

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	HEET NO.
			12	1
FED. ROAD DIST. NO.		CONTRACT NO.		

LEGEND

EXISTING

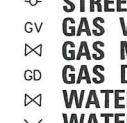
- SINGLE POST SIGN
- POWER LINE
- TELEPHONE
- LIGHT STANDARD
- LANDSCAPE LIGHT
- FIRE HYDRANT
- MANHOLE
- INLET
- FLARED END SECTION
- STUMP
- RIGHT OF WAY MARKER
- MAILBOX
- HANDHOLE



TREE



BUSH



STREET SIGN



GAS VALVE



GAS METER



GAS DRIP



WATER VALVE



WATER METER

PROPOSED



INLET

JEFFERSON COUNTY, MISSOURI OLD LEMAY FERRY RD. NEAR SCHENK RD. CULVERT PLANS

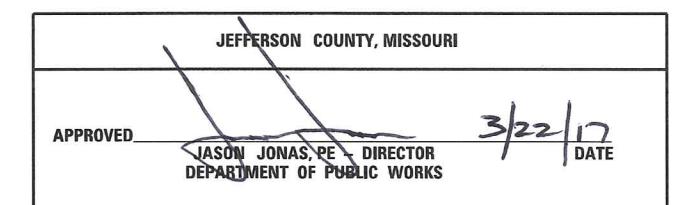
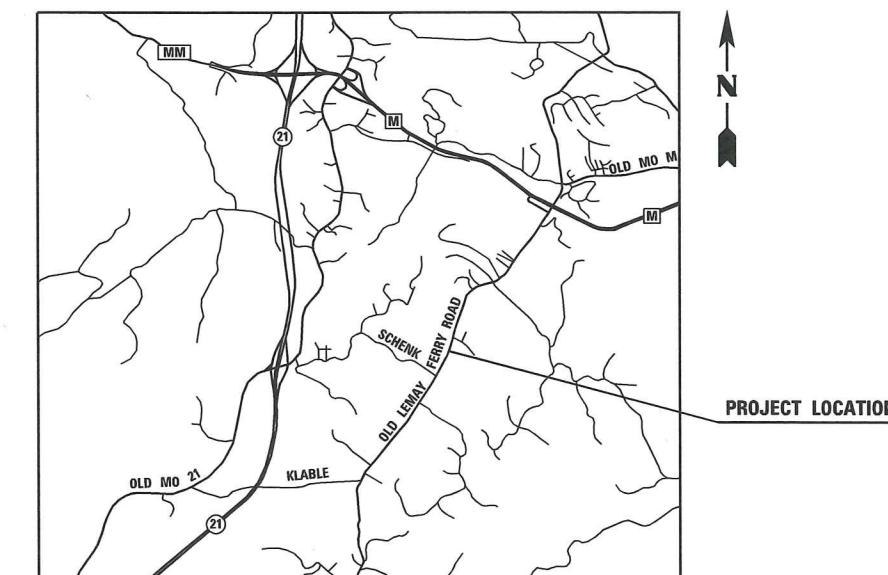
CULVERT REPLACEMENT OLD LEMAY FERRY ROAD

INDEX OF SHEETS

SHEET NO.
1
2
2B
3
4
5
6
7
8-12

ITEM

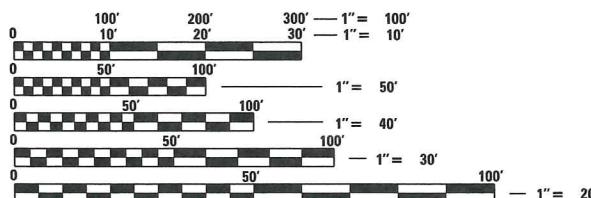
- COVER SHEET
- GENERAL NOTES AND SUMMARY OF QUANTITIES
- SCHEDULE OF QUANTITIES
- TYPICAL SECTIONS
- PLAN SHEET AND PROFILE SHEET
- ROW SHEET (BY OTHERS)
- GRADING SHEET
- TRAFFIC CONTROL PLAN
- STRUCTURAL



EXISTING GUARD RAIL
EXISTING FENCE
EXISTING AERIAL ELECTRIC LINE
EXISTING SANITARY SEWER LINE
EXISTING STORM SEWER LINE
CTV
EXISTING UNDERGROUND CABLE TV LINE
EXISTING UNDERGROUND ELECTRIC LINE
EXISTING UNDERGROUND FORCE MAIN
FO
EXISTING UNDERGROUND FIBER OPTIC LINE
G
EXISTING UNDERGROUND GAS LINE
T
EXISTING UNDERGROUND TELEPHONE LINE
W
EXISTING UNDERGROUND WATER LINE
EXISTING RIGHT OF WAY
PROPOSED CONSTRUCTION LIMIT LINE

SCALE IN FEET

PLAN 1" = 20'
PROFILE HORIZONTAL 1" = 20'
PROFILE VERTICAL 1" = 5'



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD
ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT
CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS
ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

MISSOURI ONE CALL SYSTEM
1-800-344-7483 (DIG-RITE)
OR 811

DESIGN DESIGNATION

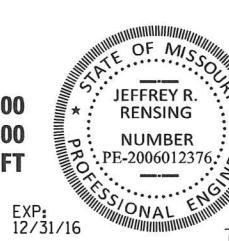
CLASSIFICATION = MAJOR COLLECTOR
DESIGN SPEED = 40 MPH
POSTED SPEED = 40 MPH
TERRAIN = ROLLING

LOCATION MAP

0 MILES 0.5 MILES 1 MILE 1.5 MILES
1" = 1 MILE

BEGINNING STATION
ENDING STATION
NET LENGTH OF PROJECT

100 + 81.00
101 + 16.00
35.00 FT



JEFFREY R. RENSING

3/21/16

DATE



JEFFERSON COUNTY
MISSOURI
1818
PO Box 100
Hillsboro, MO 63050
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Fax. 636-797-5565
Email: pworks@jeffcomo.org

COLLINSVILLE 100 Lancer Court, Suite 1
Collinsville, IL 62234
tel 618.345.2200
BELLEVILLE 20 E. Main Street
Belleville, IL 62220
tel 618.416.4688
ST. LOUIS 720 Olive, Suite 700
St. Louis, MO 63101
tel 314.588.8381
www.oatesassociates.com
OATES ASSOCIATES
Engineering + Architecture
MISSOURI DESIGN FIRM LICENSE NO: 001166

GENERAL NOTES

UTILITIES

1. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEIR LOCATIONS MUST BE CONSIDERED TO BE APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. MISSOURI LAW REQUIRES A MINIMUM 72-HOUR NOTICE TO ALL UTILITY COMPANIES BEFORE DIGGING. FIELD LOCATIONS OF UNDERGROUND FACILITIES MAY BE OBTAINED BY CALLING THE MISSOURI ONE CALL SYSTEM AT 800-344-7483 AND PROVIDING 72 HOURS ADVANCE NOTICE. NON MISSOURI ONE CALL MEMBERS MUST BE NOTIFIED INDIVIDUALLY. AGENCIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT LIMITS ARE LISTED BELOW.

AMEREN MISSOURI (ELECTRIC)
6450 HWY MM
HOUSE SPRINGS, MO 63051
(314) 992-8902

AT&T MISSOURI (TELEPHONE)
122 N. SECOND STREET
FESTUS, MO 63028
(314) 275-0083

CHARTER COMMUNICATIONS (COMMUNICATION)
815 CHARTER COMMONS DRIVE
TOWN & COUNTRY, MO 63017
(636) 387-6643

CONSOLIDATED PUBLIC WATER SUPPLY C-1
PO BOX 430
BARNHART, MO 63012
(636) 943-2500

THIS UTILITY INFORMATION REPRESENTS THE BEST INFORMATION AVAILABLE TO THE LOCAL AGENCY AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACTOR HAS TAKEN THE FOREGOING INTO CONSIDERATION IN PREPARING HIS/HER BID, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ANY DELAYS OR INCONVENIENCE CAUSED BY SAME.

2. ANY FACILITIES OR APPURTENANCES WHICH ARE THE PROPERTY OF ANY PUBLIC UTILITY LOCATED WITHIN THE LIMITS OF CONSTRUCTION SHALL BE RELOCATED OR ADJUSTED BY THEIR RESPECTIVE OWNERS. THE CONTRACTOR SHALL NOTIFY AND COOPERATE WITH THE OWNERS OF ANY SUCH FACILITY IN THEIR REMOVAL AND REARRANGEMENT OPERATIONS IN ORDER THAT THESE OPERATIONS AND THE CONSTRUCTION OF THIS PROJECT MAY PROGRESS IN A REASONABLE MANNER. ALL ROADSIDE OBJECTS (UTILITY POLES, FIRE HYDRANTS, SIGNS, ETC.) SHALL BE RELOCATED TO PROVIDE A MINIMUM OF 1.5 FEET CLEARANCE, MEASURED FROM THE FACE OF CURB TO THE NEAR EDGE OF THE OBJECT.

GENERAL

3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE LOCAL POSTMASTER FOR APPROVAL OF ALL TEMPORARY MAILBOX LOCATIONS.

4. THE CONTRACTOR SHALL REMOVE, MAINTAIN IN A TEMPORARY LOCATION, AND PERMANENTLY RESET ALL MAILBOXES, TRAFFIC SIGNS, STREET NAME SIGNS AND ALL PRIVATE AND COMMERCIAL SIGNS WHICH INTERFERE WITH CONSTRUCTION OPERATIONS TO THE APPROVAL OF THE ENGINEER. THE COST OF THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED AS INCLUDED IN THE CONTRACT UNIT PRICES BID FOR THE VARIOUS ITEMS OF WORK INVOLVED.

5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO ORDERING MATERIALS AND COMMENCING CONSTRUCTION.

6. OLD LEMAY FERRY ROAD SHALL BE CLOSED TO THRU TRAFFIC DURING CONSTRUCTION. THE CONTRACTOR SHALL STAGE ALL WORK IN SUCH A WAY AS TO MAINTAIN INGRESS AND EGRESS TO ALL ABUTTING PROPERTIES AT ALL TIMES DURING CONSTRUCTION.

7. THE CONTRACTOR SHALL FERTILIZE, SEED AND MULCH ALL EARTH SURFACES DISTURBED BY CONSTRUCTION.

8. SAW CUTS FOR REMOVAL ARE TO BE FULL DEPTH AND SHALL BE INCLUDED IN THE COST OF THE REMOVAL OF IMPROVEMENTS.

9. ALL EXISTING ROADWAY FEATURES INCLUDING, BUT NOT LIMITED TO PAVEMENT, CULVERTS, HEADWALLS, RIPRAP, TREE REMOVAL, WHICH INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR UNLESS NOTED OTHERWISE ON THE PLANS. ALL FEATURES WHICH ARE TO BE REMOVED AND FOR WHICH THERE IS NO SPECIFIC PAY ITEM, WILL NOT BE MEASURED SEPARATELY FOR PAYMENT AND THE COST OF THIS REMOVAL WORK SHALL BE CONSIDERED AS INCLUDED IN THE CONTRACT UNIT PRICES FOR REMOVAL OF IMPROVEMENTS.

10. IF REQUIRED FOR CONSTRUCTION OPERATIONS THE EXISTING FENCE SHALL BE REMOVED, STORED AND RESET. THE COST ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN THE COST OF THE REMOVAL OF IMPROVEMENTS.

SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	TOTAL QUANTITIES
2013000	CLEARING AND GRUBBING	ACRE	0.1
2022010	REMOVAL OF IMPROVEMENTS	L SUM	1
2063300	CLASS 4 EXCAVATION	CY	102
3040504	TYPE 5 AGGREGATE FOR BASE (4 IN. THICK)	SY	150
3101003	GRAVEL (A)	SY	12
4011209	BITUMINOUS PAVEMENT MIXTURE PG64-22, (BP-1)	TON	16
4013000	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BASE)	TON	56
4071005	TACK COAT	GAL	50
6096030A	FURNISHING TYPE 3 ROCK DITCH LINER	CY	72
6096043	PLACING TYPE 3 ROCK DITCH LINER	CY	72
6169901	TRAFFIC CONTROL	L SUM	1
6181000	MOBILIZATION	L SUM	1
7034040	CLASS B-1 CONCRETE (CULVERTS)	CY	19.2
7061030	REINFORCING STEEL (CULVERTS)	LB	1,800
7250312A	12 IN. PIPE GROUP B	LF	40
7320012A	12 IN. OR ALLOWED SUBSTITUTE GROUP B FLARED END SECTION	EA	1
8052000A	SEEDING - WARM SEASON MIXTURES	SY	166
8061019	SILT FENCE	LF	52
8064120	TYPE 1 EROSION CONTROL BLANKET	SY	25
	PRECAST CONCRETE BOX CULVERTS 8'X6'	LF	40

PAVEMENT SCHEDULE

STATION	STATION	OFFSET	TYPE 5 AGGREGATE FOR BASE (4 IN. THICK)	GRAVEL (A)	BITUMINOUS PAVEMENT MIXTURE PG 64-22 (BP-1)	BITUMINOUS PAVEMENT MIXTURE PG 64-22 (BASE)	TACK COAT
			(SQ YD)	(SQ YD)	NOTE 1 (TON)	NOTE 2 (TON)	NOTE 3 (GAL)
100+63	101+16	LT	57		6	12	20
100+81	101+16		93		10	44	30
100+81	101+16	LT		12			
TOTAL			150	12	16	56	50

PAVEMENT NOTES:

1. BITUMINOUS PAVEMENT MIXTURE PG 64-22 (BP-1) SHALL BE A DEPTH OF 2".
2. BITUMINOUS PAVEMENT MIXTURE PG 64-22 (BASE) SHALL BE A DEPTH OF 8.5" FOR ROADWAY PAVEMENT.
3. APPLICATION RATE FOR TACK COAT IS 0.05 GAL / SQUARE YARD.

SEEDING SCHEDULE

STATION	STATION	OFFSET	SEEDING WARM SEASON MIXTURES (SQ YD)
100+69	101+33	LT	101
100+81	101+34	RT	65
TOTAL			166

EROSION CONTROL SCHEDULE

STATION	STATION	OFFSET	FURNISHING TYPE 3 ROCK DITCH LINER (CU YD)	PLACING TYPE 3 ROCK DITCH LINER (CU YD)	SILT FENCE (FOOT)	TYPE 1 EROSION CONTROL BLANKET (SQ YD)
100+71	100+88	LT				6
100+73	101+14	LT	39	39		
100+81	101+16	LT			35	
100+83	100+88	RT				4
100+88	101+20	RT	33	33		
100+96	101+16	LT				7
100+99	101+16	RT			17	
101+07	101+22	RT				8
TOTAL			72	72	52	25

DRAINAGE SCHEDULE

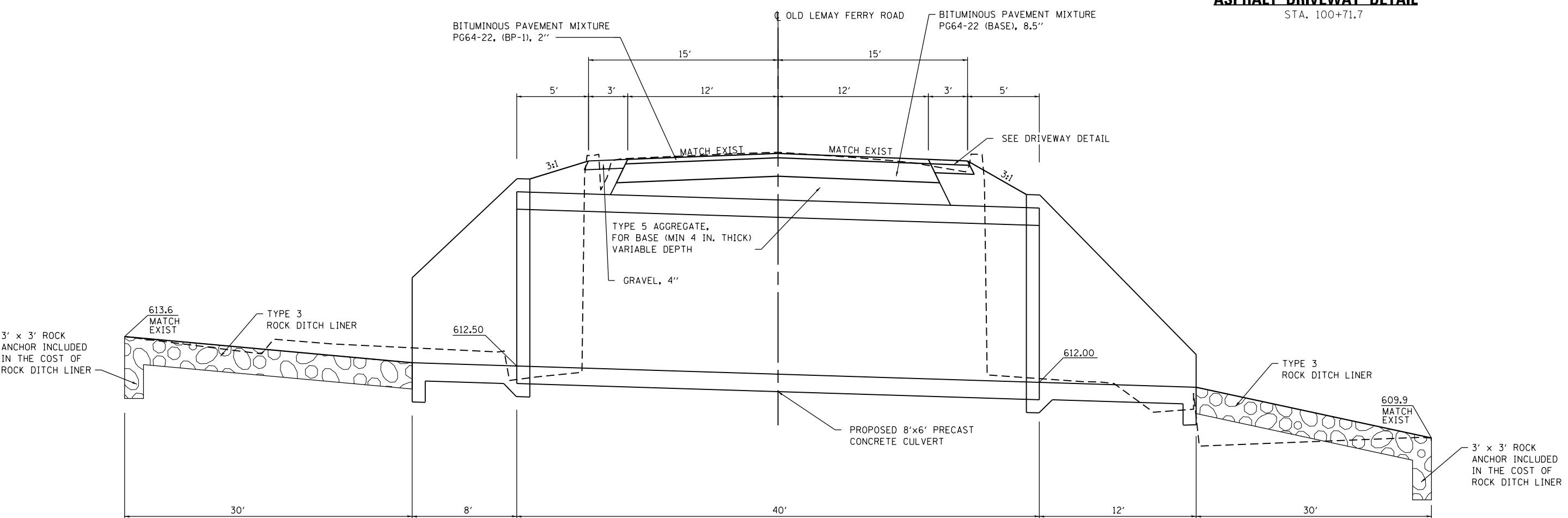
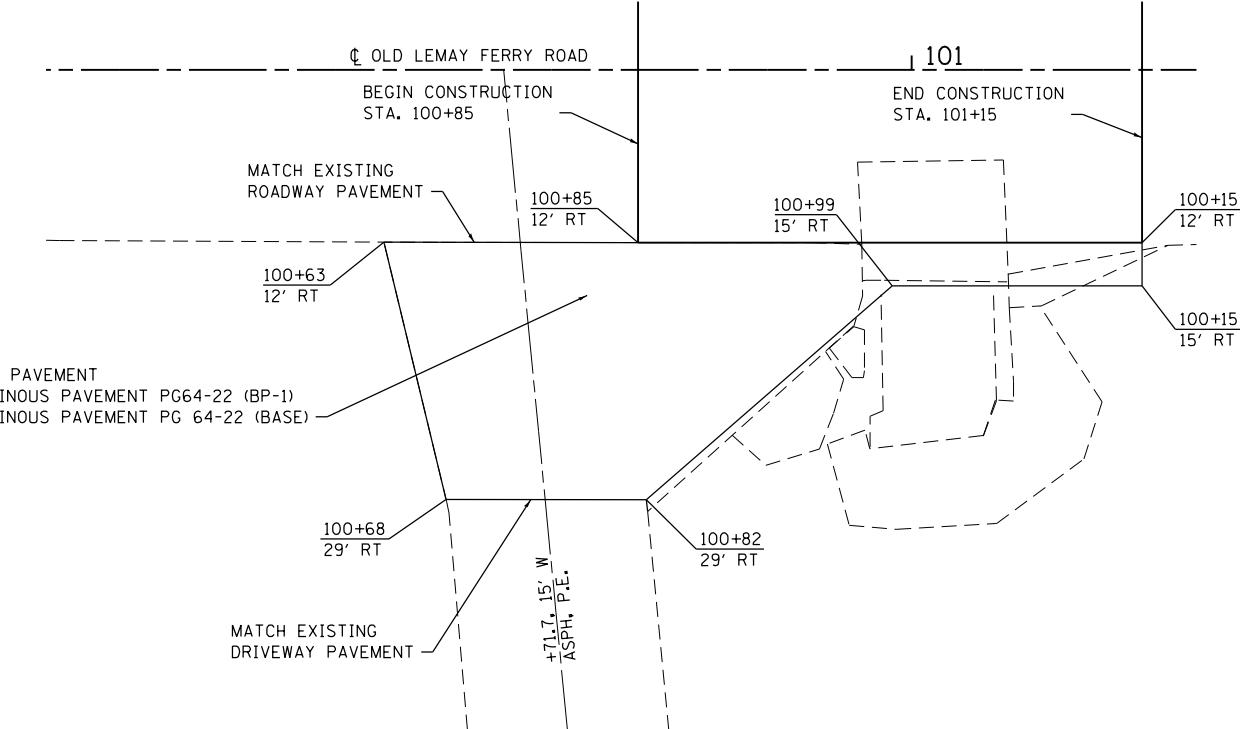
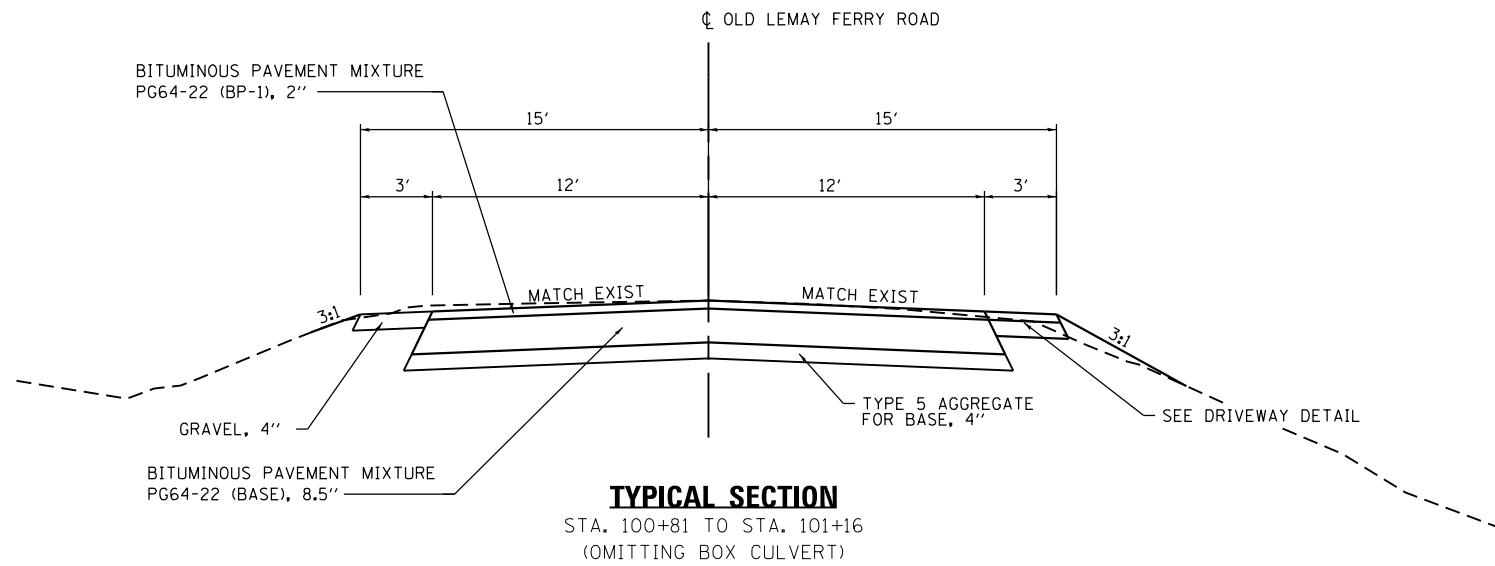
STATION	STATION	OFFSET	12 IN. PIPE GROUP B	12 IN. OR ALLOWED SUBSTITUTE GROUP B FLARED END SECTION
			(FOOT)	(EACH)
100+58	100+97	RT	40	1
TOTAL			40	1

MISCELLANEOUS SCHEDULE

DESCRIPTION	UNIT	QUANTITY
REMOVAL OF IMPROVEMENTS	L SUM	1
TRAFFIC CONTROL	L SUM	1
MOBILIZATION	L SUM	1

CLEARING & GRUBBING

STATION	STATION	CLEARING & GRUBBING (ACRE)
100+57	101+34	0.1
TOTAL		0.1



TYPICAL SECTION

SHOWN AT BOX CULVERT

USER NAME = travis.helmkamp	DESIGNED -
	DRAWN -
PLOT SCALE = 40.0000 ' / in.	CHECKED -
PLOT DATE = 3/21/2016	DATE -

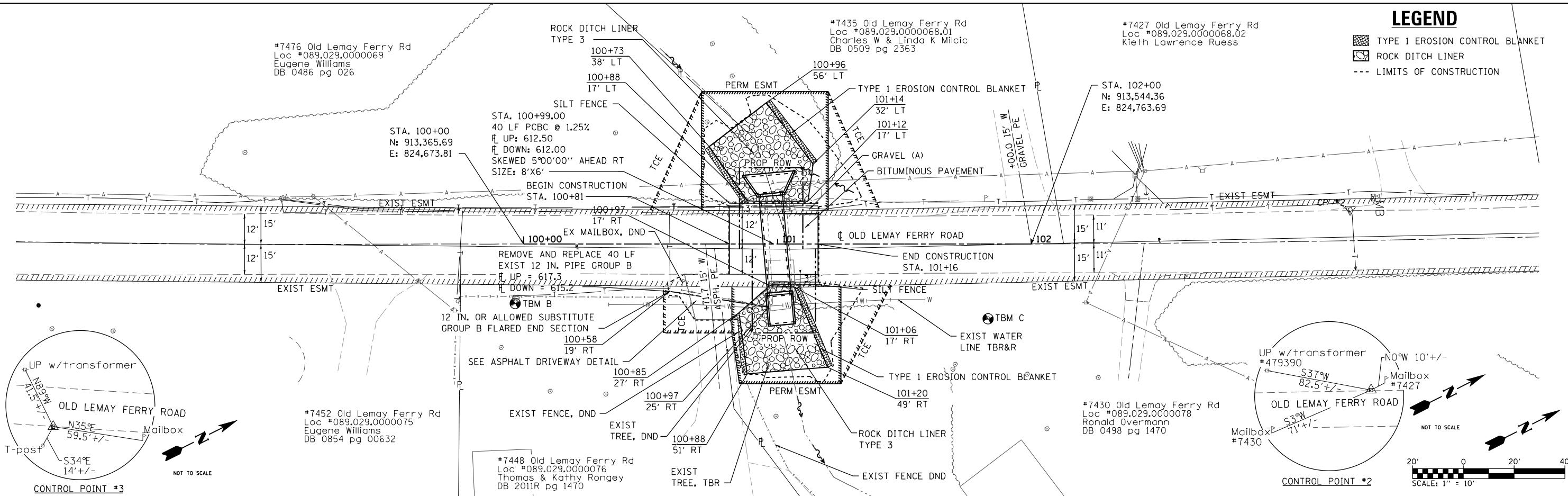
JEFFERSON COUNTY, MISSOURI

TYPICAL SECTION SHEET

SECTION	COUNTY	TOTAL SHEETS	HEET NO.
ONTRACT NO.	JEFFERSON	12	3
LD LEMAY FERRY ROAD CULVERT REPLACEMENT			
SD BASEMAP NO.			

LEGEND

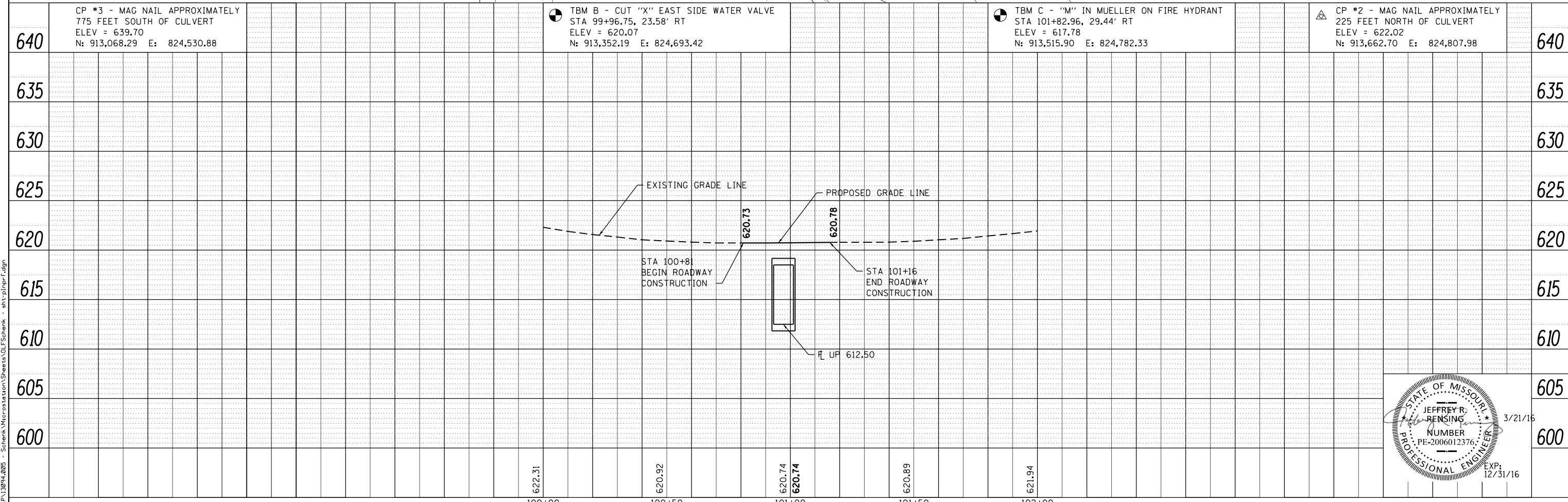
- TYPE 1 EROSION CONTROL BLANKET
- ROCK DITCH LINER
- LIMITS OF CONSTRUCTION

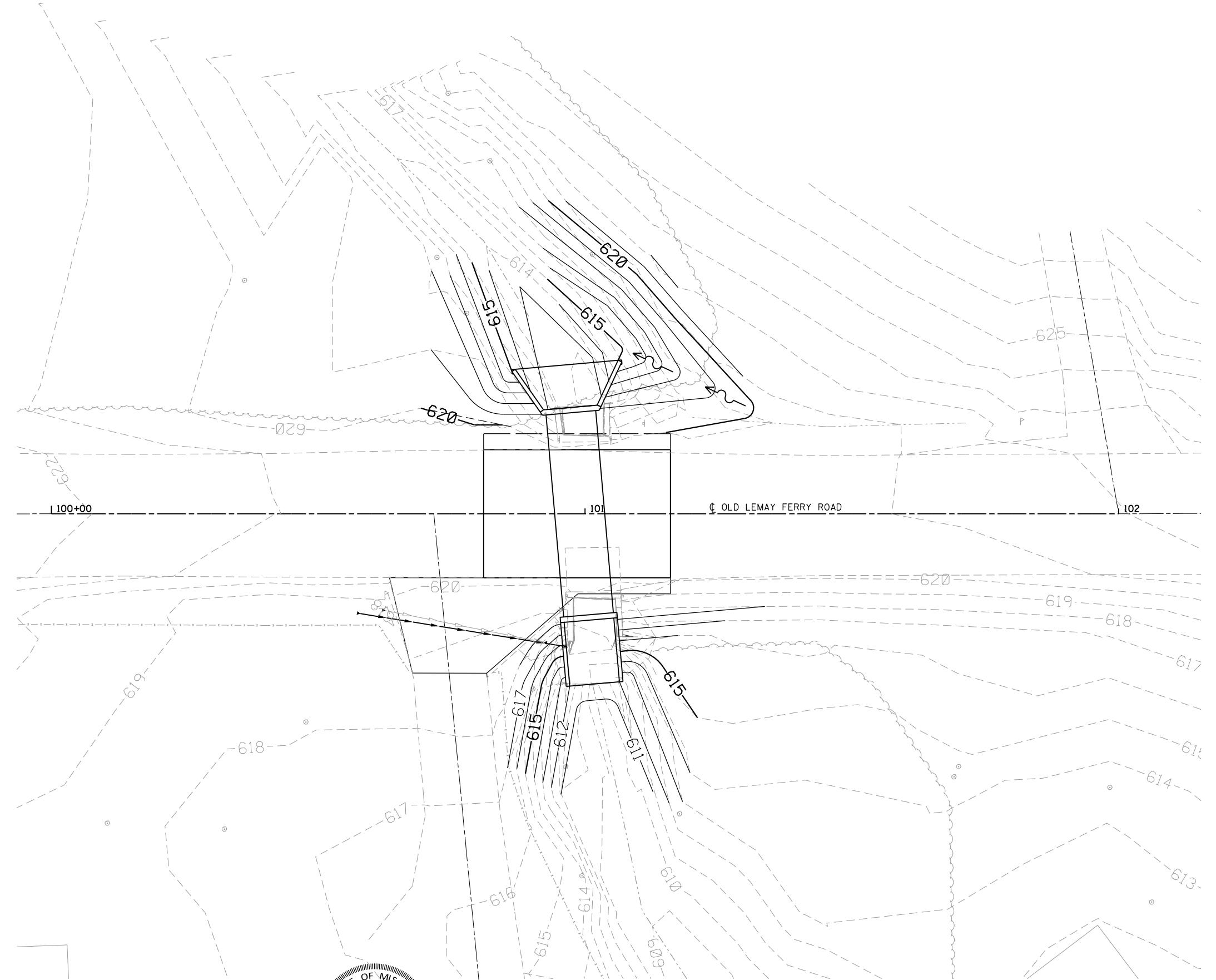


PLAN SURVEYED
PILOTED
ALIGNMENT CHECKED
STRUCTURE NOTATIONS CHECKED
NOTE BOOK NO. _____

PROFILE SURVEYED
PILOTED
GRADES CHECKED
STRUCTURE NOTATIONS CHECKED
NOTE BOOK NO. _____

FILE NAME = H:\P\13094.005 - Schenk\Microstation\Sheets\OLF\Schenk - sht:piperf.dgn





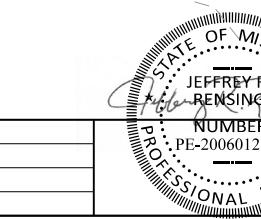
10' 0 10' 20'
SCALE: 1" = 10'



USER NAME = travis.helmkamp
DESIGNED -
DRAWN -
PLOT SCALE = 20.0000 ' / in.
PLOT DATE = 3/21/2016

CHECKED -
DATE -

NUMBER
PE-2006012376
PROFESSIONAL ENGINEER
EXP: 12/31/16



JEFFERSON COUNTY, MISSOURI

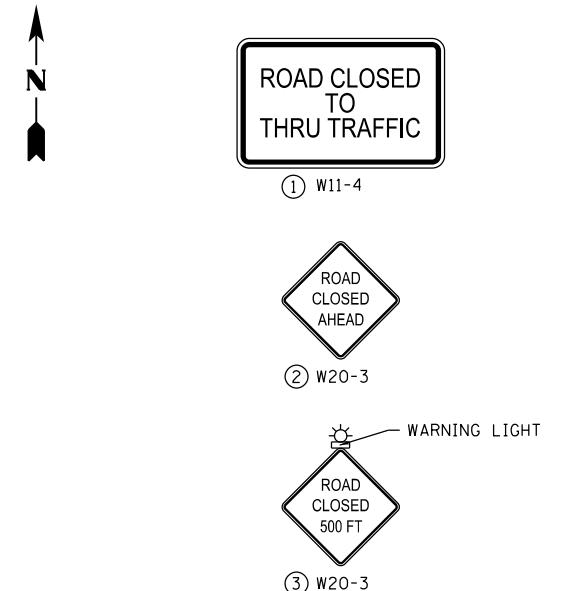
GRADING SHEET

SECTION	COUNTY	TOTAL SHEETS	HEET NO.
CONTRACT NO.	JEFFERSON	12	6
OLD LEMAY FERRY ROAD CULVERT REPLACEMENT			
MSD BASEMAP NO.			

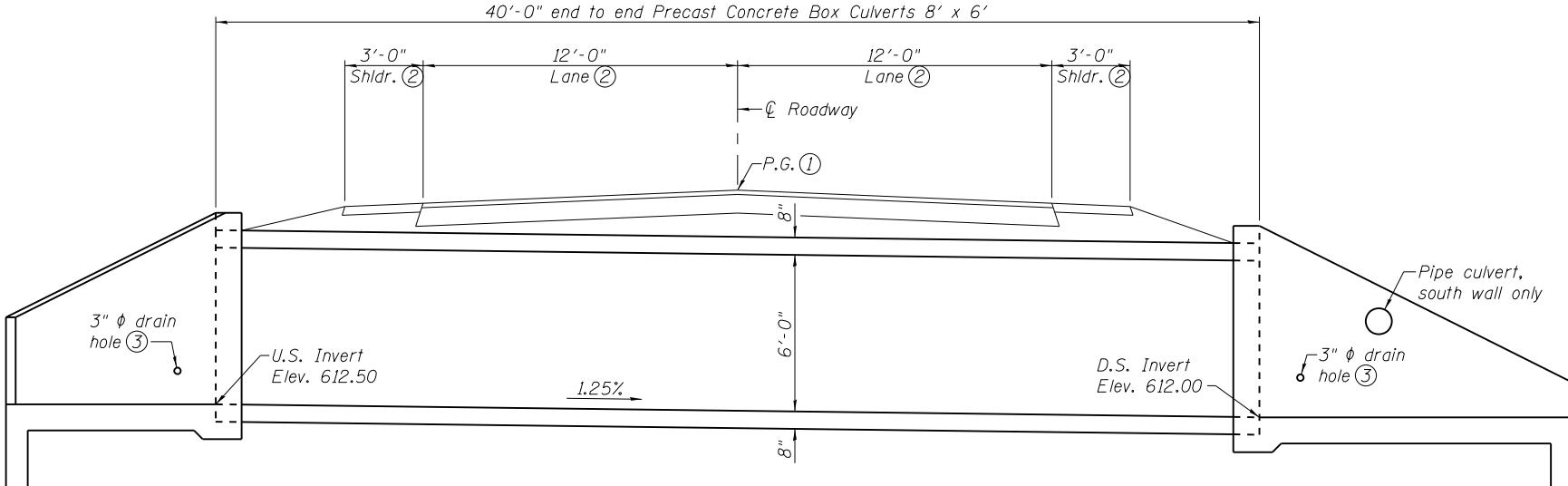


TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL SIGNS, BARRICADES, AND MAINTENANCE TO BE INCLUDED IN THE COST OF TRAFFIC CONTROL.
2. ALL TRAFFIC CONTROL AND WORK ZONE SIGNING SHALL CONFORM TO CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAY (MUTCD) STANDARDS.
3. ACCESS TO ENTRANCES SHALL BE MAINTAINED AT ALL TIMES.
4. THE CONTRACTOR SHALL MAINTAIN DRAINAGE THROUGHOUT CONSTRUCTION.
5. TYPE A LOW INTENSITY FLASHING LIGHTS SHALL BE USED ON THE FIRST SIGN IN ADVANCE OF THE WORK SITE AND ON ALL TYPE III BARRICADES DURING HOURS OF DARKNESS.
6. BARRICADES AND SIGNS SHALL BE POSITIONED AS SHOWN, ACCORDING TO HIGHWAY STANDARDS, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND AS DIRECTED BY THE ENGINEER.
7. THE EXACT LOCATION OF THE BARRICADES AND SIGNS SHALL BE STAKED IN THE FIELD BY THE CONTRACTOR TWO WORKING DAYS IN ADVANCE OF CONSTRUCTION OPERATIONS FOR APPROVAL BY THE ENGINEER.
8. ALL SIGNS SHALL BE INSTALLED ON 2 POUND U-CHANNEL POSTS WITH BOTTOM OF SIGN 7' ABOVE GRADE AND AT THE LOCATION INDICATED.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL DEVICES.
10. STRIPES FOR BARRICADES SHALL BE SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC WILL PASS.
11. ALL TYPE III BARRICADES UTILIZED FOR ROAD CLOSURES SHALL HAVE A LOW INTENSITY FLASHING LIGHT MOUNTED ON TOP OF EACH BARRICADE.
12. ALL WARNING SIGNS SHALL BE A MINIMUM OF 48" X 48" AND HAVE A BLACK LEGEND AND BORDER OF A FLUORESCENT ORANGE REFLECTORIZED BACKGROUND.
13. ALL RESIDENTS FRONTING THE PROJECT SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ROAD CLOSURES AFFECTING THEIR ACCESS.



TRAFFIC CONTROL PLAN LEGEND



ELEVATION

ESTIMATED QUANTITIES		FINAL QUANTITIES
Removal of Improvements	Lump Sum	1
Class 4 Excavation	Cu. Yd.	102
Class "B-1" Concrete (Culverts)	Cu. Yd.	19.2
Reinforcing Steel (Culverts)	Pound	1,800
Precast Concrete Box Culverts 8' x 6'	Lin. Ft.	40

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications with 2013 Interims

HYDROLOGIC DATA

Drainage Area = 0.156 (sq. mi.)
Design Flood Frequency = 15 (year)
Design Flood Discharge = 267 (cfs)
Design Flood (D.F.) Elev. = 618.20 (ft)
BASE FLOOD (100 YEAR)
Base Flood Elev. = 619.46 (ft)
Base Flood Discharge = 360 (cfs)
Estimated Backwater = 1.83 (ft)
Outlet Velocity = 11.29 (ft/s)
ROADWAY OVERTOPPING
Overtopping Flood Discharge = 464 (cfs)
Overtopping Flood Frequency = 1000 (year)
Overtopping Flood Elev. = 620.74 (ft)

DESIGN LOADING

HL-93
Earth = 120 lb/ft³
Design Fill = < 2 ft.

DESIGN UNIT STRESSES

Class B-1 concrete, f'c = 4,000 psi
Reinforcing steel (Grade 60), fy = 60,000 psi

GENERAL NOTES

Precast end sections will not be allowed.

Channel bottom shall be graded within the right of way for transition of channel bed to culvert opening. Channel banks shall be tapered to match culvert opening.

Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.

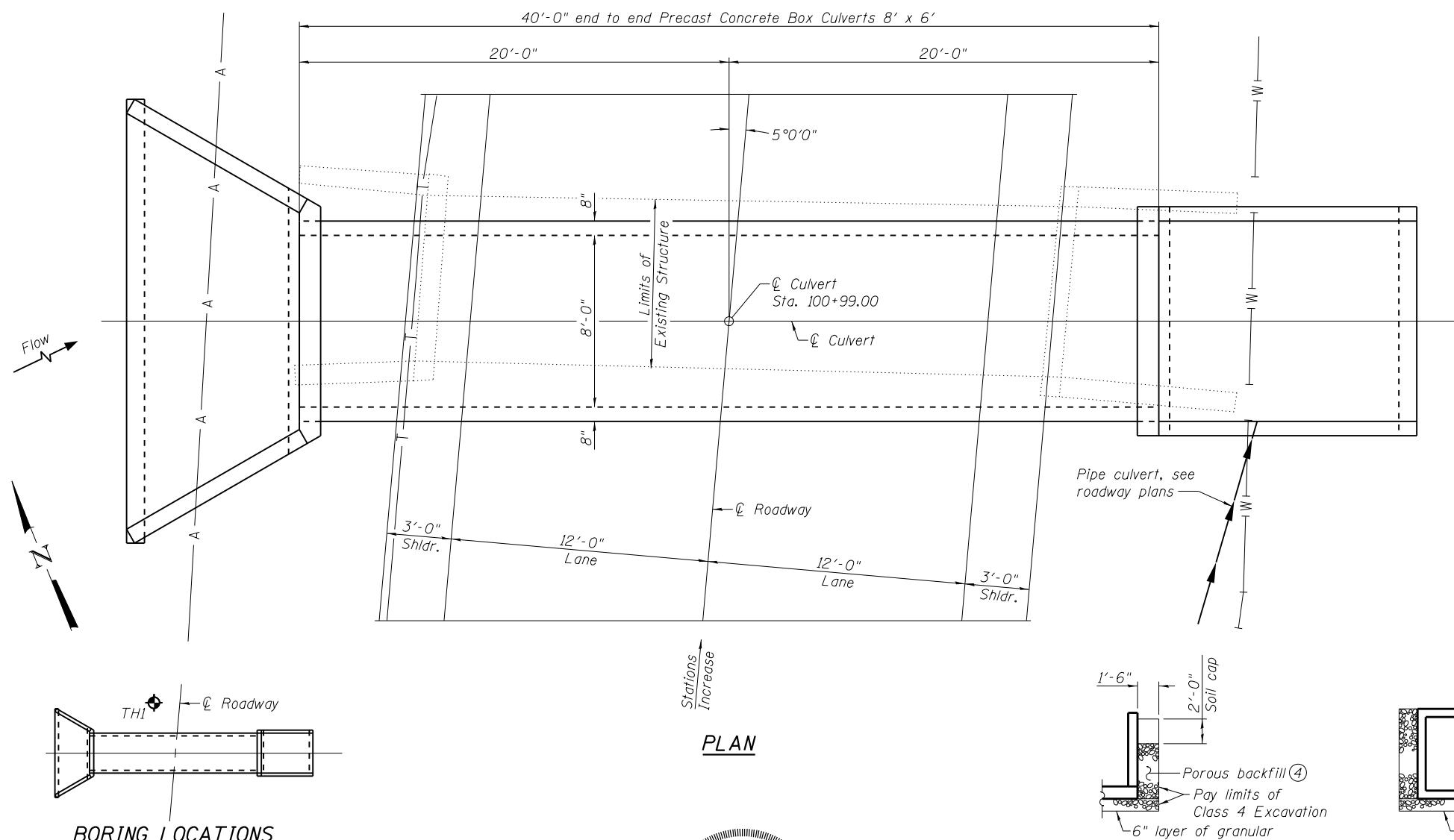
Structure to be closed during construction. Traffic to be maintained on other routes during construction.

Ends of precast concrete box sections protruding thru cast-in-place end section shall be cast without bell or spigot.

"Sec" refers to the section in the Missouri Standard Specifications for Highway Construction.

BENCHMARK

TBM C Elev. 617.78, "M" in Mueller on fire hydrant, 29.44' Rt. of Sta. 101+82.96



Note: This drawing is not to scale. Follow dimensions.

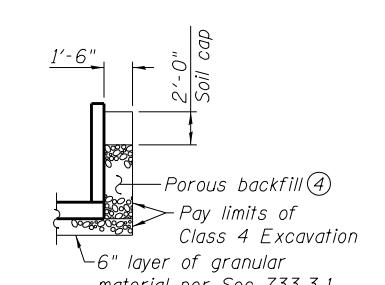


DATES ASSOCIATES
Engineering + Architecture
MISSOURI PROF ENG CORP LICENSE NO: 001166

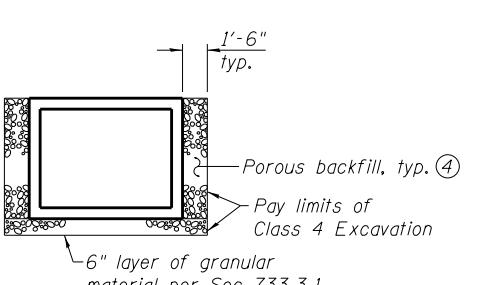
STATE OF MISSOURI
JEFFREY R. RENSING
PROFESSIONAL ENGINEER
NUMBER PE-2006012376
PLOT SCALE 1:100
PLOT DATE 3/21/2016
DRAWN - JAD
EXP. 12/31/16
CHECKED - KBC
DESIGNED - JAD

JEFFERSON COUNTY, MISSOURI

SECTION THRU WINGWALL



SECTION THRU BARREL



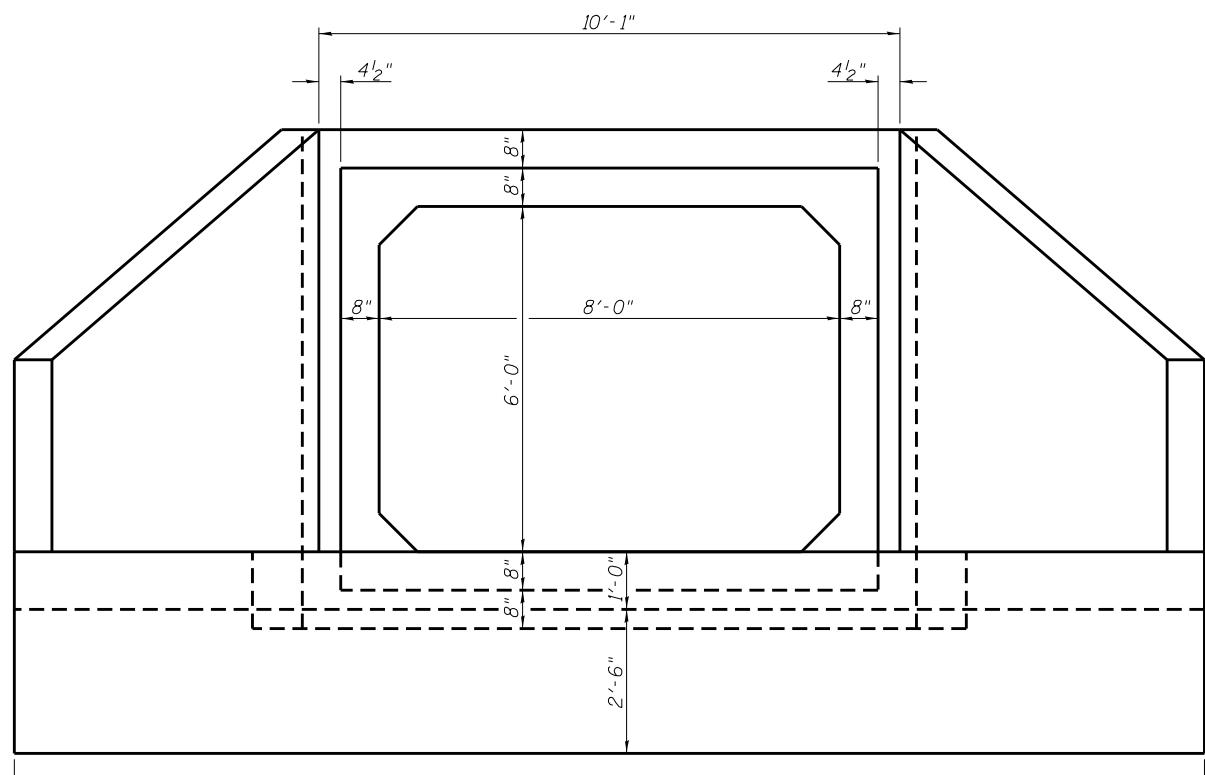
**OLD LEMAY FERRY ROAD
CULVERT REPLACEMENT
STA. 100+99.00**

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.	JEFFERSON	12	8
OLD LEMAY FERRY ROAD CULVERT REPLACEMENT			

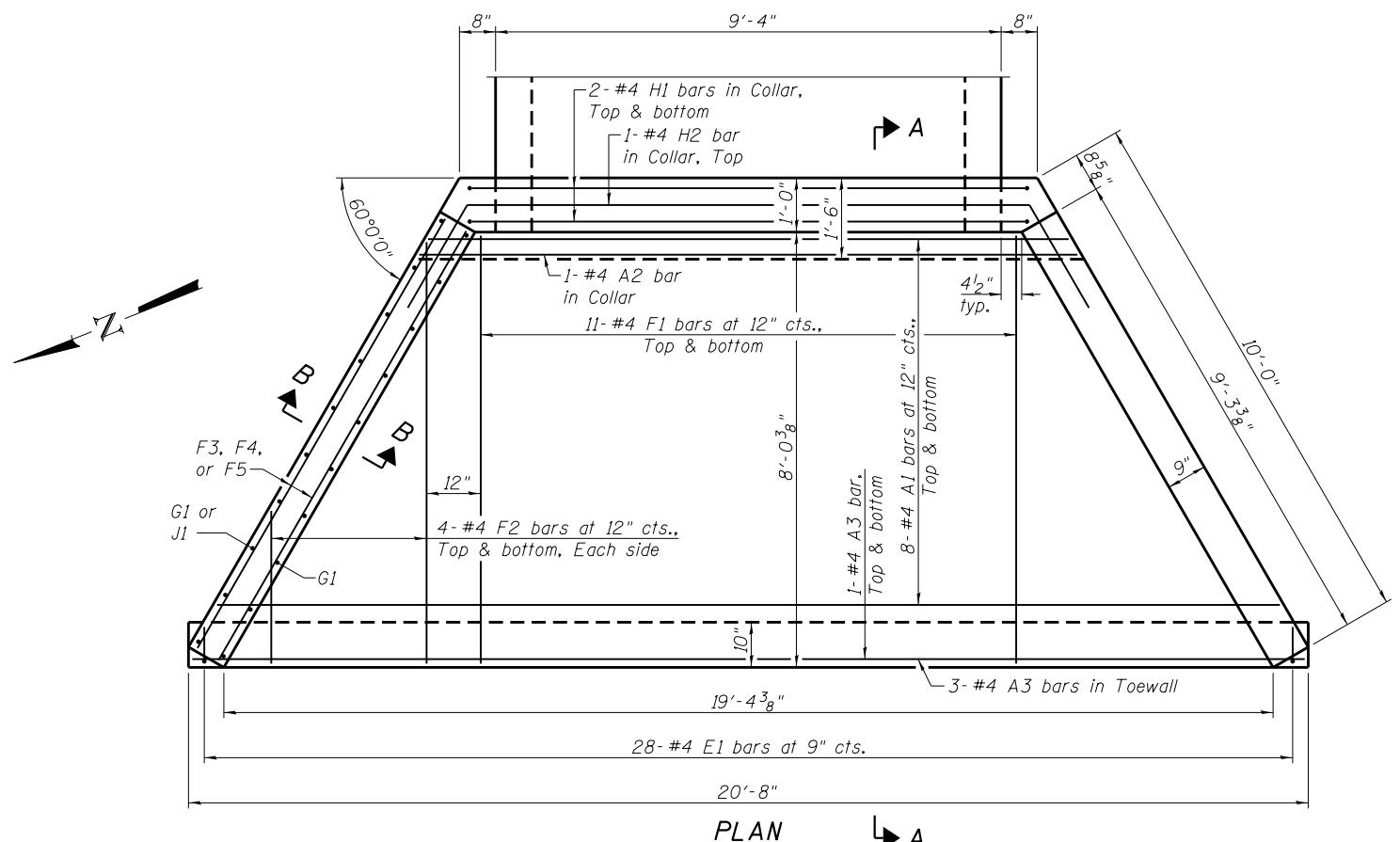
MSD BASEMAP NO.

GENERAL PLAN AND ELEVATION
SHEET NO. 1 OF 5 SHEETS

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.	JEFFERSON	12	8
OLD LEMAY FERRY ROAD CULVERT REPLACEMENT			



END ELEVATION



PLAN



Note: This drawing is not to scale. Follow dimensions.

10-0003-1	10-0003-1	10-0003-1	10-0003-1
10-0003-1	10-0003-1	10-0003-1	10-0003-1
10-0003-1	10-0003-1	10-0003-1	10-0003-1
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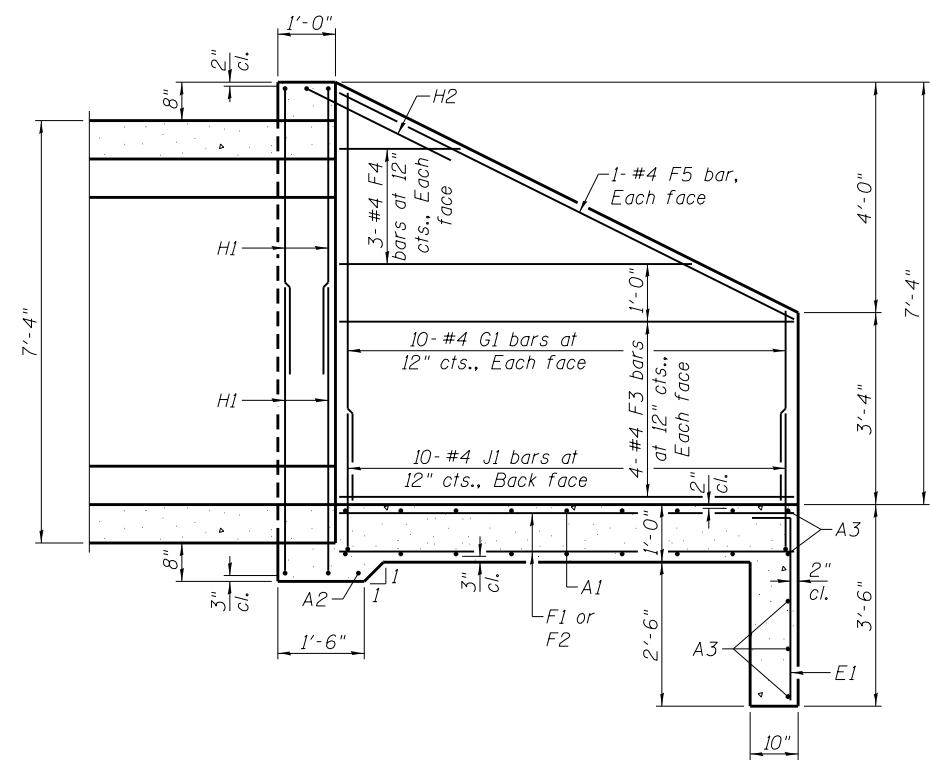
JEFFERSON COUNTY, MISSOURI

FLARED END DETAILS

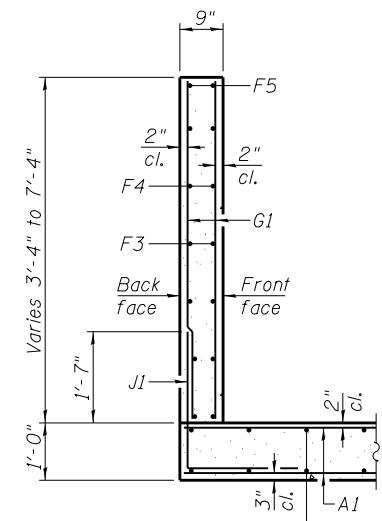
SHEET NO. 2 OF 5 SHEETS

SECTION	COUNTY	TOTAL SHEETS	HEET NO.
TRACT NO.	LEMAY FERRY ROAD CULVERT REPLACEMENT BASEMAP NO.		

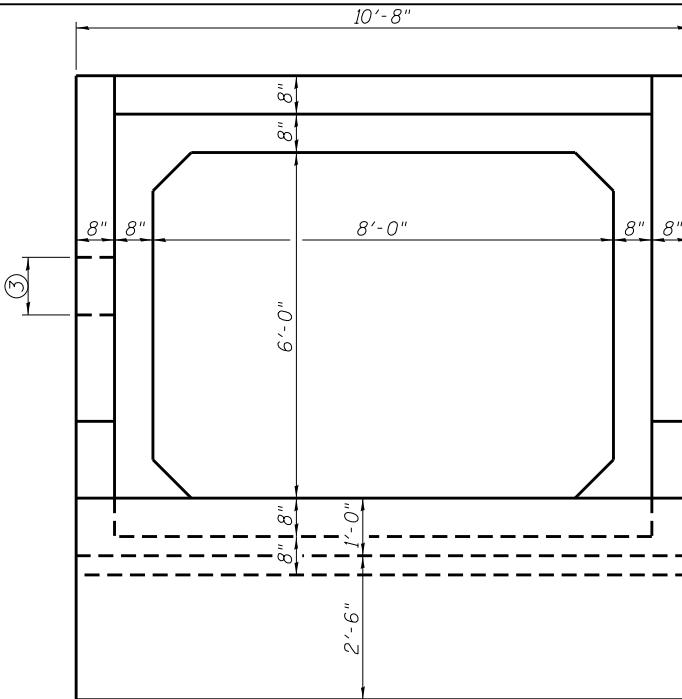
otes:
1) Minimum bar lap for #4 bars = 1'-5".



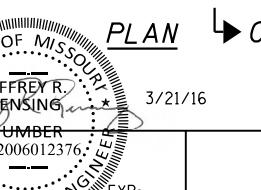
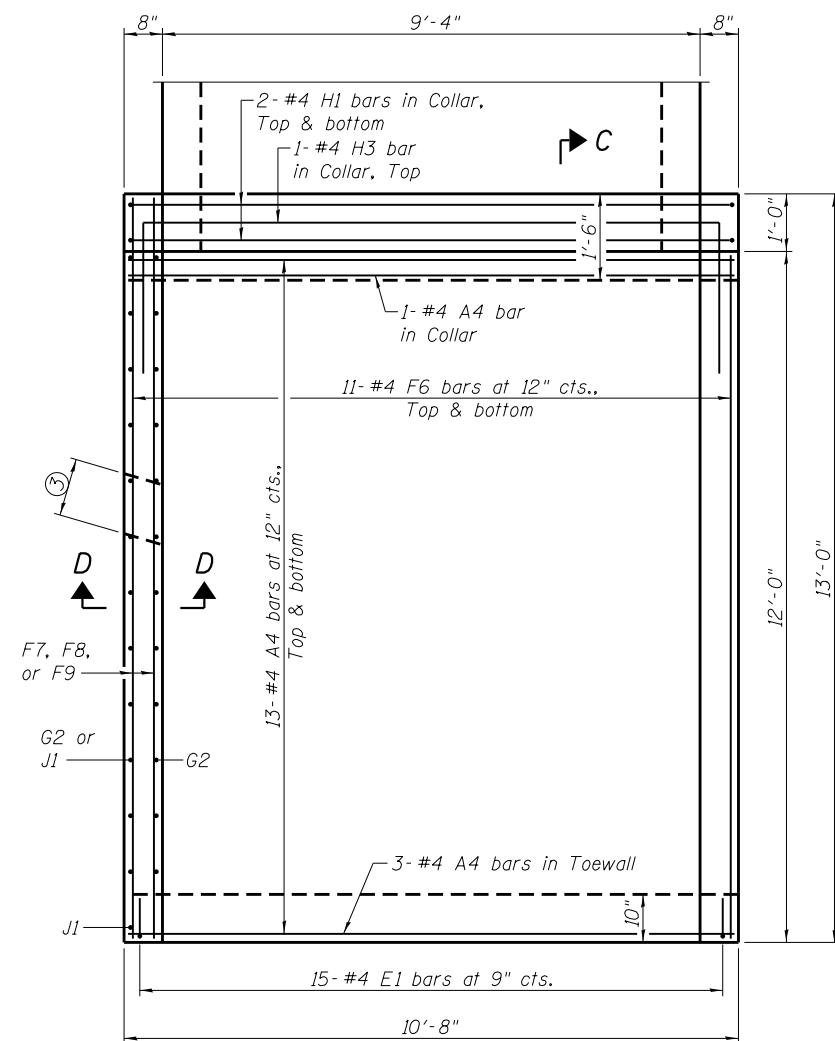
SECTION A-A



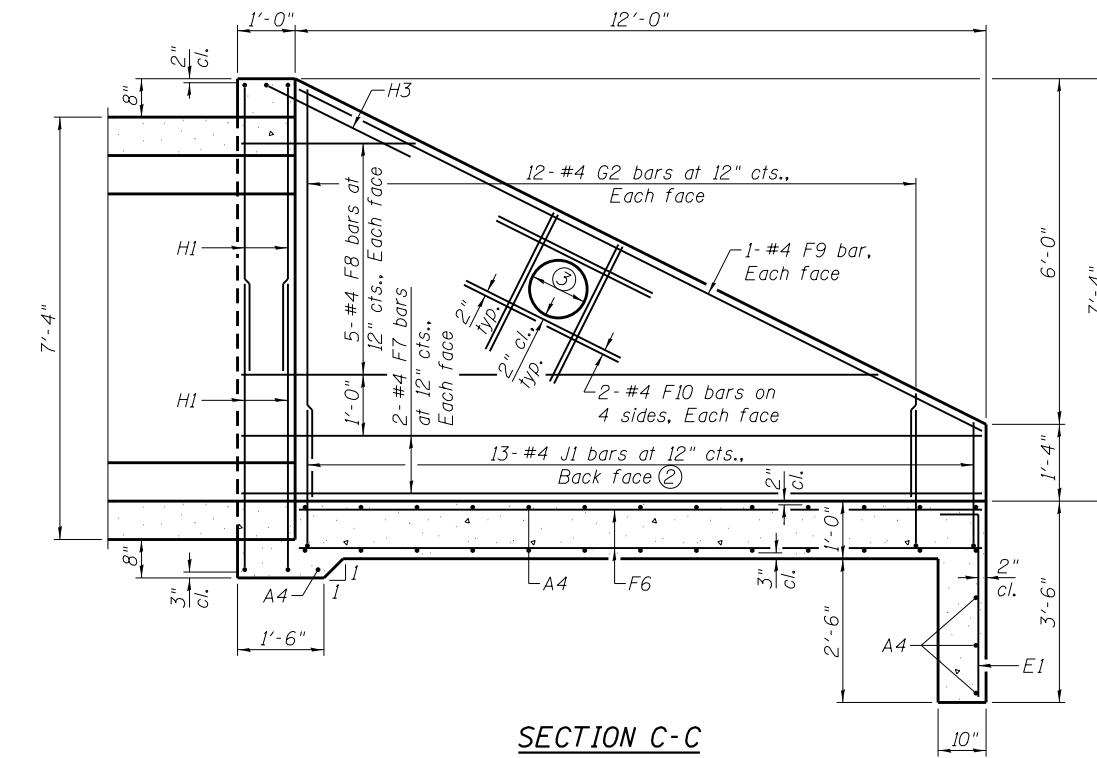
SECTION B-B



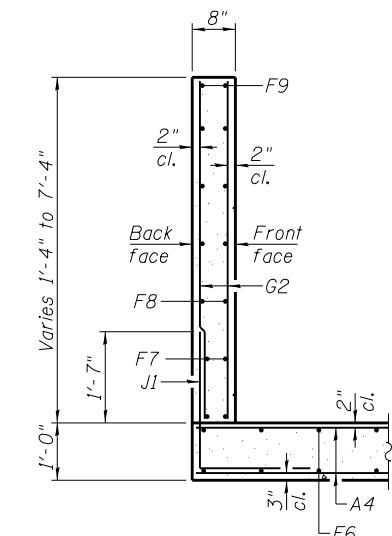
END ELEVATION



PLAN → C



SECTION C-C



SECTION D-D

Note: This drawing is not to scale. Follow dimensions.



USER NAME: DESIGNED - JAD
CHECKED - KBC
PLOT SCALE: DRAWN - JAD
PLOT DATE: EXP: 12/31/16
CHECKED - KBC

NUMBER: PE-2006012376
PROFESSIONAL ENGRN: JEFFREY R. RENSING
EXP: 12/31/16

JEFFERSON COUNTY, MISSOURI

STRAIGHT END DETAILS

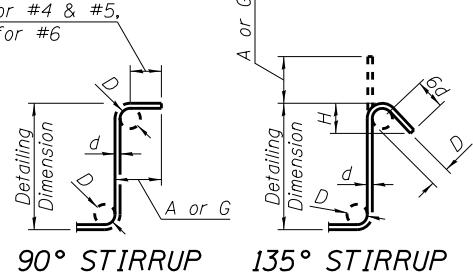
SHEET NO. 3 OF 5 SHEETS

Notes:

- ① Minimum bar lap for #4 bars = 1'-5".
- ② Cut J1 bar to fit at short end of wall.
- ③ 12" diameter pipe culvert to be cast into south wall only. Vertical and horizontal reinforcement in wall shall be bent as required to accommodate the hole. For pipe culvert invert, see roadway plans.

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.	JEFFERSON	12	10
OLD LEMAY FERRY ROAD CULVERT REPLACEMENT			
MSD BASEMAP NO.			

No. Req'd	Mark No.	Location	Shape No.	Stirrup (S)	Epoxy (E)	Varies (V)	No. Each	Dimensions						Nominal Length	Actual Length	Weight
								B	C	D or F	E	H	K			
	Size							Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.			
16	4	A1	Footing	20		V	2	19 9.000						19 9	19 9	167
			Incr. = 1'-2"					11 7.000						11 7	11 7	
1	4	A2	Collar	20				11 10.000						11 10	11 10	8
5	4	A3	Footing/Toewall	20				20 4.000						20 4	20 4	68
30	4	A4	Ftg./Collar/Toewall	20				10 4.000						10 4	10 4	207
43	4	E1	Toewall	19				3 1.000	8.000					3 9	3 8	105
24	4	F1	Footing	20				7 8.000						7 8	7 8	123
16	4	F2	Footing	20		V	4	7 5.000						7 5	7 5	51
			Incr. = 1'-9"					2 2.000						2 2	2 2	
16	4	F3	Wingwall	20				9 1.000						9 1	9 1	97
12	4	F4	Wingwall	20		V	4	6 11.000						6 11	6 11	37
			Incr. = 2'-4"					2 3.000						2 3	2 3	
4	4	F5	Wingwall	20				9 9.000						9 9	9 9	26
22	4	F6	Footing	20				11 8.000						11 8	11 8	171
8	4	F7	Wingwall	20				12 8.000						12 8	12 8	68
20	4	F8	Wingwall	20		V	4	10 9.000						10 9	10 9	90
			Incr. = 2'-0"					2 9.000						2 9	2 9	
4	4	F9	Wingwall	20				13 0.000						13 0	13 0	35
16	4	F10	Wingwall	20				3 0.000						3 0	3 0	32
40	4	G1	Wingwall	20		V	4	6 10.000						6 10	6 10	132
			Incr. = 5"					3 1.000						3 1	3 1	
48	4	G2	Wingwall	20		V	4	6 10.000						6 10	6 10	135
			Incr. = 5 3/4"					1 7.000						1 7	1 7	
8	4	H1	Collar	10				4 10.000	10 4.000					20 0	19 10	106
1	4	H2	Collar	15				10 5.000						14 1	14 1	9
1	4	H3	Collar	10				1 11.000	10 0.000					13 10	13 8	9
46	4	J1	Footing	19				2 3.000	1 11.000					4 2	4 1	125



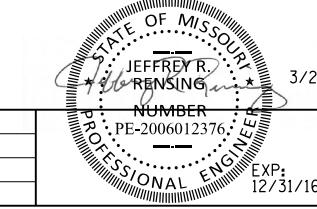
STIRRUP HOOK DIMENSIONS				
Bar Size	D (In.)	90° Hook	135° Hook	Appro H
		Hook A or G	Hook A or G	
#4	2"	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ "	3"
#5	2 $\frac{1}{2}$ "	6"	5 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "
#6	4 $\frac{1}{2}$ "	12"	8"	4 $\frac{1}{2}$ "

Note: Unless otherwise noted, diameter "D" is the same for all bends and hooks on a bar.

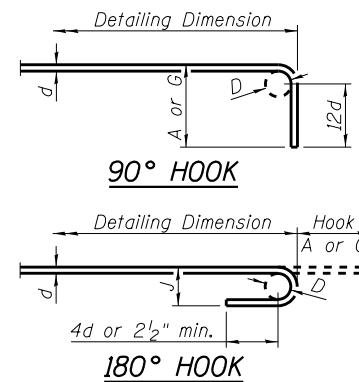
Note: This drawing is not to scale. Follow dimensions.



USER NAME =	DESIGNED -	JAD
	CHECKED -	KBC
PLOT SCALE =	DRAWN -	JAD
PLOT DATE = 3/21/2016	CHECKED -	KBC



JEFFERSON COUNTY, MISSOURI



END HOOK DIMENSIONS				
Bar Size	D (In.)	180° Hook		90° Hook
		A or G	J	A or G
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	24"

Notes:

- ① All standard hooks and bends other than 180 degree are to be bent with the same procedure as for 90 degree standard hooks.
- ② Hooks and bends shall be in accordance with the procedures shown on this sheet.
- ③ E = Epoxy coated reinforcement.
- ④ S = Stirrup.
- ⑤ V = Bar dimensions vary in equal increments between dimensions shown on this line and the following line.
- ⑥ No. Each = Number of bars of each length.
- ⑦ Nominal lengths are based on out to out dimensions shown in the bending diagrams and are listed for Fabricators use to the nearest inch.
- ⑧ Actual lengths are measured along centerline bar to the nearest inch.
- ⑨ Pay weights are based on actual lengths.
- ⑩ Reinforcing steel (Grade 60) fy = 60,000 psi.
- ⑪ Two additional #4-F1 are included in bar bill for testing.

⑪ Two additional #4-F1 are included in bar bill for testing.

SECTION	COUNTY	TOTAL SHEETS	SEE NO.
RACT NO.	JEFFERSON	12	11
MAY FERRY ROAD CULVERT REPLACEMENT			
ASEMAP NO.			

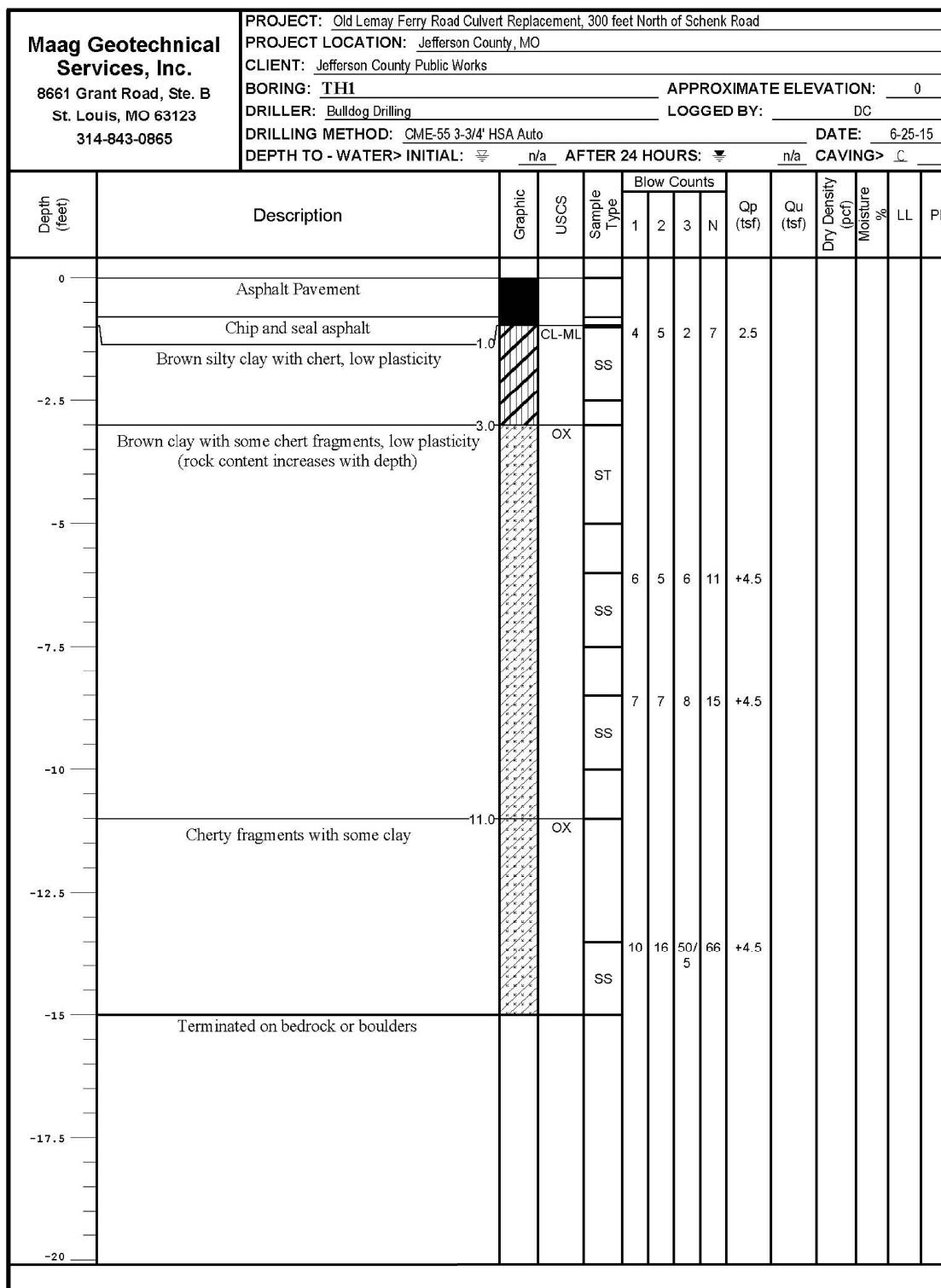


Figure 2-1

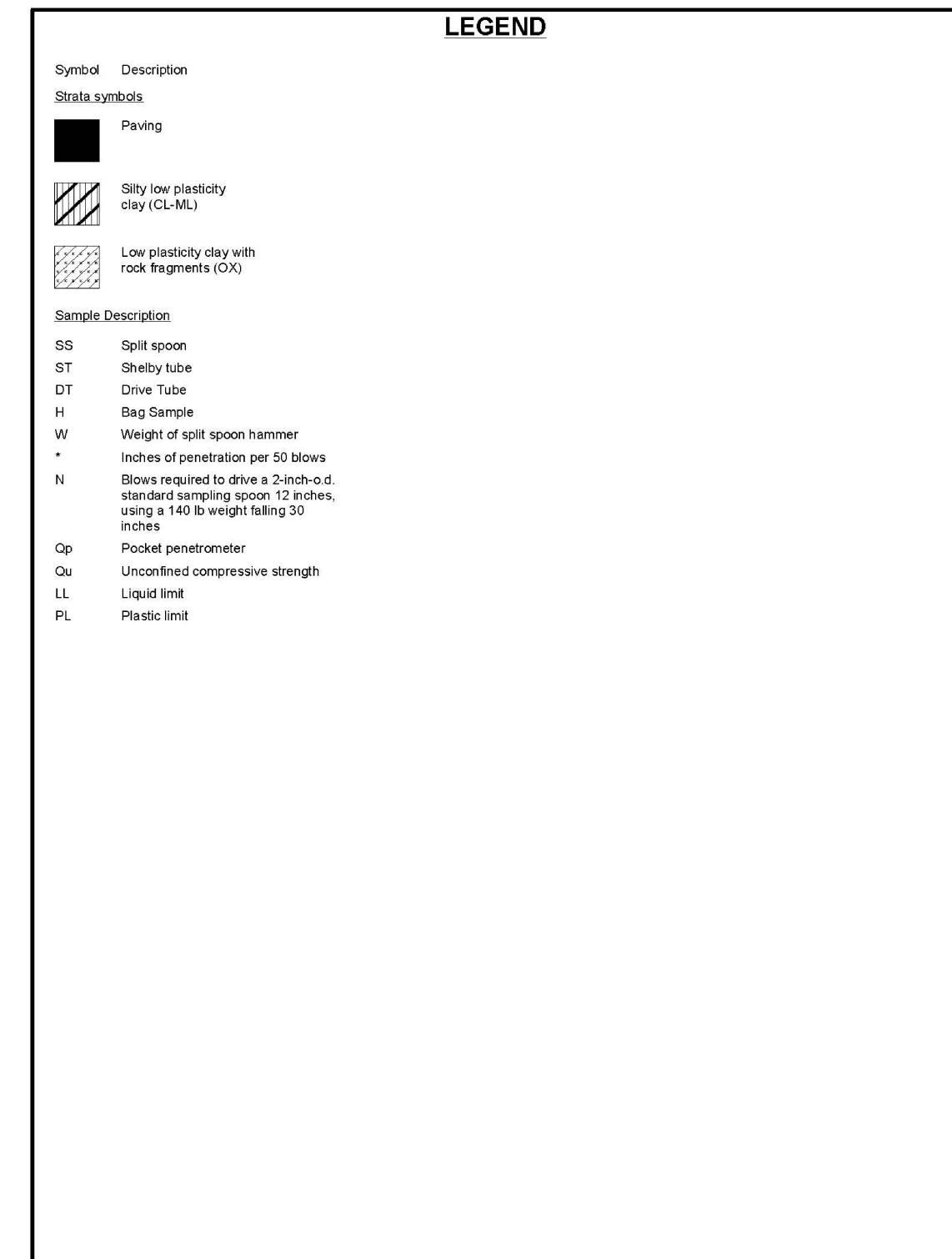


Figure 2