

**ADDENDUM NO. 1  
TO  
BRO-B048 (052)  
BRIDGE NO. 2125030  
CITY OF INDEPENDENCE,  
JACKSON COUNTY, MISSOURI**

February 1, 2013

You are instructed to read and note the following described changes, corrections, clarifications, omissions, deletions, additions, approvals and statements pertinent to the Construction Documents.

Addendum No. 1 is a part of the Contract Bid and Construction Documents and shall govern in the performance of the Work.

**Itemized Proposal: (new Proposal attached)**

- 1) Item #13, 4" Aggregate Base (#57 Stone), *quantity is revised to 123 square yards.*
- 2) Item #19, MoDOT Type A Integral Concrete Curb, 84 linear feet, *replaced with Sod, 269 square yards.*
- 3) Item #34, 24" RCP Storm Sewer Pipe, *is to be replaced by 28.5"x18" RCPA Storm Sewer Pipe. Quantity revised to 44 L.F.*
- 4) Item #35, 24" RCP Storm Sewer Flared End Sections, *is to be replaced by 28.5"x18" RCPA Storm Sewer Flared End Sections. Quantity revised to 4EACH.*
- 5) Item #62, Formliners, *quantity is revised to 1,057 square feet.*

**Plans: (Revised Sheet 8 and 26 attached)**

- 1) Sheet 8 of 50, Plan & Profile – Sheet 3 of 3, *16 L.F. of 28.5"x18" RCPA Storm Sewer Pipe, Flared End Sections and concrete sidewalk at STA. 47+66.83 will not be constructed. RCPA Storm Sewer Pipe at STA. 46+63.75 quantity revised to 23 L.F.*
- 2) Sheet 26 of 50, General Notes & Summary of Quantities, *Note #7 shall be removed.*
- 3) Sheet 26 of 50, General Notes & Summary of Quantities, Item No. 6, Untreated Compacted Aggregate, Contract Special Provision 1-14 Measurement and Payment, par. G. Untreated Compacted Aggregate (Temporary Access) (per ton) *indicates this material is to be provided and installed at the City Representative's direction to maintain access for local residents and service providers.*
- 4) Sheet 26 of 50, General Notes & Summary of Quantities, Item No. 11, Untreated Compacted Aggregate, Contract Special Provision 1-14 Measurement and Payment, par. K. Aggregate Base and Surface (per ton) *indicates this material is to be provided and installed at the City Representative's direction.*
- 5) Sheet 26 of 50, General Notes & Summary of Quantities, Item No. 13, 4" Aggregate Base (#57 Stone), *is to be placed under Asphaltic Concrete Driveways. Quantity revised to 123 square yards.*
- 6) Sheet 26 of 50, General Notes & Summary of Quantities, Item No. 19, *MoDOT Type A Integral Concrete Curb, 84 L.F. shall be replaced by Sod with the Quantity revised to 269 square yards.*
- 7) Sheet 26 of 50, General Notes & Summary of Quantities, Item No. 31, 2" (Schedule 40) PVC *Conduit is to be placed in the bridge deck over the exterior girders as shown on Sheet 37 of 50 and is for future use.*
- 8) Sheet 26 of 50, General Notes & Summary of Quantities, Item No. 34, 24" RCP Storm Sewer Pipe, *is to be replaced by 28.5"x18" RCPA Storm Sewer Pipe. Quantity revised to 59.5 L.F.*
- 9) Sheet 26 of 50, General Notes & Summary of Quantities, Item No. 35, 24" RCP Storm Sewer Flared End Sections, *is to be replaced by 28.5"x18" RCPA Storm Sewer Flared End Sections. Quantity does not change.*
- 10) Sheet 26 of 50, General Notes & Summary of Quantities, Item No. 60, Corral Rail - *A note stating "All Reinforcement in Corral Rail and Corral Rail Transition shall be*

*subsidiary to Corral Rail per linear ft” has been added to Sheet 26 of 50 for clarification on this item.*

- 11) Sheet 26 of 50, General Notes & Summary of Quantities, Item No. 62, Formliners - ***Formliners are to be applied on the corral rails and corral rail transitions only, as outlined in note #4 on Sheet 41 of 50. The quantity for Item #62, Formliners shall be changed to 1,057 sq ft.***
- 12) Sheet 33 of 50, NU 70 Girder and Details, ***Revise note on strands initial prestress force to read, “Use 54 strands with an initial prestress force of 2376 kips.”***

**Specifications:**

- 13) Division 1, Section 1-14 Measurement and Payment, Par. PP Monitoring of Site Stripping (per lump sum) ***shall be removed.***
- 14) The Geotechnical Report ***is located in Appendix B.***

**Clarifications:**

- 15) Itemized Proposal Bid Item #58, Reinforcing Steel (Grade 60), ***Reinforcing Steel (Grade 60) is for all reinforcement below the construction joint in each end bent, as outlined in note #6 on Sheet 26 of 50.***
- 16) Sheet 45 of 50, Right-of-Way Plan, ***The abandoned railroad right-of-way shown is no longer in possession by any railroad, so no railroad protective insurance or flagmen will be required for this project.***
- 17) At the Contractor’s option, ***the HP12x53 piles may be installed during the 90 day settlement wait if the following construction sequence is followed:***
  - 1) ***predrilling of the piles***
  - 2) ***setting a CMP casing***
  - 3) ***installing the piles***
  - 4) ***waiting for settlement to occur***
  - 5) ***backfilling the CMP with sand***

ACKNOWLEDGEMENT: Each Bidder shall acknowledge receipt of Addendum No. 1 by their signature affixed hereto and shall file Addendum No. 1 with their bid.

Signature of Bidder

\_\_\_\_\_  
Contractor

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

PROPOSAL TO THE CITY OF INDEPENDENCE, MISSOURI, on:

**BLY ROAD/BRRIDGE IMPROVEMENTS**

North of M-78 over Bundschu Creek

City Project No. 70110802

Federal Project No. BRO-B048(052)

THE UNDERSIGNED BIDDER, having examined the plans, specifications, and other proposed contract documents hereto attached, and all addenda thereto; the location of the proposed work; the nature of the excavations to be done; the location, arrangement, construction and condition of existing structures affecting the work; and being cognizant of the conditions of streets giving access to the sites of the work; the existing and local conditions relative to construction hazards, labor, transportation, hauling, trucking and all other factors and conditions affecting, or which may be affected by, the work;

HEREBY PROPOSES to furnish all required tools, equipment, plant and materials; to perform all necessary labor and to construct, install and complete all work stipulated in, required by, and in accordance with the proposed contract documents hereto attached and the plans referred to herein for the unit, lump sum and extended prices listed below.

THE UNDERSIGNED BIDDER UNDERSTANDS that the quantities shown in this proposal are approximate and offers to do the work at the prices stated in the following schedule; the total bid shall be a summation of the price extensions shown and in no event shall the total compensation paid for the work specified herein exceed said total bid unless the Contractor shall obtain a change order duly approved by the City Council prior to the performance of additional or altered work, as set forth in these specifications:

**ITEMIZED PROPOSAL**  
WORK PERFORMED BY THE CONTRACTOR

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
<b>ROADWAY ITEMS</b>					
1	DEMOLITION AND SITE PREPARATION	L.S.	1		
2	SURVEY MONUMENT	EACH	1		
3	PERMANENT BENCHMARK	EACH	2		
4	COMPACTED EMBANKMENT IN PLACE	C.Y.	23,155		
5	ROCK EXCAVATION (WATER MAIN ONLY)	C.Y.	50		
6	UNTREATED COMPACTED AGGREGATE	TON	100		
7	SILT FENCE	L.F.	1,290		
8	ROCK DITCH CHECK	EACH	6		
9	TEMPORARY SEED AND MULCH	AC.	2.9		
10	TEMPORARY EROSION CONTROL BLANKET	S.Y.	100		
11	AGGREGATE BASE AND SURFACE	TON	10		
12	8" P.C.C. APPROACH PAVEMENT	S.Y.	165		
13	4" AGGREGATE BASE (#57 STONE)	S.Y.	123		
14	7" ASPHALTIC CONCRETE BASE (TYPE 1-01)	S.Y.	2,448		
15	2" ASPHALTIC CONCRETE SURFACE (TYPE 3-01)	S.Y.	2,448		
16	6" UNTREATED COMPACTED AGGREGATE DRIVEWAY	S.Y.	393		
17	6" ASPHALTIC CONCRETE DRIVEWAY	S.Y.	119		
18	6" CONCRETE CURB TYPE 1	L.F.	478		
19	SOD	S.Y.	269		
20	4" CONCRETE SIDEWALK	S.F.	0		
21	4" CONCRETE FLUME	L.F.	60		
22	6" UNDERDRAIN (FOR BIDDING PURPOSES ONLY)	L.F.	200		
23	TYPE 2 ROCK BLANKET	S.Y.	2,219		
24	150 LB. RIP-RAP (30" MIN THICKNESS)	S.Y.	497		
25	500 LB. RIP-RAP (42" MIN THICKNESS)	S.Y.	267		
26	4" SOLID YELLOW "DOUBLE CENTERLINE" LINE (THERMOPLASTIC)	L.F.	893		
27	4" SOLID YELLOW "DOUBLE CENTERLINE" LINE (EPOXY)	L.F.	232		
28	4" SOLID WHITE "EDGE" LINE (THERMOPLASTIC)	L.F.	1,786		
29	4" SOLID WHITE "EDGE" LINE (EPOXY)	L.F.	464		
30	SEEDING (MULCHING & FERTILIZING)	AC.	2.9		
31	2" (SCHEDULE 40) PVC CONDUIT	L.F.	350		
32	15" RCP STORM SEWER PIPE	L.F.	35		
33	15" RCP STORM SEWER FLARED END SECTIONS	EACH	4		
34	28.5" x 18" RCPA STORM SEWER PIPE	L.F.	44		
35	28.5"x18" RCPA STORM SEWER FLARED END SECTIONS	EACH	4		
36	30" RCP STORM SEWER PIPE	L.F.	16		
37	30" RCP STORM SEWER FLARED END SECTIONS	EACH	2		
38	36" RCP STORM SEWER PIPE	L.F.	32		
39	36" RCP STORM SEWER FLARED END SECTIONS	EACH	2		
40	RECONNECTION & MODIFICATION OF EXISTING FACILITIES (FORCE ACCT.)	FA	1	\$ 50,000	
41	SETTLEMENT GAUGE ASSEMBLY	EACH	2		
ROADWAY SUBTOTAL					

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
<b>UTILITY ITEMS (NON-PARTICIPATING)</b>					
42	8" D.I.P. WATER MAIN & APPURTENANCES	L.F.	735		
43	AIR RELIEF VALVE ASSEMBLY	EACH	1		
UTILITY SUBTOTAL					
<b>SIGNING ITEMS</b>					
44	TRAFFIC CONTROL SIGNS (PERMANENT)	S.F.	24		
45	TRAFFIC CONTROL SIGNS (TEMPORARY)	S.F.	418		
46	TEMPORARY CONCRETE BARRICADES (12.5' LONG)	L.F.	50		
47	8' TYPE III BARRICADES (WITH TYPE A FLASHING LIGHTS)	EACH	8		
48	FLAG ASSEMBLY	EACH	4		
SIGNING SUBTOTAL					
<b>BRIDGE ITEMS</b>					
49	REMOVAL OF EXISTING BRIDGE	L.S.	1		
50	CLASS HPB1 CONCRETE	C.Y.	92.6		
51	HP12x53	L.F.	1,460		
52	PILE POINTS	EACH	20		
53	FLOWABLE FILL	C.Y.	424		
54	STRUCTURAL EXCAVATION	C.Y.	297.3		
55	P/S CONCRETE GIRDERS	EACH	7		
56	BRIDGE APPROACH SLAB	S.Y.	280.6		
57	LAMINATED NEOPRENE BEARING PADS	EACH	14		
58	REINFORCING STEEL (GRADE 60)	LBS	15,370		
59	SLAB ON CONCRETE GIRDER	S.Y.	788		
60	CORRAL RAIL	L.F.	340		
61	DECORATIVE FENCE (4'-6")	L.F.	329		
62	FORMLINERS	S.F.	1,057		
63	GRAFFITI PROTECTION	S.F.	1,630		
64	MASONRY COATING STAINING	S.F.	1,630		
BRIDGE SUBTOTAL					
<b>TOTAL CONTRACTOR</b>					

ACKNOWLEDGEMENT: Each Bidder shall acknowledge receipt of addenda by their signature affixed hereto and addendum noted at the right by number.

Addendum No.(s) \_\_\_\_\_

Contractor: \_\_\_\_\_

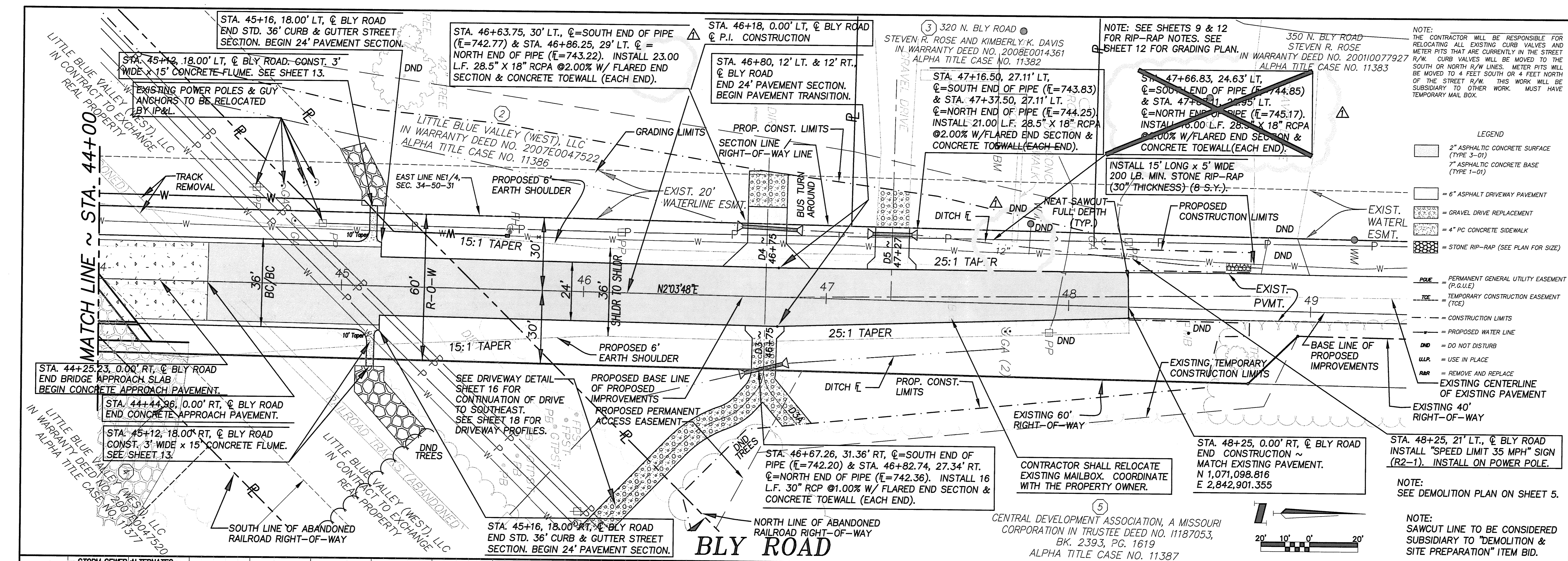
Phone: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Name: \_\_\_\_\_

(please print)



NOTE: THE CONTRACTOR WILL BE RESPONSIBLE FOR RELOCATING ALL EXISTING CURB VALVES AND METER PITS THAT ARE CURRENTLY IN THE STREET R/W. CURB VALVES WILL BE MOVED TO THE SOUTH OR NORTH R/W LINES. METER PITS WILL BE MOVED TO 4 FEET SOUTH OR 4 FEET NORTH OF THE STREET R/W. THIS WORK WILL BE SUBSIDIARY TO OTHER WORK. MUST HAVE TEMPORARY MAIL BOX.

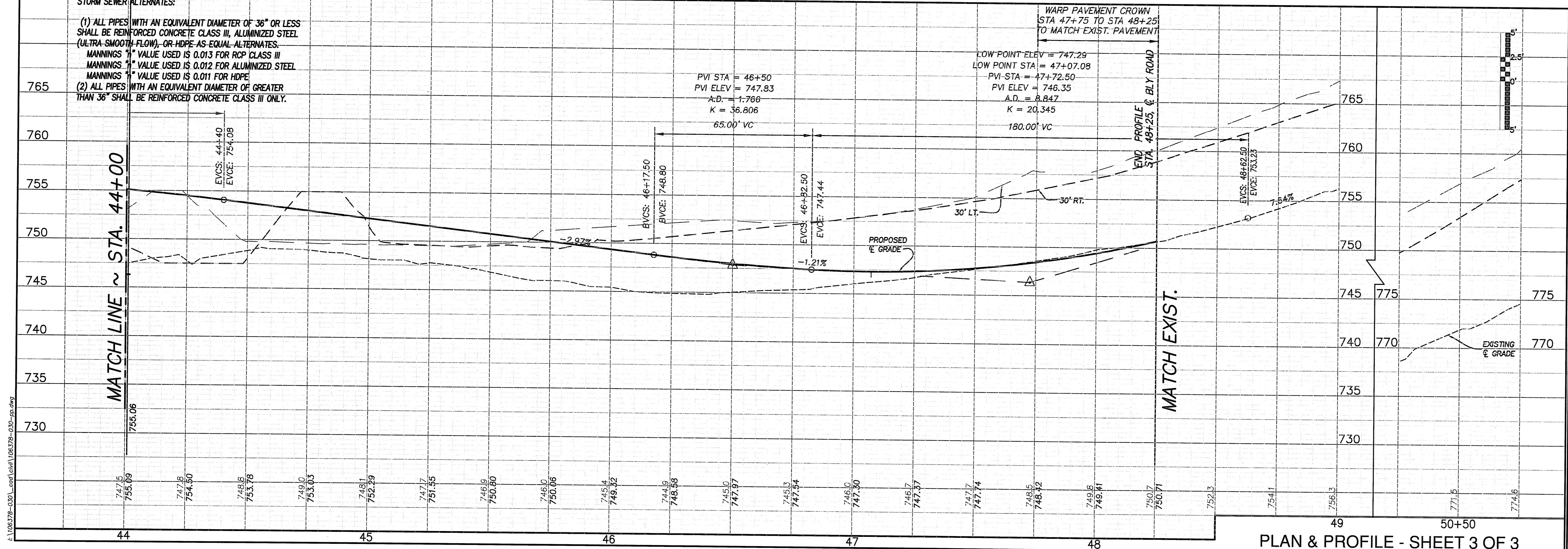
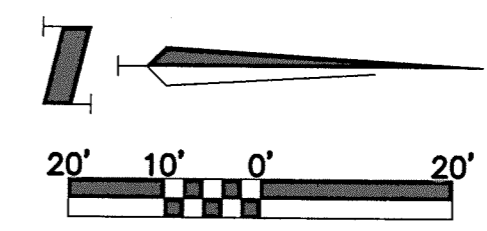
NOTE: SAWCUT LINE TO BE CONSIDERED SUBSIDIARY TO "DEMOLITION & SITE PREPARATION" ITEM BID.

NOTE: CONTRACTOR SHALL RELOCATE EXISTING MAILBOX. COORDINATE WITH THE PROPERTY OWNER.

NOTE: SEE SHEETS 9 & 12 FOR RIP-RAP NOTES. SEE SHEET 12 FOR GRADING PLAN.

NOTE: SEE DEMOLITION PLAN ON SHEET 5.

- LEGEND
- 2" ASPHALTIC CONCRETE SURFACE (TYPE 3-01)
  - 7" ASPHALTIC CONCRETE BASE (TYPE 1-01)
  - 6" ASPHALT DRIVEWAY PAVEMENT
  - GRAVEL DRIVE REPLACEMENT
  - 4" PC CONCRETE SIDEWALK
  - STONE RIP-RAP (SEE PLAN FOR SIZE)
  - PERMANENT GENERAL UTILITY EASEMENT (P.G.U.E.)
  - TEMPORARY CONSTRUCTION EASEMENT (T.C.E.)
  - CONSTRUCTION LIMITS
  - PROPOSED WATER LINE
  - DO NOT DISTURB
  - USE IN PLACE
  - REMOVE AND REPLACE
  - EXISTING CENTERLINE OF EXISTING PAVEMENT
  - EXISTING 40' RIGHT-OF-WAY



STORM SEWER ALTERNATES:

(1) ALL PIPES WITH AN EQUIVALENT DIAMETER OF 36" OR LESS SHALL BE REINFORCED CONCRETE CLASS III, ALUMINIZED STEEL (ULTRA-SMOOTH FLOW), OR HDPE AS EQUAL ALTERNATES. MANNINGS "N" VALUE USED IS 0.013 FOR RCP CLASS III. MANNINGS "N" VALUE USED IS 0.012 FOR ALUMINIZED STEEL. MANNINGS "N" VALUE USED IS 0.011 FOR HDPE.

(2) ALL PIPES WITH AN EQUIVALENT DIAMETER OF GREATER THAN 36" SHALL BE REINFORCED CONCRETE CLASS III ONLY.

PLAN & PROFILE - SHEET 3 OF 3

REVISIONS

2-1-13
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**SHAFER, KLINE & WARREN, INC.**  
Professional Engineering Corporation  
11250 Corporate Avenue  
2500 Main St.  
Independence, MO 64050  
Phone: 816/798-7800  
Fax: 816/798-7868

**CITY OF INDEPENDENCE**  
PUBLIC WORKS DEPARTMENT  
111 East Maple Street, Independence, MO 64050  
PHONE: (816) 325-7600

DATE: 4-21-10  
DESIGNED BY: JEL  
DRAWN BY: BSL  
CHECKED BY: JEL  
PROJECT NO.: 106378-030  
SURVEY BOOK NO.:  
FILE NAME: 106378-030-PP.DWG  
SHEET: 8 OF 50

SUMMARY OF QUANTITIES			
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY
<b>ROADWAY ITEMS</b>			
1	DEMOLITION AND SITE PREPARATION	L.S.	1
2	SURVEY MONUMENT	EACH	1
3	PERMANENT BENCHMARK	EACH	2
4	COMPACTED EMBANKMENT IN PLACE	C.Y.	23,155
5	ROCK EXCAVATION (WATER MAIN ONLY)	C.Y.	50
6	UNTREATED COMPACTED AGGREGATE	TON	100
7	SILT FENCE	L.F.	1,290
8	ROCK DITCH CHECK	EACH	6
9	TEMPORARY SEED AND MULCH	AC.	2.9
10	TEMPORARY EROSION CONTROL BLANKET	S.Y.	100
11	AGGREGATE BASE AND SURFACE	TON	10
12	8" P.C.C. APPROACH PAVEMENT	S.Y.	165
13	4" AGGREGATE BASE (#57 STONE)	S.Y.	123
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18	6" CONCRETE CURB TYPE 1	L.F.	478
19	SOD	S.Y.	269
20	4" CONCRETE SIDEWALK	S.F.	0
21	4" CONCRETE FLUME	L.F.	60
22	6" UNDERDRAIN (FOR BIDDING PURPOSES ONLY)	L.F.	200
23	TYPE 2 ROCK BLANKET	S.Y.	2,219
24	150 LB. RIP-RAP (30" MIN THICKNESS)	S.Y.	497
25	500 LB. RIP-RAP (42" MIN THICKNESS)	S.Y.	267
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27	4" SOLID YELLOW "DOUBLE CENTERLINE" LINE (EPOXY)	L.F.	232
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33	15" RCP STORM SEWER FLARED END SECTIONS	EACH	4
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37	30" RCP STORM SEWER FLARED END SECTIONS	EACH	2
38	36" RCP STORM SEWER PIPE	L.F.	32
39	36" RCP STORM SEWER FLARED END SECTIONS	EACH	2
40	RECONNECTION & MODIFICATION OF EXISTING FACILITIES (FORCE ACCT.)	FA	1
41	SETTLEMENT GAUGE ASSEMBLY	EACH	2
<b>UTILITY ITEMS (NON-PARTICIPATING)</b>			
42	8" D.I.P. WATER MAIN & APPURTENANCES	L.F.	735
43	AIR RELIEF VALVE ASSEMBLY	EACH	1
<b>SIGNING ITEMS</b>			
44	TRAFFIC CONTROL SIGNS (PERMANENT)	S.F.	24
45	TRAFFIC CONTROL SIGNS (TEMPORARY)	S.F.	418
46	TEMPORARY CONCRETE BARRICADES (12.5' LONG)	L.F.	50
47	8" TYPE III BARRICADES (WITH TYPE A FLASHING LIGHTS)	EACH	8
48	FLAG ASSEMBLY	EACH	4
<b>BRIDGE ITEMS</b>			
49	REMOVAL OF EXISTING BRIDGE	L.S.	1
50	CLASS HPB1 CONCRETE	C.Y.	92.6
51	HP12x53	L.F.	1,460
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63	GRAFFITI PROTECTION	S.F.	1,630
64	MASONRY COATING STAINING	S.F.	1,630

**STORM SEWER ALTERNATES:**

(1) ALL PIPES WITH AN EQUIVALENT DIAMETER OF 36" OR LESS SHALL BE REINFORCED CONCRETE CLASS III, ALUMINIZED STEEL (ULTRA SMOOTH FLOW), OR HDPE AS EQUAL ALTERNATES.

MANNINGS "n" VALUE USED IS 0.013 FOR RCP CLASS III  
MANNINGS "n" VALUE USED IS 0.012 FOR ALUMINIZED STEEL  
MANNINGS "n" VALUE USED IS 0.011 FOR HDPE

(2) ALL PIPES WITH AN EQUIVALENT DIAMETER OF GREATER THAN 36" SHALL BE REINFORCED CONCRETE CLASS III ONLY.

- QUANTITIES SHOWN ON THESE PLANS ARE NOT GUARANTEED BY THE CITY AND ARE USED SOLELY FOR THE PURPOSE OF COMPARING BIDS AND AWARDED THE CONTRACT, AND MAY OR MAY NOT REPRESENT THE ACTUAL QUANTITIES ON THE JOB, SEE SPECIFICATIONS.
- REINFORCING STEEL QUANTITIES ARE ROUNDED TO THE NEAREST 10 LBS.
- PRICE BID FOR BRIDGE APPROACH SLAB (SY) INCLUDES REINFORCING STEEL COST. THE BILL OF REINFORCING PROVIDES THE REINFORCING STEEL QUANTITIES FOR INFORMATION ONLY.
- CORRAL RAIL QUANTITY INCLUDES TRANSITION AT EACH END.
- ALL CONCRETE ABOVE CONST JOINT AT END BENTS IS INCLUDED IN THE ESTIMATED QUANTITY FOR SLAB ON CONCRETE GIRDER.
- ALL REINFORCEMENT IN THE END BENT ABOVE THE CONST JOINT IS INCLUDED IN THE ESTIMATED QUANTITY FOR SLAB ON CONCRETE GIRDER.
- ALL REINFORCEMENT IN CORRAL RAIL AND CORRAL RAIL TRANSITION SHALL BE SUBSIDIARY TO CORRAL RAIL, L.F.
- ANY ITEM SHOWN IN THE PLANS WITHOUT A BID ITEM SHOULD BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.
- MoDOT AND FHWA MAY MAKE INSPECTIONS OF THE WORK AND THAT THE CONTRACTOR SHALL GRANT THEM ACCESS TO ALL PARTS OF THE WORK.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUBMIT FORM 106, TO MISSOURI DEPARTMENT OF NATURAL RESOURCES, HISTORIC PRESERVATION PROGRAM FOR ANY BORROW AREAS TO BE USED ON THIS PROJECT.

FOUNDATION DATA			
BEARING PILES	LOCATION	END BENT 1	END BENT 2
	PILE TYPE AND SIZE	HP12x53	HP12x53
	NUMBER	10	10
	APPROXIMATE LENGTH (FT)	74	72
	DESIGN BEARING (TONS)	89	89
	HAMMER ENERGY REQ'D. (FT-LBS)	20,000	20,000
	PILE TIP ELEV. (FT)	672.15	673.26

NOTE:  
MINIMUM ENERGY REQUIREMENT OF HAMMER IS BASED ON PLAN LENGTH AND DESIGN BEARING VALUE OF PILES.  
ALL PILES SHALL BE DRIVEN TO PRACTICAL REFUSAL.

ESTIMATED QUANTITIES FOR SLAB ON CONCRETE GIRDER		
Item		Total
CLASS HPB-2 CONCRETE	CU. YARD	327.0
REINFORCING STEEL	LBS.	8260
REINFORCING STEEL (EPOXY COATED)	LBS.	55,460

THE TABLE OF ESTIMATED QUANTITIES FOR SLAB ON CONCRETE BOX GIRDER REPRESENTS THE QUANTITIES USED IN PREPARING THE COST ESTIMATE FOR CONCRETE SLABS. THE AREA OF CONCRETE SLAB WILL BE MEASURED TO THE NEAREST SQUARE YARD WITH THE HORIZONTAL DIMENSIONS AS SHOWN ON THE PLAN OF THE SLAB. PAYMENT FOR CONVENTIONAL FORMS, ALL CONCRETE AND COATED AND UNCOATED REINFORCING STEEL WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR THE SLAB.

\*\* CLASS HPB-2 CONCRETE QUANTITY IS BASED ON MINIMUM JOINT MATERIAL THICKNESS.

**BRIDGE GENERAL NOTES:**

**DESIGN SPECIFICATION:**

2002-AASHTO 17th EDITION  
LOAD FACTOR DESIGN  
SEISMIC PERFORMANCE CATEGORY A  
FOR MATERIALS AND CONSTRUCTION PROCEDURES THE CONTRACTOR SHALL FOLLOW THE SPECIFICATIONS AS STATED IN THE "MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION 2011 AS AMENDED OR SUPPLEMENTED."

**DESIGN LOADING:**

HS25  
35 PSF FUTURE WEARING SURFACE  
EARTH 120 LBS/ CU. FT.  
EQUIVALENT FLUID PRESSURE 45 LBS/ CU. FT.  
SUPERSTRUCTURE: SIMPLY-SUPPORTED, NON-COMPOSITE FOR DEAD LOAD.  
COMPOSITE FOR LIVE LOAD.  
SIDEWALK: 60 PSF

**DESIGN UNIT STRESSES:**

PRESTRESSING STEEL (GRADE 270)  $f_s = 270,000$  PSI  
CLASS HPB1 CONCRETE (SUBSTRUCTURE)  $f_c = 4000$  PSI  
CLASS HPB-2 CONCRETE (SUPERSTRUCTURE, INCLUDING CONCRETE BRIDGE RAIL)  $f_c = 4000$  PSI  
REINFORCING STEEL (GRADE 60)  $F_y = 60,000$  PSI  
STRUCTURAL CARBON STEEL (ATSM A709 GRADE 36)  $F_y = 36,000$  PSI

**CONCRETE:**

ALL EXPOSED EDGES OF CONCRETE SHALL BE BEVELED  $\frac{3}{4}$ " UNLESS OTHERWISE SHOWN OR NOTED.  
CONSTRUCTION JOINTS SHALL BE MADE ONLY AT LOCATIONS SHOWN ON THE PLANS, EXCEPT WITH THE APPROVAL OF THE ENGINEER.  
KEYS SHALL BE PROVIDED FOR ALL CONSTRUCTION JOINTS UNLESS OTHERWISE SHOWN.  
KEY DIMENSIONS SHALL BE THE WALL THICKNESS "T" DIVIDED BY 3 (T/3 WIDE) BY 2 INCHES DEEP.

**NEOPRENE BEARINGS:**

BEARINGS SHALL BE 60 DUROMETER NEOPRENE PADS.  
THE NEOPRENE PAD SHALL BE BONDED TO THE BEARING SEAT WITH AN EPOXY ADHESIVE AS APPROVED BY THE BEARING MANUFACTURER FOR BONDING NEOPRENE TO CONCRETE.

**REINFORCING STEEL:**

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE  $1\frac{1}{2}$ ", UNLESS OTHERWISE SHOWN.

**JOINT FILLER:**

ALL JOINT FILLER SHALL BE IN ACCORDANCE WITH SEC 1057 FOR PREFORMED SPONGE RUBBER EXPANSION AND PARTITION JOINT FILLER, EXCEPT AS NOTED.

**CLASS HPB-2 CONCRETE:**

THE MIX DESIGN FOR THIS CONCRETE SHALL FOLLOW MoDOT CLASS B-2 WITH THE FOLLOWING REVISIONS:  
6.50 SACKS OF PORTLAND CEMENT  
4.70 GALLONS OF WATER PER SACK  
15% CLASS C FLYASH

**ABBREVIATIONS:**

BRG = BEARING  
CLR = CLEAR  
CONST = CONSTRUCTION  
DIA = DIAMETER  
EB = END BENT  
EF = EACH FACE  
ELEV = ELEVATION  
EQ = EQUAL  
FF = FAR FACE  
MAX = MAXIMUM  
MIN = MINIMUM  
NF = NEAR FACE  
SPA = SPACES  
SYMM = SYMMETRICAL  
TYP = TYPICAL

REVISIONS  
2-1-13

**SHAHER, KLINE & WARREN, INC.**  
Professional Engineering Corporation  
Missouri Office: 2946 Main St., St. Louis, MO 64108  
Phone: 314/796-0444  
Fax: 314/796-0733  
Kansas Office: 1000 West 10th St., Lawrence, KS 66044  
Phone: 785/843-7800  
Fax: 785/843-7888

**SKW**  
CIVIL ENGINEERS - MECHANICAL ENGINEERS - LANDSCAPE ARCHITECTS  
ELECTRICAL ENGINEERS - LAND PLANNERS  
MISSOURI CERTIFICATE OF AUTHORITY: PD0139560

**BLY ROAD IMPROVEMENTS**  
BRO-B048(052)

**CITY OF INDEPENDENCE PUBLIC WORKS DEPARTMENT**  
111 East Maple Street, Independence, MO 64050  
PHONE: (816) 325-7600

DATE: 4-21-10  
DESIGNED BY: GDS  
DRAWN BY: MEJ  
CHECKED BY: GDS  
PROJECT NO.: 106378-030  
SURVEY BOOK NO.:  
FILE NAME: 026\_106378-030\_GNO.DWG  
SHEET: 26 OF 50