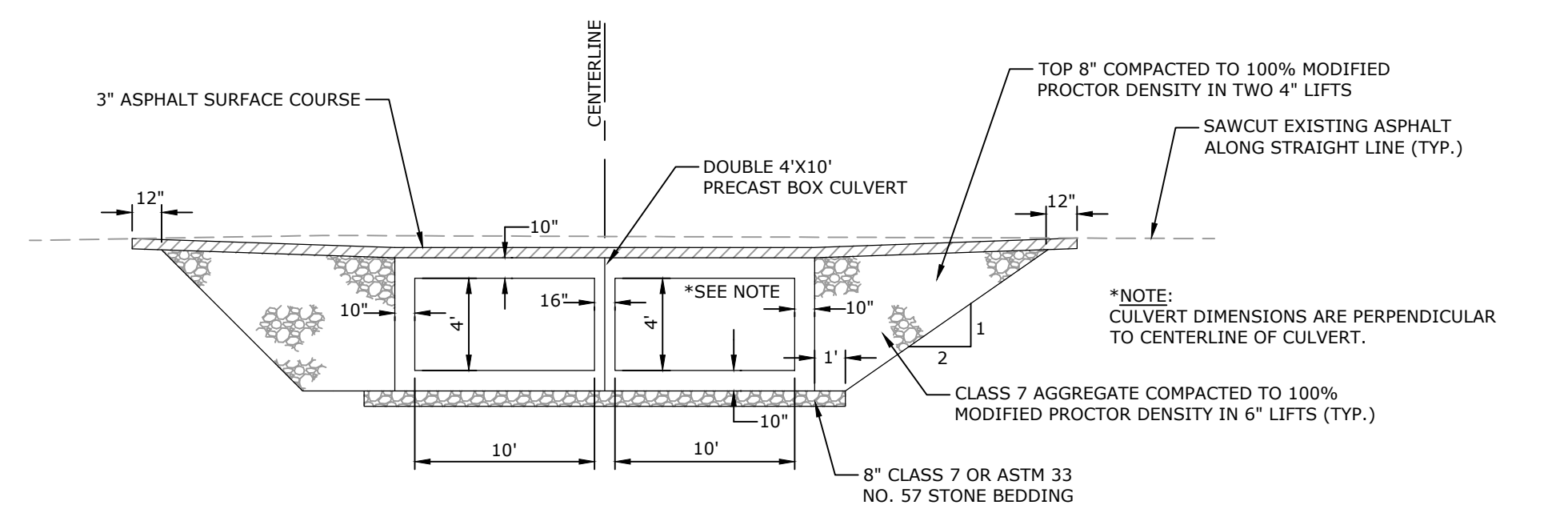
LEGEND

EXISTING

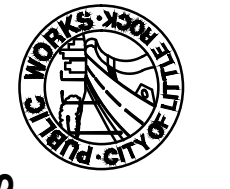
- IR IRON ROD
- PK PK NAIL
- RR(Sp) R.R. SPIKE
- CM CONC. MONUMENT
- X WV WATER VALVE
- WM WATER METER
- ∇ FH FIRE HYDRANT
- GM GAS METER
- ⊙ GV GAS VALVE
- CO CLEAN-OUT
- GP GUARD POST (BOLLARD)
- SP SIGN POST
- BM BENCHMARK
- D STORM SEWER MANHOLE
- S SANITARY SEWER MANHOLE
- T TELEPHONE MANHOLE
- E ELECTRIC MANHOLE
- TB TELEPHONE BOX
- EB ELECTRIC BOX
- CB CABLE BOX
- UP UTILITY POLE
- GW GUY WIRE
- LP LIGHT POLE
- PP POST OR POLE (TYPE AS NOTED)
- MB MAILBOX
- DT DECIDUOUS TREE
- ET EVERGREEN/CONIFEROUS TREE
- B BUSH
- PL PROPERTY LINE
- SL SETBACK LINE
- EL EASEMENT LINE
- C CURB
- F FENCE
- OE OVERHEAD ELECTRIC
- OT OVERHEAD TELEPHONE
- OC OVERHEAD CABLE
- UGT UNDERGROUND TELEPHONE
- UGE UNDERGROUND ELECTRIC
- UGC UNDERGROUND CABLE
- 8"W WATER LINE
- 8"SS SEWER LINE
- 4"G GAS LINE
- SW STORM SEWER/CULVERT
- EW EDGE OF WOODS
- CL CONTOUR LINE

PROPOSED

- 25 PROPOSED CONTOUR
- 25.00 PROPOSED SPOT ELEVATION
- 25.50 PROPOSED SPOT CURB ELEVATION
- SW STORM SEWER - PIPE
- SW STORM SEWER - MITERED END SECTION
- SW STORM SEWER - GRATE INLET
- D STORM SEWER - JUNCTION BOX
- SW STORM SEWER - FLARED END SECTION
- SW STORM SEWER - HEADWALL
- SW STORM SEWER - SINGLE WING
- SW STORM SEWER - DOUBLE WING
- SW STORM SEWER - AREA INLET
- GB GRADE BREAK LINE
- HP HIGH POINT
- LP LOW POINT
- C CUT LINE
- F FILL LINE
- SS SANITARY SEWER PIPE
- S SANITARY SEWER MANHOLE
- C PROPOSED CURB
- PC PROPOSED CONCRETE
- PA PROPOSED ASPHALT
- PR PROPOSED RIP-RAP
- CO CONSTRUCTION - ENTRANCE/EXIT
- CD CHECK DAM
- DI DIVERSION BERM
- DN DOWNDRAIN STRUCTURE - TEMPORARY
- RD ROCK DAM
- SD1 SEDIMENT BARRIER - SILT FENCE
- SD2 SEDIMENT BARRIER - GRAVEL RING
- SD3 SEDIMENT BARRIER - BLOCK & GRAVEL
- SD4 SEDIMENT BARRIER - BLOCK
- SB1 TEMPORARY SEDIMENT BASIN
- SFA SILT FENCE - TYPE A
- SFB SILT FENCE - TYPE B
- SFC SILT FENCE - TYPE C
- ST STORM DRAIN OUTLET PROTECTION
- SU SURFACE ROUGHENING
- TS1 DISTURBED AREA STABILIZATION - TEMPORARY STABILIZATION
- TS2 DISTURBED AREA STABILIZATION - TEMPORARY GRASSING
- TS3 DISTURBED AREA STABILIZATION - PERMANENT GRASSING
- MB MATTING/BLANKETS



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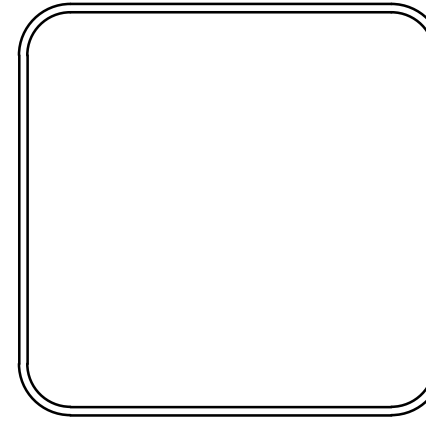

 STATE OF ARKANSAS
 LICENSED PROFESSIONAL ENGINEER
 No. 15912
 MANISH KRISHNA
 10/11/2017

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 MK
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 COF
DATE
 10/11/17
SCALE
 NTS
PROJECT NO.
 16-2-DR-25
SHEET NO.
C2

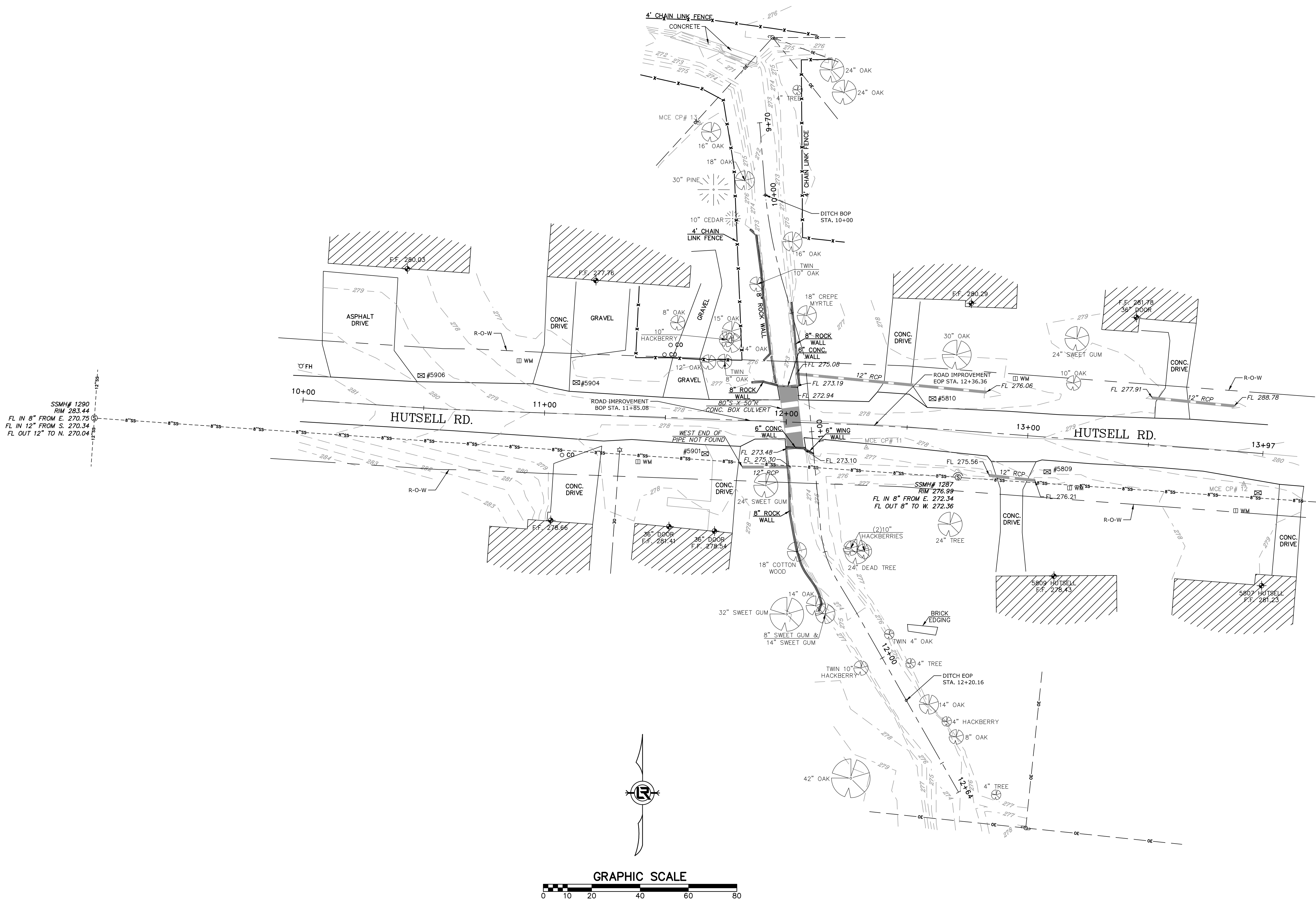
REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS
HUTSELL ROAD DRAINAGE IMPROVEMENTS
 TOPOGRAPHIC SURVEY


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 LITTLE ROCK, ARKANSAS 72201

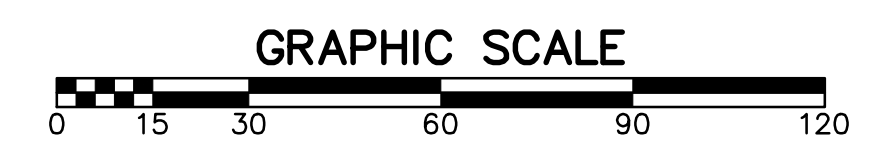
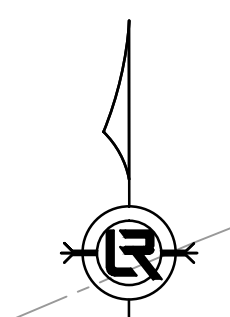
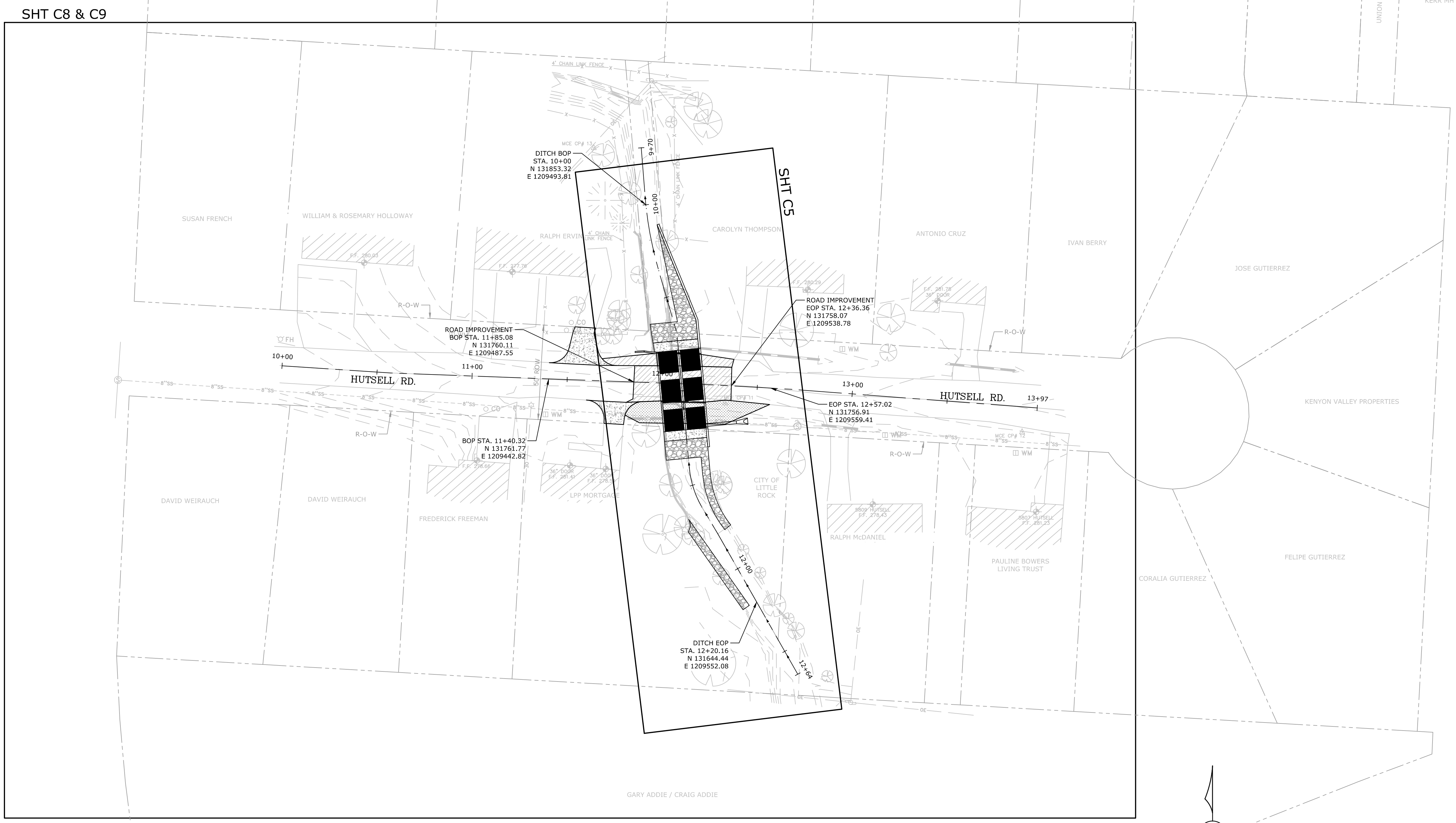


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DESIGNED NA
CHECKED KLS
DATE 01/26/17
SCALE 1" = 20'
PROJECT NO. LR17-5705
SHEET NO. C3




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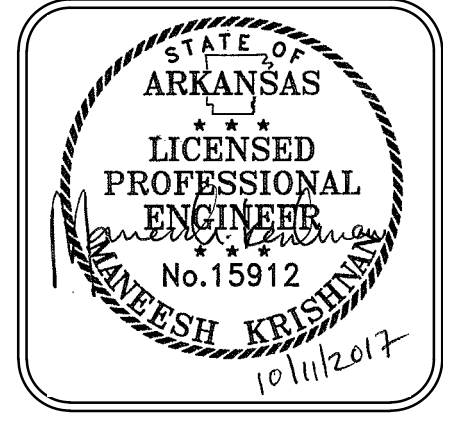
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REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS
HUTSELL ROAD DRAINAGE IMPROVEMENTS
 PROJECT OVERVIEW

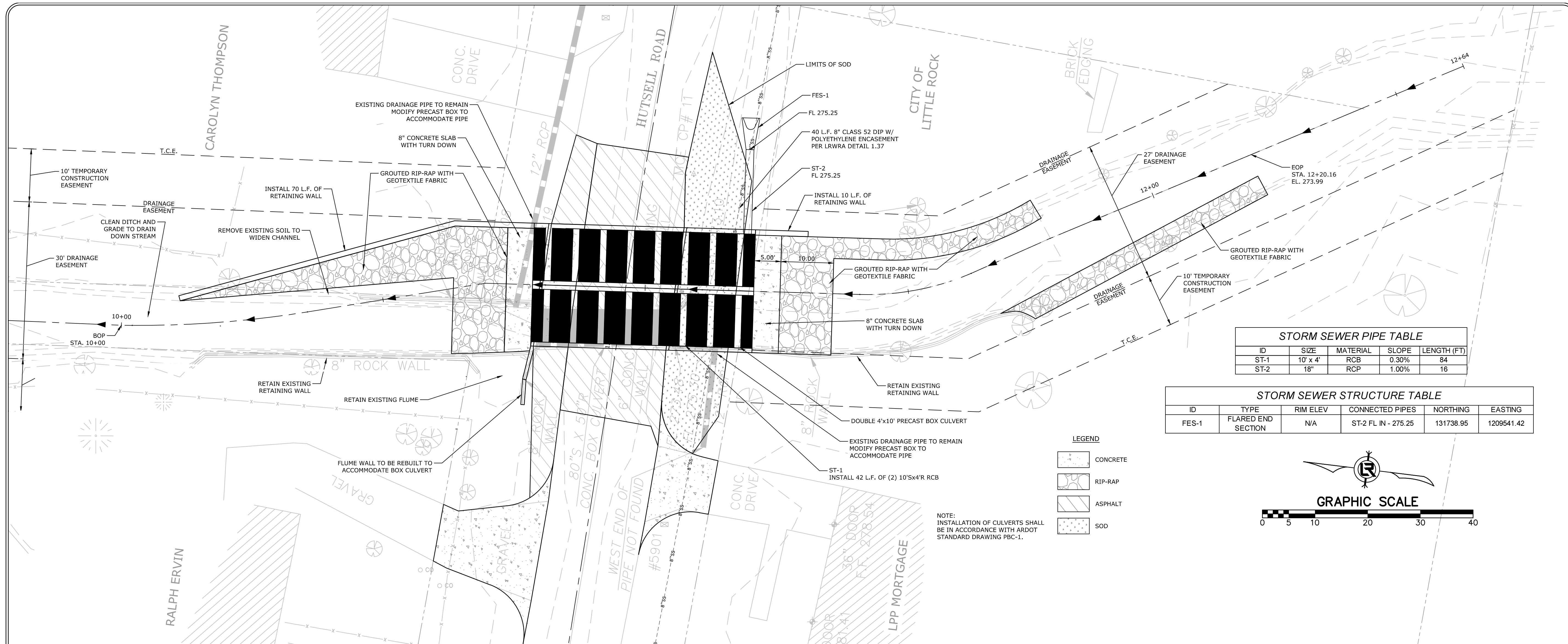

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DATE 10/11/17
SCALE 1" = 30'
PROJECT NO. 16-2-DR-25
SHEET NO. C4

REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS
HUTSELL ROAD DRAINAGE IMPROVEMENTS
DRAINAGE PLAN AND PROFILE



STORM SEWER PIPE TABLE

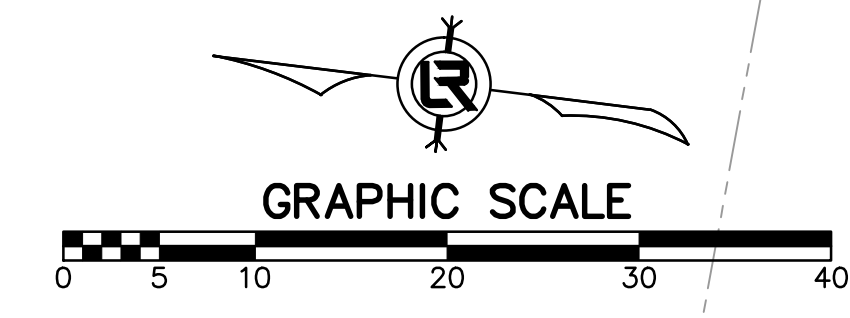
ID	SIZE	MATERIAL	SLOPE	LENGTH (FT)
ST-1	10" x 4'	RCB	0.30%	84
ST-2	18"	RCP	1.00%	16

STORM SEWER STRUCTURE TABLE

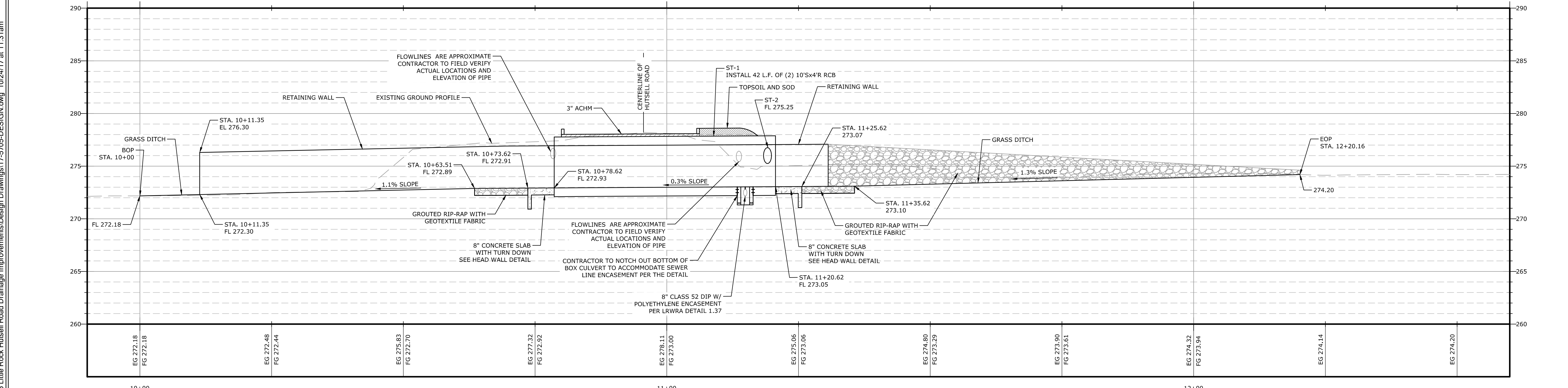
ID	TYPE	RIM ELEV	CONNECTED PIPES	NORTHING	EASTING
FES-1	FLARED END SECTION	N/A	ST-2 FL IN - 275.25	131738.95	1209541.42

LEGEND

- CONCRETE
- RIP-RAP
- ASPHALT
- SOD



NOTE: INSTALLATION OF CULVERTS SHALL BE IN ACCORDANCE WITH ARDOT STANDARD DRAWING #BC-1.



DITCH CENTERLINE PROFILE
 SCALE:
 1" = 5' VERT.
 1" = 10' HORIZ.

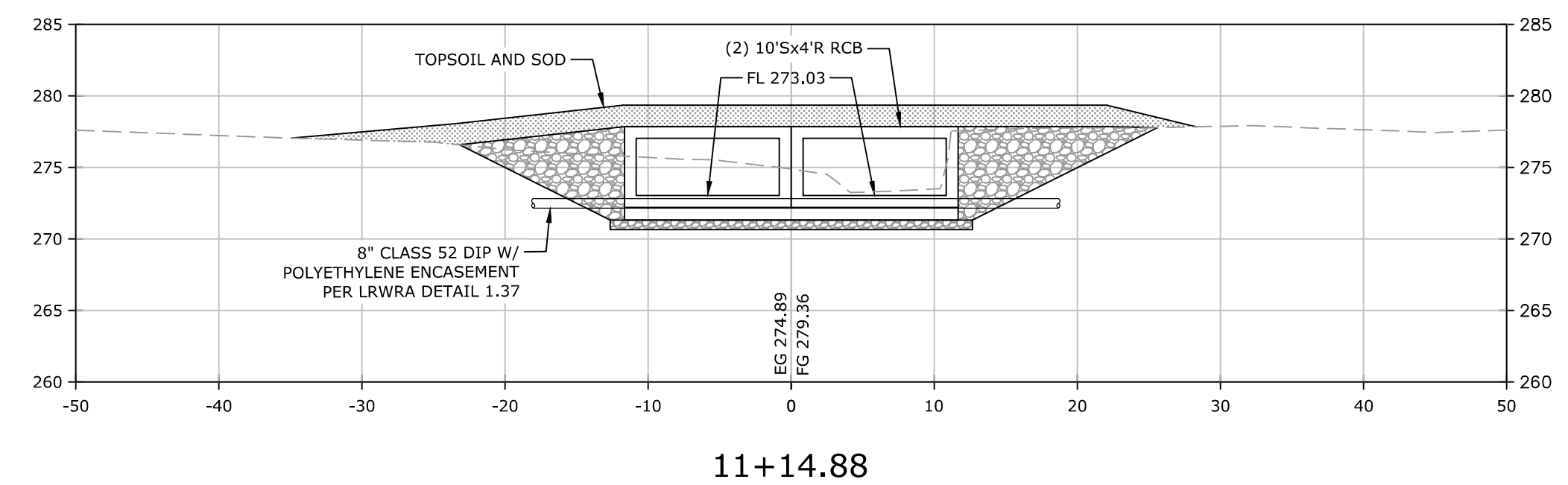
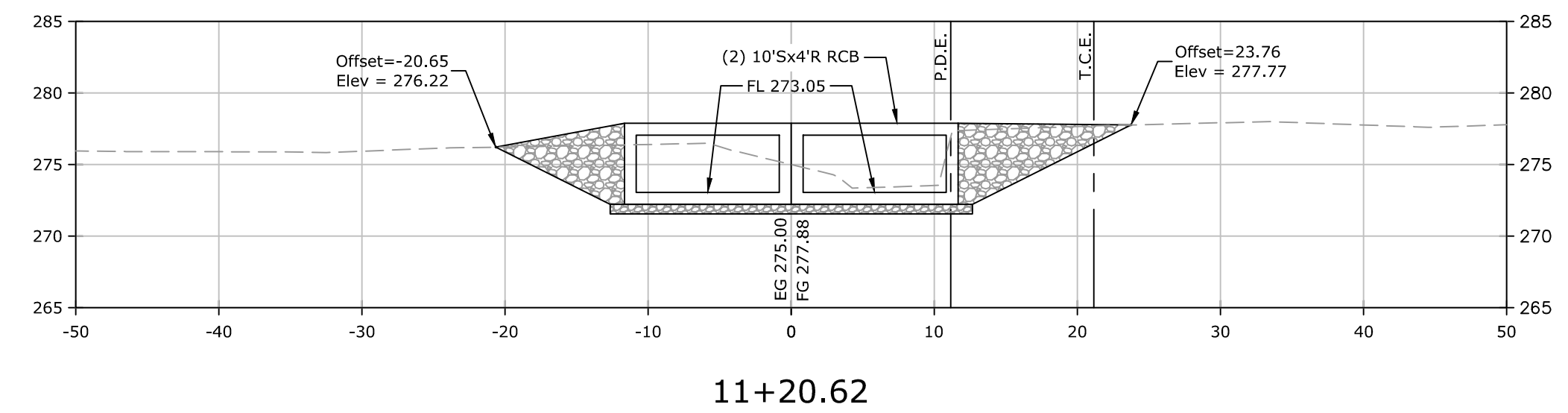
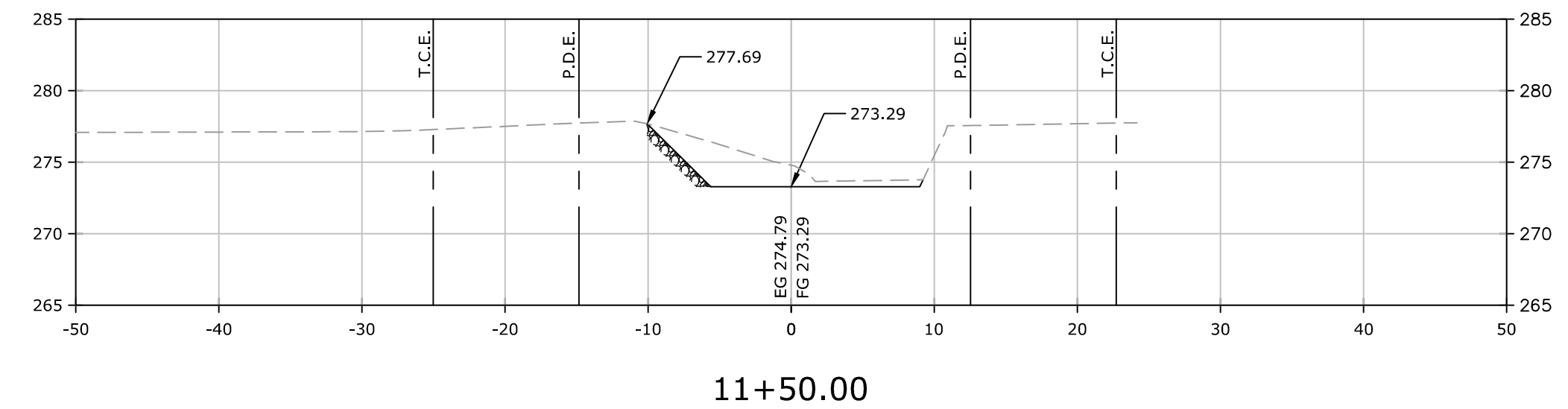
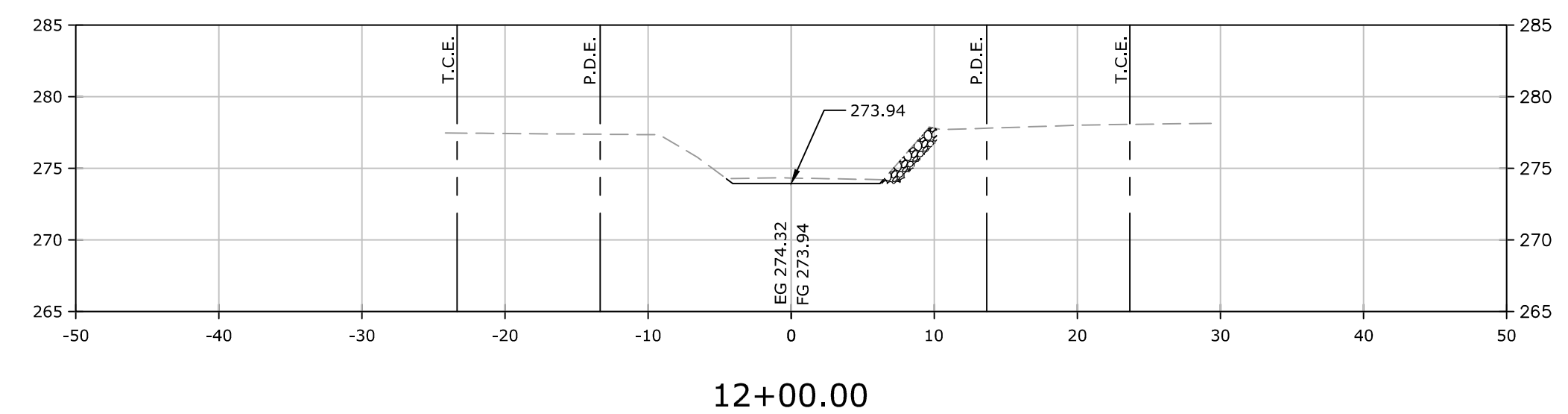
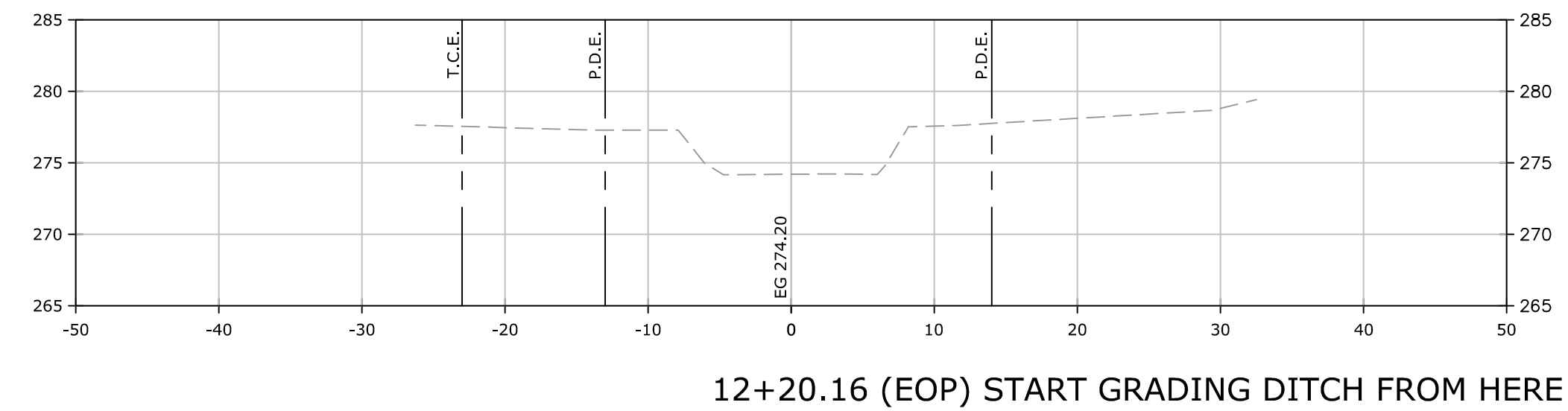
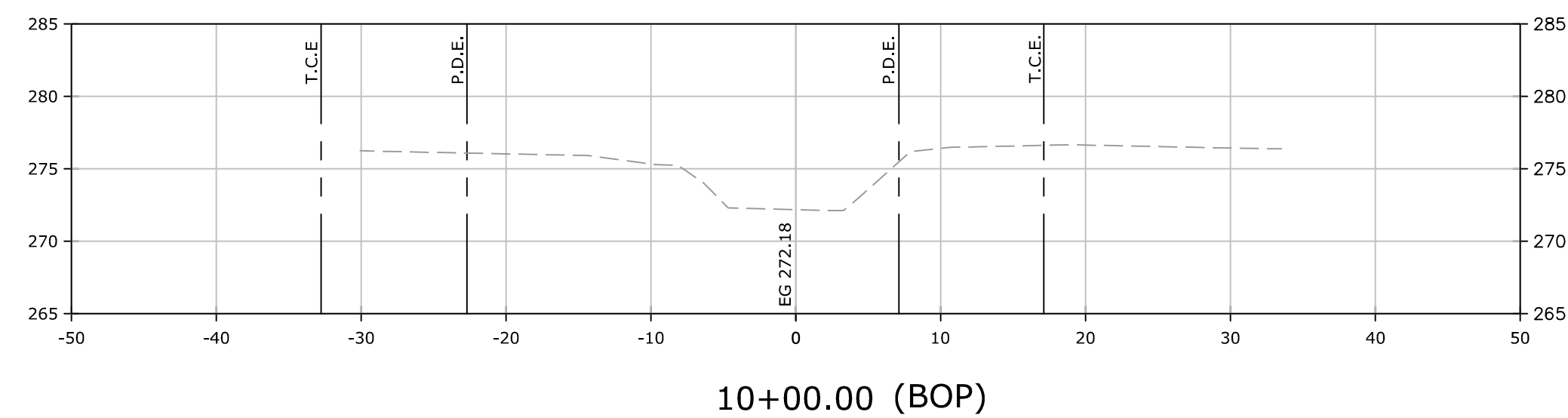
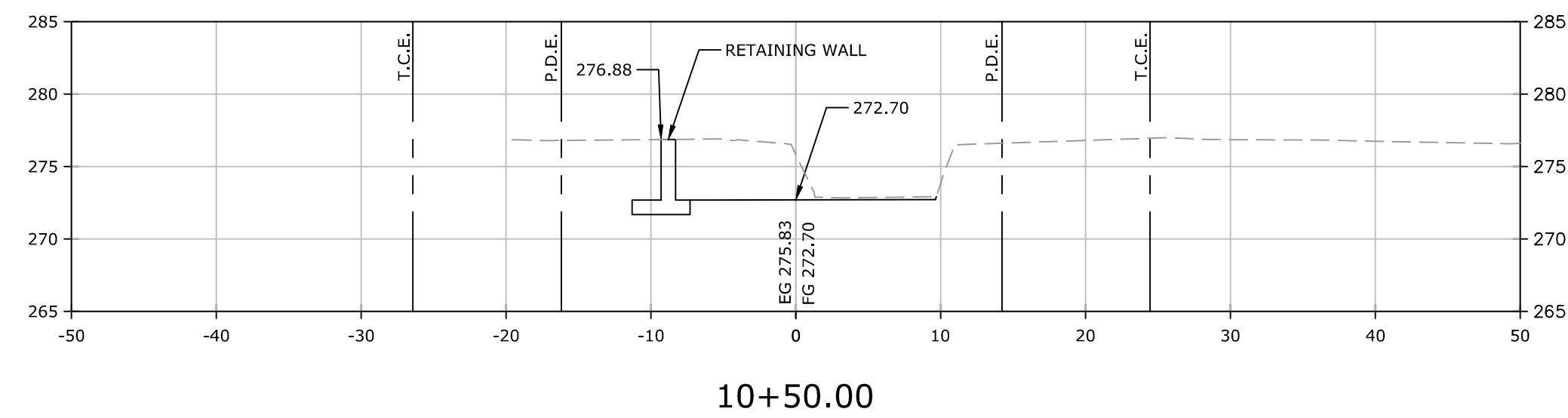
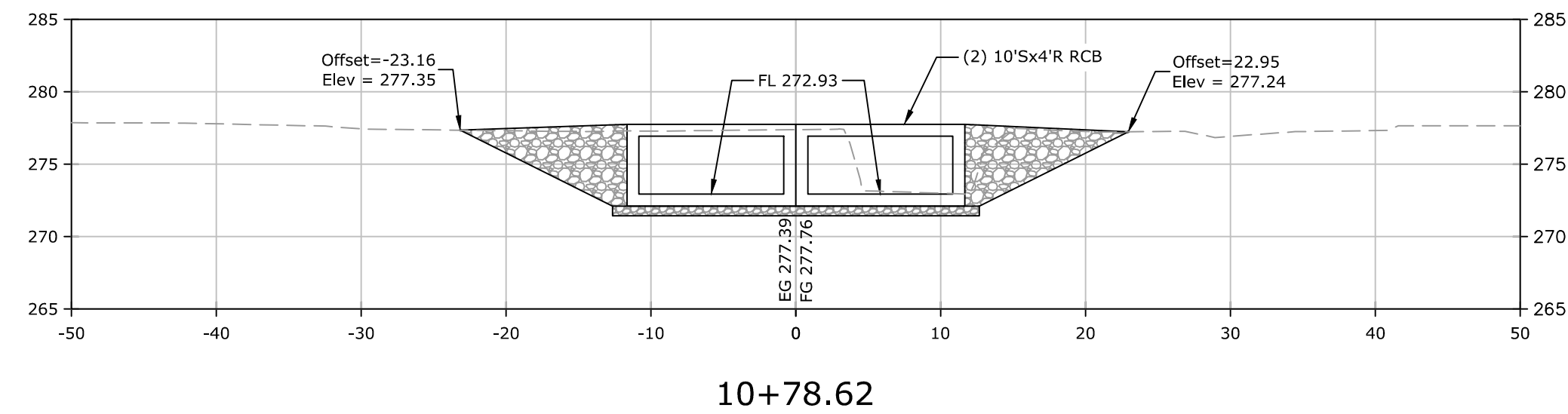
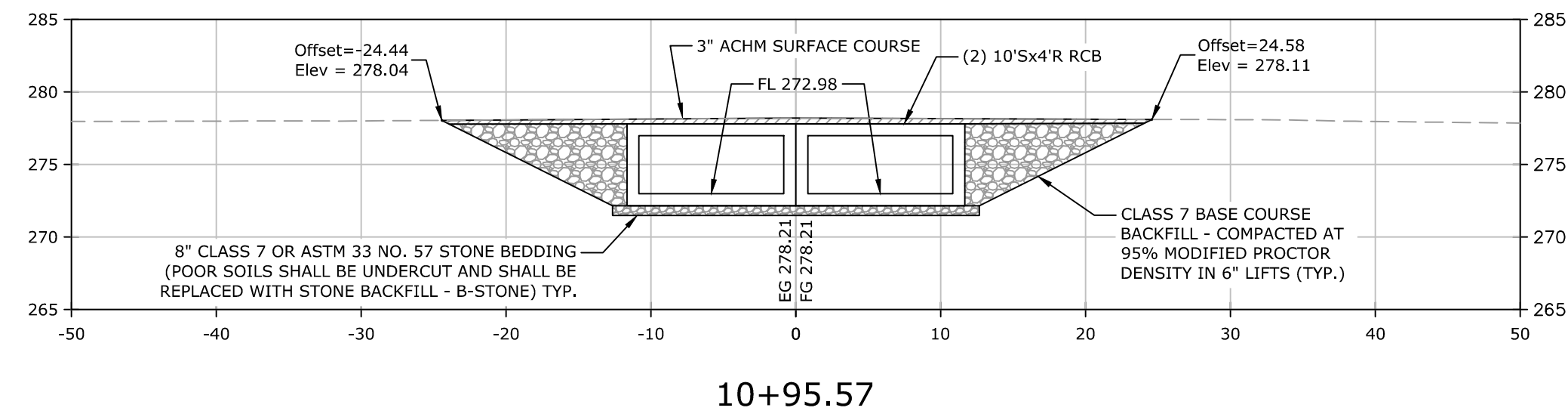
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STATE OF ARKANSAS
 LICENSED PROFESSIONAL ENGINEER
 JAM
 No. 15912
 10/11/2017

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DATE
 10/11/17
SCALE
 1" = 10'
PROJECT NO.
 16-2-DR-25
SHEET NO.
 C5

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SCALE:
1"=10' VERT.
1"=10' HORIZ.

REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS
HUTSELL ROAD DRAINAGE IMPROVEMENTS
DRAINAGE CROSS SECTIONS



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LITTLE ROCK, ARKANSAS 72201



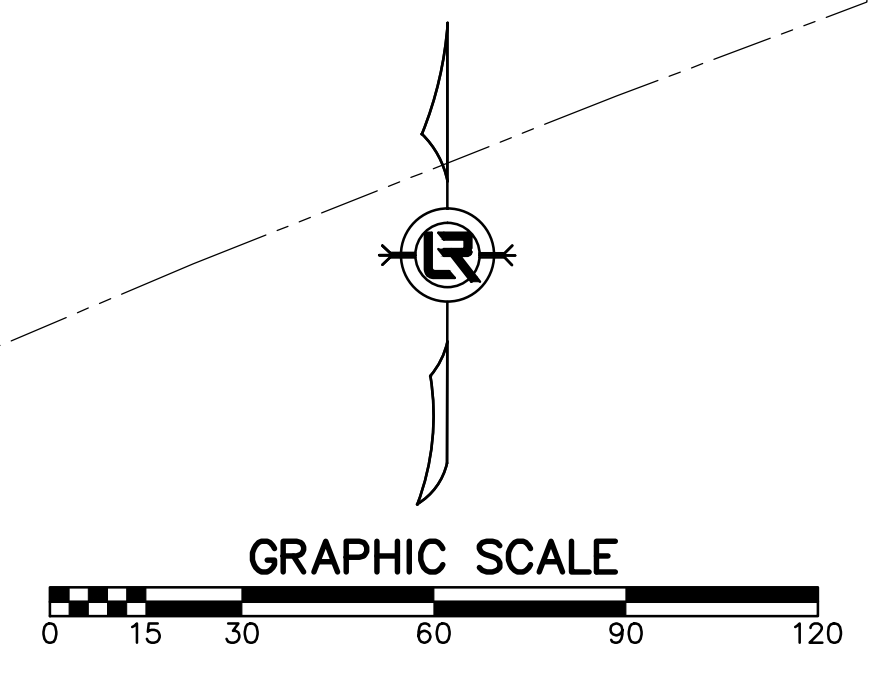
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
Manish Krising
No. 15912
10/11/2017

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SHEET NO.
C6

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LEGEND	
	PROPERTY LINE
	EXISTING EASEMENT
	PERMANENT DRAINAGE EASEMENT
	TEMPORARY CONSTRUCTION EASEMENT



REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS
HUTSELL ROAD DRAINAGE IMPROVEMENTS
 EASEMENT PLAN


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 LITTLE ROCK, ARKANSAS 72201

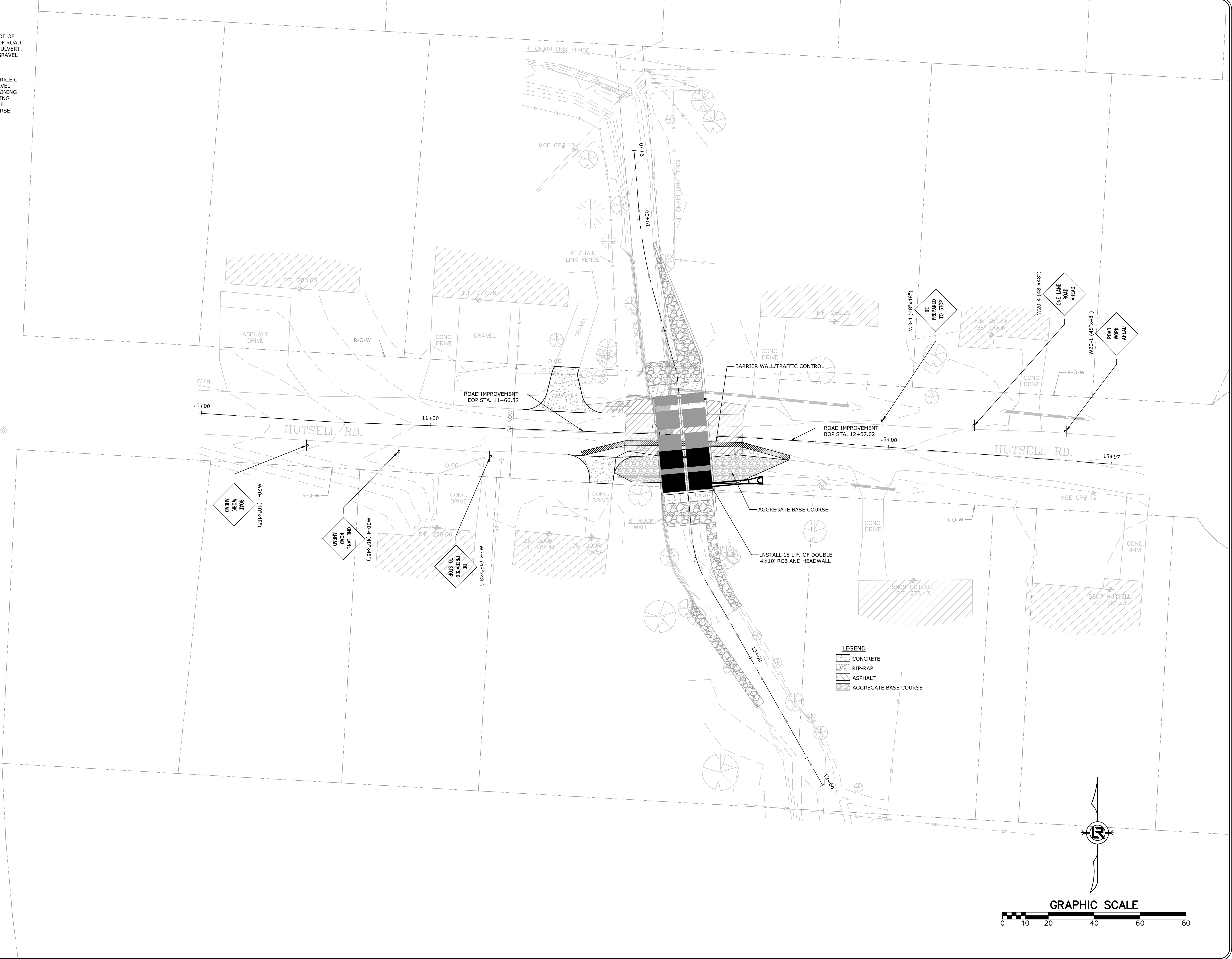


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DESIGNED	COF
CHECKED	MK
DATE	10/11/17
SCALE	1"=30'
PROJECT NO.	16-2-DR-25
SHEET NO.	C7

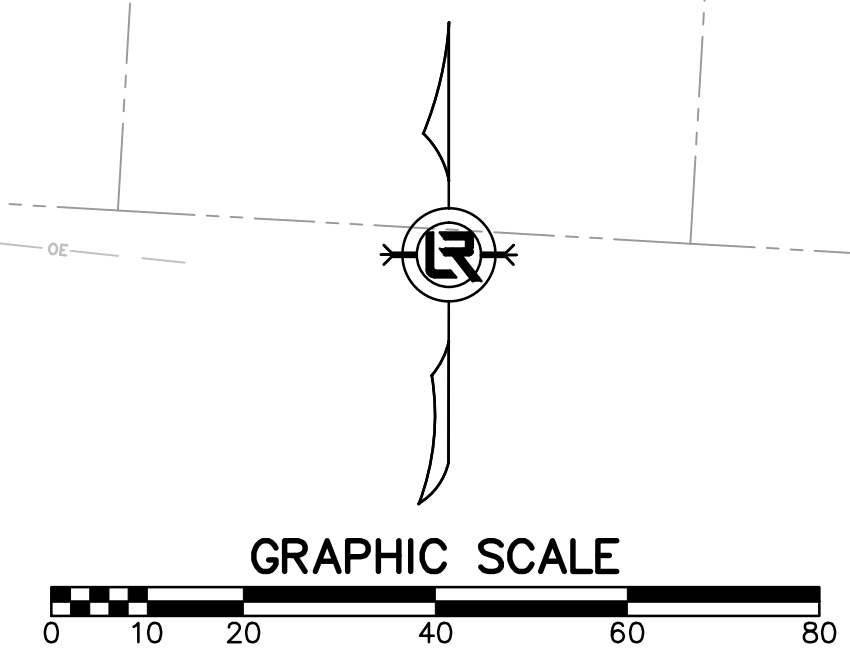
SEQUENCE OF CONSTRUCTION

PHASE I
 INSTALL SIGNS AND BARRIER ON SOUTH SIDE OF ROAD. MAINTAIN TRAFFIC ON NORTH SIDE OF ROAD. INSTALL SOUTH PORTION OF DOUBLE BOX CULVERT, RETAINING WALL, GROUTED RIP-RAP, AND GRAVEL FOR TEMPORARY ROAD.

PHASE II
 INSTALL TRAFFIC DRUMS AND RELOCATE BARRIER. MAINTAIN TRAFFIC ON THE TEMPORARY GRAVEL ROAD INSTALLED IN PHASE I. INSTALL REMAINING PORTION OF DOUBLE BOX CULVERT, RETAINING WALL, AND GROUTED RIP-RAP. INSTALL BASE COURSE AND PLACE ASPHALT SURFACE COURSE. INSTALL DRIVEWAYS, REMOVE GRAVEL FOR TEMPORARY ACCESS ROAD AND LAY SOD.



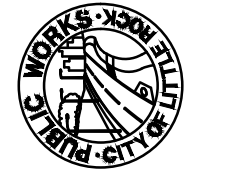
- LEGEND**
- CONCRETE
 - RIP-RAP
 - ASPHALT
 - AGGREGATE BASE COURSE



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CITY OF LITTLE ROCK, ARKANSAS
HUTSELL ROAD DRAINAGE IMPROVEMENTS
 MAINTENANCE OF TRAFFIC PHASE I


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 No. 15912
 MANISH KRISING
 10/11/2017

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DATE 10/11/17
SCALE 1"=20'
PROJECT NO. 16-2-DR-25
SHEET NO. C8

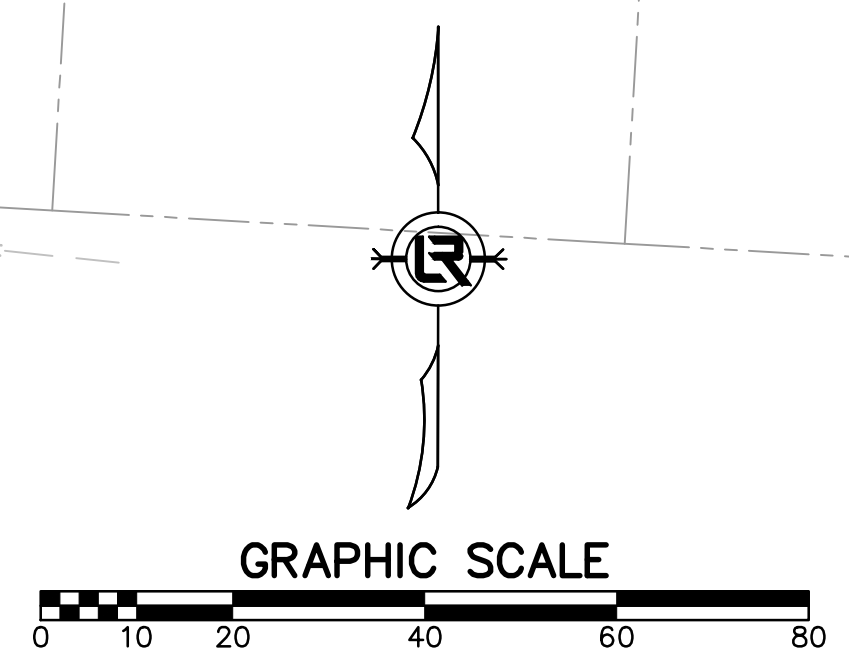
SEQUENCE OF CONSTRUCTION

PHASE I
 INSTALL SIGNS AND BARRIER ON SOUTH SIDE OF ROAD. MAINTAIN TRAFFIC ON NORTH SIDE OF ROAD. INSTALL SOUTH PORTION OF DOUBLE BOX CULVERT, RETAINING WALL, GROUTED RIP-RAP, AND GRAVEL FOR TEMPORARY ROAD.

PHASE II
 INSTALL TRAFFIC DRUMS AND RELOCATE BARRIER. MAINTAIN TRAFFIC ON THE TEMPORARY GRAVEL ROAD INSTALLED IN PHASE I. INSTALL REMAINING PORTION OF DOUBLE BOX CULVERT, RETAINING WALL, AND GROUTED RIP-RAP. INSTALL BASE COURSE AND PLACE ASPHALT SURFACE COURSE. INSTALL DRIVEWAYS, REMOVE GRAVEL FOR TEMPORARY ACCESS ROAD AND LAY SOD.



LEGEND
 [Symbol] CONCRETE
 [Symbol] RIP-RAP
 [Symbol] ASPHALT
 [Symbol] AGGREGATE BASE COURSE



REVISIONS	DATE

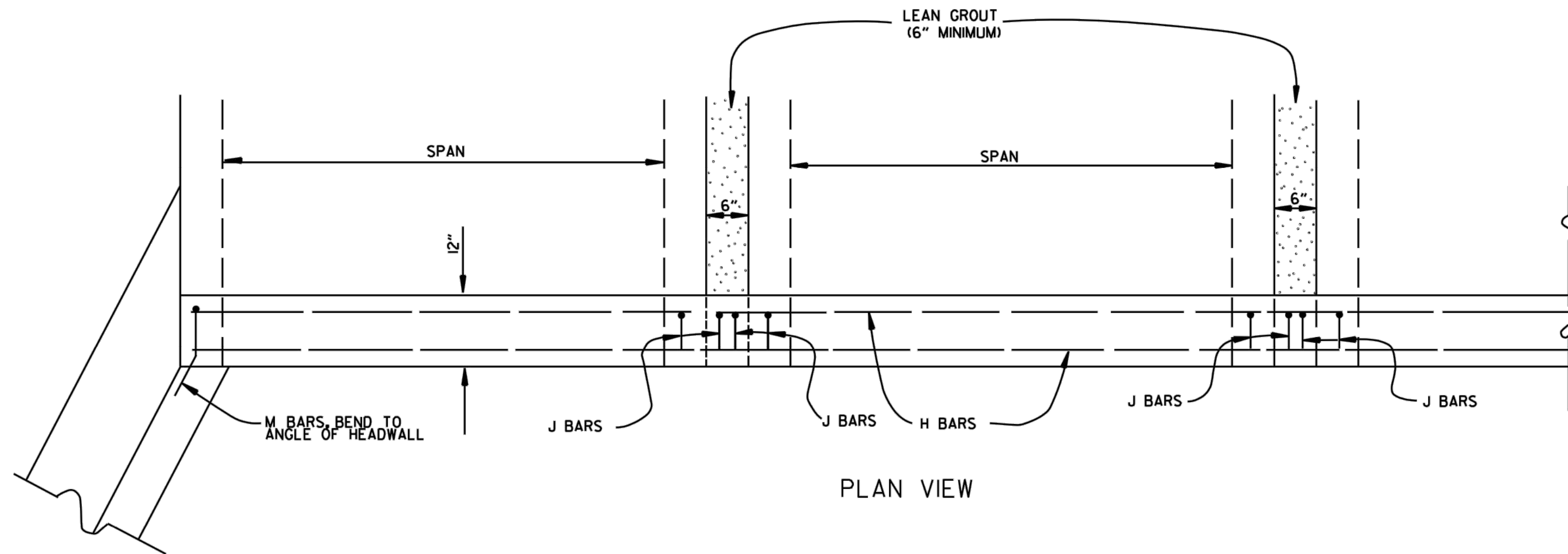
CITY OF LITTLE ROCK, ARKANSAS
HUTSELL ROAD DRAINAGE IMPROVEMENTS
 MAINTENANCE OF TRAFFIC PHASE II

DEPARTMENT OF PUBLIC WORKS
 CIVIL ENGINEERING
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 MANISH KRISING
 No. 15912
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SHEET NO. C9

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BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	

* NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING, STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
 PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
 SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS. THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE. THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

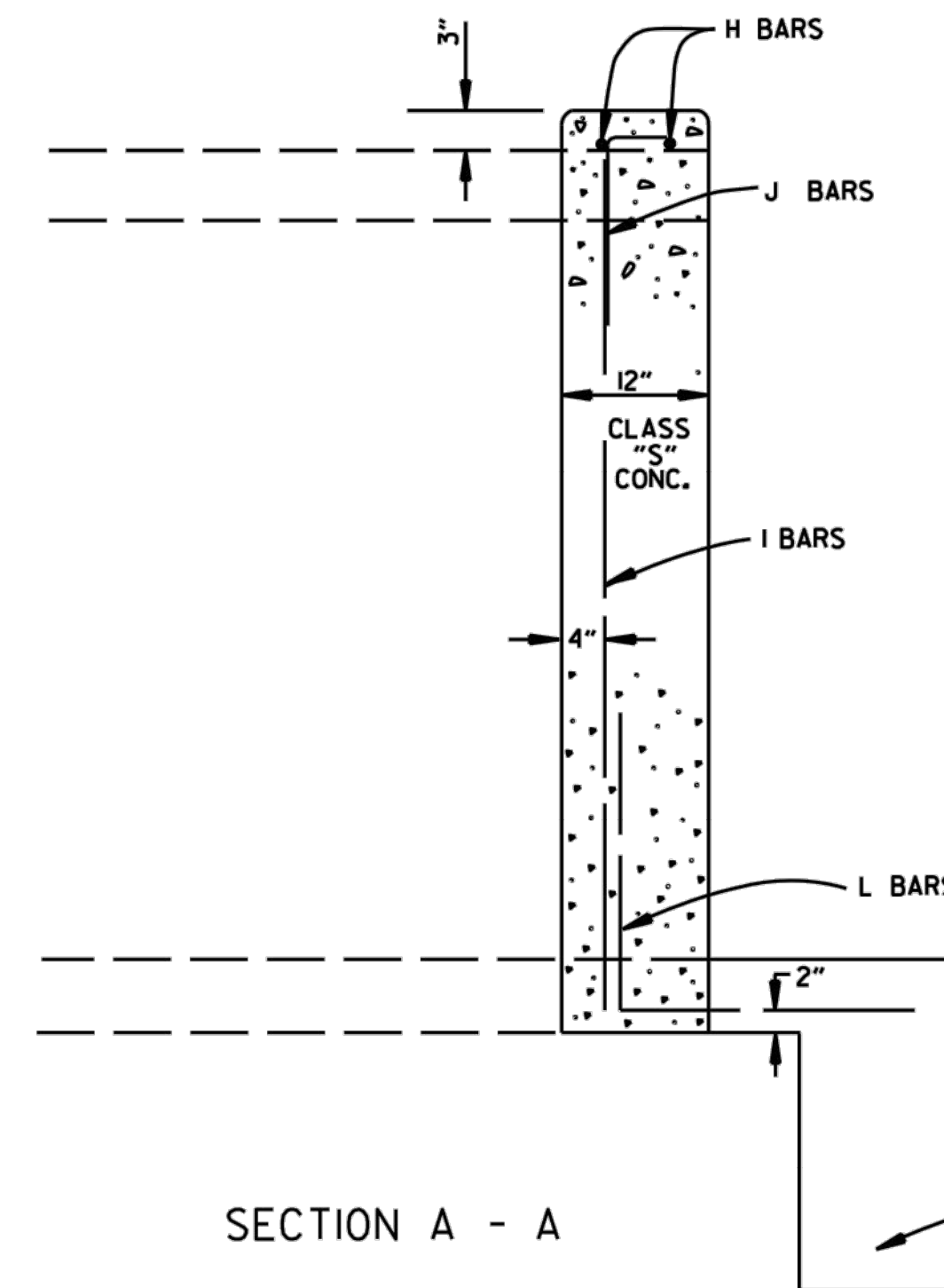
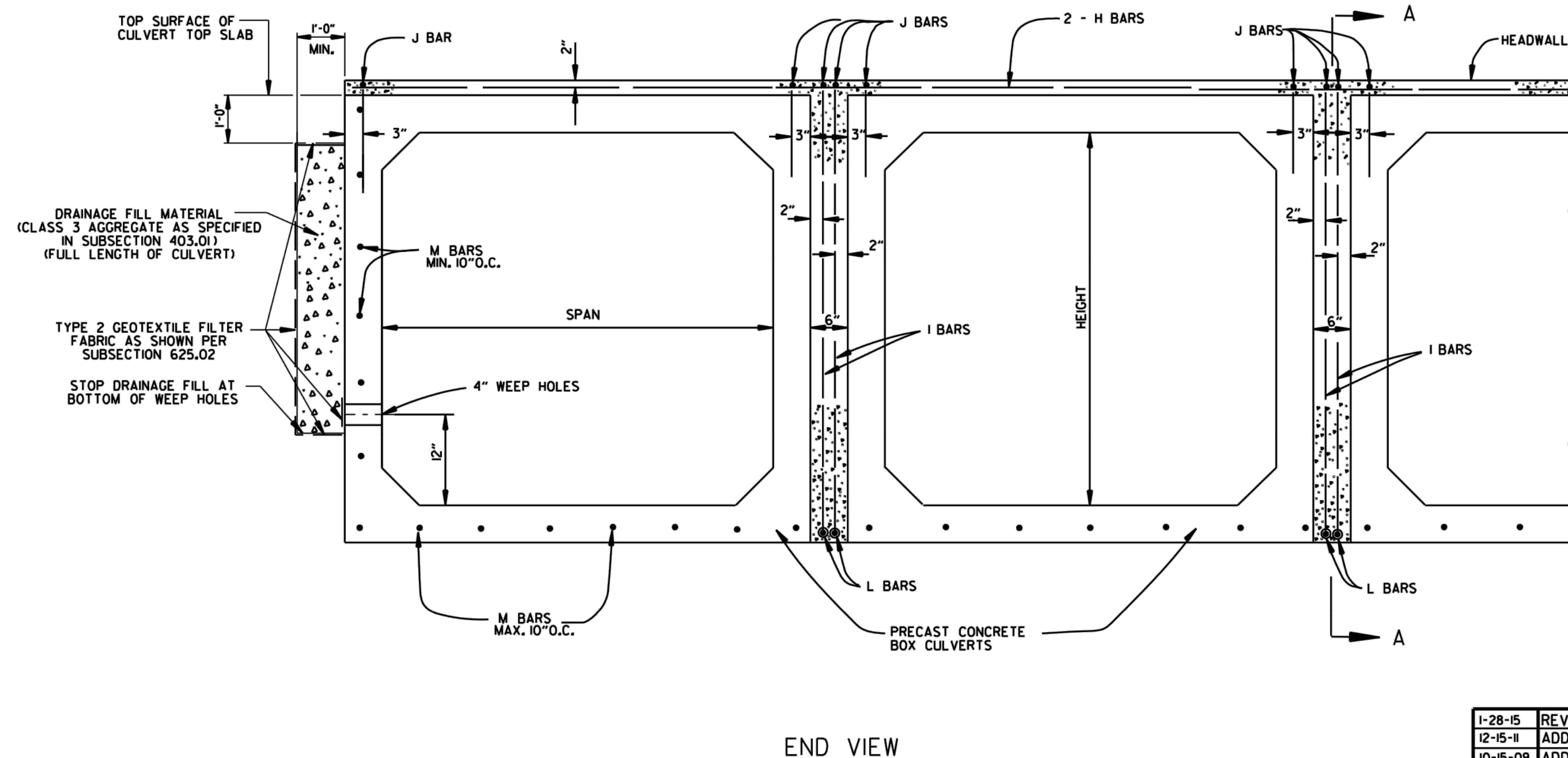
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



DATE	ISSUED BY	REVISION	DATE FILMED
1-28-15		REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11		ADDED NOTE & DTLs FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09		ADDED GENERAL NOTE	
11-10-05		REVISED SPACING OF "M" BARS	
4-10-03		REVISED GENERAL NOTES	
10-18-96		CORRECTED AASHTO REF.	
10-1-92		ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91		ADDED NOTE FOR LEAN GROUT	
11-8-90		REVISED FOR 1991 SPECS	
11-30-89	JABE	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1