TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

August 17, 2015

CALL NO. 111
CONTRACT ID NO. 151246
ADDENDUM # 1

Subject: Bullitt County, STP BRZ 0503 (240)
Letting August 21, 2015

(1) Replace - Plan Sheets - U1, U2, & U3
(2) Revised - Bid Items - Pages 157-158 of 158
(3) Added - Note - Pages 1-22 of 22

Proposal revisions are available at http://transportation.ky.gov/Construction-Procurement/.

Plan revisions are available at http://www.lynnimaging.com/kytransportation/.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

Rachel Mills

Rachel Mills, P.E.
Director
Division of Construction Procurement

RM:ks
Enclosures

COUNTY OF	ITEM NO.	SHEET NO.
BULLITT	5-1081.00	U1

CUT & PLUG EX. 8" D.P.W.

SUPPLY & INSTALL 45° BEND

SUPPLY & INSTALL 8" GATE VALVE WITH L.W.C. SUPPLIED LEAK DETECTION ASSEMBLY

INSTALL 6" F.H. TYPE D.P. ATT.#618891

TIE-IN TO EX. 8" D.P.W.

CUT, PLUG & REMOVE EX. FIRE HYDRANT (ATT.#608989). RETURN EX. FIRE HYDRANT TO L.W.C. WAREHOUSE

SUPPLY & INSTALL 35± L.F. 16" STEEL CASING PIPE

SUPPLY & INSTALL 45° BEND

SUPPLY & INSTALL 11-1/4° BEND

SUPPLY & INSTALL 435± L.F. 8" D.P.W. (RESTRAINED JOINT) (KY. HIGHWAY #1417)

SUPPLY & INSTALL 11-1/4° BEND

SUPPLY & INSTALL 45° BEND

INSTALL WATER MAIN PER L.W.C. CREEK CROSSING DETAIL (SEE DETAIL SHEET)

SUPPLY & INSTALL 11-1/4° BEND, 8" GATE VALVE AND TIE-IN TO EX. 8" D.P.W. CUT & PLUG EX. 8" D.P.W.

ⓐ S37^40'08"W-10.28'
ⓑ S47^29'26"W-32.84'
ⓒ S38^59'14"E-83.10'
ⓓ ARC=102.36' R=2802.00' CHD=S40^02'02"E-102.36'
ⓔ ARC=20.59' R=11480.00' CHD=S39^02'19"E-20.59'
ⓕ ARC=45.70' R=11,520.00' CHD=S39^06'03"E-45.70'

KY HWY. 1417

(MARTIN HILL ROAD)

KNOB CREEK

GRAVEL

CONST LIMITS

EX 20' GENERAL UTIL ESMT

18" ABS

18" CONC

BEG CONST STA 47+39.53

BEGIN R/W STA 42+50.00

END CONST STA 51+93.6

PC 46+77.44

PT 47+95.62

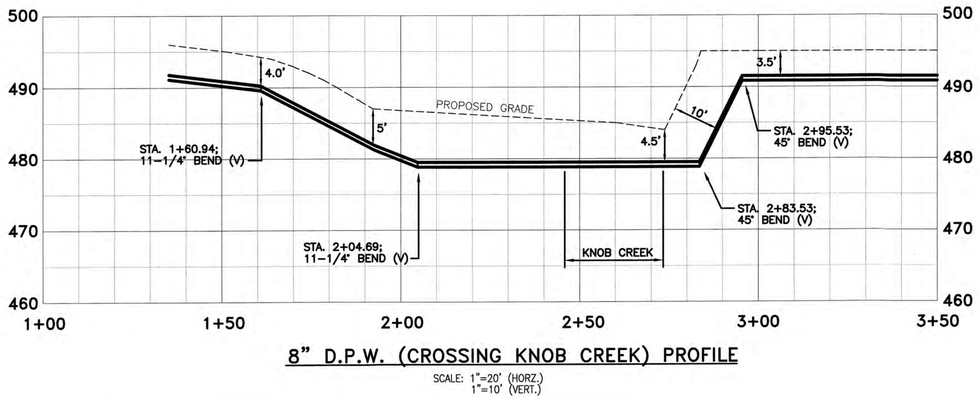
PI 47+63.53

PC 50+98.73

PI 51+81.67

PT 52+64.56

POE 52+95.05



8" D.P.W. (CROSSING KNOB CREEK) PROFILE

SCALE: 1"=20' (HORZ.)
1"=10' (VERT.)

For Buried Line/Cable Locations
** Contact Two Business Days Before **
Kentucky 811
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0 20 40 80

CRITICAL WATER MAINS ARE WITHIN THE PROJECT LIMITS. CONTRACTOR SHALL VERIFY THAT INSPECTOR HAS OBTAINED APPROVAL FROM PLANT OPERATIONS MANAGER TO SHUT-OFF CRITICAL WATER MAINS PRIOR TO ANY CONSTRUCTION ACTIVITIES THAT WILL IMPACT CRITICAL FACILITIES OR CRITICAL INFRASTRUCTURE. CONTRACTOR SHALL ASSIST THE INSPECTOR WITH NOTIFICATIONS TO ALL CRITICAL FACILITIES (HOSPITALS, SCHOOLS ETC.) IMPACTED.

NOTE: WHEN ABANDONING EXISTING GATE VALVES, REMOVE OPERATOR NUT, KEYTUBE, ROUND TOP & LID AND BACKFILL WITH EITHER CONCRETE OR ASPHALT.

NOTE: JEFFERSON COUNTY PROPERTY DATA SHOWN ON THIS MAP WAS DIGITIZED FROM PVA BLOCK MAPS, ADJUSTED TO LOJIC PLANIMETRIC MAP DATA AND HAS BEEN UPDATED FROM PVA RECORDS. THE PROPERTY DATA DOES NOT SUPERSEDE DEED RECORDS AND SHOULD NOT BE USED FOR PURPOSES OTHER THAN GENERAL PROPERTY REFERENCE AND IDENTIFICATION.

NOTE: BASE MAP INFORMATION DERIVED FROM PLANIMETRIC AND TOPOGRAPHIC DATA FROM LOUISVILLE/ JEFFERSON COUNTY INFORMATION CONSORTIUM. (LOJIC)

*** THESE DRAWINGS ARE FOR L.W.Co. WORK ONLY ***
UTILITIES LOCATIONS ARE SHOWN FROM AVAILABLE INFORMATION AND ARE APPROXIMATE. CONTRACTORS ARE URGED TO MAKE THEIR OWN DETERMINATION OF EXACT LOCATIONS

SERVICE LEGEND AND COUNT (THIS SHEET)
(0) R-RENEW
(0) T-TRANSFER
(0) D-DISCONTINUE
(0) RE-RELOCATE
(0) M-METER EXCHANGE

FIRE HYDRANT COUNT (THIS SHEET)
(1) INSTALL
(1) REMOVE

INSPECTION CERTIFICATION

I hereby certify, to the best of my knowledge and belief, that the water main project has been constructed and tested in accordance with the approved plans and specifications.

NAME (PRINT)

NAME (SIGNATURE)

DATE

DESIGNATED PLAN REVIEWER CERTIFICATION

I hereby certify that the water main plans have been reviewed and approved in accordance with the requirements of the KDOW Agreed Order Technical Design and Construction Standards.

KDOW VAR. 1.6.2

NAME (PRINT)

NAME (SIGNATURE)

DATE

WATER LINE ONLY

STATE OF KENTUCKY
DANIEL TEGENE
20665
LICENSED
PROFESSIONAL ENGINEER

SIGNATURE

8/5/15
DATE

LOUISVILLE WATER COMPANY
550 S. 3RD STREET • LOUISVILLE, KENTUCKY 40202 • (502) 569-3600
JAMES H. BRAMMELL – PRESIDENT
SPENCER W. BRUCE – VICE PRESIDENT/CHIEF ENGINEER

MARTIN HILL ROAD BRIDGE
WATER MAIN RELOCATION

DATE 08-06-15	SCALE 1"=20'	MAP NO. 1191-196	
DRAWN BY E. SCHMIDT	CHECKED BY D. TEGENE	ENGR. J. LONG	
PROJECT NUMBER 14414	SHEET 1 OF 2		
TASK NUMBER 04			

COUNTY OF	ITEM NO.	SHEET NO.
BULLITT	5-1081.00	U2

CODE NO.		UNIT	PROJECT TOTAL	REMARKS
ITEM CODE				
UNIT TO BID ON "SUPPLY & INSTALL" QUANTITIES				
14037	W PIPE DUCTILE IRON 08 INCH	LF	435	
01073	STEEL CASING PIPE – 16"	LF	35	
03528	GATE VALVE – 8"	EACH	2	RESILIENT SEAL
03563	BEND 45 DEG 8"	EACH	4	
03539	BEND 11.25 DEG 8"	EACH	5	
14095	W TIE-IN 08 INCH	EACH	2	
14561	W PLUG EXISTING MAIN INST (8IN)	EACH	2	PER LWC SPECIFICATIONS
14021	W FIRE HYDRANT REMOVE	EACH	1	
14510	W FIRE HYDRANT ASSEMBLY INST	EACH	1	
21455ND	ABANDON VALVE	EACH	2	
23667EC	WATER MAIN CREEK CROSSING	LF	40	
23363EC	INSTALL LEAK DETECTION ASSEMBLY	EACH	1	
24165EC	HYDROSTATIC TEST - 8 IN MAIN-INSTALL	EACH	1	

UTILITIES LOCATIONS ARE SHOWN FROM AVAILABLE INFORMATION AND ARE APPROXIMATE. CONTRACTORS ARE URGED TO MAKE THEIR OWN DETERMINATION OF EXACT LOCATIONS.

WATER FACILITY RELOCATION PLANS ARE PREPARED ON PLANS PROVIDED BY OTHERS. NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE PLANS PROVIDED FOR LOUISVILLE WATER COMPANY USE.

THIS DRAWING WAS PREPARED BY LWC AT KTC'S REQUEST. KTC AND KTC'S CONTRACTOR ARE CAUTIONED THAT KTC REMAINS SOLELY RESPONSIBLE FOR ALL NECESSARY REVIEWS AND APPROVALS, AS WELL AS COMPLIANCE WITH ALL APPLICABLE STATUTES, ORDINANCES, LAWS AND REGULATIONS, INCLUDING ANY NECESSARY GENERAL OR INDIVIDUAL SITE DISTURBANCE PERMITS AND ALL OTHER PERMITS PRIOR TO BEGINNING CONSTRUCTION ON THIS PROJECT. BY PREPARING THIS DRAWING AT DEVELOPER REQUEST, LWC ASSUMES NO RESPONSIBILITY FOR THE DRAWING'S USE OR FOR REVIEWS, APPROVALS OR COMPLIANCE WITH APPLICABLE STATUTES, ORDINANCES, LAWS, PERMITS AND REGULATIONS.

For Buried Line/Cable Locations
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THIS SHEET IS FOR WATER MAIN CONSTRUCTION ONLY

LOUISVILLE WATER COMPANY
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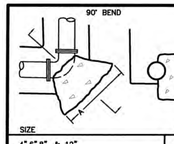
JAMES H. BRAMMELL – PRESIDENT
SPENCER W. BRUCE – VICE PRESIDENT/CHIEF ENGINEER

MARTIN HILL ROAD BRIDGE
WATER MAIN RELOCATION

DATE 08-06-15	SCALE –	MAP NO.	1191-196
DRAWN BY E. SCHMIDT	CHECKED BY D. TEGENE	ENGR.	J. LONG
PROJECT NUMBER 14414	SHEET	2 OF 2	
TASK NUMBER 04			

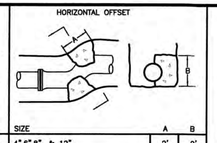
COUNTY OF	ITEM NO.	SHEET NO.
BULLITT	5-1081.00	U3

90° BEND



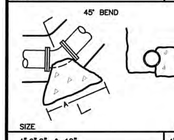
SIZE	A	B
4",6",8", & 12"	5'	3'
16"	6'-3"	3'-9"
20"	7'-6"	4'
24"	9'	5'

HORIZONTAL OFFSET



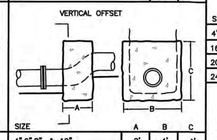
SIZE	A	B
4",6",8", & 12"	2'	2'
16"	2'-6"	2'-6"
20"	3'	3'
24"	3'-6"	3'-6"

45° BEND



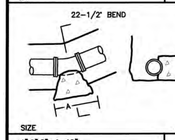
SIZE	A	B
4",6",8", & 12"	4'-6"	2'
16"	5'-9"	2'-6"
20"	6'-6"	3'
24"	7'	4'

VERTICAL OFFSET



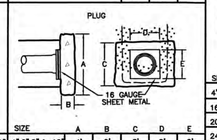
SIZE	A	B	C
4",6",8", & 12"	2'	4'	4'
16"	3'	6'	4'
20"	3'-6"	7'	4'-6"
24"	4'	8'	5'

22-1/2° BEND



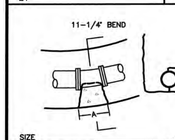
SIZE	A	B
4",6",8", & 12"	3'	1'-6"
16"	3'-9"	2'
20"	4'-6"	2'-9"
24"	5'	4'

PLUG



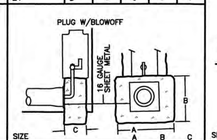
SIZE	A	B	C	D	E
4",6",8",& 12"	4'	9"	3'	2'	2'
16"	5'	1'-3"	4'	2'-6"	2'-6"
20"	6'-6"	2'	4'	3'	3'
24"	8'	3'	5'	4'	4'

11-1/4° BEND



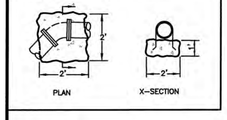
SIZE	A	B
4",6",8", & 12"	2'-6"	1"
16"	3'	1'-6"
20"	4'	2'-3"
24"	4'-6"	3'-6"

PLUG W/BLOWOFF



SIZE	A	B	C
4",6",8", & 12"	4'	3'	1'-6"
16"	5'	4'	2'
20"	6'	5'	2'-6"
24"	7'-6"	6'	3'

TYPICAL CONCRETE ANCHOR BLOCK
UNDER ALL FITTINGS
USED WITH P.V.C. PIPE



TYPICAL THRUST ANCHORS

NOTE:

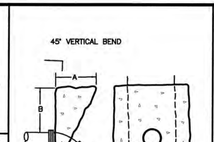
(1) ALL DUCTILE AND GRAY IRON PIPE AND APPURTENANCES SHALL BE DOUBLE POLYWRAPPED.

(2) CARE SHALL BE TAKEN TO AVOID DAMAGING POLYWRAP.

(3) CONCRETE THRUST ANCHORS MUST BE ALLOWED TO CURE, OR PROTECTED AS APPROVED BY THE PROJECT MANAGER, BEFORE BACKFILLING.

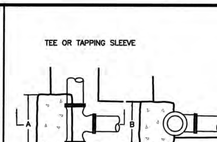
(4) ALL CONCRETE SHALL BE 3,500psi FROM A COMMERCIAL PLANT, OR SHALL BE AN ON-SITE MIXTURE PREVIOUSLY APPROVED AT THE PRECONSTRUCTION CONFERENCE.

45° VERTICAL BEND



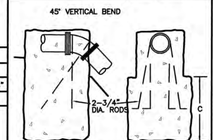
SIZE	A	B	C
4",6",8", & 12"	3'	3'	5'
16"	3'-9"	3'-9"	6'
20"	5'	4'	7'
24"	6'	5'	8'

TEE OR TAPPING SLEEVE



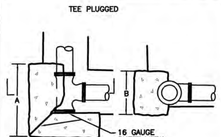
SIZE	A	B
4",6",8", & 12"	4'	3'
16"	5'	3'-9"
20"	6'	4'-6"
24"	7'	5'-3"

45° VERTICAL BEND



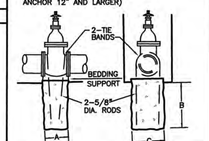
SIZE	A	B	C
4",6",8", & 12"	4'	4'	4'
16"	5'	5'	5'
20"	6'	6'	6'
24"	7'	7'	7'

TEE PLUGGED



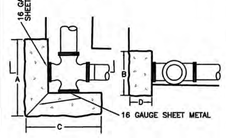
SIZE	A	B	C
4",6",8", & 12"	4'	3'	4'-6"
16"	5'	3'-9"	5'-6"
20"	6'	4'-6"	6'
24"	7'	5'	6'-6"

GATE VALVE (IF PVC, THEN ANCHOR ALL SIZES.) (IF DI PIPE, THEN ANCHOR 12" AND LARGER)



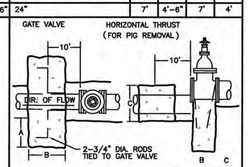
SIZE	A	B	C
4",6",8", & 12"	1'-6"	3'	2'
16"	2'	3'-9"	2'-6"
20"	2'-6"	4'	3'
24"	3'	4'-6"	3'-6"

CROSS PLUGGED



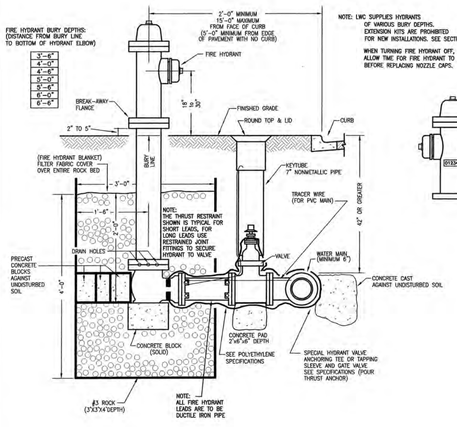
SIZE	A	B	C	D
4",6",8", & 12"	4'-6"	3'	4'-6"	1'-6"
16"	5'	3'-6"	5'	2'
20"	6'	4'	6'	3'
24"	7'	4'-6"	7'	4'

GATE VALVE HORIZONTAL THRUST (FOR PIG REMOVAL)

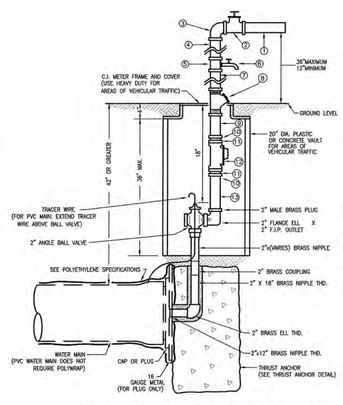


SIZE	A	B	C
4",6"	1'	2'	2'
8"	1'	2'	2'
12"	2'	3'	2'
16"	2'	4'	3'
20"	3'	4'	3'
24"	3'	4'	3'

TYPICAL FIRE HYDRANT CONNECTION



TYPICAL FLUSHING CONNECTION



TEMPORARY FLUSHING ASSEMBLY FURNISHED BY LWC METER SHOP.

1. 2"X6" BRASS NIPPLE THD*
2. 2" GATE VALVE*
3. 2" 90° ELL BRASS THD*
4. 2"X6" BRASS NIPPLE THD*
5. 2"X1" TEE WITH 1"X3/4" BUSHING*
6. 3/4" BRASS SPIGOT WITH 1/2" OUTLET*
7. 2"X12" BRASS NIPPLE THD*
8. 2" DUAL CHECK VALVE*
9. 2"X3" BRASS NIPPLE THD*
10. 2"X1-1/2" BRASS REDUCER*
11. 1-1/2" MIP X FLG*
12. 1-1/2" TURBINE METER*
13. 2"X6" BRASS NIPPLE THD*

CAUTION: DO NOT CONNECT PRESSURE TEST EQUIPMENT TO TEMPORARY FLUSHING ASSEMBLY!

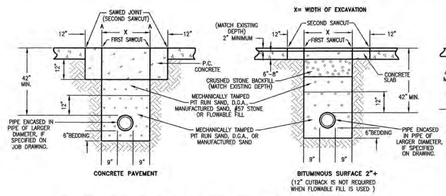
NOTE:

1-1/2" TURBINE METER AND 2" DUAL CHECK VALVE ARE TO BE INSTALLED AFTER PIGGING OPERATIONS. A 2" HOSE IS TO BE USED DURING ALL FLUSHING OPERATIONS.

NOTE:

8" AND LARGER WATER MAINS MAY REQUIRE LARGER THAN A 2" FLUSHING OUTLET TO MEET THE KDOW 2.5 F.P.S. FLUSHING REGULATION.

NOTE: FROM POINTS "A" (CONCRETE PAVEMENT) TO NEAREST JOINT OR BREAK IN PAVEMENT MUST BE SIX(6) FEET OR MORE. IF LESS THAN 6, REMOVE PAVEMENT TO JOINT OR BREAK AND REPLACE ENTIRE SLAB. CONCRETE SLAB UNDER BITUMINOUS SURFACE TO EXTEND 12 INCHES ON EACH SIDE OF TRENCH.



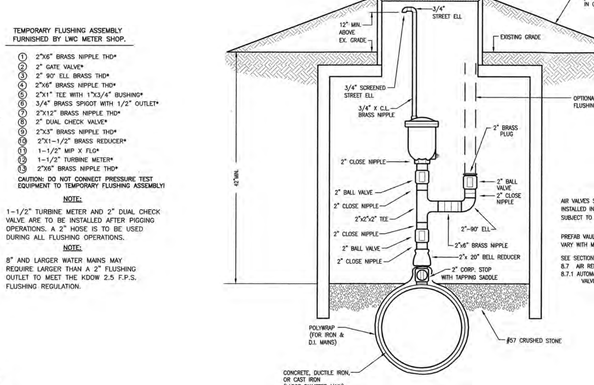
NOTE: REPLACE CONCRETE PAVEMENT WITH NEW PAVEMENT SAME THICKNESS OF EXISTING PAVEMENT + 12". REPLACE BITUMINOUS PAVEMENT WITH SAME TYPE AND DEPTH AS EXISTING PAVEMENT.

STATE OF KENTUCKY SPECIFICATIONS

1. INITIAL BACKFILL SHALL BE PIT RUN SAND, DENSE-GRADED AGGREGATE, OR MANUFACTURED SAND MECHANICALLY COMPACTED PER SECTION 7. BACKFILLING PROCEDURES AND TAMPING.
2. CONTRACTOR WILL BE HELD RESPONSIBLE DURING THE ENSUING 5 YEARS FOR PROPER BACKFILLING AND REPLACEMENT OF SURFACE. DURING THE 5 YEAR PERIOD AFTER THE DATE OF THE FINAL CONTRACT PAYMENT, ANY PAVEMENT SETTLEMENT SHALL BE IMMEDIATELY REPAIRED IN AN APPROVED MANNER AT THE EXPENSE OF THE CONTRACTOR.
3. BACKFILLING UP TO BOTTOM OF SUBBASE ELEVATION SHALL BE COMPLETED PRIOR TO SECOND PAIR OF SAWCUTS AND EXCAVATION FOR THE ADDITIONAL 12" OF CONCRETE ON EACH SIDE OF THE TRENCH.
4. DILUTE SS1H (OR OTHER APPROVED TACK COAT MATERIAL) SHALL BE APPLIED AT THE RATE OF 0.1 GAL. PER SQUARE YARD OVER THE CONCRETE BASE. ALLOW SUFFICIENT TIME FOR IT TO "BREAK" BEFORE THE FINISHED BITUMINOUS CONCRETE IS PLACED, AND SEAL ALL JOINTS SECURELY AFTER PAVING.

KENTUCKY TRANSPORTATION CABINET BACKFILL & PAVING RESTORATION

1. BACKFILL SHALL BE DENSE-GRADED AGGREGATE OR SAND. DENSE-GRADE OR SAND SHALL BE PLACED IN MAXIMUM 6" LOOSE LIFTS OR AS SPECIFIED AND MECHANICALLY COMPACTED.
2. CONTRACTOR WILL BE HELD RESPONSIBLE DURING THE ENSUING 5 YEARS FOR PROPER BACKFILLING AND REPLACEMENT OF SURFACE. DURING THE 5 YEAR PERIOD AFTER THE CUT IS MADE, ANY PAVEMENT SETTLEMENT SHALL BE IMMEDIATELY REPAIRED IN AN APPROVED MANNER AT THE EXPENSE OF THE CONTRACTOR.
3. BACKFILLING UP TO BOTTOM OF SUBBASE ELEVATION SHALL BE COMPLETED PRIOR TO SECOND PAIR OF SAWCUTS AND EXCAVATION FOR THE ADDITIONAL 12" OF CONCRETE ON EACH SIDE OF THE TRENCH.
4. DILUTE SS1H (OR OTHER APPROVED TACK COAT MATERIAL) SHALL BE APPLIED AT THE RATE OF 0.1 GAL. PER SQUARE YARD OVER THE CONCRETE BASE. ALLOW SUFFICIENT TIME FOR IT TO "BREAK" BEFORE THE FINISHED BITUMINOUS CONCRETE IS PLACED, AND SEAL ALL JOINTS SECURELY AFTER PAVING.

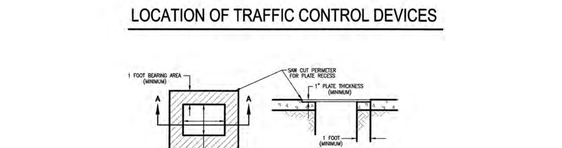


AIR VALVES SHALL NOT BE INSTALLED IN LOCATIONS SUBJECT TO FLOODING.

PREFAB VAULT DIMENSIONS VARY WITH MAIN SIZE

SEE SECTIONS: 8.7 AIR RELEASE VALVES 8.7.1 AUTOMATIC AIR RELEASE VALVES

DETAIL OF 2" AUTOMATIC AIR VALVE

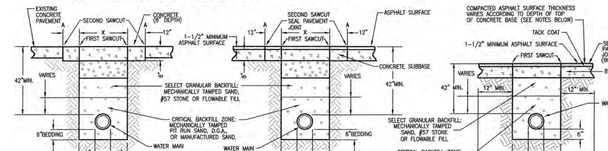


NOTE: TRAFFIC CONTROLS, HAZARD WARNINGS, SPEED RESTRICTIONS TO BE ESTABLISHED AS NEEDED.

LOCATION OF TRAFFIC CONTROL DEVICES

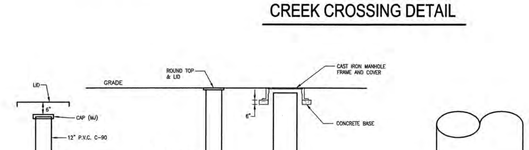
TYPICAL RECESSED PLATE

NOTE: FROM POINTS "A" (CONCRETE PAVEMENT) TO NEAREST JOINT OR BREAK IN PAVEMENT MUST BE FOUR (4) FEET OR MORE. IF LESS THAN 4 REMOVE PAVEMENT TO JOINT OR BREAK AND REPLACE ENTIRE SLAB. CONCRETE SLAB UNDER BITUMINOUS SURFACE TO EXTEND 12" ON EACH SIDE OF TRENCH.



1. CRITICAL BACKFILL ZONE SHALL CONSIST OF MECHANICALLY TAMPED PIT RUN SAND, DENSE-GRADED AGGREGATE, OR MANUFACTURED SAND.
2. SELECT GRANULAR BACKFILL SHALL CONSIST OF NO. 57 STONE OR SAND. THE NO. 57 STONE SHALL BE PLACED IN 4" LOOSE LIFTS AND MECHANICALLY COMPACTED. THE SAND BACKFILL MAY BE FLUSHED AND JETTED OR MECHANICALLY COMPACTED BY VIBRATORY METHODS TO 95% DENSITY, IN ROADWAY EMBANKMENT SITUATIONS WHEN SAND BACKFILL IS UTILIZES, COMPACTED EARTH SHALL BE PLACED IN THIS ZONE WITHIN 5 FEET (HORIZONTAL DISTANCE) OF THE EMBANKMENT SLOPE.
3. BACKFILLING UP TO BOTTOM OF SUBBASE ELEVATION SHALL BE COMPLETED PRIOR TO SECOND PAIR OF SAWCUTS AND EXCAVATION FOR THE ADDITIONAL 12" OF CONCRETE ON EACH SIDE OF THE TRENCH, UNLESS FLOWABLE FILL IS USED.
4. PLATES MUST BE SECURED AND/OR RECESSED AT ALL TIMES.
5. CONCRETE CAP MUST BE PLATED UNTIL CONCRETE REACHES STRENGTH REQUIREMENTS (MINIMUM 3500 PSI)
6. DILUTE SS1H (OR OTHER APPROVED TACK COAT MATERIAL) SHALL BE APPLIED AT THE RATE OF 0.1 GAL. PER SQUARE YARD OVER THE CONCRETE BASE. ALLOW SUFFICIENT TIME FOR IT TO "BREAK" BEFORE THE FINISHED BITUMINOUS CONCRETE IS PLACED, AND SEAL ALL JOINTS SECURELY AFTER PAVING.
7. PAVEMENT JOINTS SHALL BE SEALED WITH AN APPROVED JOINT SEALER AFTER PLACEMENT OF THE BITUMINOUS CONCRETE SURFACE. SEE SECTION 11.2 AND 11.3.
8. CONTRACTOR WILL BE HELD RESPONSIBLE DURING THE ENSUING 5 YEARS FOR PROPER BACKFILLING AND REPLACEMENT OF SURFACE. DURING THE 5 YEAR PERIOD AFTER THE DATE OF THE FINAL CONTRACT PAYMENT, ANY PAVEMENT SETTLEMENT SHALL BE IMMEDIATELY REPAIRED IN AN APPROVED MANNER AT THE EXPENSE OF THE CONTRACTOR.

LOUISVILLE-JEFFERSON COUNTY METRO BACKFILL & PAVING RESTORATION



TYPICAL SECTION

TYPICAL PROFILE

CREEK CROSSING DETAIL

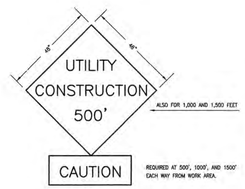
STREAM CROSSING CONDITIONS

1. COMPLY WITH SECTION 1.3.5, SOIL EROSION AND SEDIMENT CONTROL.
2. THIS DETAIL APPLIES ONLY TO BLUE-LINE STREAMS, AS SHOWN ON THE PERTINENT USGS QUADRANGLE MAP.
3. MANAGEMENT CONSTRUCTION PRACTICES MUST BE USED AT ALL TIMES DURING CONSTRUCTION. ADEQUATE SILT CONTROL MUST BE PLACED PRIOR TO THE START OF CONSTRUCTION AND MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
4. REVEGETATE ALL DISTURBED GRASSY AREAS ON THE STREAM SLOPES. SOD STAKES MAY BE REQUIRED TO SECURE SOD ON THE STREAM BANKS.
5. MAINTAIN AT LEAST 3.5' OF BACKFILL AT THE STREAM CROSSING FROM THE TOP OF PIPE TO THE ORIGINAL STREAM BED ELEVATION.
6. OBTAIN APPROVAL FROM THE METROPOLITAN SEWER DISTRICT PRIOR TO THE START OF THE STREAM CROSSING WHEN CONSTRUCTION IS UNDER THEIR JURISDICTION.
7. TO BE PAID PER LINEAL FOOT OF CONCRETE CAP.
8. THRUST BLOCKING SHALL BE CONSTRUCTED AT ALL BENDS.

CREEK CROSSING DETAIL

NOTE: IF TRENCH IS IN BEDROCK, THEN CONCRETE UNDER TRANSMISSION MAIN IS NOT REQUIRED. NORMAL BEDDING ONLY

6" DRAIN / FLUSHING ASSEMBLY



ALSO FOR 1,000 AND 1,500 FEET

REQUIRED AT 500', 1000', AND 1500' EACH WAY FROM WORK AREA.

1. TREES ON STATE RIGHT-OF-WAY ARE NOT TO BE DAMAGED BY THIS INSTALLATION. NO TREE TRIMMING OR REMOVAL IS AUTHORIZED BY THIS PERMIT.
2. ALL DISTURBED PORTIONS OF THE STATE RIGHT-OF-WAY TO BE RESTORED TO ORIGINAL CONDITION BY SEEDING AND MULCHING IN ACCORDANCE WITH KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS.
3. ALL SIGNS AND CONTROL OF TRAFFIC TO BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

WARNING SIGNS

LOUISVILLE WATER COMPANY
550 S. 3RD STREET • LOUISVILLE, KENTUCKY 40202 • (502) 569-3600
JAMES H. BRAMMELL – PRESIDENT
SPENCER W. BRUCE – VICE PRESIDENT/CHIEF ENGINEER

WATER MAIN INSTALLATION DETAIL SHEET

PROPOSAL BID ITEMS

Report Date 8/17/15

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	133.00	TON		$	
0020	00212		CL2 ASPH BASE 1.00D PG64-22	92.00	TON		$	
0030	00301		CL2 ASPH SURF 0.38D PG64-22	19.00	TON		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0040	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	15.00	EACH		$	
0050	02014		BARRICADE-TYPE III	4.00	EACH		$	
0060	02159		TEMP DITCH	450.00	LF		$	
0070	02200		ROADWAY EXCAVATION	2,378.00	CUYD		$	
0080	02223		GRANULAR EMBANKMENT	388.00	CUYD		$	
0090	02351		GUARDRAIL-STEEL W BEAM-S FACE	100.00	LF		$	
0100	02355		GUARDRAIL-STEEL W BEAM-S FACE A	100.00	LF		$	
0110	02371		GUARDRAIL END TREATMENT TYPE 7	4.00	EACH		$	
0120	02381		REMOVE GUARDRAIL	525.00	LF		$	
0130	02429		RIGHT-OF-WAY MONUMENT TYPE 1	12.00	EACH		$	
0140	02432		WITNESS POST	12.00	EACH		$	
0150	02545		CLEARING AND GRUBBING (APPROXIMATELY 1 ACRE)	1.00	LS		$	
0160	02585		EDGE KEY	38.00	LF		$	
0170	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
0180	02671		PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH		$	
0190	02701		TEMP SILT FENCE	450.00	LF		$	
0200	02703		SILT TRAP TYPE A	1.00	EACH		$	
0210	02704		SILT TRAP TYPE B	1.00	EACH		$	
0220	02705		SILT TRAP TYPE C	1.00	EACH		$	
0230	02706		CLEAN SILT TRAP TYPE A	1.00	EACH		$	
0240	02707		CLEAN SILT TRAP TYPE B	1.00	EACH		$	
0250	02708		CLEAN SILT TRAP TYPE C	1.00	EACH		$	
0260	02709		CLEAN TEMP SILT FENCE	450.00	LF		$	
0270	02726		STAKING	1.00	LS		$	
0280	02731		REMOVE STRUCTURE	1.00	LS		$	
0290	05950		EROSION CONTROL BLANKET	395.00	SQYD		$	
0300	05952		TEMP MULCH	396.00	SQYD		$	
0310	05961		FERTILIZER 10-10-10	.20	TON		$	
0320	05963		INITIAL FERTILIZER	.10	TON		$	
0330	05985		SEEDING AND PROTECTION	3,485.00	SQYD		$	
0340	05992		AGRICULTURAL LIMESTONE	2.00	TON		$	
0350	06514		PAVE STRIPING-PERM PAINT-4 IN	500.00	LF		$	

Section: 0003 - BRIDGE - KNOB CREEK - DWG. 27357

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0360	02231		STRUCTURE GRANULAR BACKFILL	470.00	CUYD		$	

PROPOSAL BID ITEMS

Report Date 8/17/15

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0370	02998		MASONRY COATING	270.00	SQYD		$	
0380	03299		ARMORED EDGE FOR CONCRETE	51.00	LF		$	
0390	08001		STRUCTURE EXCAVATION-COMMON	1,000.00	CUYD		$	
0400	08019		CYCLOPEAN STONE RIP RAP	1,380.00	TON		$	
0410	08100		CONCRETE-CLASS A	165.90	CUYD		$	
0420	08104		CONCRETE-CLASS AA	59.00	CUYD		$	
0430	08150		STEEL REINFORCEMENT	18,652.80	LB		$	
0440	08151		STEEL REINFORCEMENT-EPOXY COATED	7,167.30	LB		$	
0450	08170		SHEAR CONNECTORS (APPROXIMATELY 112)	1.00	LS		$	
0460	08664		PRECAST PC BOX BEAM CB27-48	812.50	LF		$	
0470	08801		GUARDRAIL-STEEL W BEAM-S FACE BR	259.00	LF		$	
0480	20637ED		DRILLED SHAFT-ROCK 48 IN	118.00	LF		$	
0490	20745ED		ROCK SOUNDINGS	106.70	LF		$	
0500	20746ED		ROCK CORINGS	220.00	LF		$	
0510	21600EN		SHEET PILING	93.60	LF		$	
0520	22417EN		DRILLED SHAFT-54 IN-COMMON	106.70	LF		$	
0530	22588NN		TECHNIQUE SHAFT	1.00	EACH		$	

Section: 0004 - WATERLINE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0540	01073		STEEL ENCASEMENT PIPE-16 IN (OPEN CUT) (REVISED: 8-17-15)	35.00	LF		$	
0541	03528		GATE VALVE-8 IN (ADDED: 8-17-15)	2.00	EACH		$	
0550	03539		BEND 11.25 DEG 8 IN (REVISED: 8-17-15)	5.00	EACH		$	
0560	03563		BEND 45 DEG 8 IN (REVISED: 8-17-15)	4.00	EACH		$	
0570	14021		W FIRE HYDRANT REMOVE	1.00	EACH		$	
0580	14037		W PIPE DUCTILE IRON 08 INCH (REVISED: 8-17-15)	435.00	LF		$	
0590	14095		W TIE-IN 08 INCH (REVISED: 8-17-15)	2.00	EACH		$	
0600	14510		W FIRE HYDRANT ASSEMBLY INST	1.00	EACH		$	
0610	14561		W PLUG EXISTING MAIN INST (8 IN)	2.00	EACH		$	
0611	21455ND		ABANDON VALVE (ADDED: 8-17-15)	2.00	EACH		$	
0612	23363EC		LEAK DETECTION ASSEMBLY (INSTALL) (ADDED: 8-17-15)	1.00	EACH		$	
0613	23667EC		WATER MAIN CREEK CROSSING (ADDED: 8-17-15)	40.00	LF		$	
0620	24165EC		HYDROSTATIC TEST-8 IN MAIN-INSTALL	1.00	EACH		$	

Section: 0005 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0630	02569		DEMOBILIZATION	1.00	LS		$	

SUPPLEMENTARY SPECIFICATIONS

MARTIN HILL ROAD BRIDGE
- WATER MAIN RELOCATION PROJECT
LWC PROJECT 14414

PROJECT LIMITS

Limits of the referenced project include **Martin Hill Road (KY 1417) at Knob Creek Bridge.**

PROJECT SUMMARY

The referenced project consists of the supply and installation of 435 +/- linear feet of 8-inch restrained joint Pressure Class 350 ductile iron water main and 35 +/- linear feet of 16-inch steel casing pipe including valves, fittings and tie-ins to existing water mains.
This project is "Supply and Install" and all pipe, casing pipe and fittings shall be supplied by the contractor. All materials supplied by the contractor shall comply with the Buy America requirments. (Fire Hydrant, leak detection assembly and accessories will be supplied by the Louisville Water Company)

SCOPE OF WORK

If there are any conflicts between the water main specification and other agency or utilities specifications regarding design or construction, then the Louisville Water Company current Technical Specifications take precedence.

MATERIALS FURNISHED BY CONTRACTOR

Materials furnished & installed by the CONTRACTOR include but not limited to the following:

A. 8-inch Pressure Class 350 ductile iron restrained joint water main
B. 8" Gate Valves (Right-hand open)
C. 16-inch Steel Casing Pipe (0.5 inches thick)
D. 8" Plugs
E. 8" – 45 degree Bends
F. 8" – 11¼ degree Bends
G. 8" x 6" anchor tee, 6" Gate Valves(Right-hand open)
H. Polywrap for all Ductile Iron Pipe
I. Liquid Chlorine (12.5% Sodium Hypochlorite)
J. Concrete, Asphalt, steel reinforcement & anchors , and joint sealer/filler
K. All EPSC measures
L. Seed and Straw
M. Bedding and backfill material

GENERAL INFORMATION

All water main work shall be installed by a Louisville Water Company Prequalified Contractor in the category of 4-inch to 16-inch ductile iron water main. For more information on pre-qualification requirements, contact Procurement Services of the Louisville Water Company at 569-3600.

The Contractor is to supply and install the ductile iron water main and all other water main appurtenances. The pipe and fittings shall be inspected by the LWC Inspector prior to installation and any defective pipe shall immediately be removed from the job site.

Rock shall be removed using mechanical methods (backhoe, hoe ram, or rock trenching machine). Blasting shall not be permitted unless approved by the Kentucky Transportation Cabinet.

GATE VALVES

In accordance with Section 1.1 of the Technical Specifications, existing valves shall be located and inspected by the contractor prior to the start of the project, and appropriate action taken to correct the problem(s) prior to start of the construction work. Except in cases of emergency, the Contractor shall not operate any valve without direct supervision of the LWC Project Manager or Inspector.

TRAFFIC CONTROL

Traffic control shall be provided by the Contractor in accordance with the Kentucky Transportation Cabinet specifications.

WORK SCHEDULE

Work hours shall be per the Kentucky Transportation Cabinet roadway contract documents

The Contractor shall anticipate the need to work on weekends and nights to complete tie-ins and service transfers involving shut-offs. All such work will be considered incidental to the project and no additional compensation will be provided. As with holidays and any work planned for weekends, this shall be pre-approved by the LWC Project Manager and coordinated with the KYTC Resident Engineer.

In the case of an emergency, the Contractor shall immediately notify the LWC Construction Inspector, Radio Room, and Customer Service along with the KYTC Resident Engineer and/or the KYTC Inspector. Prior to the actual shut-off, the contractor shall contact each customer (door-to-door) to alert customers of the emergency situation and the need to shut-off the main.

PIPELINE CONSTRUCTION

Unless otherwise indicated on the project drawings or modified by these supplementary specifications, all applicable provisions of the “Louisville Water Company Technical Specifications and Standard Drawings for Pipeline Construction" (2008 Edition) shall govern work on this project.

Prior to the start of any water main work at the site, the Contractor and the LWC Construction Inspector along with the KYTC Resident Engineer and the KYTC Inspector shall review the proposed pipeline alignment with respect to the locations marked by BUD and other existing site improvements.

Field modifications to the proposed pipeline alignment may be necessary to avoid or minimize the effects of potential conflicts. To avoid potential conflicts with existing utilities located perpendicular and/or parallel to the proposed main, the Contractor shall anticipate the need to use offsets, bends and fittings when installing the new main, and for large service connections. All such alignment change requires LWC Project Manager and KYTC Resident Engineer prior approval.

Standard burial depth for new water mains is 42 inches, as measured from the top of the finished ground to the top of the newly installed pipe. Situations requiring a depth of burial outside the standard will require prior approval from the Louisville Water Company and the KYTC Resident Engineer.

The Contractor is cautioned that OSHA trench safety standards apply to all excavations.

Prior to completing tie-ins, the type, size and condition of the existing pipe shall be verified. When the existing pipe is other than indicated on the Project Plans, the Construction Inspector or LWC Project Manager shall be contacted immediately to assess the need for revising the tie-in location. All revisions are to be coordinated with the KYTC Resident Engineer and/or the KYTC Inspector. The Contractor shall be compensated in accordance with the supplementary unit prices for any additional pipeline installed to change the tie-in location.

INSPECTIONS

The Contractor shall notify the LWC Project Manager along with the KYTC Resident Engineer and/or the KYTC Inspector at least 48 hours prior to beginning water line work.

TRENCH CONSTRUCTION

Pipeline bedding and initial backfill shall consist of DGA, manufactured sand or pit-run sand; selected, placed, and compacted in accordance with Section 7 of the Technical Specifications.

When under *pavement (streets, driveways, and entrances)*, the final backfill material shall consist of DGA or pit-run sand placed to within 9-1/2 inches of the final grade elevation, followed by the placement of an 8-inch concrete cap and a 1-1/2 inch asphalt surface.

When under *sidewalks,* the final backfill may consist of on-site excavated material, provided the material is free of objectionable constituents such as large rock, asphalt, concrete, organic material and demolition debris. This backfill material shall be placed and compacted to the subgrade elevation, followed by the placement of a 6-inch layer of DGA and the concrete sidewalk. The surface of the DGA shall be level and free from surface depressions or potholes, and may serve as a temporary sidewalk until the concrete sidewalk is completed.

When under *grassed areas*, the final backfill may consist of on-site excavated material, provided the material is free of objectionable constituents such as large rock, asphalt, concrete, organic material, and demolition debris.

Contractor shall utilize the creek crossing detail as shown on the project plans and install the water main accordingly.

Contractor shall install he leak detection assembly per the project plans.

ACCEPTANCE TESTING

A chlorine injection system will be used to fill the new main. The LWC Construction Inspector will provide the equipment and materials (tablet or liquid) needed to inject the chlorine-based solution into the main. The Contractor shall assist the Inspector with the connection of hoses and the operation of valves.

EROSION PREVENTION SEDIMENT CONTROL MEASURES

An erosion control plan is required by MSD and/or Louisville Metro. An erosion control plan shall be prepared by the contractor and submitted to MSD for review and approval. The contractor is responsible for maintaining all erosion control measures within the project limits in accordance with the latest MSD, Louisville Metro and LWC specifications. The contractor is responsible for making all erosion control modifications within the project limits required by MSD, Louisville Metro and/or LWC at no additional cost to LWC. The contractor is responsible to rectify any disputes that may arise due to inadequate erosion control measures as determined by MSD and/or Louisville Metro.

As a minimum, erosion control features shall be provided at catch basins, headwalls and in small ditches where associated construction procedures may cause the transport of sediment into the storm drainage system. Silt Fence must be installed along the trench per MSD's standards. When soil is disturbed within grassy areas, erosion control protection shall also be provided at yard drains. Care will be required to minimize stockpiling or placing backfill or excavated materials on roadways.

POST CONSTRUCTION

All in-line and service valves installed and/or operated during the completion of this project shall be inspected after construction to verify that all valves used by the Contractor are left in the proper operating position. Unless otherwise noted, or directed, all gates shall be fully opened.

WARRANTIES

All pipeline work shall be warranted for two (2) years from the date of Final completion unless specified otherwise.

POLYETHYLENE ENCASEMENT SPECIFICATIONS

Polyethylene encasement shall consist of the following:

A. 8 mil thick (linear low density polyethylene tube type)

B. Conforming to the current AWWA Standard C105-05 shall be used with Ductile Iron Pipe only.

C. Marking requirements for polywrap are as outlined in AWWA C105-05. Polywrap without correct markings will be rejected.

D. Polyethylene adhesive tape must be compatible with polyethylene wrap and must be not be less than 5 mil thick.

E. Polyethylene encasement shall be the COLOR BLUE. Other colors will be rejected.

F. Contractor shall provide certificate of compliance for Polywrap.

DUCTILE IRON PIPE AND FITTINGS SPECIFICATIONS

SUBMITTALS

Shop drawings and manufacturer's literature for all CONTRACTOR supplied materials shall be promptly submitted to the LWC PROJECT MANAGER for approval.

The following items shall be submitted before delivery of ductile iron pipe or fittings:

1. Certification by the manufacturer or supplier that the pipe furnished for this project meets all pertinent AWWA Standards.

2. Catalog cuts and installation instructions for boltless restrained joint pipe and mechanical joint retainer glands.

3. Certification that all bolts to be furnished conform to referenced standards.

PIPE SUPPLIER

Ductile iron pipe and fittings shall be as manufactured by an LWC pre-qualified vendor. Approved LWC DIP vendors include US Pipe and Foundry, American Cast Iron Pipe Company, Griffin Pipe Co., and Clow Water Systems Company.

PIPE MATERIAL

Ductile iron pipe shall conform to the latest specifications as adopted by American National Standards Institute, Inc., (ANSI) and American Water Works Association (AWWA). Specifically, ductile iron pipe shall conform to ANSI/AWWA C151/A21.51.

The pipe shall be coated outside with a bituminous coating in accordance with ANSI/AWWA C151/A21.51. The pipe interior shall be lined with two layers of cement mortar and seal coated in compliance with the latest revision of ANSI/AWWA C104/A21.4.

The class of pipe to be furnished shall be pressure class 350.

Testing

Each length of pipe shall be subjected to a hydrostatic proof test as required by ANSI/AWWA C151/A21.51.

Joints

1. Mechanical and Push-On

   Mechanical and push-on joints including accessories shall conform to ANSI/AWWA C111/A21.11.

2. Restrained

   When restrained joints are required, they shall be boltless push-on type. Boltless restrained joints shall be either U.S. Pipe and Foundry "TR Flex", American Ductile Iron Pipe "Flex-Ring", or equal. Restrained joint pipe shall be furnished with a factory welded retaining ring. **The use of field installed retaining rings such as "Gripper Rings" and "Field Lock Gaskets" will be permitted for 12” and smaller ductile iron water main only.**

MARKING PIPE

Each pipe, fitting or special section shall have the following plainly marked thereon:

1. Pipe Class
2. Date of Manufacture
3. Manufacturer's name or trademark
4. On bends, the angle turned thereby
5. Manufacturer's identification number

INSTALLATION

A. Push-On Joints

The surfaces with which the rubber gasket comes in contact shall be thoroughly cleaned just prior to assembly. The gasket shall then be inserted into the groove in the bell. Before starting joint assembly, a liberal coating of special lubricant shall be applied to the gasket and the spigot end. With the spigot end centered in the bell, the spigot end is pushed home.

B. Mechanical Joints

All components shall be cleaned and lubricated with soapy water prior to assembly. Slip the follower gland and gasket over the pipe plain end making sure the small side of the gasket and lip of the gland face the bell socket. Insert the plain end into socket. Push gasket into position with fingers, gasket should be evenly seated.

Slide gland into position, insert bolts and tighten by hand. Bolts are then tightened alternately (across from one another) to the following normal torques:

Bolt Size	Torque Range (Foot-Pounds)
0.50"	40 - 60
0.75"	60 - 90
1"	70 - 100
1.25"	90 – 120

C. Restrained Joints

1. Push-On

Assemble and install the push-on joint according to the manufacturer's recommendations. The joint shall be thoroughly cleaned and lubricated. Check the retainer ring fastener.

During "pushing home" of any style piping, timber shall be placed between the jacking device (backhoe bucket, pipe jack, etc.) and the pipe being driven home.

VALVES AND APPURTENANCES

PART 1 GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall furnish all labor, materials, equipment, and incidentals required and install complete and ready for operation all gate valves and appurtenances as shown on the Project Drawings and as specified herein. Supplier shall design, manufacture, shop test, and deliver all valves and accessories, including actuators in strict accordance with American Water Works Association (AWWA) Standard C515-09, AWWA Standard For Resilient Seated Gate Valves

B. The equipment shall include but is not limited to the following:

1. Gate Valves

1.02 DESCRIPTION OF SYSTEMS

A. All of the equipment and materials specified herein is intended to be standard for use in controlling the flow of water.

1.03 QUALIFICATIONS

A. The gate valves shall be Iron body, Resilient Seat Gate Valve as manufactured by United States Pipe and Foundry Company, of Birmingham, Alabama; or American Flow Control Series 2500, or an approved equal. For proposed equals, the CONTRACTOR shall submit manufacturer's information and specifications to the LWC Project Manager, no later than 5 working days before the scheduled bid opening, for PRE-APPROVAL as an equal. All valves and appurtenances shall be of the size shown on the Project Drawings and as far as possible all equipment of the same type shall be from one manufacturer. All valves and appurtenances shall have the name of the maker, flow-directional arrows, and the working pressure for which they are designed cast in raised letters on some appropriate part of the body.

1.04 SUBMITTALS

A. Complete Shop Drawings of all valves and appurtenances shall be submitted to the LWC Project Manager for approval.

1.05 OPERATING INSTRUCTIONS

A. Manufacturer's operating and maintenance instructions shall be furnished to the LWC Project Manager for equipment furnished under this Section.

B. The valve manufacturer shall supply and integrally mount all valve operators at the factory. The valve and operators shall be shipped as a unit.

C. All valves shall open clockwise (to the right).

D. Valve operator shall be provided with enclosed bevel gearing to reduce the torque required to operate the valve. The maximum required input torque to the actuator shall not exceed 125 foot-pounds, and shall meet AWWA Class 150B maximum operating torque for the respective valve. The actuators shall be full gasket, suitably seal, grease-packed for life, and designed to withstand submersion in water to 10 psi.

E. The actuator shall be fitted with a 2-inch AWWA valve-operating nut, cast iron.

F. The number of turns shall not be less 3 times the valve diameter (inches) or more than 4 times the valve diameter to open or close the valve.

1.06 TOOLS

A. Special tools, if required for normal operation and maintenance shall be supplied with the equipment.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. General

1. All valves and appurtenances shall be of the size shown on the Drawings and as far as possible all equipment of the same type shall be from one manufacturer.

2. All valves and appurtenances shall have the name of the manufacturer, flow direction arrows, and the working pressure for which they are designed cast in raised letters upon some appropriate part of the body.

3. Except as otherwise shown on the Drawings or specified herein, all valves with operators located 6 feet or more above the operating floor shall be provided with chain wheel operators complete with chain guides and galvanized steel chain.

4. All valves shall open Right (clockwise).

2.02 PRODUCTS

A. Gate Valves

1. General Requirements.

a. Unless otherwise specified below, these requirements shall apply to all gate valves.

b. Gate valves shall meet the requirements of AWWA C500 and AWWA C515-09 as applicable to the type of valve specified.

c. Exposed valves shall be furnished with Class 250 flanged ends; provide valves with outside screw and yoke.

d. The valve body, bonnet and gate castings shall be constructed of ductile iron, and shall have full shell thickness according to AWWA C515-09, table 2, section 4.4.

e. Except as otherwise specified, valves shall be rated for the following working water pressures:

Valve Size	Pressure (psig)
3-inch to 48-inch	250

All valve bodies shall be hydrostatically tested to at least twice the rated working water pressure of 250psi. In addition, valves shall be seat-tested, bi-directional at the rated working pressure, with a bubble tight seal. Provide certificates of testing.

f. Flanged valves to have face-to-face dimensions per ANSI C115.

g. All bonnet and packing gland bolts shall be zinc or cadmium electroplated steel; packing gland bolts shall have bronze nuts.

h. All valves shall be marked per AWWA Standards, including name of manufacturer, valve size and working pressure and year of manufacture.

i. Resilient-seated gate valves shall conform in all respects to ANSI/AWWA C515-09 with non-rising stems, fully bronze mounted with O-ring seals. Valves shall be of standard manufacture and of the highest quality both as to materials and workmanship and shall conform to the latest revisions of

AWWA Specification C-500. Valves shall have a rated working pressure of 250 psi, and test pressure of 500 psi and shall be opened by turning clockwise only.

j. Shall be designed for buried service where groundwater may completely submerge the valve and actuator. Gate valves shall be furnished with mechanical joint end connections with stainless steel hardware T-316, unless otherwise shown on the plans or specified herein. The end connections shall be suitable to receive ductile iron pipe. All gate valves shall be mechanically restrained to pipe utilizing a positive mechanical restraint such as American's Coupling Gland Ends, or equal, employing stainless steel 316 bolts and nuts. No friction type restraint such as Megalugs will be acceptable.

k. Shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working pressure cast on the body of the valve. The valve body shall be ductile iron

l. Shall be installed in a horizontal stem position, with actuator located in a manhole vault. (At the time of shop drawing review, the LWC Project Manager will advise which side of the valve the actuator will be located.)

m. Subjected to a non-shock shutoff pressure of as much as 150 psi in the event of an emergency closure.

n. Shall be used for potable water service with a temperature range of 34 degrees F to 85 degrees F and a pH range of 8.0 to 8.5

2. Valve Applications

   a. Valves for Potable Water Service.
   b. Gate Valves shall be resilient seated Metroseal manufactured by U.S. Pipe, or equal.

3. Valve Requirements

   a. Resilient Seated
      - Conform to AWWA C515-09.
      - Internal and external epoxy of valve body, including bonnet, per AWWA C550.
      - Gate shall be encapsulated with synthetic rubber. It shall be bonded and vulcanized in accordance with ASTM B429 Method B.
      - No recesses in valve body.
      - Valves shall be installed in the vertical position.

4. Buried Valves

   a. Conform to the requirements above, except mechanical joint bell ends per AWWA C111. All exposed valve hardware (nuts, bolts, washers, etc.) including bonnet, bonnet cover, stuffing box, gear adaptor and joints shall be Type 316 stainless steel.
   b. Non-rising stem design, double O-ring seals for non-geared valves and shall incorporate packing for geared valves.
   c. Provide valve box, 2-inch operating nut and extension stem and stem cover, and tee handled valve wrenches.

PART 3: EXECUTION

3.01 INSTALLATION

A All valves and appurtenances shall be installed in the locations shown, true to alignment and rigidly supported. Any damage to the above items shall be repaired to the satisfaction of the LWC Project Manager before they are installed.

B After installation, all valves and appurtenances shall be tested at the same duration and pressure as the piping system they are in. If any joint proves to be defective, it shall be repaired to the satisfaction of the LWC Project Manager.

C Install all brackets, extension rods, guides, the various types of operators and appurtenances as shown on the Drawings that are in masonry floors or walls, and install concrete inserts for hangers and supports as soon as forms are erected and before concrete is poured. Before setting these items, the Contractor shall check all plans and figures which have a direct bearing on their location and he shall be responsible for the proper location of these valves and appurtenances during the construction of the structures.

D All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of valve openings, etc.; all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness. Valves and other equipment which do not operate easily, or are otherwise defective, shall be repaired or replaced at not additional cost.

E Unless otherwise specified or approved by the LWC Project Manager, all newly installed gate valves shall maintain a minimum 12” of cover as measured from the top of ground elevation to the top nut elevation.

F All valves and appurtenances shall be installed in the locations shown, true to alignment and rigidly supported. Any damage to these items shall be repaired or replaced to the satisfaction of the LWC Project Manager before they are installed.

G After installation, all valves and appurtenances shall be tested at least one (1) hour at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the LWC Project Manager.

H All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of valve openings, etc.; all operating mechanisms operated to check their proper functioning; and all nuts and bolts checked for tightness. Valves and other equipment that do not operate easily, or are otherwise defective, shall be repaired or replaced at no additional cost to the OWNER.

3.02 SHOP PAINTING

A Interior surfaces of all valves except the exterior surfaces of buried valves and miscellaneous piping appurtenances shall be given a shop finish of an asphalt varnish conforming to Federal Specification TT-V51e for Varnish Asphalt.

B. The exterior surface of various parts of valves, operators, floorstands and miscellaneous piping shall be thoroughly cleaned of all scale, dirt, grease or other foreign matter and thereafter one shop coat of an approved rust-inhibitive primer such as Inertol Primer No. 621 shall be applied in accordance with the instructions of the paint manufacturer. Ferrous surfaces obviously not to be painted shall be given a shop coat of grease or other suitable rust-resistant coating.

C General - The finish coating materials shall be suitable for potable water service, and shall conform to the applicable requirements of the latest revision to AWWA C550, Protective Interior Coatings for Valves and Hydrants. All internal and external surfaces, except finished or bearing surfaces, shall be shop-cleaned and coat-applied in accordance with this Specification and with the applicable Steel Structure Painting Council (SSPC) Specifications. A light color shall be used to enhance inspection and maintenance.

D Surface Preparation - Surface irregularities, such as weld spatter, burrs, and sharp or rough edges, shall be eliminated prior to surface preparation. Surfaces shall be prepared in accordance with Steel Structures Painting Council Specifications SP-6, Commercial Blast Cleaning, with 1.5-3.0 mils profile depth. If grease or spills are present, solvent cleaning to SSPC SP-1 quality must precede SP-6.

E Paint System and Application - Coatings shall be applied in accordance with the recommendations found in SSPC PA-1, Shop, Field, and Maintenance Painting. The paint system shall be a two-coated catalyzed epoxy system for ferrous and non-ferrous metals subject to chemical corrosion or physical abrasion. The first coat shall be a high-build catalyzed epoxy with a minimum 50 percent solids

applied by volume, applied at 6 - 8 mils (dry). The second coat shall be the same as the first coat. The system's total thickness shall be 12 mils (dry) minimum, and shall be holiday-free when tested in accordance with AWWA C550, using a holiday detector such as Tinker and Raser MI/AC.

3.03 INSPECTION AND TESTING

A. The various pipelines in which the valves and appurtenances are to be installed are specified to be field-tested. During these tests any defective valve or appurtenance shall be adjusted, removed and replaced, or otherwise made acceptable to the LWC Project Manager.

B. Valve and Actuator - The test program outlined in AWWA Specification C515-09 shall be followed for Performance, Leakage, and Hydraulic tests. Valves are to be tested in both directions. A copy of a previous proof-of-design test shall be acceptable. The Supplier shall submit an affidavit of compliance with testing and other provisions of AWWA C515-09. The Supplier shall send a certification of compliance of capabilities of the actuators furnish as a component of each unit.

C. Coating - The Supplier shall submit an affidavit of compliance, signifying that the coating and application complies with the requirements of AWWA C550 Protective Interior Coatings for Valves and Hydrants and Steel Structure Painting Council's Steel Structures Painting Manual, Volumes 1 and 2. Test data related to the requirements of Section 2 and the toxicological compatibility of the coating materials with potable water application shall be submitted along with the affidavit.

3.04 Flange Isolation Kits

Flange Isolation Kit Specification
Materials for flange isolation kits on pipes shall consist of the following components:

Isolating and Sealing Gasket
One full faced isolating and sealing gasket, LineBacker Type "E", 1/8" thick, G-10 retainer containing a precision tapered groove to accommodate the controlled compression of a Teflon (or Viton) quad-ring sealing element. Sealing element placement shall accommodate either flat, raised face or RTJ flanges. The quad-ring seal shall be pressure energized. The G-10 retainer shall have a 550 volts/mil dielectric strength and a minimum 50,000 psi compressive strength. The full faced flange isolating gasket shall be 1/8" less in I.D. than the I.D. of the flange in which it is installed.

Full Length Bolt Isolating Sleeves

One full length G-10 sleeve (extending half way into both steel washers) for each flange bolt. The G-10 shall be a 1/32 inch thick tube with a 400 volts/mil dielectric strength and water absorption of 0.10% or less.

Washers

Two, 1/8 inch thick, G-10 isolating washers for each bolt. Their compressive strength shall be 50,000 psi, dielectric strength 550 volts/mil and water absorption of 0.10% or less. Two, 1/8 inch thick zinc plated, hot rolled steel washers for each bolt. The I.D. of all washers shall fit over the isolating sleeve and both the steel and isolating washers shall have a same I.D. and O.D.

CASING PIPE INSTALLATION

DESCRIPTION

The work to be performed under these specifications shall consist of furnishing and installing all materials and equipment and performing all labor required to install pipelines crossing under existing and proposed highways, railroads, and streets by boring, jacking, and tunneling, as specified herein. All bores will be accomplished by dry mechanical bore unless otherwise approved by the LWC Project Manager. All carrier pipes within the encasement conduit shall be restrained joint pipe of the type specified on the plans, Louisville Water Company Specifications and/or approved by the LWC Project Manager. The carrier pipe shall be centered and restrained within the casing pipe.

SUBMITTALS

The following items shall be submitted before delivery of casing pipe, spacers and end seals:

1. Submit manufacturer's "Certificate of Compliance" for casing pipe materials furnished.

2. Submit manufacturer's "Certificate of Compliance" for casing insulator and casing end seal materials furnished.

3. Submit welders' American Welders Society Certification.

CASING PIPE MATERIAL

A. The material shall conform to the chemical and mechanical requirements of the latest revision of ASTM A139 "Electric-Fusion (ARC) Welded Steel Pipe (NPS 4 and over), unless otherwise stated herein.

B. The pipe furnished shall be grade B. The steel shall be new and previously unused.

C. Hydrostatic testing shall not be necessary.

D. Pipe ends shall be beveled at one end (for field welding of circumferential joints) and shall be plain right angle cut at the other end. All burrs at the end of the pipe shall be removed.

E. The wall thickness at any point shall be within 12.5% of the thickness specified in the following table:

Outside Diameter	Nominal Metal Thickness

16.00” 0.50”

F. Circumference – The outside circumference of the pipe shall not vary more than + or – 1%, but not exceeding + or – ¾” from the nominal outside circumference.

G. Ovality (Out-of-Roundness) – The pipe diameter within 4.0 in. of ends, shall not vary more than 1% from the specified diameter.

H. Straightness – The pipe shall be straight to within ½ inch per length of pipe.

I. All ID obstructions (bead welds, slags, etc.) shall not extend more than 3/32” from the ID face.

J. Each length of pipe shall be legibly marked, stating: manufacturer, grade, diameter, wall thickness and primer.

K. A protective coating shall be applied to the inside and outside of each length of pipe. Following an SSPC SP-7 “Brush-Off Blast Cleaning” surface preparation, 3.0 dry mils of Tnemac Primar 100-99 (red), or of an approved equal, shall be applied in the manner recommended by the respective paint manufacturer.

QUALITY ASSURANCE

1. ALLOWABLE TOLERANCES

Where grades or elevations are shown on the plans for the pipeline to be installed by open trench, boring, jacking, and tunneling operations, maximum deviation of plan elevation shall be 0.1 foot. The maximum deviation of alignment over the length of the bore shall be 0.1 foot.

The Contractor shall have the line and grade of the casing pipe checked after each length of casing pipe is installed.

The LWC Project Manager shall determine the corrective action to be taken for tolerances above those stated in this specification.

2. JOINTS

Comply with American Welding Society (AWS) Code of Arc and Gas Welding in Building Construction. Fully weld all joints with full penetrating weld, including joints of casing pipes laid in open trench areas.

The inside welded joint shall be smooth, non-obstructing, and conform to all specifications as required by AWS. The casing pipe be installed without any vertical or horizontal bends

INSTALLATION

All casing pipe shall be installed per LWC Technical Specifications and Standard Drawings for Pipeline Construction section 6.3 Boring and Tunneling and LWC Standard Drawing 1500.

STAINLESS STEEL CASING SPACERS & END SEALS

SUBMITTALS

Shop drawings and manufacturer's literature for all Contractor supplied materials shall be promptly submitted to the LWC Project Manager for approval.

CASING SPACER SUPPLIER

Casing spacers and end seals shall me manufactured by an LWC Approved vendor.

Model CCS casing spacer and Model CCES end seals manufactured by Cascade Waterworks Manufacturing; Model SSI casing spacers and Model AC Pull-on end seals manufactured by Advances Products & Systems, Inc. or an approved may be utilized.

It is the responsibility of the contractor to ensure that the casing spacers sized appropriately for the carrier pipe.

MATERIAL SPECIFICATIONS

SHELL - minimum 14 gauge T 304 stainless steel.
All surfaces are fully chemically passivated.
Flanges are ribbed for strength.

RISERS - Minimum 10 ga. T-304 stainless steel, reinforced 6” and over height.

FASTENERS - 5/16-18” T 304 stainless steel

LINER - PVC - .090 thick, 85-90 durometer
(ASTM D1706-61T) - 80
Max constant operating temperature - 150F (64C)
Electrical properties - (ASTM - D149-61)
1380 V/min.

RUNNERS - Ultra high molecular weight polymer
Low coefficient of friction
High resistance to abrasion and sliding wear
Toughness under impact
Low deflection under compression
Dielectric insulation

Casing End Seals

Casing ends are to be closed by installing “casing end seals”. Casing end seals are made of a neoprene rubber with stainless steel bands used to secure the casing end seal to the casing pipe and the carrier pipe.

INSTALLATION

1. Casing spacers shall provide projections around the entire circumference of the carrier pipe.

2. The carrier pipe shall be centered and restrained within the casing pipe such that the height of the risers and runners are to center the carrier pipe in the casing pipe with a minimum top clearance of three-fourths inch minimum.

3. Casing spacers shall be in segments for field assembly, without the need for special tools.

4. Spacer segments shall be fastened securely around the carrier pipe and shall be secured by means other than adhesives.

5. Pipe shall not rest on bells.