

CTI PROJECT: K17015-01 (Harriman Utility Board) 2018 Harriman CDBG Water System Improve Project, DRAWING: K17015 HUB Waterline Replacement – Phase II (Record) (570563v6). LAYOUT: Title

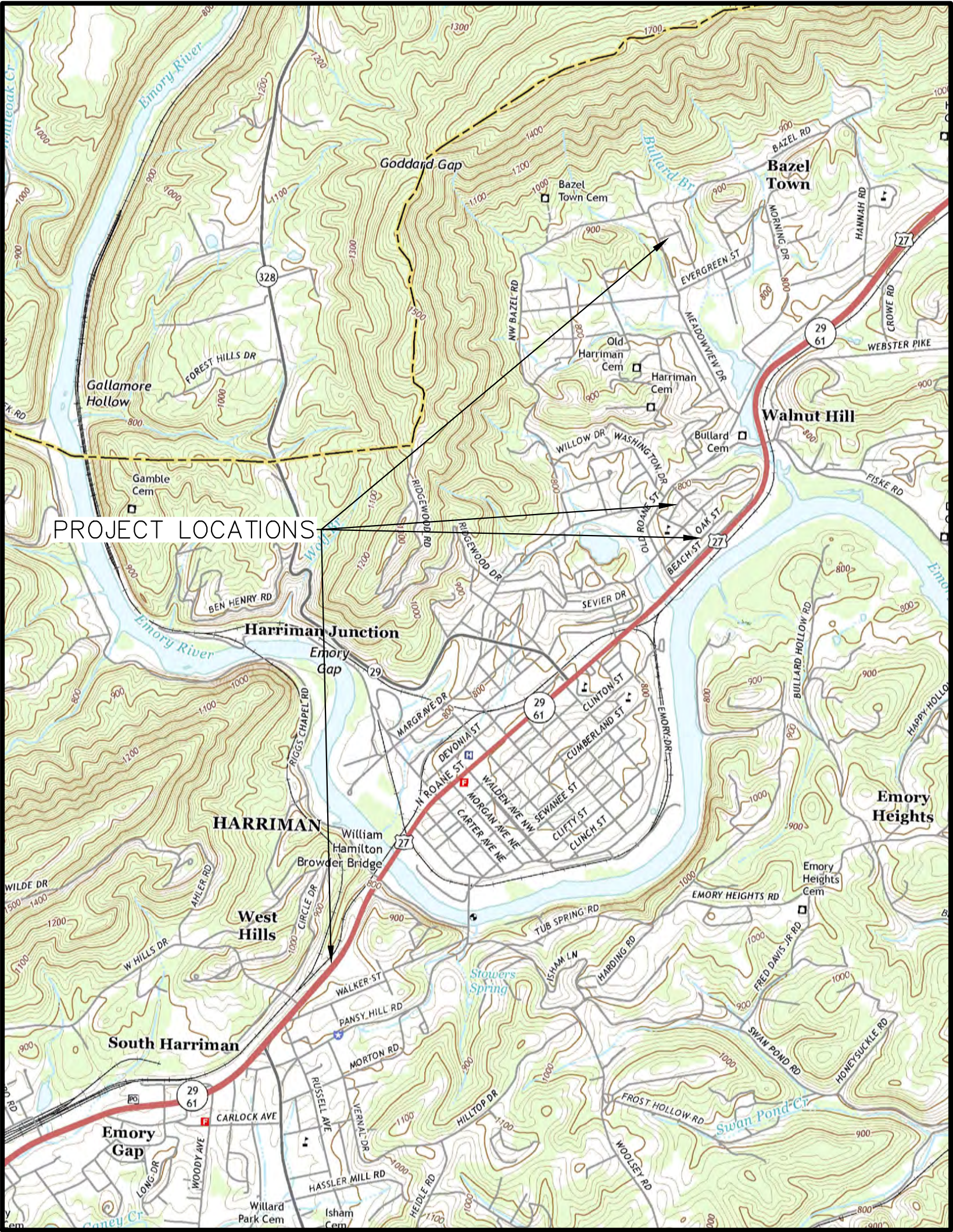
HARRIMAN UTILITY BOARD

2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT - PHASE II

STATE CONTRACT NO. 12079

DRAWING INDEX

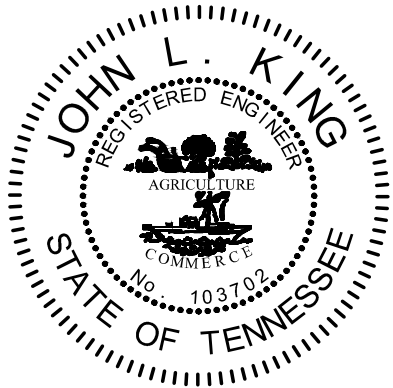
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HOWARD AVENUE & TARPLEY LANE	3 "RD"
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LOCATION MAP
SCALE: 1" = 2000'



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



JOHN KING, PE
TENNESSEE LICENSE NO. 103702

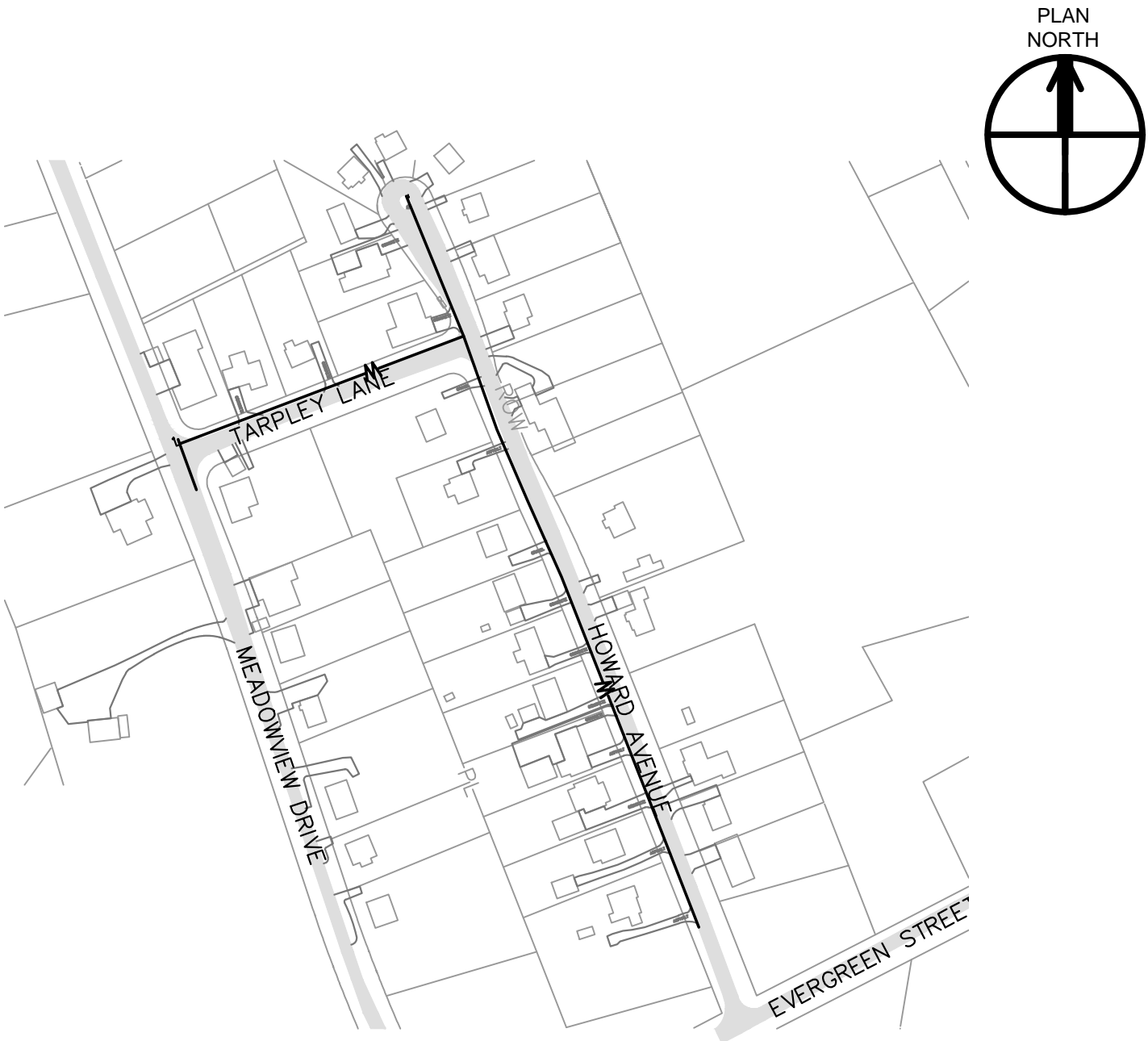
DATE

RECORD DRAWING SET
REVISED DRAWINGS ARE AS INDICATED BY "RD"

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

CANDACE VANNASDALE, PE
MANAGER OF GWS ADMINISTRATION & ENGINEERING

DATE



HOWARD AVENUE & TARPLEY LANE GENERAL PLAN
SCALE: 1" = 200'



BIRCH
BEECH & WALNUT STREET GENERAL PLAN
SCALE: 1" = 200'



SOUTH ROANE STREET GENERAL PLAN
SCALE: 1" = 200'

GENERAL NOTES

GRADING AND EXCAVATION

1. WHEN SPECIFIC GRADING REQUIREMENTS ARE NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL GRADE ALL AREAS WITHIN THE LIMITS OF CONSTRUCTION, OR OTHERWISE DISTURBED BY CONSTRUCTION, TO DRAIN AND TO MATCH THE EXISTING, ADJACENT GROUND.
2. THE CONTRACTOR SHALL PERFORM ALL NECESSARY STRIPPING OF EXISTING TOPSOIL ON THE JOBSITE.
3. ON THE PROJECT, NEWLY GRADED, EARTH AREAS NOT TO BE PAVED, RIP-RAPPED, OR STABILIZED, SHALL BE SEEDED IN ACCORDANCE WITH THE SPECIFICATIONS. PRIOR TO SEEDING, A FOUR INCH LAYER OF TOPSOIL SHALL BE PLACED ON THESE AREAS IN ACCORDANCE WITH SAID SPECIFICATIONS.
4. THE CONTRACTOR SHALL DISPOSE OF, AT HIS OWN EXPENSE, ALL UNSUITABLE AND/OR SURPLUS, EXCAVATED MATERIAL.
5. EXCAVATION ADJACENT TO EXISTING PAVEMENT SHALL BE MADE TO A NEAT LINE.
6. ALL TREES THAT ARE CUT OR KNOCKED DOWN WITHIN THE LIMITS OF CONSTRUCTION SHALL BE REMOVED AND DISPOSED OF OFF-SITE AT THE CONTRACTOR'S EXPENSE. BURNING SHALL NOT BE PERMITTED.
7. BACKFILLING, COMPACTING, GRADING, AND SITE-CLEANUP SHALL OCCUR DAILY AS PIPE INSTALLATION PROGRESSES.

EROSION/POLLUTION CONTROL

8. ALL LOCAL, STATE, AND FEDERAL EROSION CONTROL REQUIREMENTS SHALL BE FOLLOWED DURING CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO CONTROL EROSION AND WATER POLLUTION THROUGH THE CONSTRUCTION PERIOD. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE IN PLACE BEFORE EXCAVATION OPERATIONS BEGIN. CLEARING AND GRUBBING SHALL BE HELD TO A MINIMUM WIDTH NECESSARY TO ACCOMMODATE CONSTRUCTION SLOPES. EMBANKMENTS AND EXCAVATED AREAS SHALL BE PROMPTLY STABILIZED TO MINIMIZE EROSION. BALED STRAW EROSION CHECKS AND SILT FENCE SHALL BE USED ALONG THE TOE OF FILL SLOPES, IN DITCHES, AND IN OTHER AREAS WHERE EROSION IS A PROBLEM AND SILT-LADEN RUNOFF MAY ENTER A DRAINAGE DITCH, STREAM OR ADJACENT PROPERTY.
9. ANY STOCKPILED SOIL OR FILL MATERIAL SHALL BE LOCATED AND TREATED IN A MANNER TO PREVENT SILT ENTERING STREAMS. NO EXCAVATED MATERIAL SHALL BE DISCHARGED INTO DITCHES. THE CONTRACTOR SHALL DISPOSE OF ALL EXCAVATED MATERIAL IN A LOCATION, APPROVED BY THE ENGINEER, ABOVE THE NORMAL HIGH WATER ELEVATION.
10. THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL EROSION CONTROL PROVISIONS AS SET FORTH IN THE EROSION & SEDIMENT CONTROL HANDBOOK AVAILABLE FROM THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION.
11. THE CONTRACTOR SHALL IMPLEMENT EROSION CONTROL MEASURES AS SHOWN ON THE EROSION CONTROL PLAN AND SHALL MAINTAIN THE EROSION CONTROL MEASURES THROUGHOUT THE LENGTH OF THE CONTRACT AS REQUIRED.
12. THE CONTRACTOR SHALL PROVIDE TEMPORARY EROSION AND WATER CONTROL MEASURES (SUCH AS WATILES, CHECK DAMS, WASHOUTS, AND SILT FENCES, ETC.) AS SHOWN ON THE EROSION CONTROL PLAN AND AS DIRECTED BY THE ENGINEER. THESE TEMPORARY MEASURES SHALL BE COORDINATED WITH THE PERMANENT EROSION CONTROL FEATURES TO ASSURE ECONOMICAL, EFFECTIVE, AND CONTINUOUS EROSION CONTROL THROUGHOUT THE PROJECT.

UTILITIES

13. LOCATIONS OF UTILITIES, PUBLIC AND/OR PRIVATE, ARE APPROXIMATE ONLY, AND THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD. IT IS POSSIBLE THAT SOME EXISTING FACILITIES ARE NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING ALL UNDERGROUND UTILITY FACILITIES LOCATED AND MARKED PRIOR TO THE BEGINNING OF CONSTRUCTION.
14. THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITY OWNERS PRIOR TO INTERRUPTING ANY ELECTRICAL, COMMUNICATIONS, GAS, WATER, OR SEWER SERVICES. THE CONTRACTOR SHALL ALSO NOTIFY AFFECTED UTILITY CUSTOMERS AT LEAST 24 HOURS BEFORE INTERRUPTING THE CUSTOMERS' SERVICE. WHERE INDIVIDUAL SERVICES ARE TO BE DISCONTINUED FOR MORE THAN 4 HOURS, THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR PROVIDING TEMPORARY SERVICE SATISFACTORY TO THE AFFECTED CUSTOMER. THE REPAIR OR REPLACEMENT OF UTILITY COMPONENTS SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF THE UTILITY OWNER. NO SEPARATE PAYMENT SHALL BE MADE FOR THESE ACTIVITIES, AND COMPENSATION, THEREFORE, SHALL BE INCLUDED IN THE CONTRACT PRICES FOR OTHER ITEMS.
15. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. SHOULD SPECIAL EQUIPMENT BE REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR SHALL BE REQUIRED TO FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING UTILITIES FROM DAMAGE AND FOR FURNISHING SPECIAL EQUIPMENT SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF CONSTRUCTION.

UTILITIES (CONTINUED)

16. IF ANY UTILITY IS DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY OWNER. REPAIR OF THE UTILITY SHALL THEN BE ACCORDING TO THE OWNER'S INSTRUCTIONS.
17. ALL CUTS AND FILLS SHALL BE IN PLACE, AND ALL FILLS COMPACTED, PRIOR TO THE INSTALLATION OF WATER LINES AND APPURTENANCES.
18. TRANSITION JOINTS ON PIPES OF DIFFERENT MATERIALS MUST BE APPROVED BY THE ENGINEER, AND CONSTRUCTION MUST BE DONE WITH APPROVED FITTINGS AND/OR ADAPTERS.
19. ALL PROPOSED PIPING AND MISCELLANEOUS APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, CONTRACT DRAWINGS, AND SPECIFICATIONS.
20. WHERE WATER PIPE CROSSES THE SEWER MAIN, THE WATER PIPE WITHIN 10 FEET OF THE POINT OF CROSSING SHALL BE AT LEAST 18 INCHES ABOVE THE SEWER MAIN OR THE WATER PIPE SHALL BE ENCASED.
21. TOPS OF ALL BOXES SHALL BE RAISED FLUSH WITH FINISHED GRADES AND BE VISIBLE.
22. THE WATER LINES SHALL BE TESTED AND APPROVED PER THE REQUIREMENTS OF THE SPECIFICATIONS.
23. THE CROWN OF THE WATER LINES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 36-INCHES BELOW THE EXISTING SURFACE WITHIN RIGHTS-OF-WAY AND 30-INCHES BELOW THE EXISTING SURFACE IN OTHER AREAS EXCEPT WHERE ADDITIONAL BURIAL IS NEEDED TO ACCOMMODATE INSTALLATION OF APPURTENANCES AND CROSSINGS.
24. THE CROWN OF THE WATER LINES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 30-INCHES LOWER THAN THE SURFACE OF ADJACENT ROADWAYS SO AS TO ALLOW FUTURE DRIVEWAY CUTS THAT WILL NOT IMPACT OR DISTURB THE WATER LINE.

MISCELLANEOUS

25. THE ENGINEER SHALL HAVE THE AUTHORITY TO DESIGNATE AND/OR LIMIT AREAS OF CONSTRUCTION.
26. THE OWNER MAKES NO REPRESENTATIONS ABOUT SUBSURFACE CONDITIONS THAT MAY BE ENCOUNTERED WITHIN THE LIMITS OF THE PROJECT. THE CONTRACTOR SHOULD SATISFY HIMSELF BY ON SITE INSPECTIONS, CORE DRILLINGS, OR OTHER METHODS OF THE SUBSURFACE CONDITIONS THAT MAY BE ENCOUNTERED. THE RISK OF ENCOUNTERING AND CORRECTING UNFAVORABLE SUBSURFACE CONDITIONS SHALL BE BORNE SOLELY BY THE CONTRACTOR.
27. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL FIELD LAYOUTS.
28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PAYMENT FOR TESTING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND ORDERING APPROPRIATE TESTS AS REQUIRED.
29. THE CONTRACTOR SHALL PROVIDE RECORD DRAWINGS OF THE PROJECT WITHIN TEN (10) DAYS AFTER SUBSTANTIAL COMPLETION OF THE WORK.
30. SHOULD THERE BE A CONFLICT BETWEEN THESE GENERAL NOTES, CONTRACT DRAWINGS, AND/OR SPECIFICATIONS, THE MOST RESTRICTIVE INTERPRETATION IN FAVOR OF THE OWNER SHALL PREVAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY CLARIFICATION OR INTERPRETATION OF GENERAL NOTES, CONTRACT DRAWINGS, AND/OR SPECIFICATIONS, IN ADVANCE AND IN WRITING, FROM THE ENGINEER.
31. MAIN AND SERVICE LINE PIPING INCLUDING APPURTENANCES SHALL "PASS" PRESSURE TESTING PRIOR TO ANY PAYMENT BY THE OWNER FOR THOSE ITEMS.
32. ALL 2-INCH POLYETHYLENE PIPE SHALL BE CONTINUOUS WITH NO "BUTT FUSED" CONNECTIONS.

UTILITY OWNERS

HARRIMAN UTILITY BOARD
300 NORTH ROANE STREET
HARRIMAN, TN 37748
ELECTRIC - HEATH LEWIS (865) 719-9248
GAS, WATER, AND SEWER - JEFF MIZE (865) 755-4173

AT&T TENNESSEE
9733 PARKSIDE DRIVE
KNOXVILLE, TN 37922
DAVID OVERMAN (865) 539-8579

XFINITY/COMCAST
5720 ASHEVILLE HIGHWAY
KNOXVILLE, TN 37924
JT FOPE (865) 862-5060

RECORD DRAWING

THIS DRAWING WAS ORIGINALLY ISSUED BY
CTI ENGINEERS, INC.

REVISIONS HAVE BEEN MADE BASED ON INFORMATION PROVIDED BY OTHERS. CTI ENGINEERS HAS REVIEWED THE INFORMATION AND BELIEVES IT REFLECTS THE WORK AS CONSTRUCTED. HOWEVER, ALL PERSONS SHALL VERIFY INFORMATION TAKEN FROM THIS DRAWING



0 100 200 400 Feet

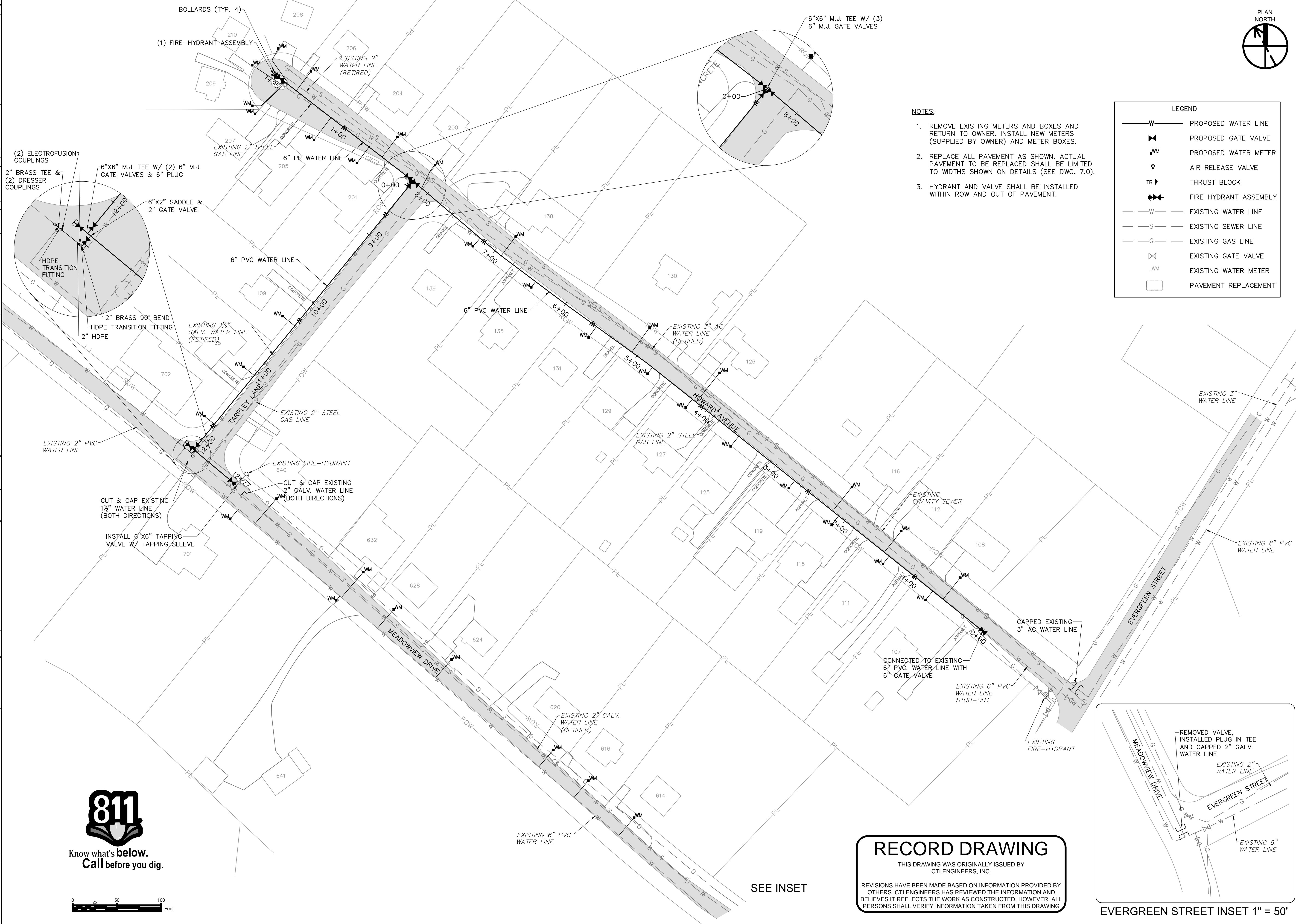
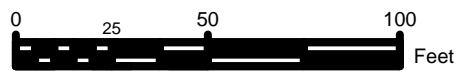
MAPPING INFORMATION (CONTOURS, PROPERTY LINES, ETC.)
PROVIDED BY HARRIMAN UTILITY BOARD.

<div><div><div><div></div><div>ENGINEERS, INC.</div></div></div><div>112 DURWOOD ROAD, SUITE A KNOXVILLE, TN 37922 865-246-2750</div></div>			2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT - PHASE II STATE CONTRACT NO. 12079 <		
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DATE OF PRINT: 2/6/2019 8:34 AMCTI PROJECT: K17015-01 (Harriman Utility Board) 2018 Harriman CDBG Water System Improve Project, DRAWING: K17015 HUB Waterline Replacement - Phase II (Record) (5/0563x8/2/5/19 3:21PM), LAYOUT: Howard & Tarpley



Know what's below.
Call before you dig.



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.

LEGEND

—W—	PROPOSED WATER LINE
◀▶	PROPOSED GATE VALVE
WM	PROPOSED WATER METER
⊕	AIR RELEASE VALVE
TB ▶	THRUST BLOCK
◀▶	FIRE HYDRANT ASSEMBLY
—S—	EXISTING WATER LINE
—S—	EXISTING SEWER LINE
—G—	EXISTING GAS LINE
◀▶	EXISTING GATE VALVE
WM	EXISTING WATER METER
◻	PAVEMENT REPLACEMENT



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REVISIONS		DATE	BY	APPD
NO.	DESCRIPTIONS	RECORD DRAWING	JLK	JLK
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DESIGN	JLK	DRAWN	JMG	CHECKED	JLK	APPROVED	JLK
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2017 HARRIMAN CDBG WATER SYSTEM
IMPROVEMENTS PROJECT - PHASE II
STATE CONTRACT NO. 12079

HOWARD AVENUE &
TARPLEY LANE



JOB NO.
K17015-II

ISSUE DATE
05/24/2018

SCALE
1" = 50'

DRAWING NO.
3.1

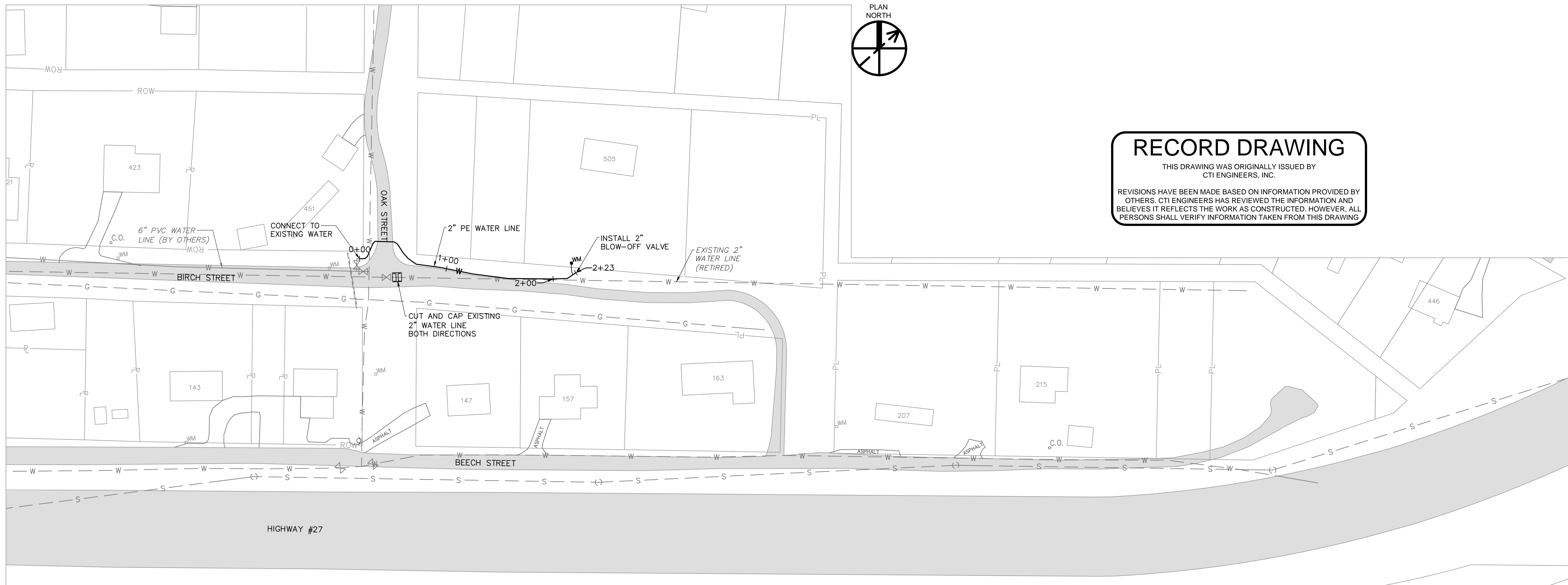
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SEE INSET

EVERGREEN STREET INSET 1" = 50'



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.

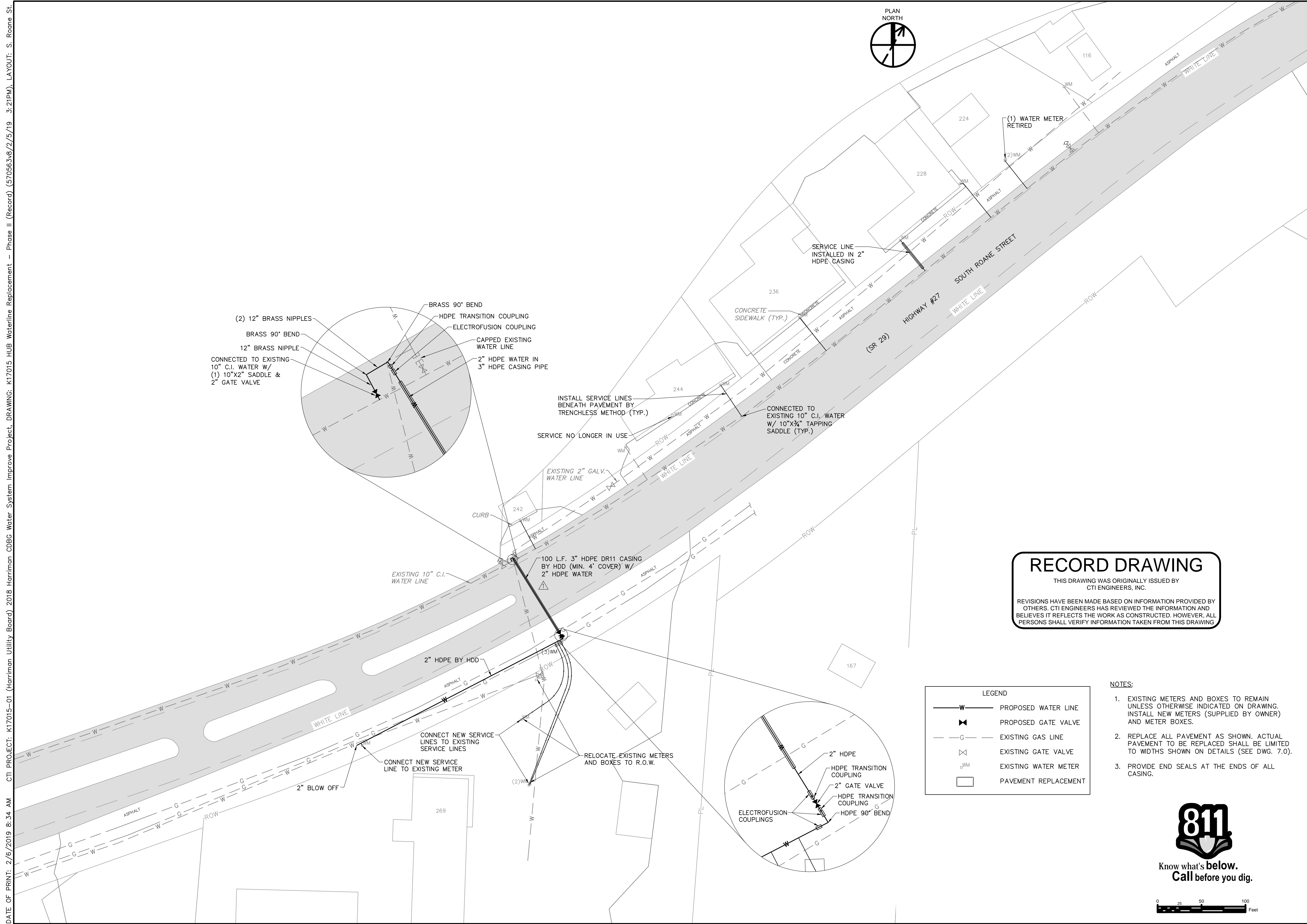
LEGEND	
	PROPOSED WATER LINE
	PROPOSED GATE VALVE
	PROPOSED WATER METER
	AIR RELEASE VALVE
	THRUST BLOCK
	EXISTING WATER LINE
	EXISTING SEWER LINE
	EXISTING GAS LINE
	EXISTING GATE VALVE
	EXISTING WATER METER
	PAVEMENT REPLACEMENT


RECORD DRAWING

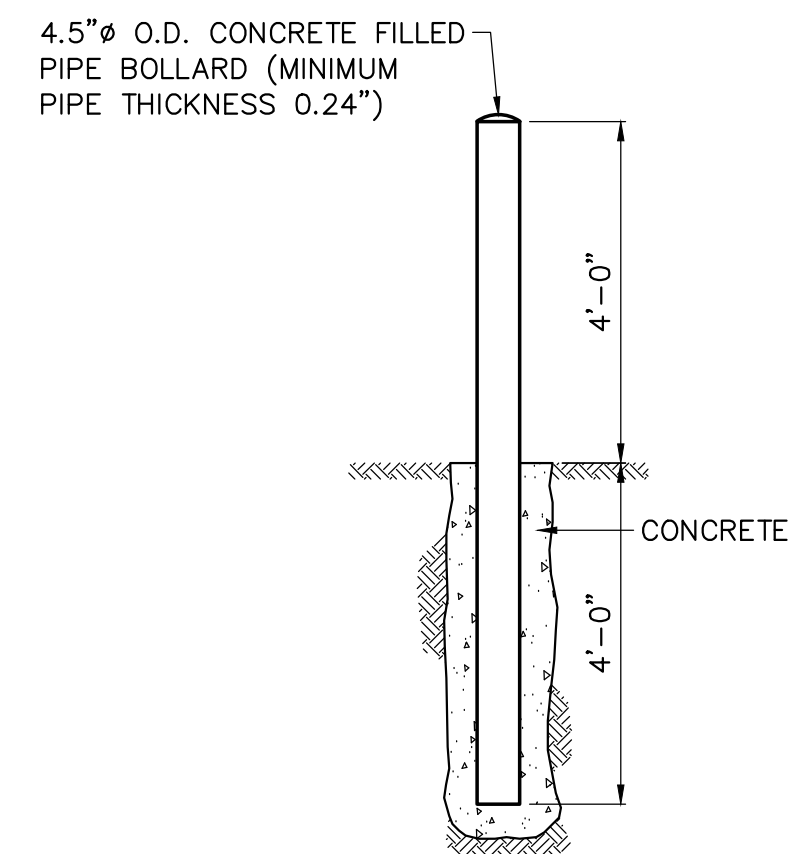
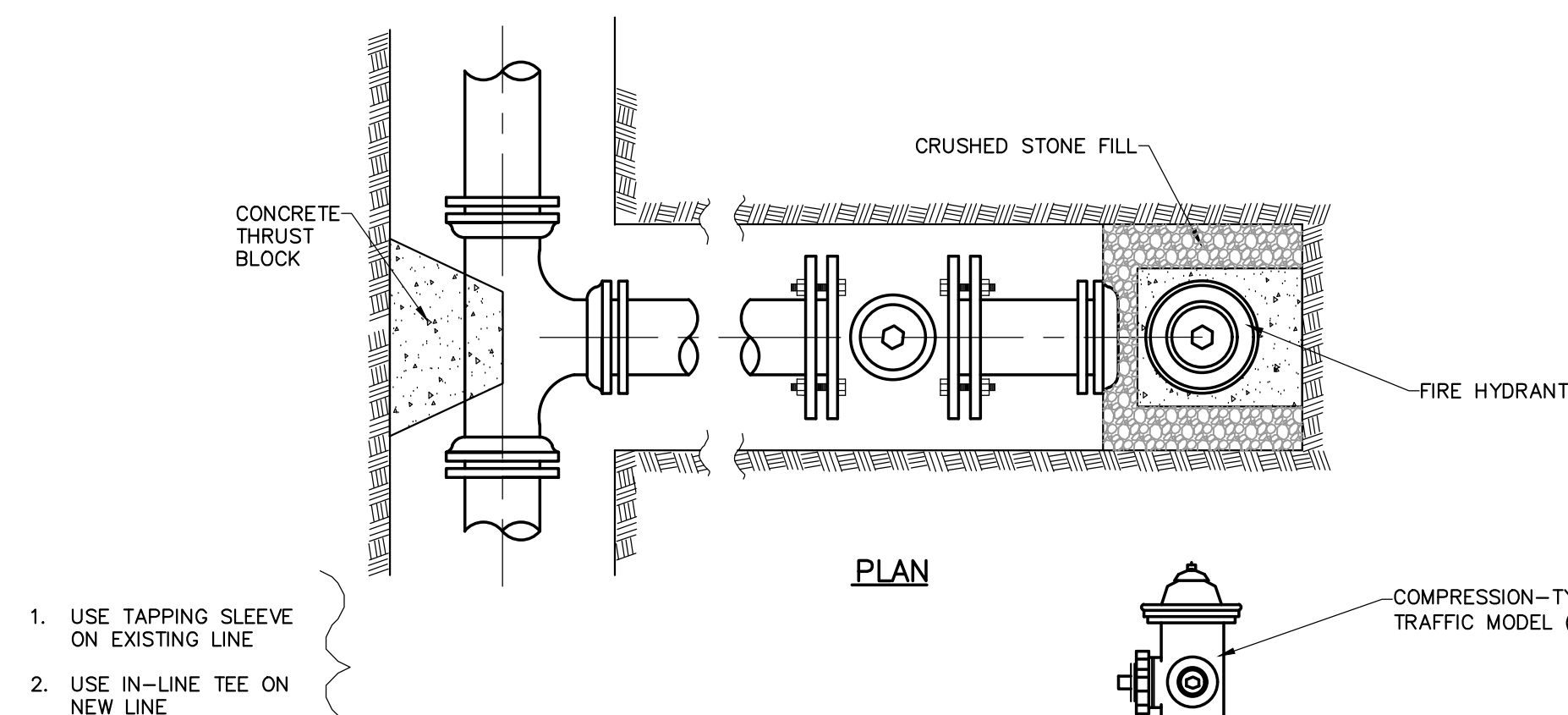
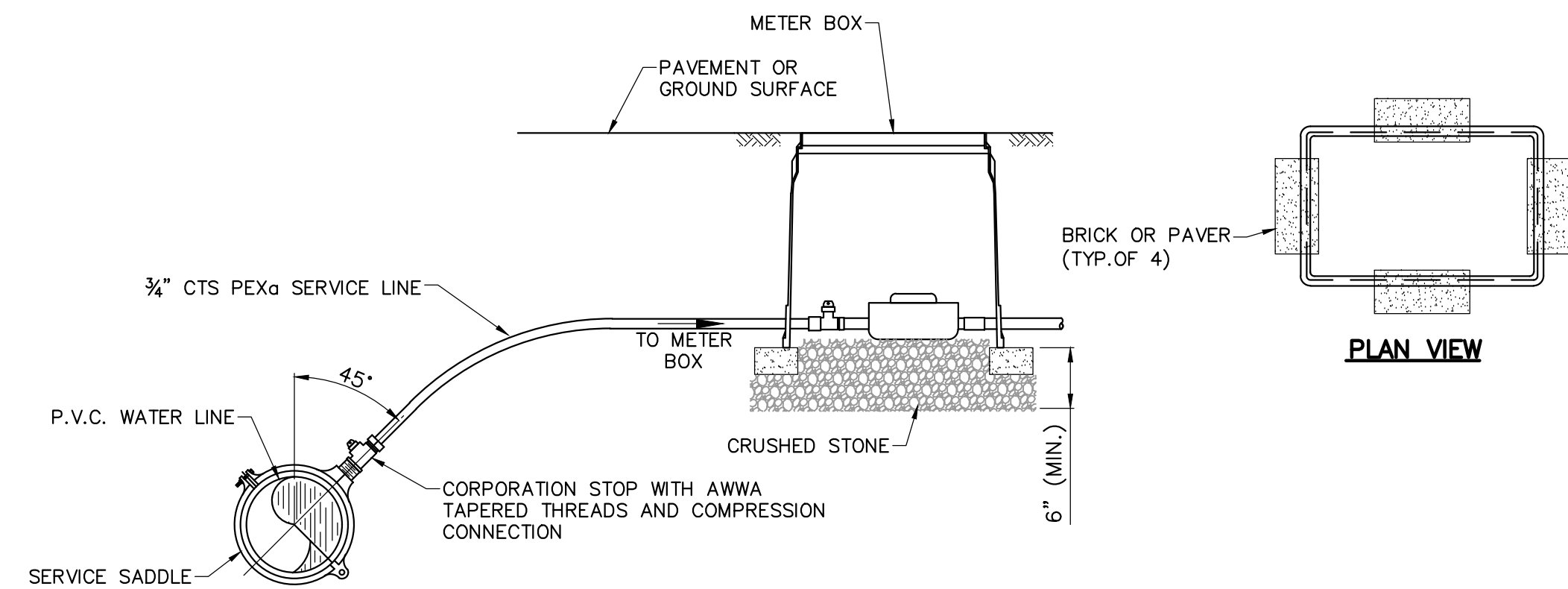
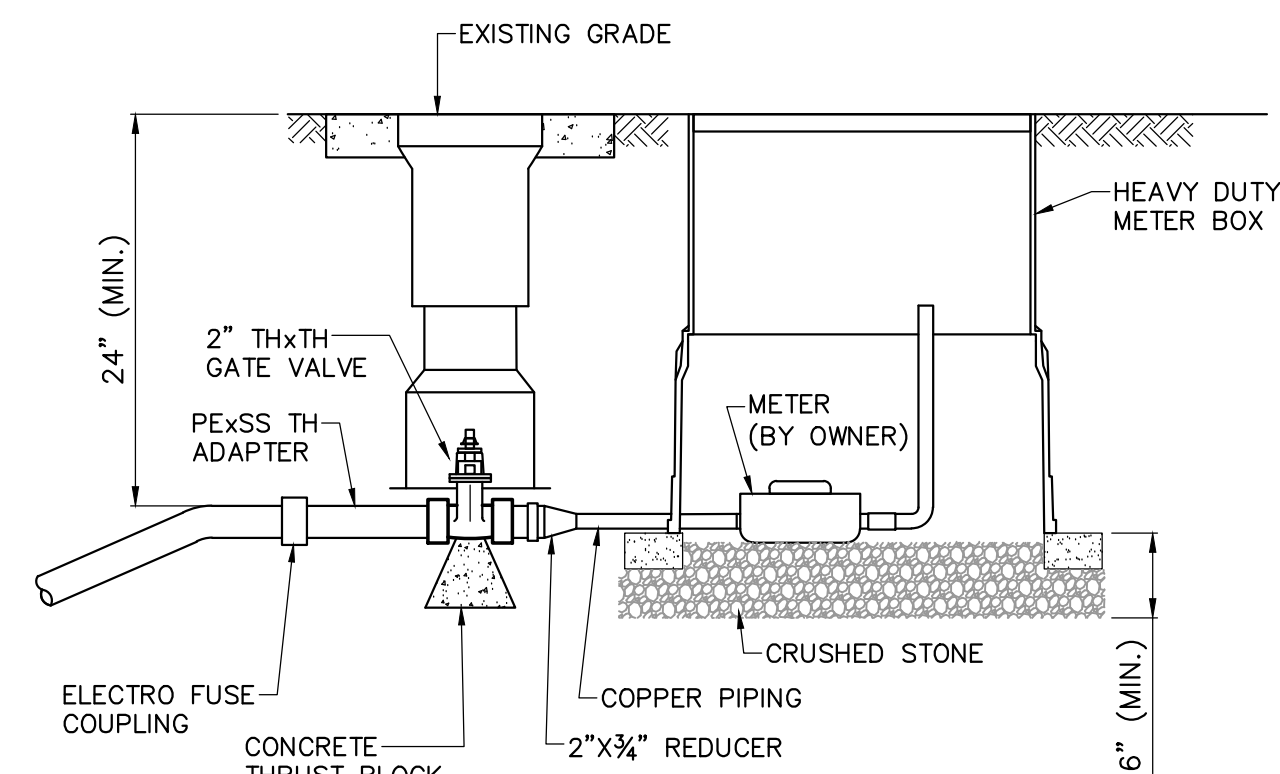
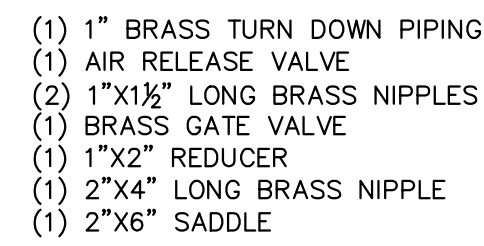
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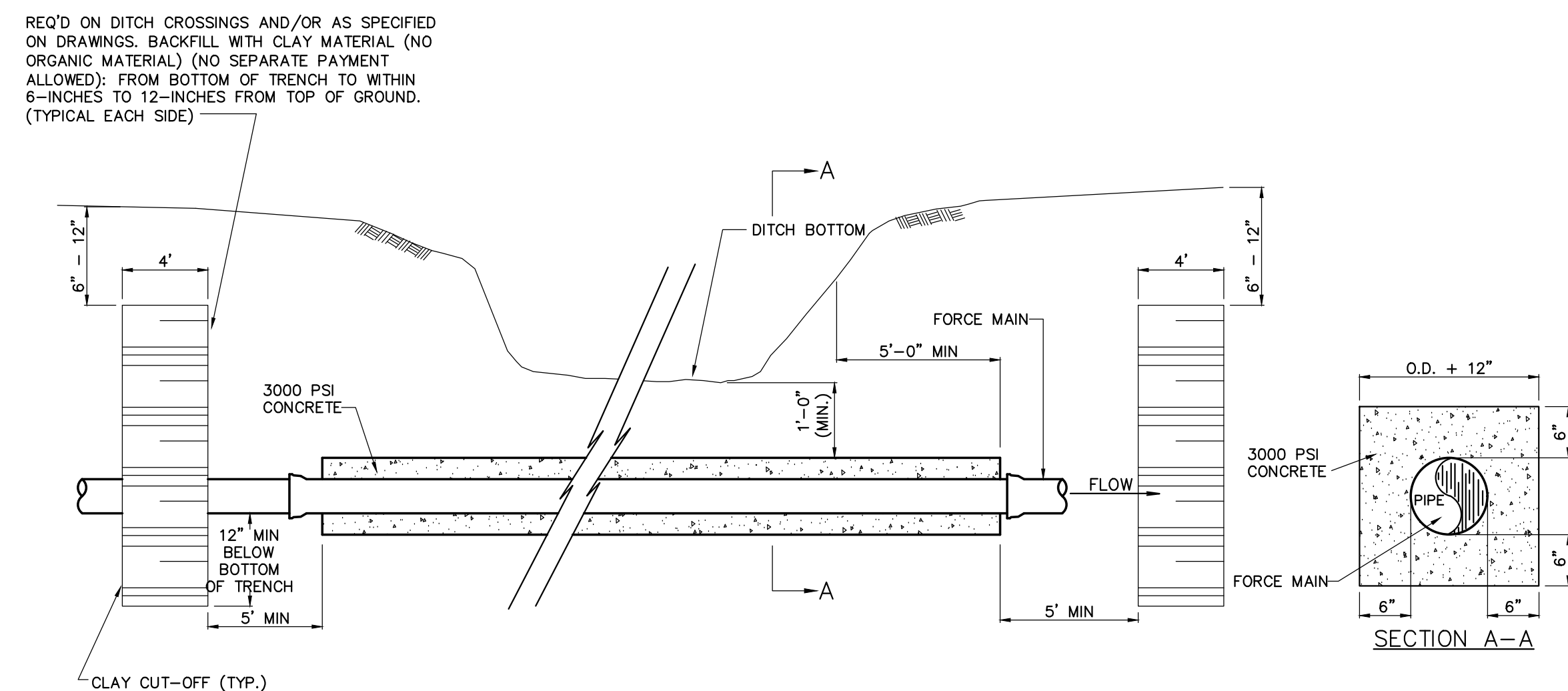
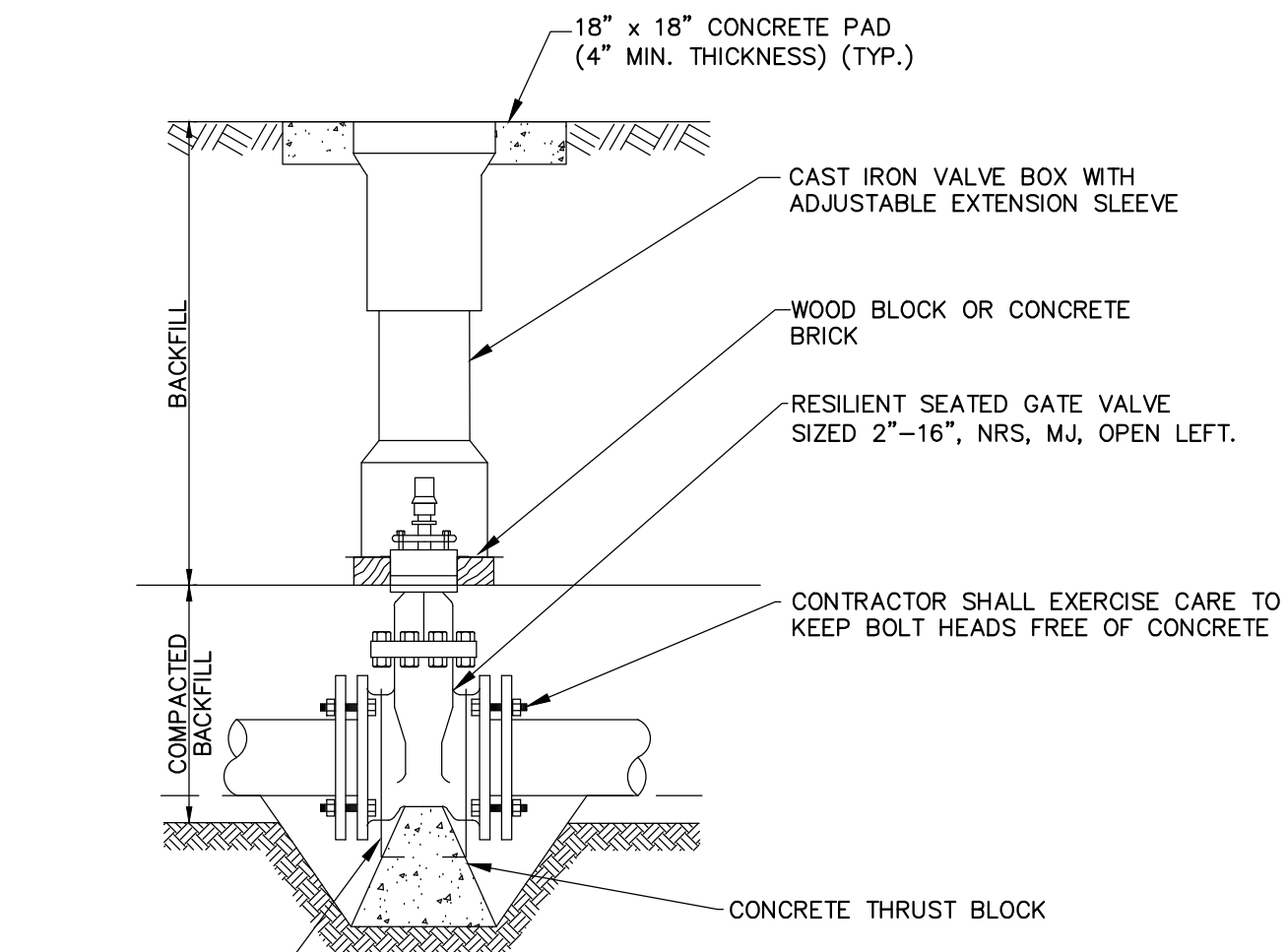
		<div><div>112 DURWOOD ROAD, SUITE A KNOXVILLE, TN 37922 865-246-2750</div></div>		JOB NO. K17015-II	<div>2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT - PHASE II STATE CONTRACT NO. 12079</div> <div>BEECH & WALNUT STREETS</div>	DESIGN JLK	REVISIONS					THIS DRAWING IS AN INSTRUMENT OF SERVICE OWNED BY CTI ENGINEERS, INC. (CTI), WHICH SHALL BE DEEMED THE AUTHOR AND COMMON SHALL BE DEEMED THE AUTHOR AND COMMON LAW RIGHTS, INCLUDING COPYRIGHTS. THIS DRAWING SHALL NOT BE SCANNED, COPIED, OR DISTRIBUTED TO OTHERS IN ANY FORM OR USED FOR ANY OTHER PURPOSE OR PROJECT WITHOUT PRIOR WRITTEN CONSENT OF CTI. CTI IS NOT RESPONSIBLE FOR CONSEQUENCES RELATED TO UNAUTHORIZED USE OR REUSE OF THIS DRAWING OR PORTIONS THEREOF.
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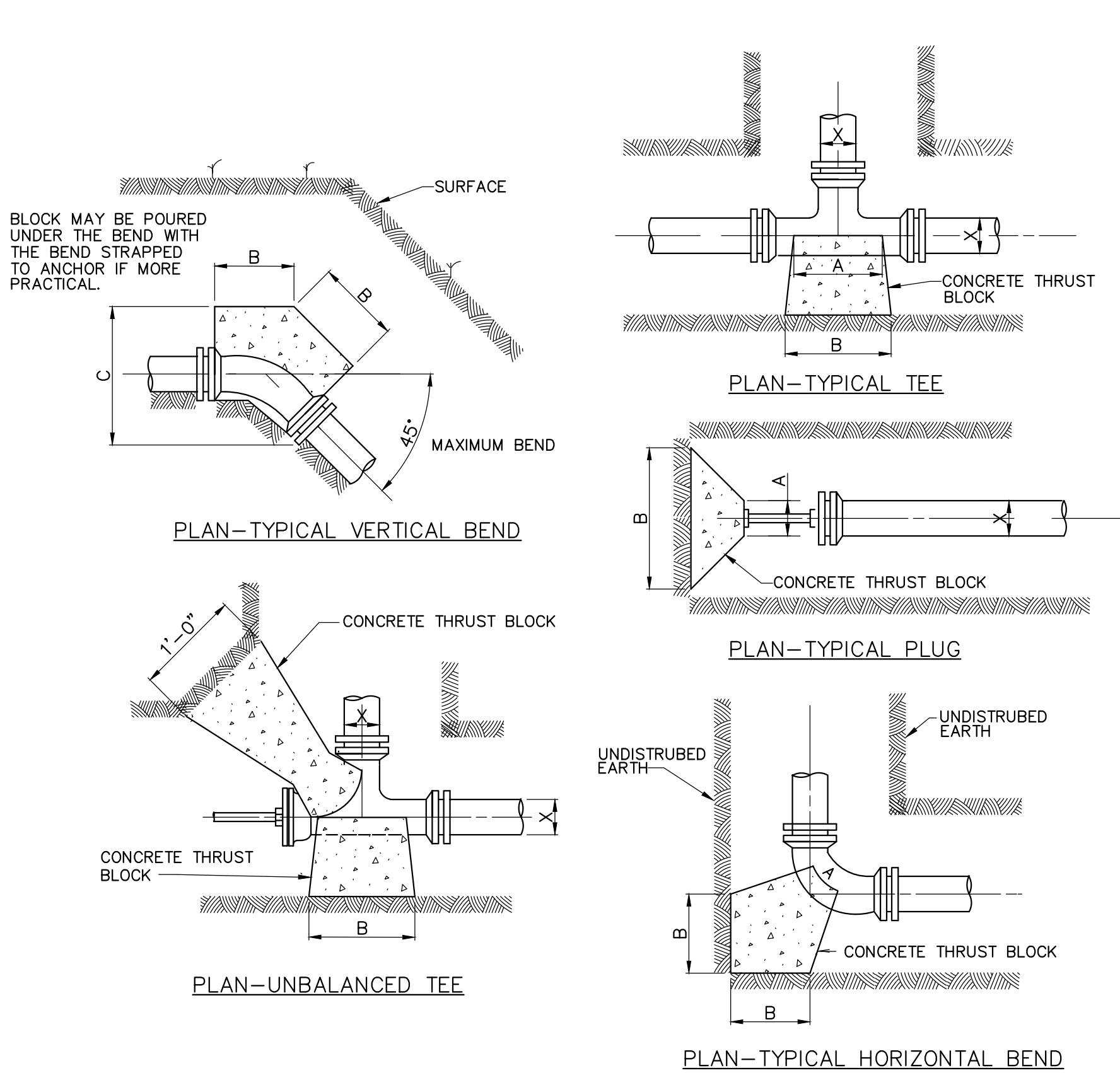
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- BOLLARD NOTES:**
1. SURFACE PREPARATION: SSPC-SP10
COATING SYSTEM: EPOXY/POLYURETHANE
- PER SECTION 09 91 00, 2.1, B, AND 3.4.
FINISH COLOR TO BE "SAFETY YELLOW".
2. APPLY EPOXY COATING, ALLOW TO CURE, AND
INSTALL IN CONCRETE PRIOR TO APPLICATION OF
INTERMEDIATE AND FINISH COATS.

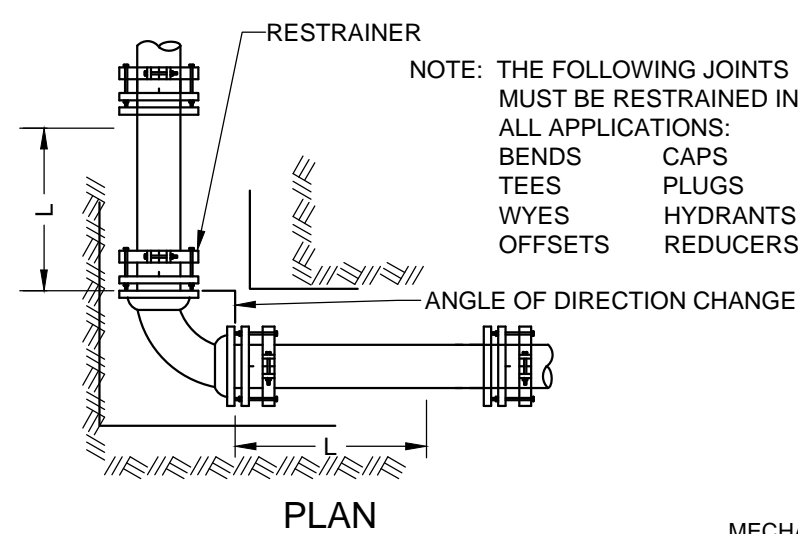


<div><div>112 DURWOOD ROAD, SUITE A KNOXVILLE, TN 37922 982-246-2750</div></div>	<div>JOB NO. K17015-II</div> <div>ISSUE DATE 05/24/2018</div> <div>SCALE AS SHOWN</div> <div>DRAWING NO. 6.0</div>	2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT - PHASE II STATE CONTRACT NO. 12079		DESIGN JLK	REVISIONS					THIS DRAWING IS AN INSTRUMENT OF SERVICE OWNED BY CTI ENGINEERS, INC. (CTI), WHICH SHALL REMAIN THE PROPERTY OF CTI. NO COMMON LAW OR STATUTE RIGHTS, INCLUDING COPYRIGHTS, THIS DRAWING SHALL NOT BE SCANNED, COPIED, OR DISTRIBUTED TO OTHERS IN ANY FORM OR USED FOR ANY OTHER PURPOSE OR PROJECT WITHOUT PRIOR WRITTEN CONSENT OF CTI. CTI IS NOT RESPONSIBLE FOR CONSEQUENCES RELATED TO UNAUTHORIZED USE OR REUSE OF THIS DRAWING OR PORTIONS THEREOF.				
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				APPROVED JLK										
				JLK										



THRUST BLOCK DETAILS

NOT TO SCALE



** MECHANICAL JOINTS SHALL BE RESTRAINED WITH ONE OF THE FOLLOWING, OR AN APPROVED EQUIVALENT:
C800 (3'-12") AND C905 (14"-24") PIPE - EBAA SERIES 2000PV OR UNI-FLANGE SERIES 1500-CA
ASTM D2241 IPS OD PIPE - EBAA SERIES 2000PV OR UNI-FLANGE SERIES 1500-SA

PUSH ON JOINTS SHALL BE RESTRAINED WITH ONE OF THE FOLLOWING, OR AN APPROVED EQUIVALENT:
C800 (3'-12") PIPE - EBAA SERIES 1600 OR UNI-FLANGE 1390-C
ASTM D2241 IPS OD PIPE - EBAA SERIES 6500 OR UNI-FLANGE 1390-S

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 ENCR OACH, RESTRAIN ALL JOINTS BETWEEN BENDS (OR FITTINGS) AND MULTIPLY "L" BY 1.5 FOR NEW RESTRAINED LENGTH OPPOSITE THE FULLY RESTRAINED SECTION OF PIPING.
 - 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 ENCR OACH, 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

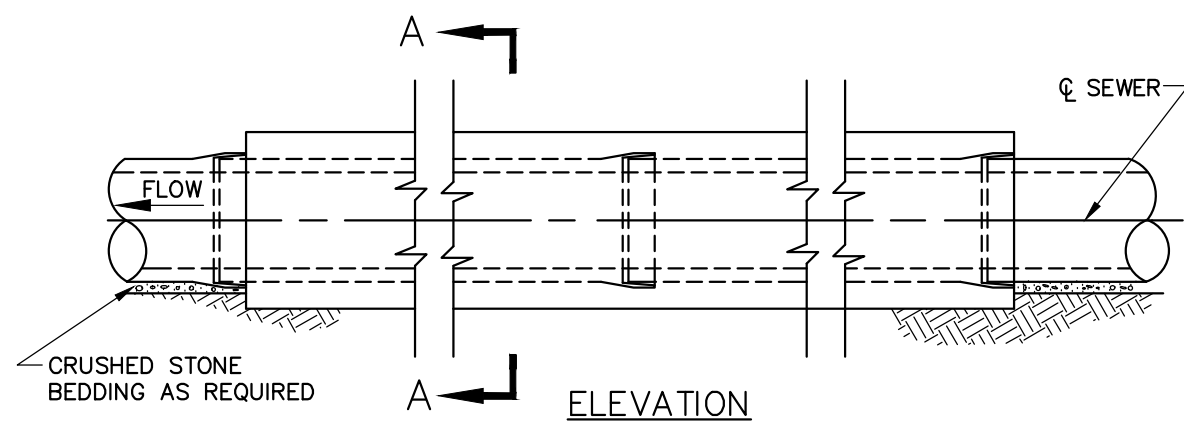
NOT TO SCALE

PIPE SIZE X	A	B	DEPTH C	PIPE SIZE X	A	B	DEPTH C
11 1/4" BEND				90° BEND & UNBALANCED TEE			
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				45° BEND			
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				22° BEND			
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"

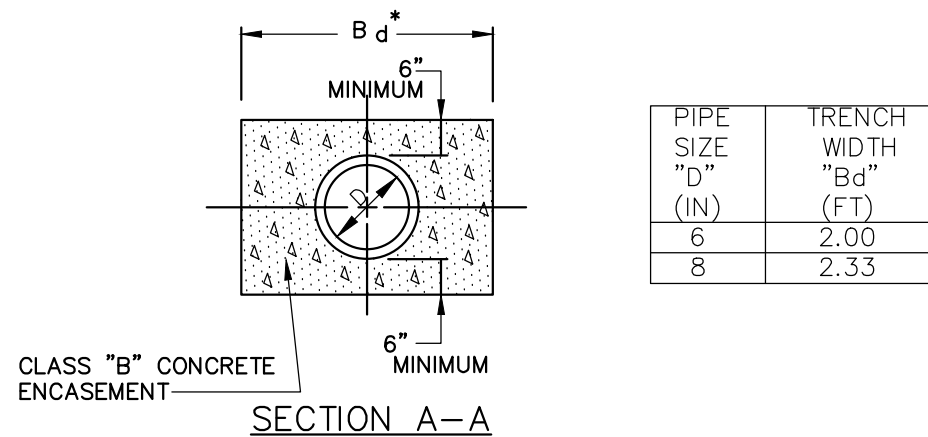
NOTE : ALL CONCRETE FOR THRUST BLOCKS SHALL BE READY-MIXED 3000 psi (MINIMUM) CLASS "B". MIX DESIGN SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO USE. THRUST BLOCKS BASED ON 225 psi & 2000lb/ft2 SOIL RESISTANCE TYPICAL FOR UNDISTURBED SAND AND GRAVEL CEMENTED WITH CLAY. FOR OTHER SOILS THE BEARING FACE OF THE THRUST BLOCKS SHOULD BE INCREASED BY THE FOLLOWING FACTORS.

SAND 2
SAND & GRAVEL 1.33
SHALE 0.4

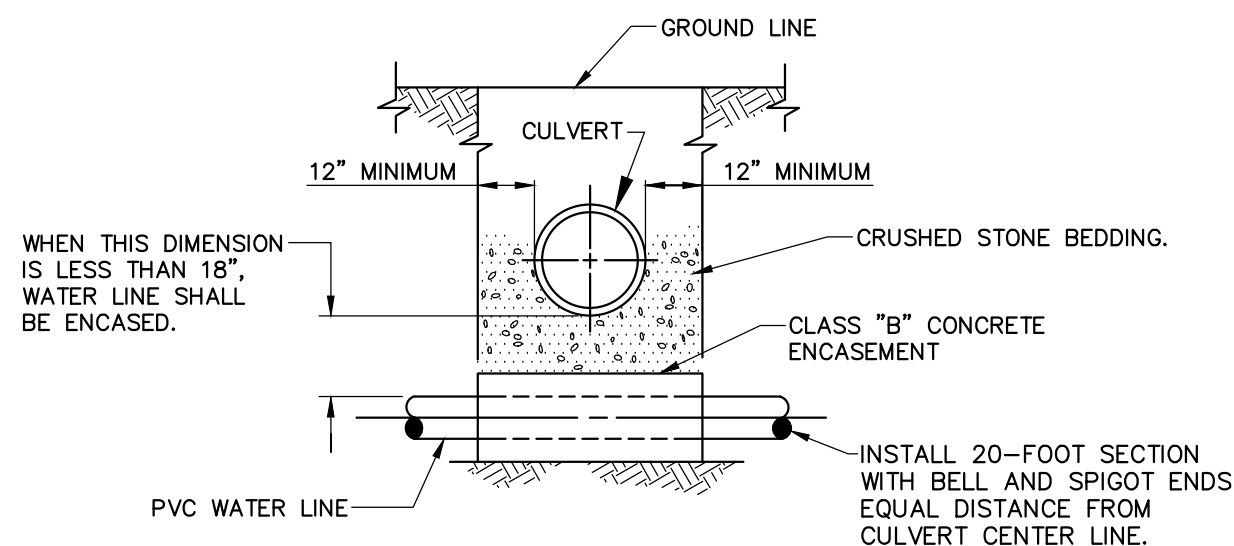
SOFT CLAY, MUCK AND PEAT SHALL USE RESTRAINED JOINTS IN LIEU OF THRUST BLOCKS.



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.

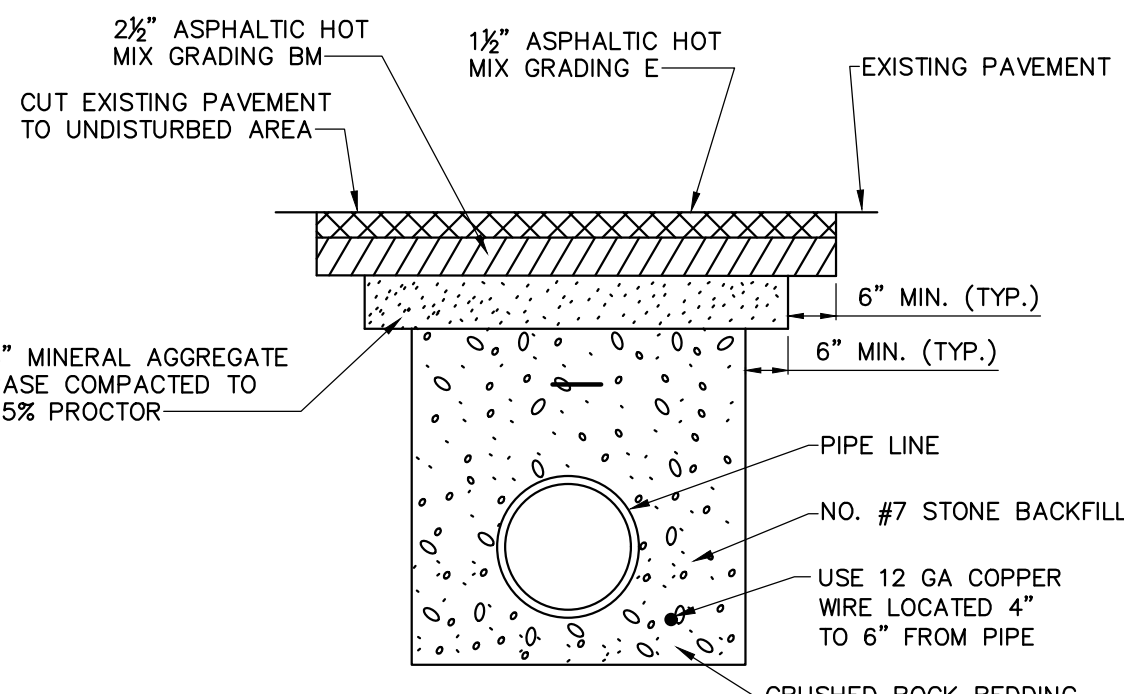


PIPE SIZE "D" (IN)	TRENCH WIDTH "Bd" (FT)
6	2.00
8	2.33



CONCRETE ENCASEMENT

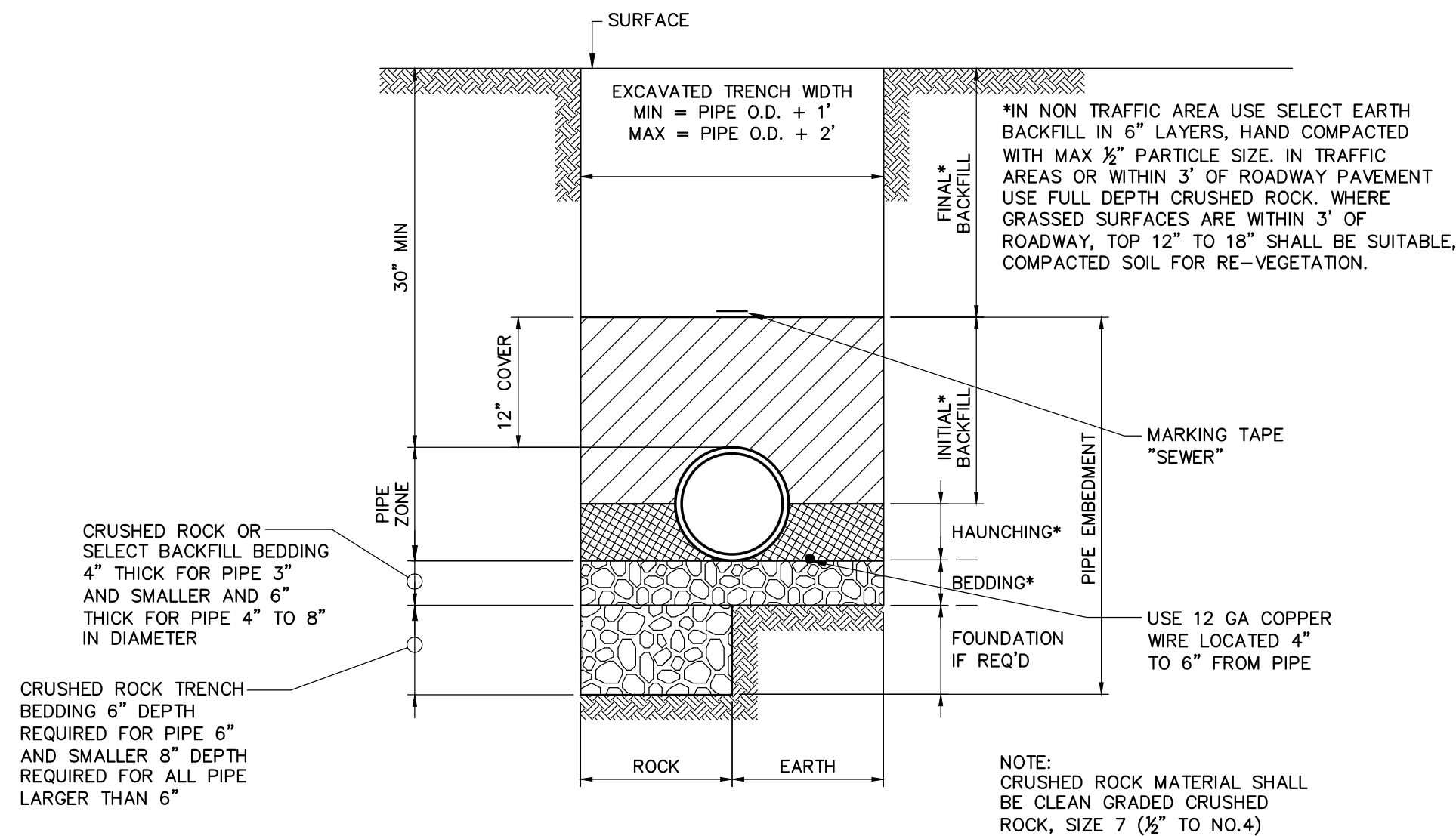
NOT TO SCALE



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

ASPHALT PAVEMENT REPLACEMENT DETAIL

NOT TO SCALE

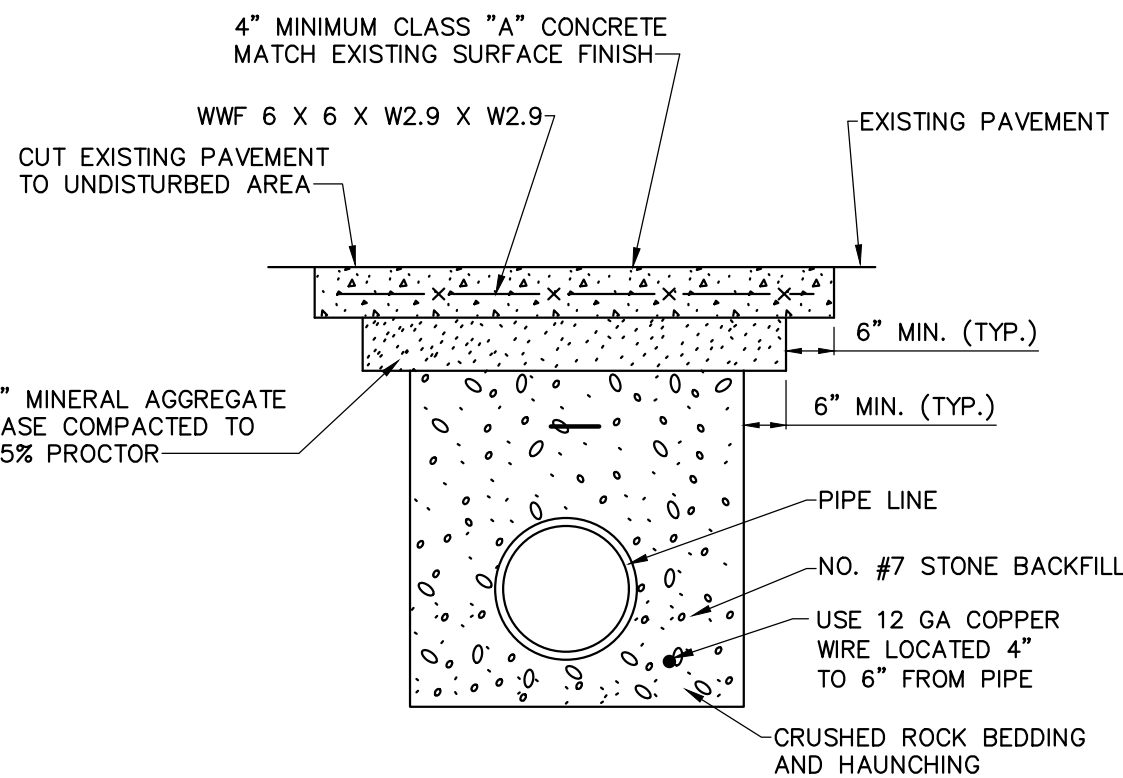


PIPE BEDDING

NOT TO SCALE

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.



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

CONCRETE PAVEMENT REPLACEMENT DETAIL

NOT TO SCALE

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NO.	DATE	BY	APPD

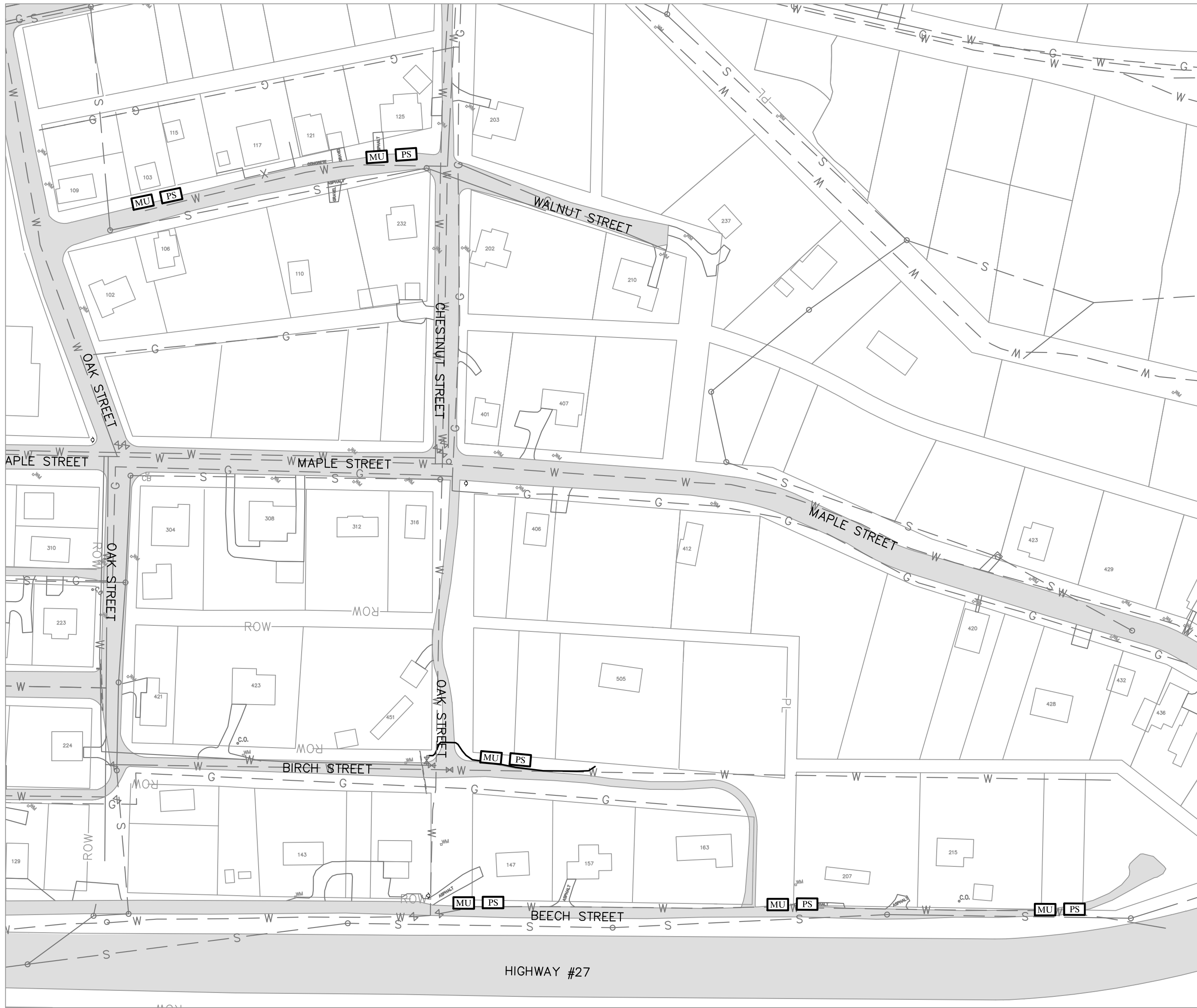
DESIGN	CHK	APP
JLK	JMG	JLK

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

DETAIL SHEET 2 OF 2



JOB NO. K17015-II
ISSUE DATE 05/24/2018
SCALE AS SHOWN
DRAWING NO. 7.0



BEECH & WALNUT STREET PLAN
SCALE: 1" = 100'

EROSION CONTROL PLAN
GENERAL NOTES

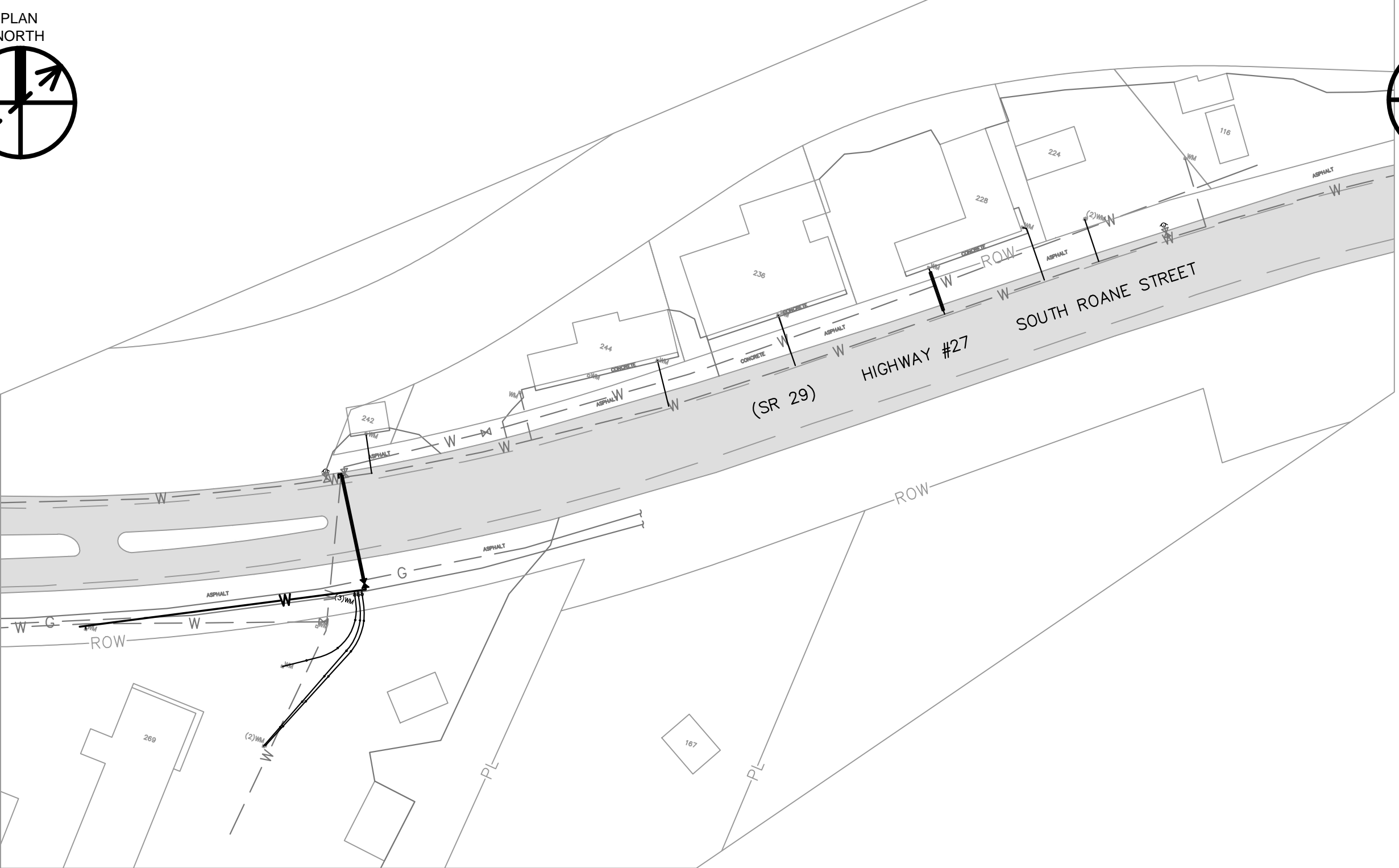
1. COMPREHENSIVE:
- A. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO OR CONCURRENT WITH LAND-DISTURBING ACTIVITIES.
- B. PROVISIONS TO PREVENT EROSION OF SOIL FROM THE SITE SHALL BE AT A MINIMUM IN CONFORMANCE 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

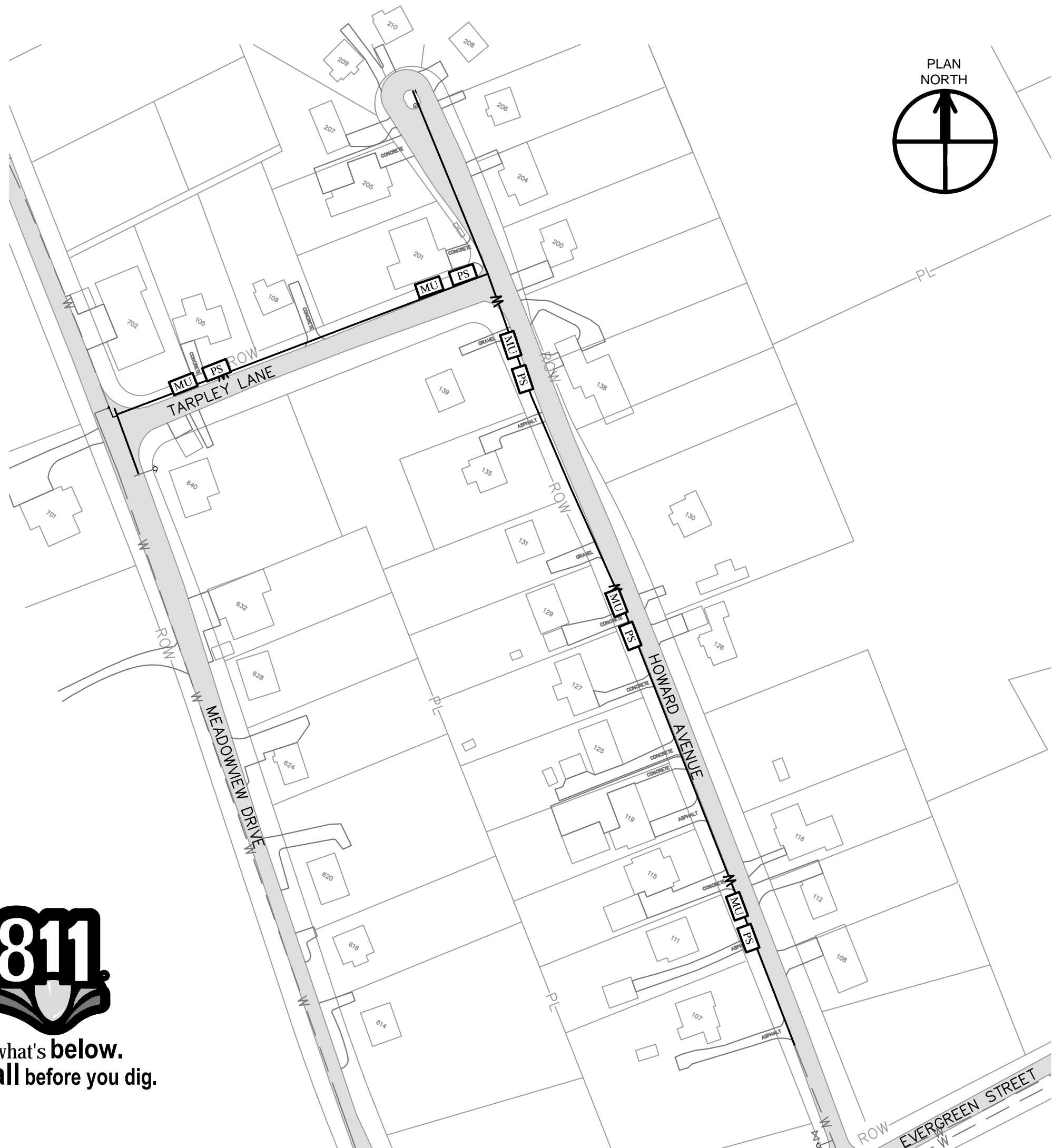
THE PROJECT INCLUDES THE CONSTRUCTION OF APPROXIMATELY 3,420 LF OF 2-INCH AND 6-INCH WATER MAIN, 1,965 L.F. OF ¾" SERVICE LINE, AND SERVICES TO APPROXIMATELY 61 RESIDENCES. IT IS ESTIMATED THAT APPROXIMATELY 0.16 ACRES WILL BE DISTURBED.

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

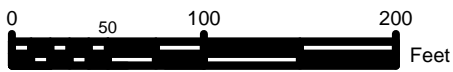



SOUTH ROANE STREET PLAN
SCALE: 1" = 100'

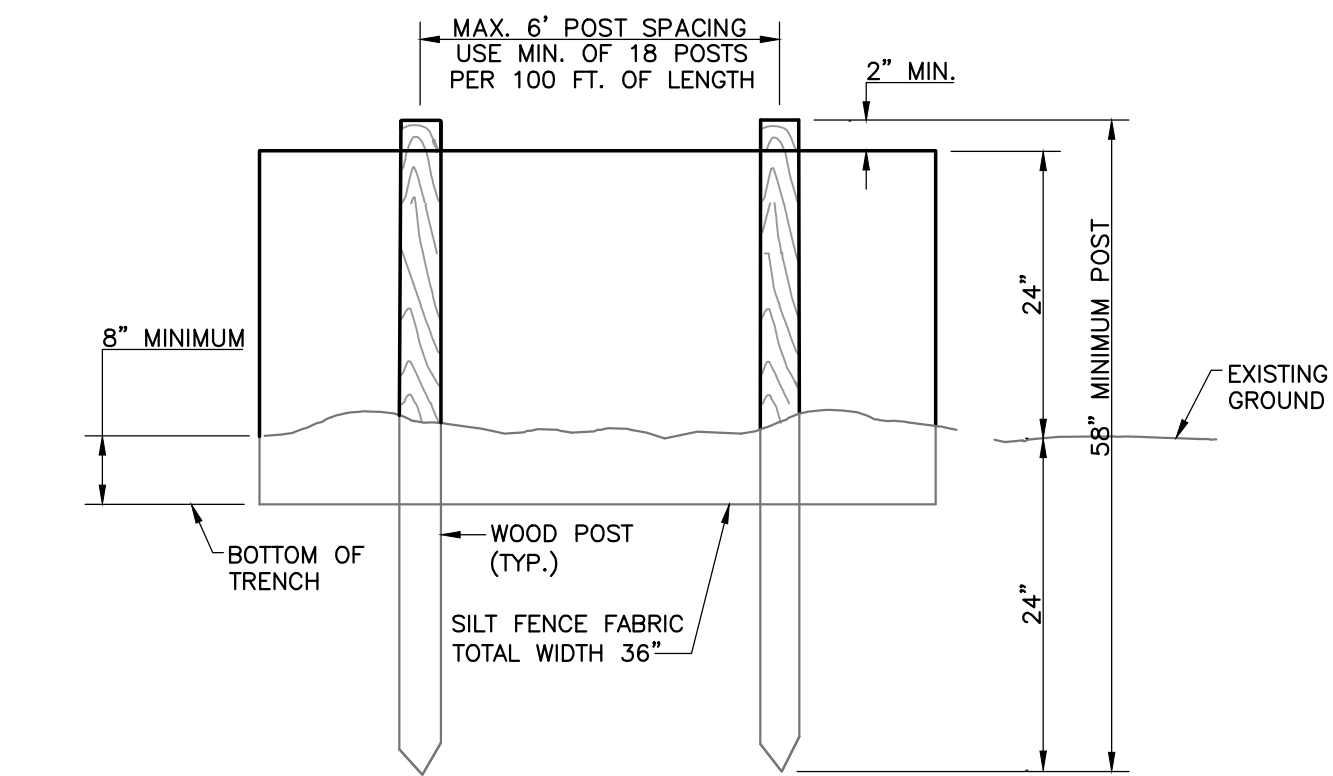
- LEGEND
- SILT FENCE
 - >->- WATTLES
 - >->- CHECK DAM
 - MU STABILIZATION WITH STRAW MULCH
 - PS STABILIZATION WITH PERMANENT VEGETATION
 - OR INLET PROTECTION



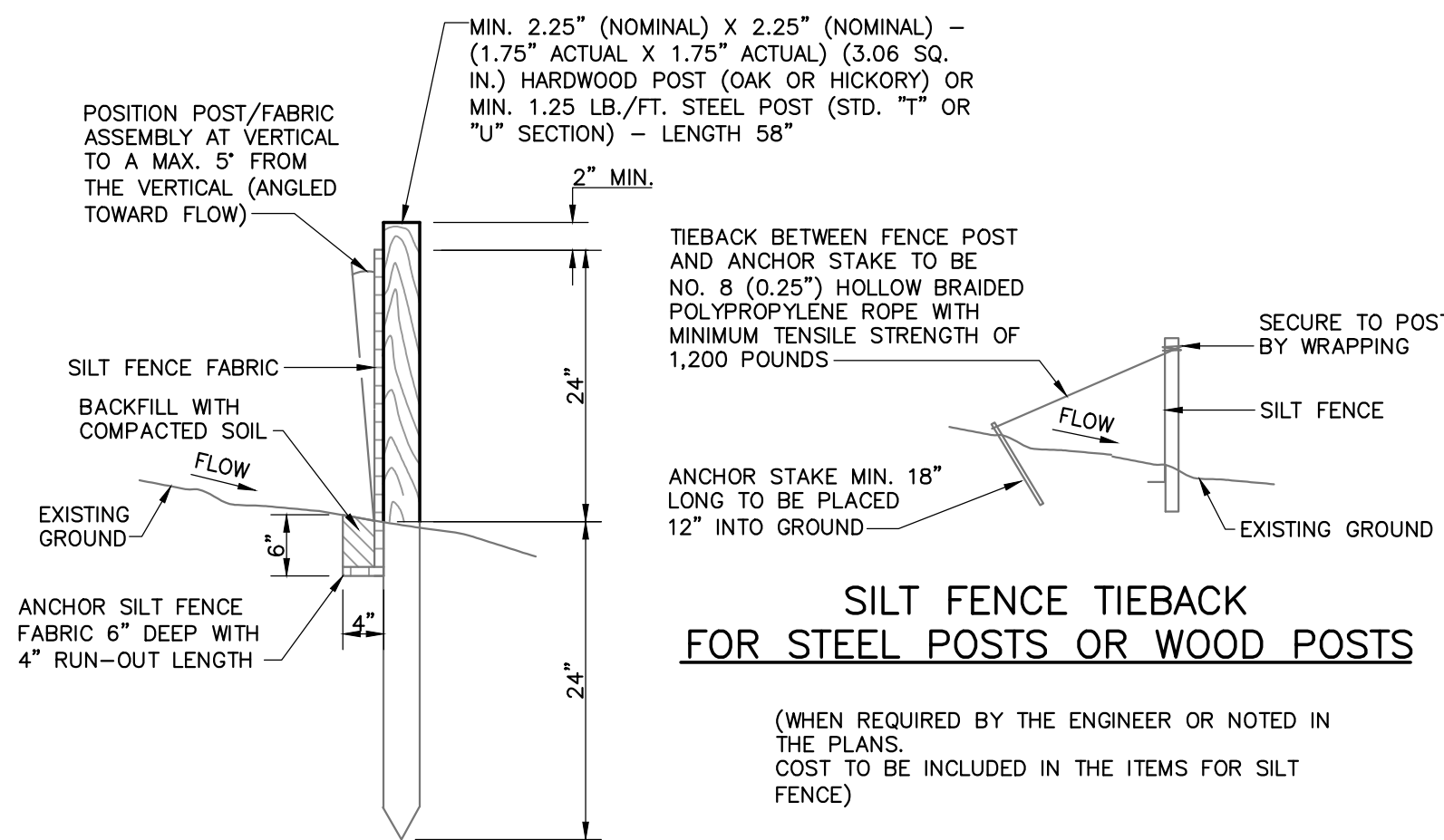
HOWARD AVENUE & TARPLEY LANE PLAN
SCALE: 1" = 100'



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							APPROVED
					JLK		
2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT - PHASE II STATE CONTRACT NO. 12079						EROSION CONTROL PLAN	
 112 DUNWOOD ROAD, SUITE A KNOXVILLE, TN 37922 865-246-2750						JOB NO.	
						K17015-II	
						ISSUE DATE	
						05/24/2018	
						SCALE	
						AS SHOWN	
						DRAWING NO.	
						8.0	



ELEVATION VIEW



SECTIONAL VIEW

SILT FENCE
NOT TO SCALE

LEGEND

■ ■ ■ ■ ■ SILT FENCE

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

* OR FOLLOW RECOMMENDATIONS OF SOIL TEST(S).

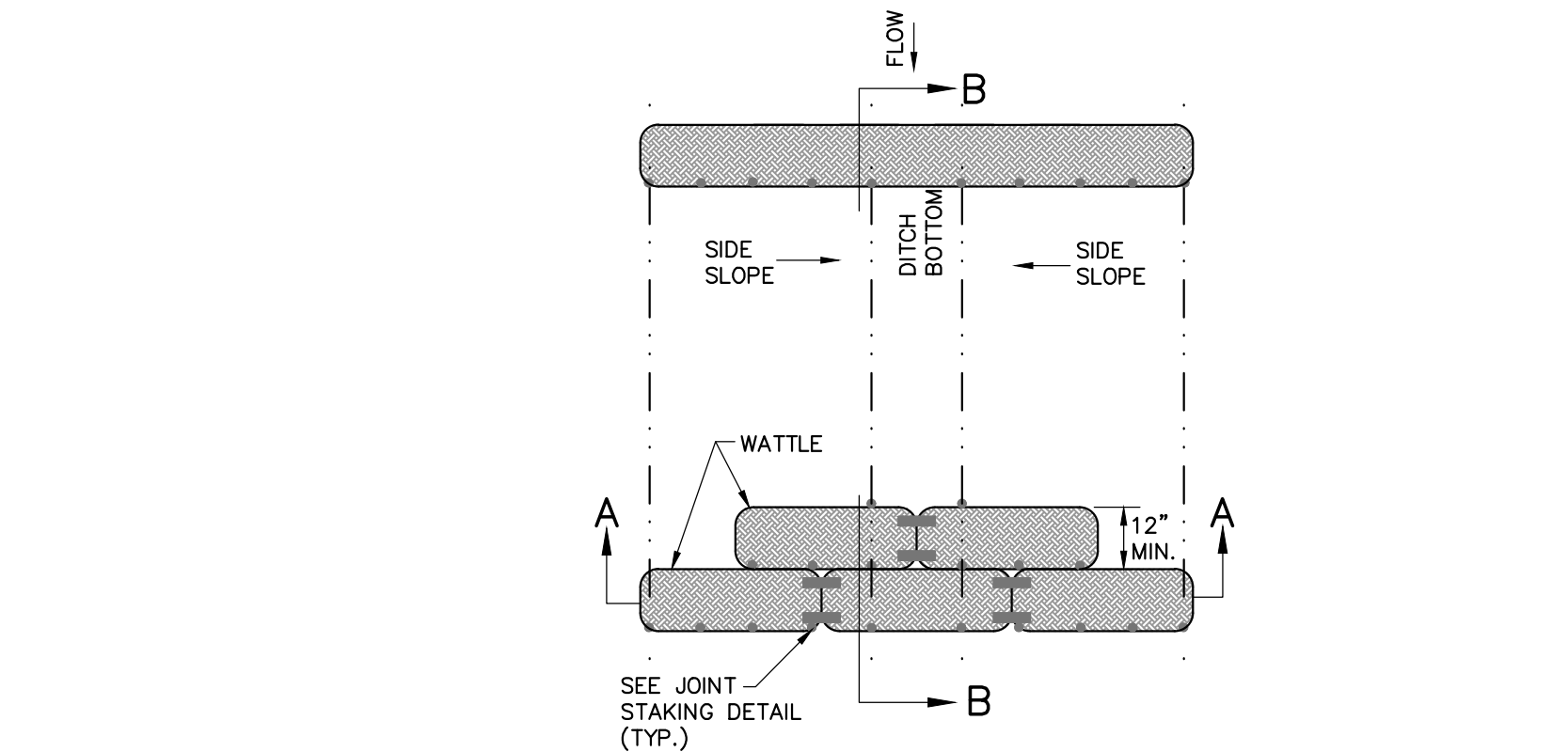
NOTES: 1. APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL.
2. REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

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 LADINO WHITE CLOVER*	200-400 10-20	1,350**	4,300**
	AUG. 1 - NOV. 1	KENTUCKY 31 FESCUE LADINO WHITE CLOVER*	200-400 10-20		
EMBANKMENTS WITH SLOPES GREATER THAN 3:1	MAR. 1 - JUNE 1	KENTUCKY 31 FESCUE WEEPING LOVEGRASS	140 15	140 90	
	AUG. 1 - NOV. 1	KENTUCKY 31 FESCUE ANNUAL RYEGRASS	140 90		

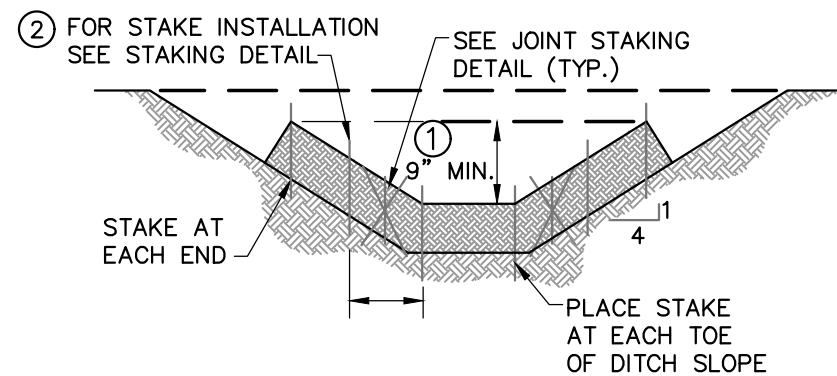
* REQUIRES INOCULATION

** OR FOLLOW RECOMMENDATIONS OF SOIL TEST(S).

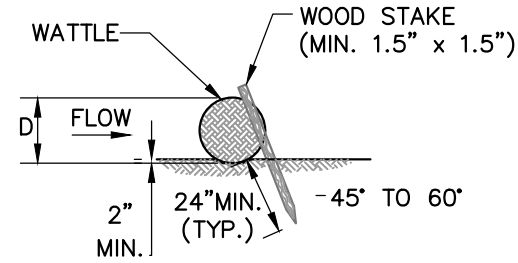
NOTES: 1. APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL.
2. REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.



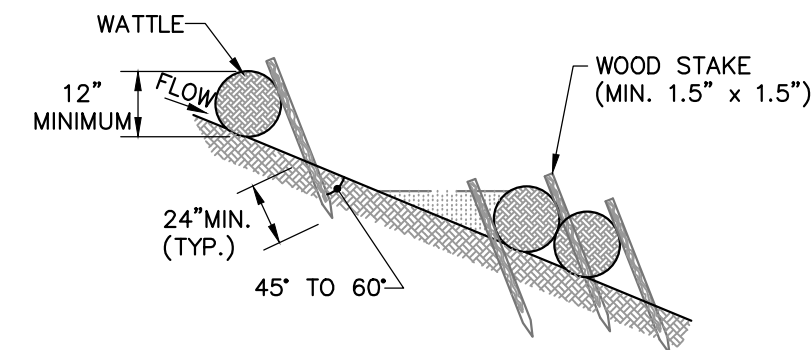
PLAN VIEW FOR DITCH APPLICATION



SECTION A-A



STAKING DETAIL



SECTION B-B

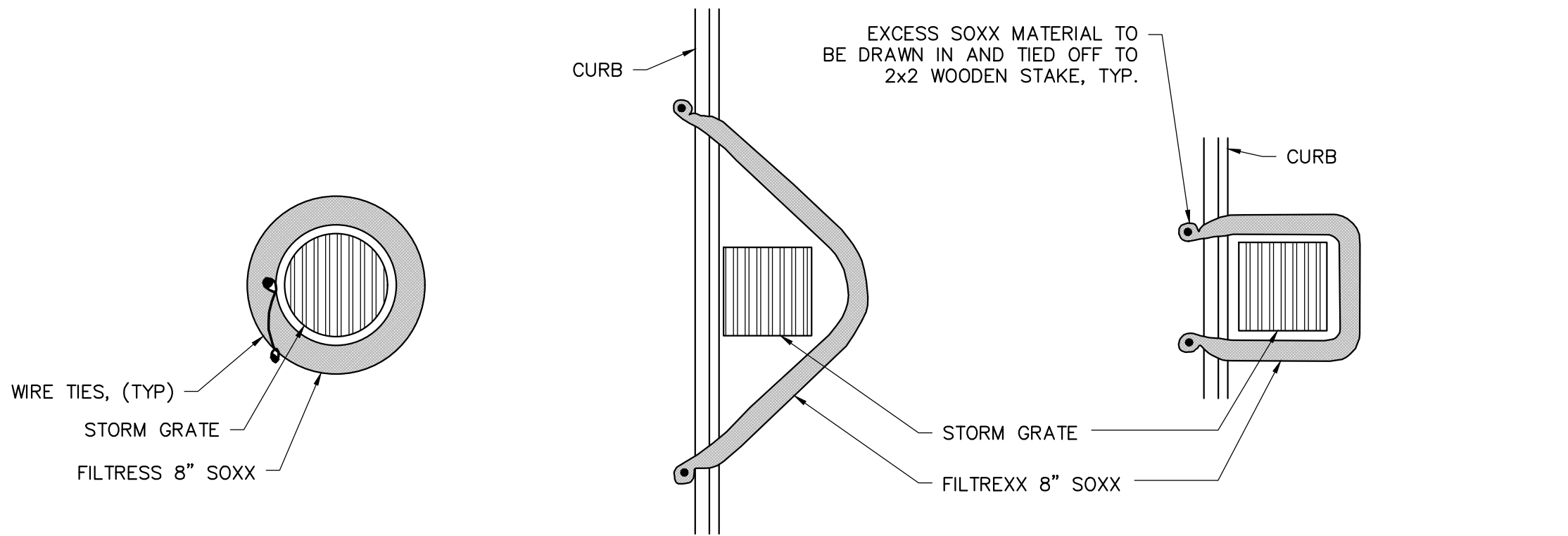
NOTES:

- 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.
- STAKE PER MANUFACTURERS RECOMMENDATIONS

LEGEND

→ → → WATTLES

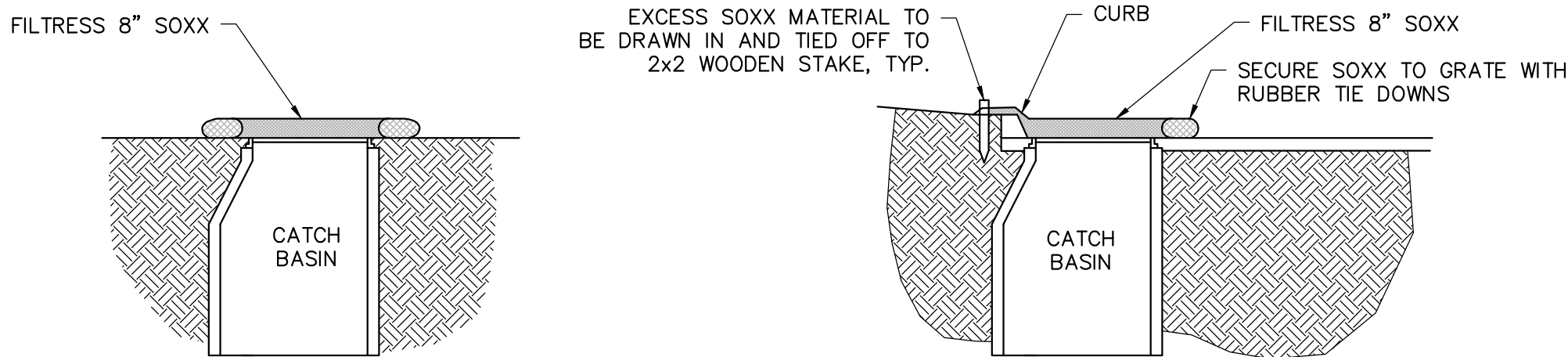
WATTLES
NOT TO SCALE



DRAIN INLET PLAN

CURBSIDE OPTION "A" PLAN

CURBSIDE OPTION "B" PLAN



DRAIN INLET SECTION

CURBSIDE SECTION

NOTES:

- ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
- FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
- COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

LEGEND

▨ INLET PROTECTION

INLET PROTECTION
NOT TO SCALE

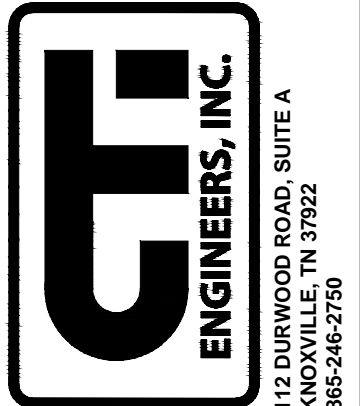
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APPROVED	JLK

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

EROSION CONTROL DETAILS



JOB NO. K17015-II
ISSUE DATE 05/24/2018
SCALE AS SHOWN
DRAWING NO. 9.0