

NOT TO SCALE

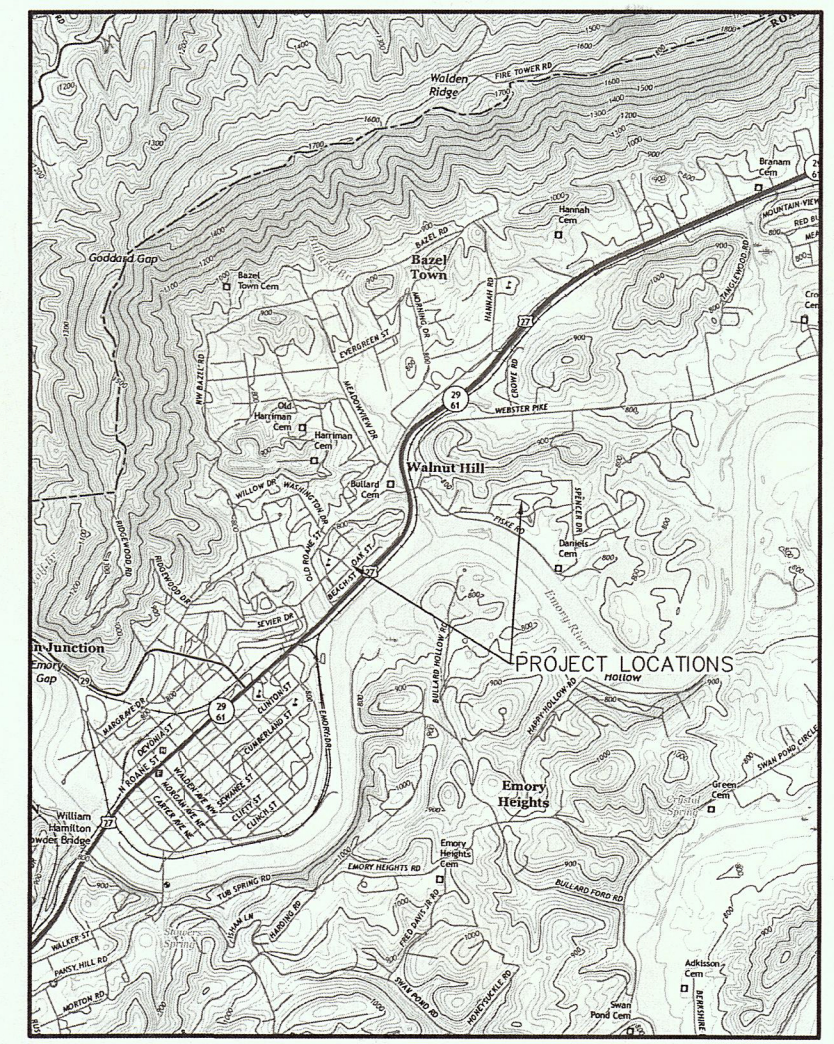
# HARRIMAN UTILITY BOARD

## 2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT

### STATE CONTRACT NO. 12079

#### DRAWING INDEX

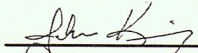
<u>TITLE</u>	<u>DRAWING NO.</u>
TITLE SHEET	1
GENERAL PLAN	2
BIRCH & OAK STREETS	3
SPENCER DRIVE SHEET 1 OF 2	4
SPENCER DRIVE SHEET 2 OF 2	5
DETAIL SHEET 1 OF 2	6
DETAIL SHEET 2 OF 2	7
EROSION CONTROL PLAN	8
EROSION CONTROL DETAILS	9



**LOCATION MAP**  
SCALE: 1" = 2000'



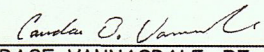
CTI ENGINEERS, INC.  
112 DURWOOD ROAD SUITE A  
KNOXVILLE, TN 37922  
865-246-2750

  
JOHN KING, PE  
TENNESSEE LICENSE NO. 103702

2/28/18  
DATE



I CERTIFY THAT THESE PLANS HAVE BEEN REVIEWED  
AND APPROVED BY THE HARRIMAN UTILITY BOARD

  
CANDACE VANNASDALE, PE  
MANAGER OF GWS ADMINISTRATION & ENGINEERING

02 - 28 - 2018  
DATE









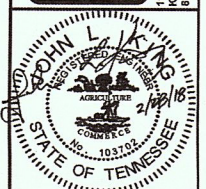
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CHECKED	JLK
APPROVED	JLK

2017 HARRIMAN CDBG WATER SYSTEM  
IMPROVEMENTS PROJECT  
STATE CONTRACT NO. 12079

BIRCH &amp; OAK STREETS



JOB NO.  
17015-01

ISSUE DATE  
01/15/2019

SCALE

1" = 50'

---

DRAWING NO.



Know what's **below**.  
**Call** before you dig.





MATCHLINE SPENCER DRIVE SHEET 1 OF 2

PLAN NORTH

CONNECT TO EXISTING SERVICE LINE (TYP.).

CULVERT

INSTALL WATER LINE BENEATH CULVERT

AIR RELEASE VALVE (FIELD LOCATE)

INSTALL SERVICE LINE BENEATH PAVEMENT BY TRENCHLESS METHOD (TYP.).

REMOVE METER AND BOX. INSTALL NEW 3/4" PEXg SERVICE LINE AND NEW METER AND BOX AS SHOWN (TYP.).

CLOSE VALVES, REMOVE BOXES AND BURY VALVES

EXISTING 2" GALV. WATER LINE (TO BE RETIRED)

UNSCREW & CAP EXISTING 2" GALV. WATER LINE, BAND EXISTING 6" C.I. WATER LINE.

PROPOSED 6" PVC WATER LINE

CONNECT TO EXISTING WATER INSTALL 6"x6" TAPPING SLEEVE W/ TAPPING VALVE

REMOVE METER AND BOX. INSTALL NEW 3/4" PEXg SERVICE LINE AND NEW METER AND BOX NEAR PROPERTY LINE AS SHOWN (TYP.).

CUT & CAP EXISTING 2" GALV. WATER LINE (BOTH DIRECTIONS)

HUB TO CLOSE VALVE @ TEE AND PAINT LID RED

EXISTING 6" C.I. WATER LINE

EXISTING 2" GALV. WATER LINE (TO BE RETIRED)

EXISTING 6" PVC WATER LINE (TO BE RETIRED)

CUT & CAP EXISTING 6" PVC WATER LINE WITHIN R.O.W. (BOTH DIRECTIONS)

EXISTING 6" PVC WATER LINE

FIELD VERIFY SIDE OF HOUSES TO INSTALL WATER METER AND SERVICE

CONNECT TO EXISTING 6" PVC (TYP.).

INSTALL SERVICE LINES BENEATH PAVEMENT BY TRENCHLESS METHOD (TYP.).

**NOTES:**

1. REMOVE EXISTING METERS AND BOXES AND RETURN TO OWNER. INSTALL NEW METERS (SUPPLIED BY OWNER) AND METER BOXES.
2. REPLACE ALL PAVEMENT AS SHOWN. ACTUAL PAVEMENT TO BE REPLACED SHALL BE LIMITED TO WIDTHS SHOWN ON DETAILS (SEE DWG. 7.0).
3. WHEN CROSSING BENEATH CULVERTS, TRANSITION TO EXTRA DEPTH BURIAL PRIOR TO CULVERT AND TRANSITION TO NORMAL DEPTH BURIAL AFTER CULVERT TO ELIMINATE USE OF BENDS.

**LEGEND**

- W— PROPOSED WATER LINE
- ⋈ PROPOSED GATE VALVE
- WM PROPOSED WATER METER
- ♀ AIR RELEASE VALVE
- TB THRUST BLOCK
- W— EXISTING WATER LINE
- S— EXISTING SEWER LINE
- G— EXISTING GAS LINE
- ⋈ EXISTING GATE VALVE
- WM EXISTING WATER METER
- PAVEMENT REPLACEMENT
- TB THERMALLY BONDED PAVEMENT REPLACEMENT

811



Know what's below.  
Call before you dig.

0 25 50 100 Feet

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JMG						
CHECKED						
JLK						
APPROVED						
JLK						

2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT STATE CONTRACT NO. 12079	SPENCER DRIVE SHEET 1 OF 2
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112 DURWOOD ROAD, SUITE A KNOXVILLE, TN 37922 865-246-2720	
	
JOB NO. K17015-01	
ISSUE DATE 02/15/2018	
SCALE 1" = 50'	
DRAWING NO. 4.0	



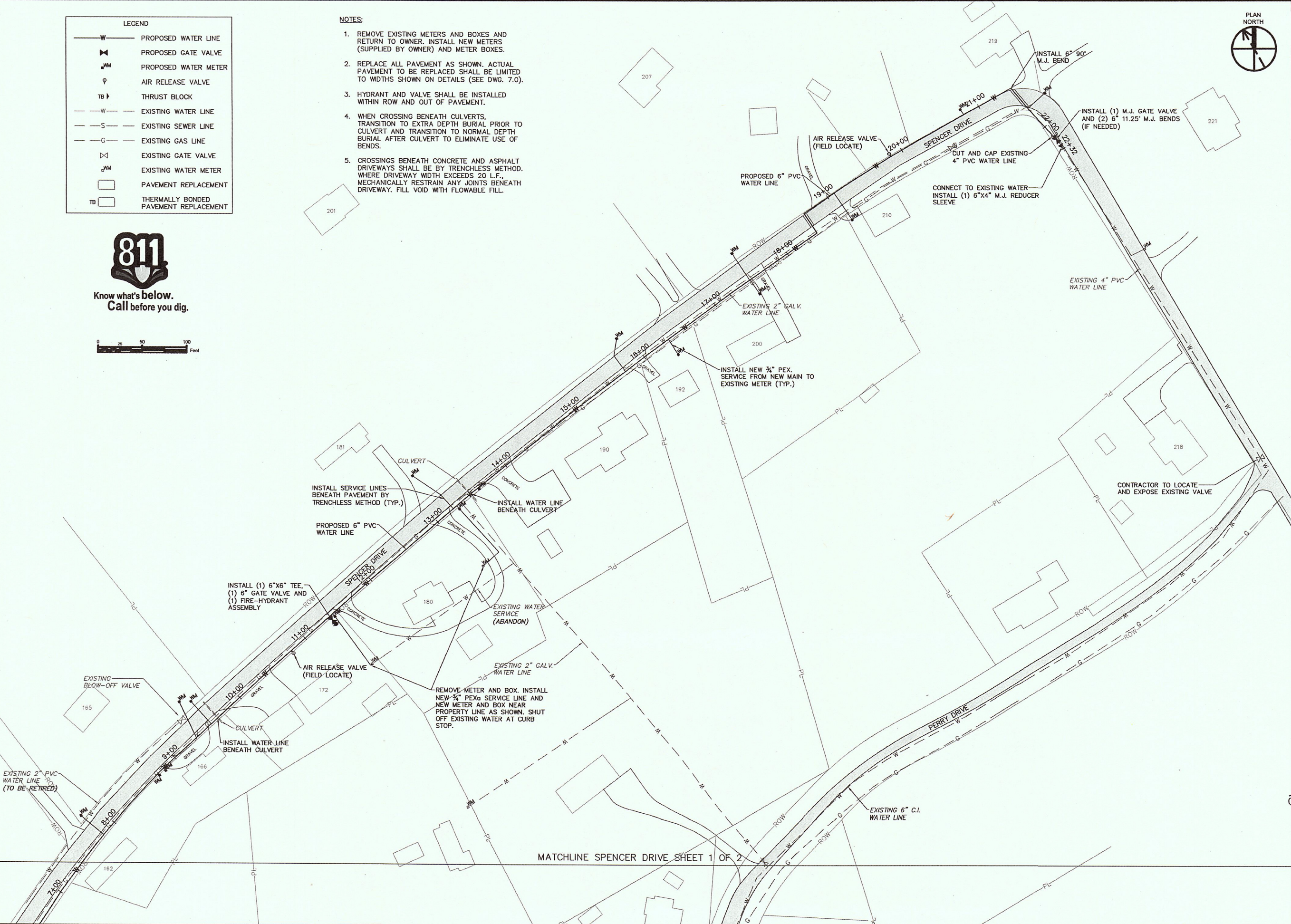
DATE OF PRINT: 3/7/2018 9:23 AM CTI PROJECT: K17015-01 (Harriman Utility Board) 2018 Harriman CDBG Water System Improvement Project, DRAWING: K17015 HUB Waterline Replacement (53424932/3/7/18 9:23AM), LAYOUT: Spencer Drive 2

LEGEND	
	PROPOSED WATER LINE
	PROPOSED GATE VALVE
	PROPOSED WATER METER
	AIR RELEASE VALVE
	THRUST BLOCK
	EXISTING WATER LINE
	EXISTING SEWER LINE
	EXISTING GAS LINE
	EXISTING GATE VALVE
	EXISTING WATER METER
	PAVEMENT REPLACEMENT
	THERMALLY BONDED PAVEMENT REPLACEMENT



NOTES:

1. REMOVE EXISTING METERS AND BOXES AND RETURN TO OWNER. INSTALL NEW METERS (SUPPLIED BY OWNER) AND METER BOXES.
2. REPLACE ALL PAVEMENT AS SHOWN. ACTUAL PAVEMENT TO BE REPLACED SHALL BE LIMITED TO WIDTHS SHOWN ON DETAILS (SEE DWG. 7.0).
3. HYDRANT AND VALVE SHALL BE INSTALLED WITHIN ROW AND OUT OF PAVEMENT.
4. WHEN CROSSING BENEATH CULVERTS, TRANSITION TO EXTRA DEPTH BURIAL PRIOR TO CULVERT AND TRANSITION TO NORMAL DEPTH BURIAL AFTER CULVERT TO ELIMINATE USE OF BENDS.
5. CROSSINGS BENEATH CONCRETE AND ASPHALT DRIVEWAYS SHALL BE BY TRENCHLESS METHOD. WHERE DRIVEWAY WIDTH EXCEEDS 20 L.F., MECHANICALLY RESTRAIN ANY JOINTS BENEATH DRIVEWAY. FILL VOID WITH FLOWABLE FILL.



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CHKD	JLK					
APPROVED	JLK					

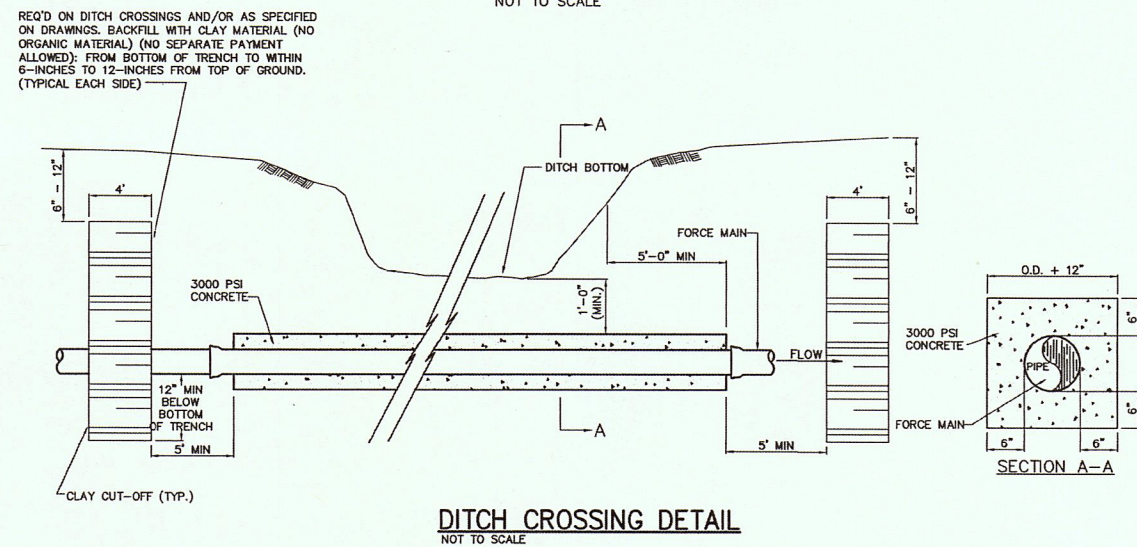
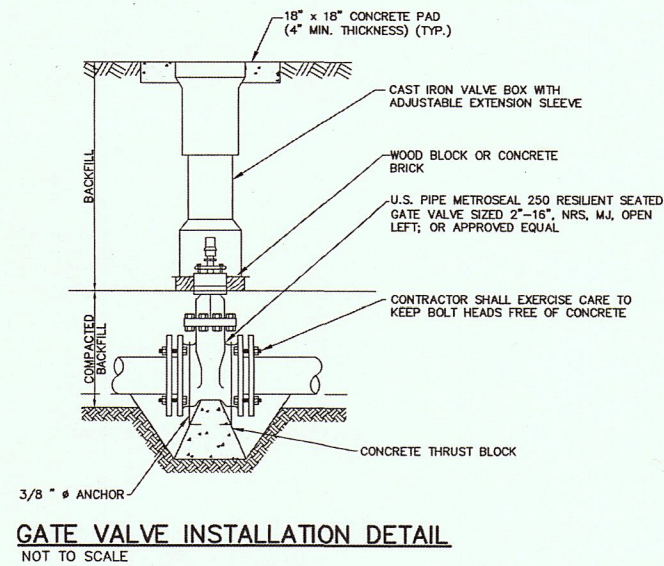
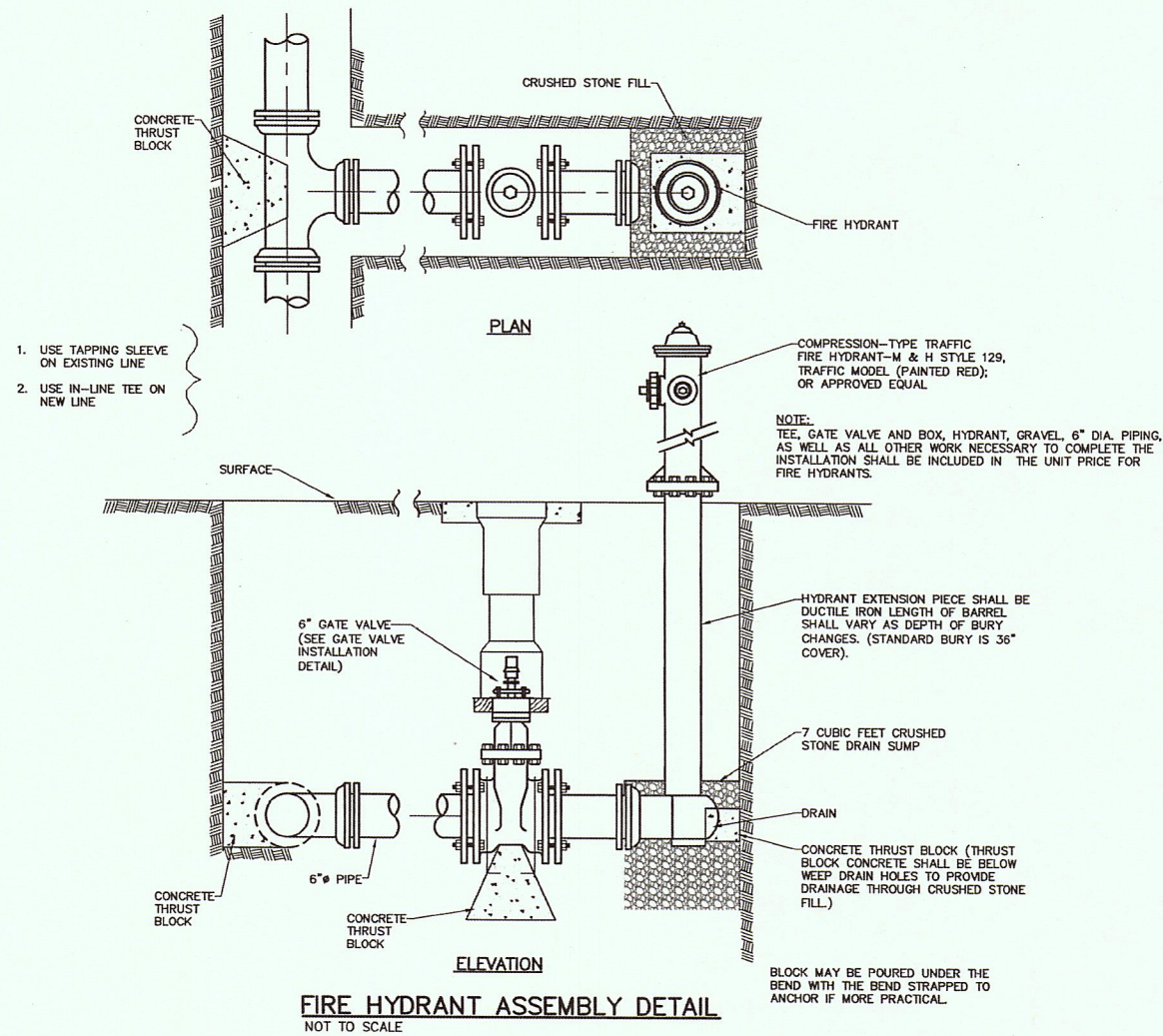
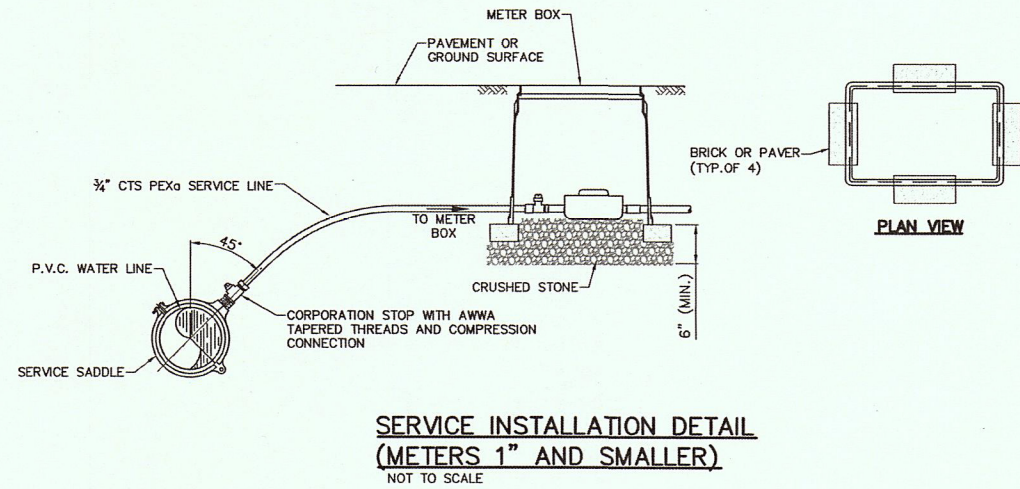
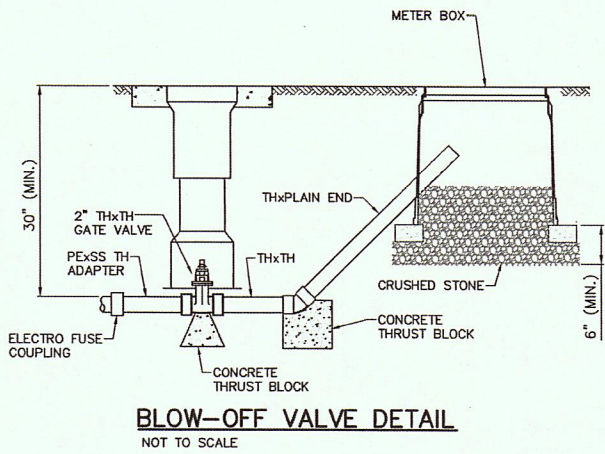
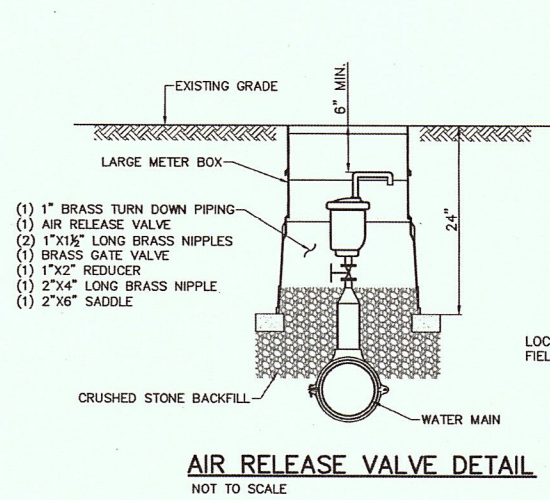
2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT  
STATE CONTRACT NO. 12079

SPENCER DRIVE  
SHEET 2 OF 2



JOB NO.  
K17015-01  
ISSUE DATE  
02/15/2018  
SCALE  
1" = 50'  
DRAWING NO.  
5.0





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APPD	BY
DATE	DATE
DESCRIPTIONS	
DESIGN	JLK
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CHECKED	JLK
APPROVED	JLK

2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT  
STATE CONTRACT NO. 12079

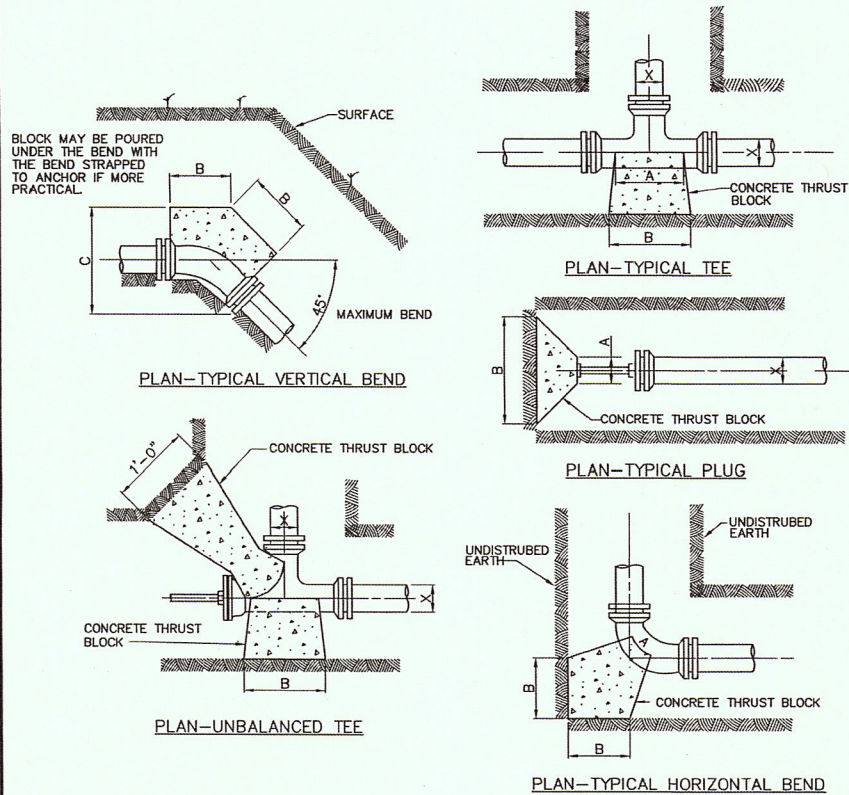
DETAIL SHEET 1 OF 2

**ENGINEERS, INC.**  
111 BURNWOOD ROAD, SUITE 4  
KNOXVILLE, TN 37922  
865-246-2769

JOHN L. K...  
REGISTERED PROFESSIONAL ENGINEER  
STATE OF TENNESSEE  
15237

JOB NO. K17015-01  
ISSUE DATE 02/15/2018  
SCALE AS SHOWN  
DRAWING NO. 6.0





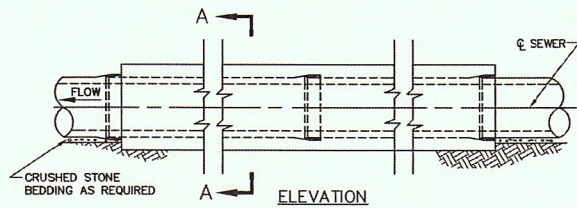
### THRUST BLOCK DETAILS

NOT TO SCALE

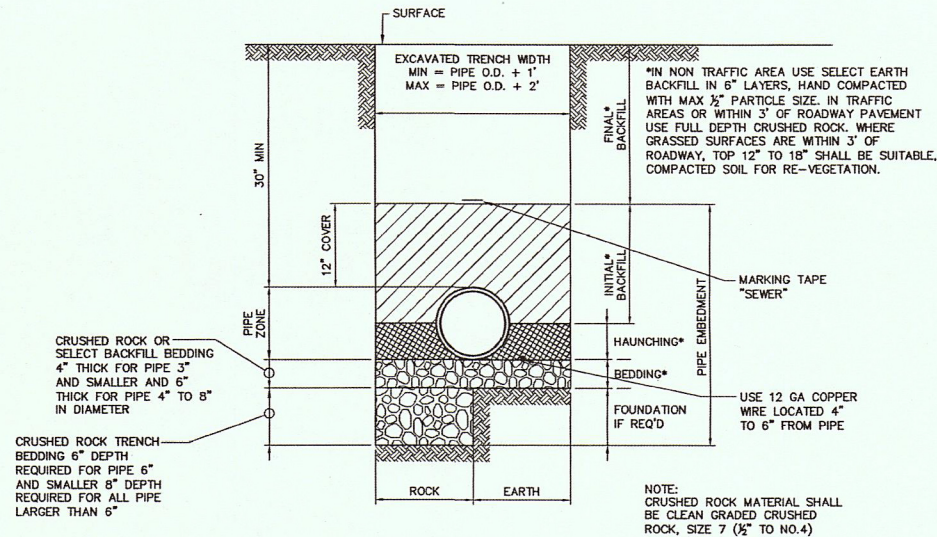
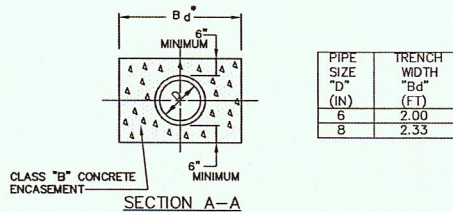
PIPE SIZE	A	B	DEPTH C	PIPE SIZE	A	B	DEPTH C
11 1/2" BEND							
8"	0'-9"	1'-0"	0'-8"	8"	1'-0"	2'-0"	2'-3"
6"	0'-9"	1'-0"	0'-6"	6"	1'-0"	1'-3"	2'-0"
2'-4"	0'-6"	1'-0"	0'-4"	2'-4"	0'-9"	1'-0"	1'-0"
DEAD END							
8"	0'-7"	2'-9"	2'-3"	8"	0'-9"	1'-8"	1'-6"
6"	0'-5"	1'-3"	1'-5"	6"	0'-9"	1'-0"	1'-6"
2'-4"	0'-4"	0'-10"	0'-11"	2'-4"	0'-9"	1'-0"	1'-0"
TEE							
8"	1'-6"	4'-0"	2'-3"	8"	0'-9"	1'-0"	2'-0"
6"	1'-0"	2'-8"	1'-6"	6"	0'-9"	0'-10"	1'-0"
2'-4"	1'-0"	2'-0"	1'-0"	2'-4"	0'-9"	0'-7"	1'-0"

NOTE: ALL CONCRETE FOR THRUST BLOCKS SHALL BE READY-MIXED 3000 psi (MINIMUM) CLASS "B" MIX DESIGN SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO USE. THRUST BLOCKS BASED ON 225 psi & 2000lb/ft<sup>2</sup> SOIL RESISTANCE TYPICAL FOR UNDISTURBED SAND AND GRAVEL CEMENTED WITH CLAY. FOR OTHER SOILS THE BEARING FACTOR OF THE THRUST BLOCKS SHOULD BE INCREASED BY THE FOLLOWING FACTORS.

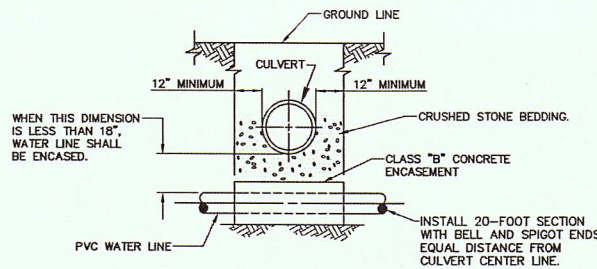
SAND & GRAVEL 1.33  
SHALE 0.4  
SOFT CLAY, MUCK AND PEAT SHALL USE RESTRAINED JOINTS IN LIEU OF THRUST BLOCKS.



NOTE: CLAY CUT-OFFS SHALL BE CONSTRUCTED AT MINIMUM 500-FOOT INTERVALS ALONG PIPELINE WHERE CRUSHED ROCK EMBEDMENT AND/OR BACKFILL IS USED. SEE DITCH CROSSING DETAIL ABOVE.

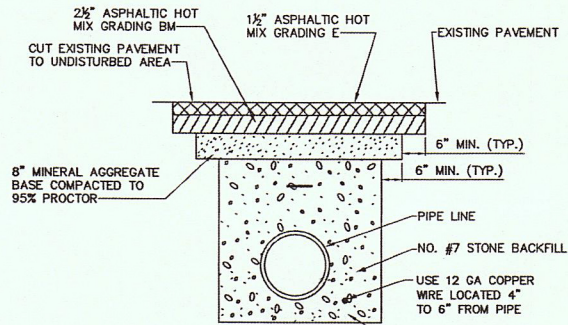


- PAVING NOTES**
- COST OF SAW CUTTING, COMPACTING, MINERAL AGGREGATE, HOT MIX, ETC. TO BE INCLUDED IN THE UNIT PRICE FOR ASPHALT OR OTHER PAVEMENT REPLACEMENT IN THE BID SCHEDULE.
  - IT IS THE INTENTION OF THE OWNER TO INSTALL ALL LINES OUT OF PAVEMENT IF POSSIBLE, IN ROAD SHOULDERS OR DITCHES; IF LINE IS INSTALLED UNDER PAVEMENT FOR CONVENIENCE OF CONTRACTOR, NO SEPARATE PAYMENT WILL BE MADE FOR EXTRA PAVEMENT AND CRUSHED ROCK BACKFILL REQUIRED.
  - CONTRACTOR IS RESPONSIBLE FOR OBTAINING ROAD CUT PERMITS PRIOR TO CUTTING ROADWAY PAVEMENTS.



### CONCRETE ENCASEMENT

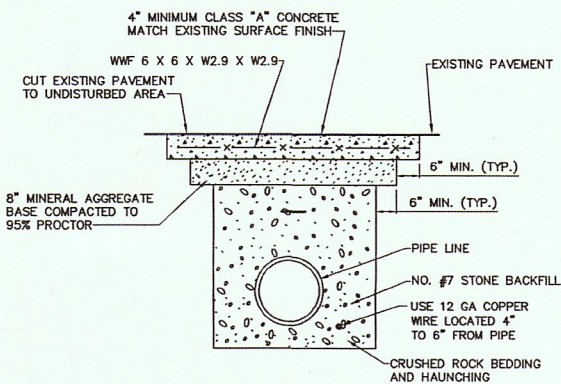
NOT TO SCALE



TO BE USED ON HOT MIX PAVED CITY ROADS AND ELSEWHERE AS DESIGNATED BY THE ENGINEER.

### ASPHALT PAVEMENT REPLACEMENT DETAIL

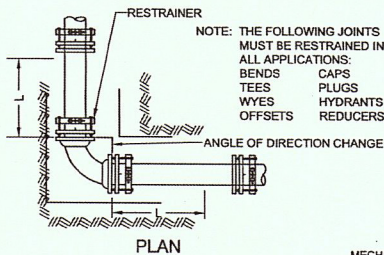
NOT TO SCALE



TO BE USED ON CONCRETE DRIVEWAYS AND ELSEWHERE AS DESIGNATED BY THE ENGINEER.

### CONCRETE PAVEMENT REPLACEMENT DETAIL

NOT TO SCALE



L = MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTING (FEET) *					
TEST PRESSURE - 150 psi					
NOM. PIPE SIZE (IN.)	ELBOWS (DEGREES)	TEES	VALVES	DEAD-ENDS	
3	11"	22"	45	90	REDUCERS
4	2	4	9	21	44
6	3	7	14	35	38
8	5	9	19	46	40
10	7	13	27	54	48
12	9	17	35	62	56

COMMENTS AND ASSUMPTIONS:

The tabulated values shown were generated using the EBAA Iron, Inc. computer program.

Soil Type: Worst Case

MH Granular - For Elbows

ML - For Reducers, Tees, Valves, and Dead-ends.

Trench Type: 3 (Pipe bedded in 4-inch minimum loose soil. Backfill lightly consolidated to top of pipe).

Depth of cover to top of pipe: 3 feet

Safety Factor: 1.5

The values shown for the Reducers were based on a reduction from the nominal pipe size to a pipe one size smaller.

\* Restrain one joint beyond the minimum length for all lengths over 10 feet.

- MECHANICALLY RESTRAINED JOINTS GENERAL NOTES:**
- THE RESTRAINED LENGTHS SHOWN IN THE TABLE ASSUME A WORST CASE SOIL CONDITION FOR THE BEDDING CONDITION AND DESIGN PRESSURE.
  - INSTALL THRUST RESTRAINTS IN STRICT CONFORMANCE WITH MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.
  - PIPE JOINTS WITHIN CASING PIPES WILL BE RESTRAINED BUT PIPE LENGTHS WITHIN CASING PIPES WILL NOT BE CONSIDERED IN THE TOTAL LENGTH OF RESTRAINED PIPE.
  - "L" IN THE TABLE INDICATES THE MINIMUM LENGTH (IN FEET) TO BE RESTRAINED ON EACH SIDE OF THE RESPECTIVE FITTING LISTED.
  - THE FOLLOWING ARE THE PROCEDURES FOR DETERMINING THE MINIMUM RESTRAINED LENGTHS WHEN INSTALLING BENDS AND FITTINGS:
    - WHERE HORIZONTAL NON-ENCROACHING BENDS ARE ENCOUNTERED, USE "L" AS SHOWN IN THE TABLES.
    - WHERE HORIZONTAL RESTRAINED LENGTHS ENCROACH, RESTRAIN ALL JOINTS BETWEEN BENDS (OR FITTINGS) AND MULTIPLY "L" BY 1.5 FOR NEW RESTRAINED LENGTH.
    - WHERE VERTICAL UP BENDS ARE ENCOUNTERED, USE "L" AS SHOWN IN TABLES.
    - WHERE VERTICAL DOWN BENDS ARE ENCOUNTERED, MULTIPLY "L" BY 1.5 FOR NEW RESTRAINED LENGTH.
    - WHERE VERTICAL BENDS ENCROACH, RESTRAIN ALL JOINTS BETWEEN BENDS. FOR VERTICAL UP BENDS, MULTIPLY "L" BY 1.5 AND FOR VERTICAL DOWN BENDS, MULTIPLY "L" BY 2.25 FOR NEW RESTRAINED LENGTHS OPPOSITE THE FULLY RESTRAINED SECTION OF PIPE.
  - THE RESTRAINED LENGTHS SHOWN FOR REDUCERS ARE BASED ON A REDUCTION OF ONE SIZE DOWN (I.E. 8 TO 6, 4 TO 3, ETC.). IF A REDUCTION GREATER THAN ONE SIZE DOWN IS NECESSARY, SEE THE ENGINEER FOR THE REQUIRED RESTRAINED LENGTH.

#### DEFINITIONS:

ENCROACHING: WHERE FITTINGS ARE INSTALLED AT LOCATIONS CLOSE ENOUGH TO ONE ANOTHER WHERE THE CALCULATED MINIMUM RESTRAINED LENGTHS OVERLAP.

NON ENCROACHING: WHERE FITTINGS ARE INSTALLED AT LOCATIONS WHERE THE CALCULATED MINIMUM RESTRAINED LENGTHS DO NOT OVERLAP.

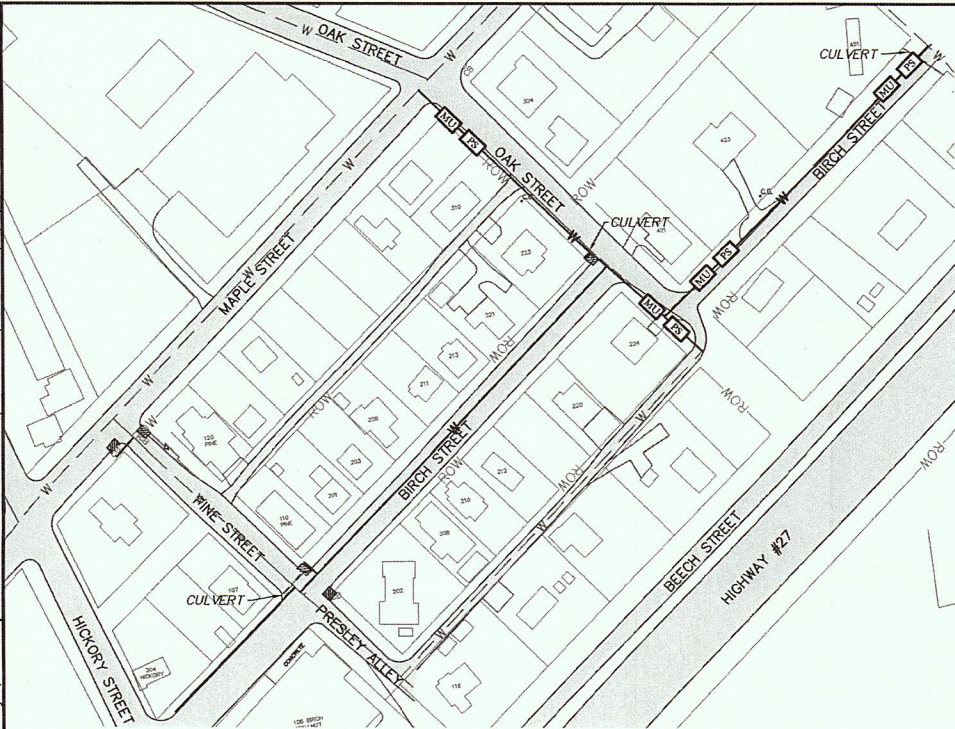
### MECHANICALLY RESTRAINED JOINT DETAIL FOR PVC PIPE

NOT TO SCALE

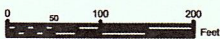
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2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT			
STATE CONTRACT NO. 12079			
DETAIL SHEET 2 OF 2			
112 DUNWOOD ROAD, SUITE A KNOXVILLE, TN 37922 865-246-2750			
JOB NO. K17015-01			
ISSUE DATE 02/15/2018			
SCALE AS SHOWN			
DRAWING NO. 7.0			



CTI PROJECT: K17015-01 (Harriman Utility Board) 2018 Harriman CDBG Water System Improvement Project, DRAWINGS: K17015 HUB Waterline Replacement (534249/32/3/7/18 9:23AM), LAYOUT: EC DATE OF PRINT: 3/7/2018 9:23 AM



BIRCH & OAK STREET PLAN  
SCALE: 1" = 100'



LEGEND

- SILT FENCE
- >->- WATTLES
- >->- CHECK DAM
- MU STABILIZATION WITH STRAW MULCH
- PS STABILIZATION WITH PERMANENT VEGETATION
- OR INLET PROTECTION



SPENCER DRIVE PLAN  
SCALE: 1" = 100'

EROSION CONTROL PLAN  
GENERAL NOTES

1. COMPREHENSIVE:
  - A. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO OR CONCURRENT WITH LAND-DISTURBING ACTIVITIES.
  - B. PROVISIONS TO PREVENT EROSION OF SOIL FROM THE SITE SHALL BE AT A MINIMUM IN CONFORMANCE WITH THE REQUIREMENTS OF THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN TENNESSEE, FOURTH EDITION, AND ALL APPLICABLE CODES OF THE LOCAL ISSUING AUTHORITY GOVERNING EROSION SEDIMENTATION CONTROL. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
  - C. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE STANDARDS SPECIFIED IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN TENNESSEE AND ALL APPLICABLE CODES OF THE LOCAL ISSUING AUTHORITY.
  - D. EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO LAND DISTURBANCE. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM ACTUAL DRAINAGE PATTERNS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL EXISTING DRAINAGE PATTERNS AND THOSE CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
  - E. THE CONSTRUCTION OF THE SITE MAY COMMENCE AFTER THE INSTALLATION OF EROSION CONTROL MEASURES SUFFICIENT TO CONTROL SEDIMENT DEPOSITS AND EROSION. ALL SEDIMENT CONTROL WILL BE MAINTAINED UNTIL ALL UPSTREAM GROUND WITHIN THE CONSTRUCTION AREA HAS BEEN COMPLETELY STABILIZED WITH PERMANENT VEGETATION AND ALL PAVING IS COMPLETE.
  - F. CONSTRUCTION EXITS SHALL BE CONSTRUCTED AT EACH POINT OF ENTRY OR EXIT FROM ANY STORAGE OR EQUIPMENT SITES AND SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH STONE AS CONDITIONS DEMAND, REPAIR, AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES OFF SITE ONTO PUBLIC RIGHTS-OF-WAY AND PRIVATE PROPERTY MUST BE REMOVED IMMEDIATELY.
  - G. IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION EXITS, ANY NEEDED PERIMETER EROSION CONTROL DEVICES AND STORM WATER MANAGEMENT DEVICES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION.
  - H. ALL SILT BARRIERS MUST BE PLACED AS ACCESS IS OBTAINED DURING CLEARING. NO EXCAVATION OR GRADING SHALL BE DONE UNTIL SILT BARRIER INSTALLATION IS COMPLETE.
  - I. CONCRETE WASHOUTS SHALL BE FIELD LOCATED BY CONTRACTOR.
  - J. STORM DRAIN INLETS (CATCH BASINS) AND/OR PAVED AREAS SHALL BE STABILIZED BY REMOVING ALL SPOILS AND APPLYING GRAVEL COVER PRIOR TO RAINFALL EVENTS AS DESCRIBED BELOW. ADDITIONAL INLET PROTECTION MAY BE NEEDED AS DEEMED NECESSARY BY THE ENGINEER.
2. DURING CONSTRUCTION:
  - A. ON SITE DUST CONTROL DURING CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES OF THE LOCAL ISSUING AUTHORITY.
  - B. THE CONTRACTOR SHALL REMOVE ACCUMULATED SILT WHEN THE SILT HAS ACCUMULATED TO ONE-HALF (1/2) OF THE HEIGHT OF THE SILT FENCE OR WATTLE UTILIZED FOR EROSION CONTROL.
  - C. STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING OR OTHER EARTH DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ON ANY PORTION OF THE SITE, AND WILL NOT RESUME FOR A PERIOD EXCEEDING 7 CALENDAR DAYS. SOIL STABILIZATION (SEEDING AND STRAW MULCHING) OF THOSE DISTURBED AREAS MUST BE COMPLETED AS SOON AS POSSIBLE, BUT NOT LATER THAN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED OR BEFORE ANY PREDICTED RAINFALL EVENTS THAT WOULD EXCEED 0.1 INCH IN A 24-HOUR PERIOD. IN ARID, SEMIARID, AND DROUGHT-STRIKEN AREAS WHERE INITIATING VEGETATIVE STABILIZATION MEASURES IMMEDIATELY IS INFEASIBLE, ALTERNATIVE STABILIZATION MEASURES (SUCH AS, BUT NOT LIMITED TO: PROPERLY ANCHORED MULCH, SOIL BINDERS, MATTING) MUST BE EMPLOYED.
  - D. LIMITS OF DISTURBANCE ARE NOT TO EXTEND BEYOND THE RIGHT-OF-WAY OR EASEMENTS AS INDICATED ON DRAWINGS.
  - E. ANY DISTURBED SOIL WILL BE STABILIZED W/ MULCH AT THE END OF EVERY WORK WEEK OR PRIOR TO A RAINFALL EVENT AS DESCRIBED ABOVE.
  - F. OPEN CUT INSTALLATION OF SERVICE LINES IN GRASSY AREAS SHALL ALSO BE STABILIZED WITH STRAW MULCH AND PERMANENT VEGETATION.

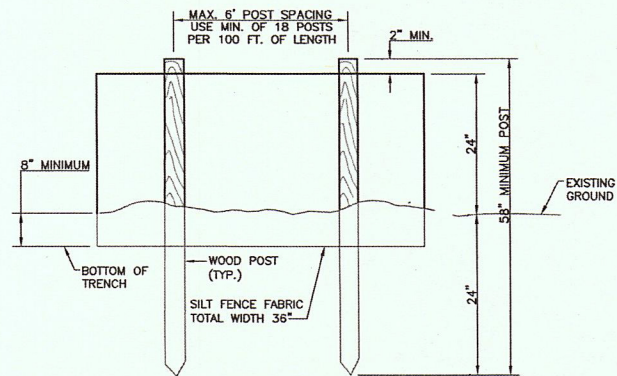
NARRATIVE

THE PROJECT INCLUDES THE CONSTRUCTION OF APPROXIMATELY 3,723 LF OF 2-INCH AND 6-INCH WATER MAIN, 1,940 L.F. OF 3/4" SERVICE LINE, AND SERVICES TO APPROXIMATELY 51 RESIDENCES. IT IS ESTIMATED THAT APPROXIMATELY 0.83 ACRES WILL BE DISTURBED.

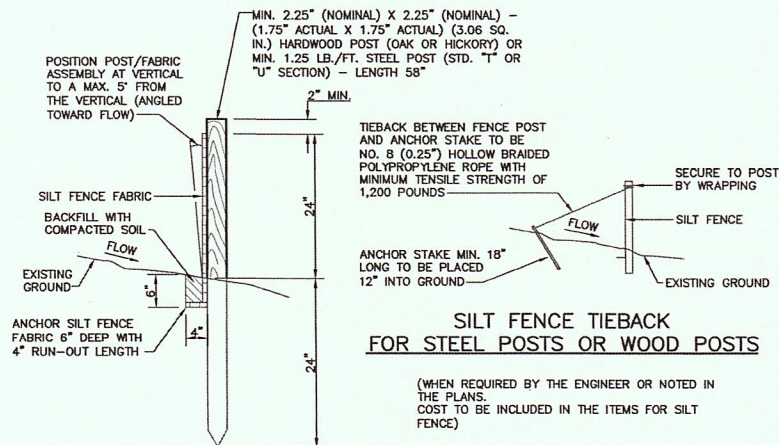
MAPPING INFORMATION (PROPERTY LINES, ETC.) PROVIDED BY HARRIMAN UTILITY BOARD.

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REVISIONS									
NO.	DATE	BY	APPD	DESIGNATIONS	DESIGN	DRAWN	CHECKED	APPROVED	
					JLK	JMG	JLK	JLK	
2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT					EROSION CONTROL PLAN				
STATE CONTRACT NO. 12079									
ENGINEERS, INC.									
112 DUNWOOD ROAD, SUITE A KNOXVILLE, TN 37922 865-248-2750									
JOB NO. K17015-01									
ISSUE DATE 02/15/2018									
SCALE AS SHOWN									
DRAWING NO. 8.0									





ELEVATION VIEW



SECTIONAL VIEW

SILT FENCE  
NOT TO SCALE

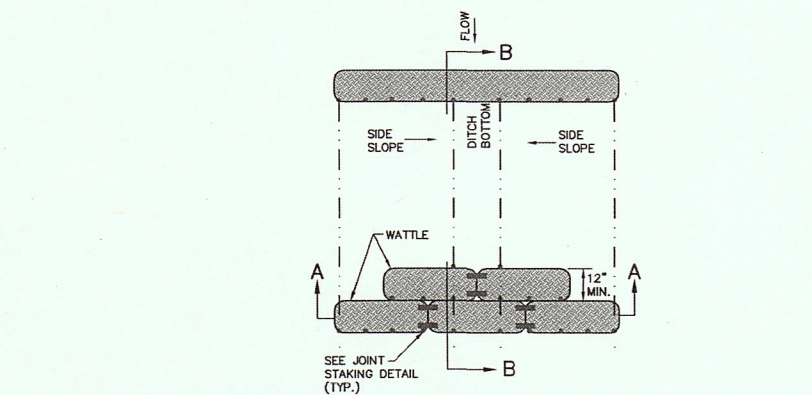


TEMPORARY SEEDING REQUIREMENTS TABLE					
AREA	SOWING SEASON	SPECIES	SEED	RATE (LB/ACRE)	
				FERTILIZER (10-10-10)	LIMESTONE
ALL	MAY 1 – AUG. 15	OATS	60	750*	2,000*
		BROWN TOP MILLET	30		
	AUG. 15 – DEC. 30	OATS	30		
		WINTER WHEAT	30		
* OR FOLLOW RECOMMENDATIONS OF SOIL TEST(S)					

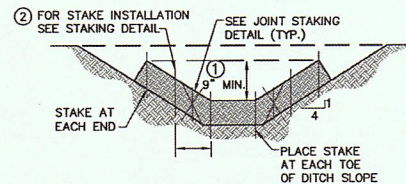
NOTES: 1. APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL.  
2. REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

PERMANANT SEEDING REQUIREMENTS TABLE					
AREA	SOWING SEASON	SPECIES	SEED	RATE (LB/ACRE)	
				FERTILIZER (6-12-12)	LIMESTONE
FLAT TO ROLLING TERRAIN WITH SLOPES LESS THAN 3:1	MAR. 1 – JUNE 1	KENTUCKY 31 FESCUE	200-400	1,350**	4,300**
		LADINO WHITE CLOVER*	10-20		
	AUG. 1 – NOV. 1	KENTUCKY 31 FESCUE	200-400		
		LADINO WHITE CLOVER*	10-20		
EMBANKMENTS WITH SLOPES GREATER THAN 3:1		ANNUAL RYEGRASS	100-160		
	MAR. 1 – JUNE 1	KENTUCKY 31 FESCUE	140		
		WEEPING LOVEGRASS	15		
	AUG. 1 – NOV. 1	KENTUCKY 31 FESCUE	140		
		ANNUAL RYEGRASS	90		
* REQUIRES INOCULATION					
** OR FOLLOW RECOMMENDATIONS OF SOIL TEST(S)					

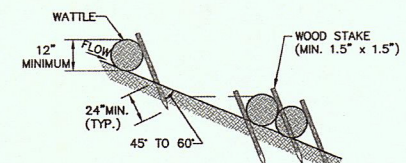
NOTES: 1. APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL.  
2. REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.



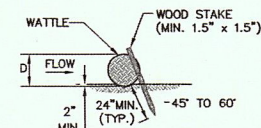
PLAN VIEW FOR DITCH APPLICATION



SECTION A-A



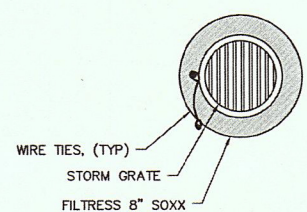
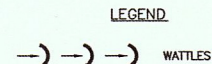
SECTION B-B



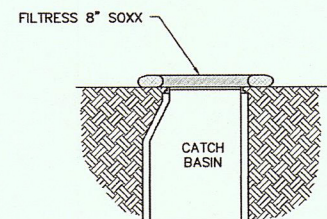
STAKING DETAIL

- NOTES:
1. THE DEPTH AND WIDTH OF THE WEIR SECTION OF THE WATTLE SHALL BE DESIGNED TO PASS THE 2yr/24hr OR 5yr/24hr STORM EVENT WITHOUT OVERTOPPING THE CHANNEL.
  2. STAKE PER MANUFACTURERS RECOMMENDATIONS

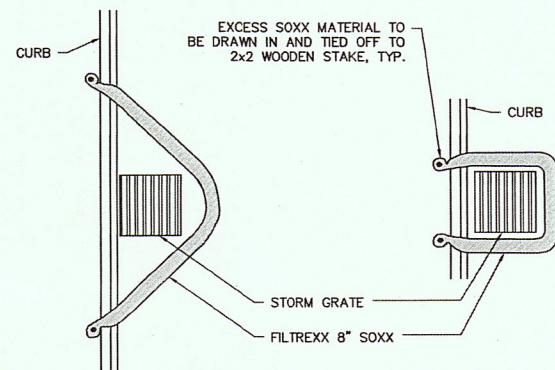
WATTLES  
NOT TO SCALE



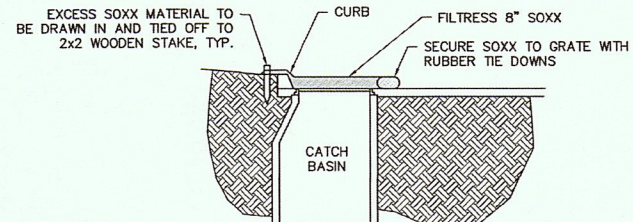
DRAIN INLET PLAN



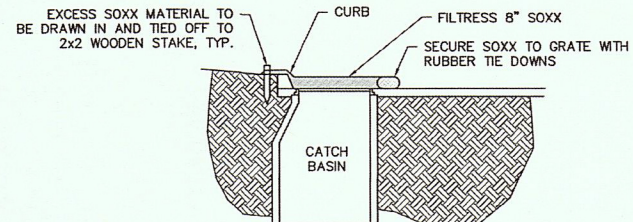
DRAIN INLET SECTION



CURBSIDE OPTION "A" PLAN



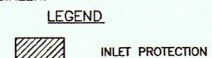
CURBSIDE OPTION "B" PLAN



CURBSIDE SECTION

- NOTES:
1. ALL MATERIAL TO MEET FILTRIX SPECIFICATIONS.
  2. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
  3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

INLET PROTECTION  
NOT TO SCALE



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REVISIONS	DATE	BY	APPD
NO.			

DESIGN	DRAWN	CHECKED	APPROVED
JLK	JMG	JLK	JLK

2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT  
STATE CONTRACT NO. 12079

EROSION CONTROL DETAILS

CTI ENGINEERS, INC.  
112 DUNWOOD ROAD, SUITE A  
NASHVILLE, TN 37223  
615-248-2750

JOHN L. K...  
PROFESSIONAL ENGINEER  
No. 103724  
EXPIRATION DATE 12/31/2024  
STATE OF TENNESSEE

JOB NO.	K17015-01
ISSUE DATE	02/15/2018
SCALE	AS SHOWN
DRAWING NO.	9.0