

PROJECT LOCATION

WATER LINE PLANS FOR THE CITY OF MOORE SOUTH OF 34TH STREET BETWEEN SOUTH TELEPHONE ROAD AND THE I-35 SERVICE ROAD BID NO. 2025-002



SURVEY CONTROL				
OFF-SITE HORIZONTAL AND VERTICAL CONTROL - EXISTING CONTROL				
POINT #	NORTHING	EASTING	ELEV	DESCRIPTION
LLS 100	718300.84	2119408.34	1194.29	#4 BAR W/ "LEMKE" CAP
ON-SITE HORIZONTAL AND VERTICAL CONTROL				
LLS 1	717671.38	2120053.59	1188.35	#4 BAR W/ "LEMKE" CAP
BENCHMARK 2	717660.42	2120526.35	1188.03	CUT SQUARE
BENCHMARK 3	717776.03	2120858.43	1186.87	CUT SQUARE
HORIZONTAL DATUM: OKLAHOMA STATE PLANE, NAD83, SOUTH ZONE				
VERTICAL DATUM: NAVD88				

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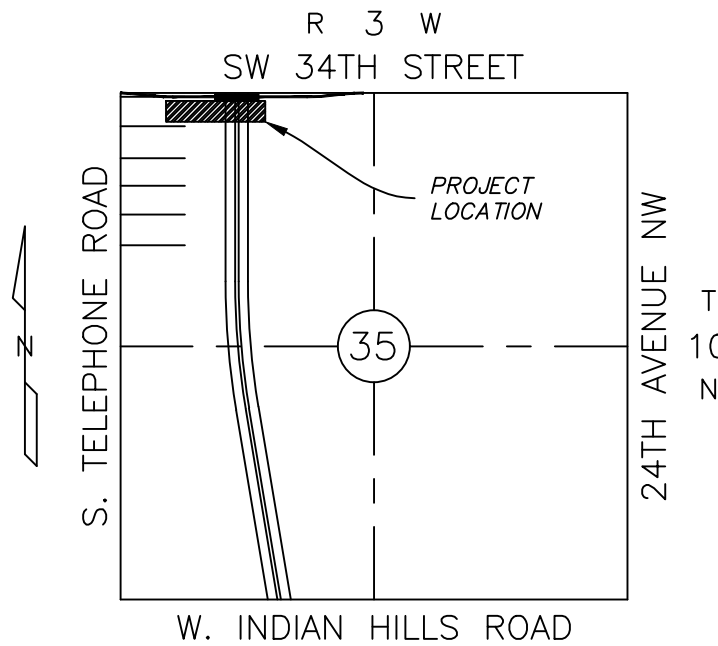
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9	CITY OF OKLAHOMA CITY APPLICABLE STANDARD DETAILS

APPLICABLE STANDARDS

- CITY OF MOORE
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 - DETAIL 104-1 - STANDARD DETAIL FOR BORING
 - DETAIL 300 - GENERAL NOTES
 - DETAIL 301-1 - INSTALLATION OF HYDRANT ON EXISTING MAIN
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 - DETAIL 303 - FIRE HYDRANT NOZZLE THREADS
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 - DETAIL 316-1 - RESTRAINED JOINT DETAILS (1 OF 5)
 - DETAIL 316-2 - RESTRAINED JOINT DETAILS (2 OF 5)
 - DETAIL 316-3 - RESTRAINED JOINT DETAILS (3 OF 5)
 - DETAIL 316-4 - RESTRAINED JOINT DETAILS (4 OF 5)
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- DETAIL 505 - WATER STANDARD DETAILS - WATER MISCELLANEOUS
 - DETAIL W-44 - HORIZONTAL THRUST BLOCK - TEES, PLUGS, VALVES
 - DETAIL W-45 - HORIZONTAL THRUST BLOCK - TEES, PLUGS, VALVES

CONTACT INFORMATION

<u>CITY OF MOORE</u> PUBLIC WORKS DEPARTMENT 512 NW. 27TH MOORE, OK 73160 (405) 793-5070 ATTN: JERRY IHLER JIHLER@CITYOFMOORE.COM (405) 793-5200	<u>COX COMMUNICATIONS</u> MARK BOWLING MARKBOWLING@COX.COM (405) 417-4064	<u>WATER, SEWER, AND STORM SEWER</u> CITY OF MOORE/VEOLIA ROBERT PISTOLE ROBERT.PISTOLE@VEOLIA.COM (405) 627-1842
<u>MOORE POLICE DEPARTMENT</u> 117 E. MAIN STREET MOORE, OK 73170 (405) 793-5171	<u>OKLAHOMA GAS & ELECTRIC</u> RAE ANNE LAWRENCE LAWRENRA@OGE.COM (405) 553-5785	<u>OKLAHOMA DEPARTMENT OF TRANSPORTATION (ODOT)</u> DILLON SIMPSON DSSIMPSON@ODOT.ORG (405) 535-9802
<u>AT&T</u> JIMMY FRANKLIN JF6297@ATT.COM (405) 246-2580	<u>PHILLIPS 66</u> RANDY LINGLE RANDY.J.LINGLE@P66.COM (405) 550-2733	<u>ODOT PERMIT</u> RICKY SMITH RMSMITH@ODOT.ORG (405) 872-8815
	<u>OKLAHOMA ELECTRIC COOPERATIVE</u> KOLTON HOWRY KOLTON.HOWRY@OKCOOP.ORG (580) 421-6624	



LOCATION MAP

CONVENTIONAL SYMBOLS

⊥	EXISTING SIGN	— OVH —	OVERHEAD UTILITY
⊗	FIRE HYDRANT	— G —	GAS LINE
⊞	PULL BOX	— EUG —	ELECTRIC UNDERGROUND
⊞	TRAFFIC CONTROL BOX	— FO —	FIBER OPTIC UNDERGROUND
⊞	TELEPHONE PEDESTAL	— W —	WATER
⊞	TELEPHONE POLE	— W/A —	WATER FROM ATLAS
⊞	UTILITY POLE	— / —	EXISTING FENCE
⊞	WATER VALVE	— — —	EXISTING ROADS
⊞	INVESTIGATIVE BORE HOLE	— — —	EXISTING CURB
		— PRES. R/W —	RIGHT-OF-WAY LINES - EXISTING
		— · · · —	DITCH FLOWLINE

UTILITY STATEMENT:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE ENGINEER MAKES NO GUARANTEE THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION AND HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THE CONTRACTOR SHALL COORDINATE ANY UTILITY RELOCATIONS AS REQUIRED.

Gary M. Horan 10/3/2024
 GARY M. HORAN P.E. NO. 19511 DATE
 BENHAM DESIGN, LLC
 CERTIFICATE OF AUTHORIZATION NO. 7569 RENEWAL DATE: 6-30-2026



Design	JB	CITY OF MOORE 24IN WATER LINE	CLEVELAND COUNTY
Drawn	JB		
Checked	MS		
Approved	GH		
Squad	BENHAM		

TITLE SHEET

Sheet No. 1

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DESCRIPTION	REVISIONS	DATE
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NO.	SPEC NO.	ITEM DESCRIPTION	ITEM NOTE	UNIT	QTY.
1	SPEC. PROV.	AUDIO-VIDEO RECORDING PRE & POST CONSTRUCTION	7	L.S.	1
2	SPEC. PROV.	SEDIMENT AND EROSION CONTROL	1	L.S.	1
3	212	TRENCH EXCAVATION AND BACKFILL - (0' TO 10')	2, 3, 10	L.F.	507
4	252	BORING - CASING (30" INSIDE DIAMETER)	4	L.F.	397
5	505	FITTINGS (6") MEGA-LUG SERIES 2006PV	5	E.A.	2
6	505	FITTINGS (12") MEGA-LUG SERIES 2012PV	5	E.A.	18
7	505	FITTINGS (16") MEGA-LUG SERIES 2016PV	5	E.A.	8
8	505	FITTINGS (24") MEGA-LUG SERIES 2024PV	5	E.A.	6
9	505	FITTINGS (24") BELL RESTRAINT HARNESS SERIES 2824	5	E.A.	10
10	505	FITTINGS (24") POLY-CAM, INC. SERIES 732 SDR9	16	E.A.	2
11	505	(24") DIPS HDPE WATER LINE PIPE (DR9)	6, 17	L.F.	397
12	505	(24") C905 PVC WATER LINE PIPE (DR18)		L.F.	428
13	505	(16") C905 PVC WATER LINE PIPE (DR18)		L.F.	22
14	505	(12") C900 PVC WATER LINE PIPE (DR14)		L.F.	57
15	505	FITTINGS (12"x24"x12") DIP TEE	11	E.A.	1
16	505	FITTINGS (24"x6"x24") DIP TEE	11	E.A.	1
17	505	FITTINGS (16"x12"x16") DIP TEE	11	E.A.	1
18	505	FITTINGS (16"x6"x16") DIP TEE	11	E.A.	1
19	505	FITTINGS (12"x12"x12") DIP TEE	11	E.A.	1
20	505	FITTINGS (24"x16") DIP REDUCER	11	E.A.	1
21	505	FITTINGS (12") DIP 45-DEGREE BEND	11	E.A.	2
22	505	FITTINGS (12") DIP 22.5-DEGREE BEND	11	E.A.	1
23	505	FITTINGS (12") DIP 11.25-DEGREE BEND	11	E.A.	1
24	505	FITTINGS (16") DIP END CAP	11	E.A.	1
25	516	FIRE HYDRANT	12	E.A.	2
26	520	(6") DIP GATE VALVE & BOX	11	E.A.	2
27	520	(12") DIP GATE VALVE & BOX	11	E.A.	2
28	520	(16") DIP GATE VALVE & BOX	11	E.A.	1
29	520	(2") AIR VACUUM/RELEASE COMBINATION VALVES & BOX		E.A.	1
30	522	HYDROSTATIC PRESSURE TESTING AND DISINFECTION	13	L.S.	1
31	801	CONSTRUCTION STAKING (CONSTRUCTION SURVEY)	15	L.S.	1
32	802	CONSTRUCTION SIGNING AND TRAFFIC CONTROL	8	L.S.	1
33	840	SOLID SLAB SODDING	9, 14	S.Y.	1127

PAY ITEM NOTES

1. THE COST OF ALL LABOR AND MATERIALS (UNLESS PAY ITEMS PROVIDED) REQUIRED FOR THE INSTALLATION OF EROSION CONTROL MEASURES SHALL BE INCLUDED IN THE BID PRICE FOR THIS ITEM. THE CONTRACTOR SHALL IMPLEMENT EROSION CONTROL MEASURES AS NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE JOB SITE AND/OR ENTERING THE STORM SEWER SYSTEM. SEE THE SPECIAL PROVISION IN CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION.
2. CONTRACTOR SHALL ENSURE ALL UTILITY POLES AFFECTED BY OPEN EXCAVATION OR TRENCHING ARE BRACED BY OWNERS. THIS COST SHALL BE INCLUDED IN THIS PAY ITEM.
3. CONTRACTOR TO EXCAVATE ALL UTILITY CROSSINGS AHEAD OF PIPE INSTALLATION SO THAT GRADES CAN BE ADJUSTED ON THE PROPOSED WATER LINES TO AVOID UTILITY CONFLICTS. FAILURE TO DO SO SHALL NOT ENTITLE THE CONTRACTOR TO CLAIM EXTRA COMPENSATION FOR ADJUSTMENTS TO THE PROPOSED WATER LINE. COST FOR EXCAVATING UTILITY CROSSINGS SHALL BE INCLUDED IN THIS PAY ITEM.
4. ALL COSTS FOR STEEL CASING, VENT PIPES, PAINT, AND SIGNAGE SHALL BE INCLUDED IN THIS PAY ITEM.
5. FITTINGS SHALL BE BY EBAA IRON, INC. RESTRAINED JOINTS SERIES AS NOTED AND SPECIFIED IN THE PLANS. RODS, NUTS, AND APPLICABLE HARDWARE FOR RESTRAINED JOINTS SHALL BE AISI GRADE 316 STAINLESS STEEL.
6. COST FOR FUSION EQUIPMENT, MOBILIZATION, USE, UTILITIES, LABOR, AND INCIDENTALS REQUIRED TO FUSE HDPE TOGETHER SHALL BE INCLUDED IN THIS PAY ITEM.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING AND SUBMITTING PRE-CONSTRUCTION VIDEOS OF THE PROJECT EXTENTS. THE RECORDINGS SHALL BE COLOR AUDIO-VIDEO RECORDED ON TWO SEPARATE VIDEO RECORDINGS. ONE VIDEO FOR POST-CONSTRUCTION AND ONE VIDEO FOR PRE-CONSTRUCTION. RECORDINGS SHALL INCLUDE ALL PROJECT LIMITS, STORAGE AREAS, AND OTHER AREAS THE CONTRACTOR OR ENGINEER DETERMINE PERTINENT. SEE THE SPECIAL PROVISION IN CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION.
8. THE COST OF ALL LABOR (INCLUDING FLAG MEN) AND MATERIALS REQUIRED TO ADEQUATELY CONTROL TRAFFIC DURING CONSTRUCTION SHALL BE INCLUDED IN THE BID PRICE FOR THIS ITEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER BARRICADES, LIGHTS, STRIPING, AND SIGNING FOR THE PROJECT. TRAFFIC CONTROL WILL BE INSTALLED IN A MANNER APPROVED BY THE CITY, IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND APPLICABLE STANDARD DRAWINGS. PRICE BID SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE, AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL REQUIRED FOR COMPLETION OF THE PROJECT.
9. THE CONTRACTOR SHALL STRIP ALL OF THE AVAILABLE TOPSOIL WITHIN THE LIMITS OF CONSTRUCTION, APPROXIMATELY 6 INCHES DEEP, STOCKPILE THE MATERIAL AND REPLACE THE TOPSOIL ON THE FINISHED GRADING SECTION. COST TO BE INCLUDED IN SOLID SLAB SODDING.
10. THE COST OF ALL DEWATERING OPERATIONS DURING OPEN TRENCHING SHALL BE INCLUDED IN THIS PAY ITEM.
11. ALL DIP VALVES AND FITTINGS SHALL HAVE MECHANICAL JOINTS AND BE POLY WRAPPED. THE COST OF POLY WRAPPING DUCTILE IRON VALVES AND FITTINGS SHALL BE INCLUDED IN THE COST OF THIS PAY ITEM. SEE GENERAL NOTE 38.
12. COST FOR THIS ITEM SHALL INCLUDE THE ENTIRE FIRE HYDRANT ASSEMBLY (EXCLUDING THE VALVE) FROM THE TEE, INCLUDING ELBOW, EXTENSION PIPE, RISER PIPE, BEDDING, CONCRETE BLOCKING, AND ANY OTHER LABOR AND MATERIALS NECESSARY TO MEET DETAIL NO. 301-2 IN THE CITY OF MOORE'S STANDARD DETAILS AND SECTION 516 IN THE CITY OF MOORE SPECIFICATIONS.
13. CONTRACTOR IS RESPONSIBLE TO DECHLORINATE DISINFECTION WATER PRIOR TO DISCHARGE AND/OR WILL DISPOSE OF DISINFECTION WATER IN A MANNER SAFE TO THE SURROUNDING ENVIRONMENT. CONTRACTOR TO INDEMNIFY CITY AND ENGINEER FOR ANY DAMAGES CAUSED FROM DISPOSAL OF WATER AND PAY FOR ANY TESTING AND DAMAGES OCCURRING FROM DISPOSAL OF WATER. THE WATER SHALL NOT BE DISCHARGED ONTO THE PAVEMENT SUBGRADE. ANY TEMPORARY PLUGS REQUIRED FOR PRESSURE TESTING AND DISINFECTION ARE INCIDENTAL.
14. ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED WITH SOLID SLAB SOD, FERTILIZED, AND WATERED IN ACORDANCE WITH THE CITY OF MOORE STANDARD SPECIFICATIONS. SOD QUANTITIES FOR A MAXIMUM 20 FOOT WIDE STRIP OVER ALL TRENCHES OUTSIDE OF PAVED AREAS ARE INCLUDED IN THE PLANS. ALL OTHER ARES DISTURBED AS A RESULT OF THE CONTRACTOR'S ACTIONS SHALL BE RESTORED IN A MANNER ACCPETABLE TO THE ENGINEER TO A CONDITION AS GOOD OR BETTER THAN THAT PRIOR TO THE DISTURBANCE AT NO EXPENSE TO THE CITY. THE CONTRACTOR WILL BE PAID PLAN QUANTITY FOR SODDING. ANY SOD NEEDED OVER PLAN QUANTITY SHALL BE PLACED AT THE CONTRACTOR'S EXPENSE. ALL SOLID SLAB SOD SHALL BE PLACED IN LIKE KIND AND PRICE TO INCLUDE FERTILIZING.
15. PRICE BID TO INCLUDE COST ASSOCIATED WITH ESTABLISHING AND MAINTAINING PROJECT EASEMENT OR RIGHT-OF-WAY LIMITS, VERTICAL CONTROL, AND HORIZONTAL CONTROL INCLUDING REFERENCE POINTS AND GPS AS-BUILT INFORMATION. SEE GENERAL NOTE 51 FOR ADDITIONAL INFORMATION.
16. FITTINGS SHALL BE BY POLY-CAM. INC. SERIES 732 SDR9 TRANSITION FOR DUCTILE IRON SIZE PVC TO HDPE.
17. HDPE PIPE SHALL MEET POTABLE WATER REQUIREMENTS OF AWWA C901, AWWA C906, NSF-14, NSF-61, AND ASTM D3035.

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Design	JB	CITY OF MOORE 24IN WATER LINE CLEVELAND COUNTY
Drawn	JB	
Checked	MS	
Approved	GH	
Squad	BENHAM	

**SUMMARY OF QUANTITIES
& PAY ITEM NOTES**

GENERAL NOTES

GENERAL NOTES CONTINUED...

GENERAL NOTES CONTINUED...

- ALL CONSTRUCTION SHALL CONFORM TO CITY OF MOORE STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION, AND THE OKLAHOMA DEPARTMENT OF TRANSPORTATION (ODOT) 2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION WITHIN ODOT RIGHT-OF-WAY. ADDITIONALLY, THE CITY OF OKLAHOMA CITY STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF PUBLIC IMPROVEMENTS SHALL GOVERN FOR ITEMS OUT OF SAID SPECIFICATIONS. ALL CONSTRUCTION STANDARDS SHALL BE IN ACCORDANCE WITH OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ) REGULATIONS AND THE CITY OF MOORE CONSTRUCTION STANDARDS & DETAILS FOR PUBLIC WORKS CONSTRUCTION AND, AS APPLICABLE, THE CITY OF OKLAHOMA CITY STANDARDS AND ODOT DESIGN STANDARDS & SPECIFICATION DRAWINGS. IF PLANS DIFFER WITH STANDARD DRAWINGS, SPECIFICATION OR ODEQ REGULATIONS, THEN MORE STRINGENT REQUIREMENTS SHALL SUPERSEDE.
- ALL WORK AND/OR MATERIALS NOT CLASSIFIED AS "PAY ITEM" SHALL BE CONSIDERED INCIDENTAL AND THE COST SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS WHICH ARE CLASSIFIED FOR PAYMENT. THIS INCLUDES CONCRETE THRUST BLOCKS, ALL LINE CUTS AND NECESSARY SLEEVES REQUIRED FOR CONNECTIONS OR PLACING THE PROPOSED WATER LINES. ANY REFERENCE TO PAY ITEMS, BID ITEMS, BASIS OF PAYMENT, AND PAYMENT METHODS IN STANDARD DRAWINGS DO NOT APPLY.
- THE CONTRACTOR SHALL SATISFY THEMSELVES AS TO THE ACCURACY OF ALL MEASUREMENTS PRIOR TO CONSTRUCTION OF ANY PERMANENT STRUCTURE.
- ALL PROPOSED TIE-IN LOCATIONS SHALL BE EXCAVATED AHEAD OF CONSTRUCTION TO VERIFY THE FLOW LINE OF THE WATER LINES.
- THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY IF ELEVATIONS OF THE EXISTING WATER LINES DO NOT MATCH THE PLANS. IN THIS CASE, A REVERSE TAP CONNECTION MIGHT BE REQUIRED. THE CONTRACTOR SHALL NOTIFY AND COOPERATE AND WORK WITH ALL UTILITY COMPANIES OR FIRMS HAVING FACILITIES ON OR ADJACENT TO THE SITE BEFORE DISTURBING, ALTERING, REMOVING, RELOCATION, OR ADJUSTING SAID FACILITIES.
- CONSTRUCTION FOR ALL ENGINEERING SERVICES FACILITIES SHALL BE IN COMPLIANCE WITH THE LATEST EDITION OF TITLE 252, DEPARTMENT OF ENVIRONMENTAL QUALITY, CHAPTER 626, PUBLIC WATER SUPPLY CONSTRUCTION STANDARDS, OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UTILITIES, WHETHER PRIVATE OR PUBLIC PRIOR TO EXCAVATING. THE INFORMATION AND DATA SHOWN WITH RESPECT TO THE EXISTING UNDERGROUND FACILITIES AT OR ADJACENT TO THE SITE IS APPROXIMATED AND BASED ON INFORMATION AND DATA FURNISHED BY THE OWNER OF SUCH UNDERGROUND FACILITIES OR ON PHYSICAL APPURTENANCE OBSERVED IN THE FIELD. THE OWNER AND ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY SUCH INFORMATION OR DATA; AND THE CONTRACTOR SHALL HAVE FULL RESPONSIBILITY FOR REVIEWING AND CHECKING ALL INFORMATION OR DATA; FOR LOCATING ALL UNDERGROUND FACILITIES DURING CONSTRUCTION, FOR THE SAFETY AND PROTECTION THEREOF, AND REPAIRING ANY DAMAGE TO THERETO RESULTING FROM THE WORK, THE COST OF ALL WHICH WILL BE CONSIDERED AS HAVING BEEN INCLUDED IN THE CONTRACT PRICE. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ANY AFFECTED UTILITY COMPANIES OR AGENCIES AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION. BEFORE EXCAVATION CALL "OKIE" PIPE LINE LOCATORS AT (405) 840-5032 OR (800) 522-6543.
- THERE WILL BE A MINIMUM OF 4'-0" OF COVER TO TOP OF PROPOSED WATER LINE, UNLESS OTHERWISE APPROVED BY ENGINEER/INSPECTOR. A MINIMUM 30 INCHES OF COVER MAY BE APPROVED AT LOCATIONS REQUIRING CLEARANCE BETWEEN OTHER UTILITIES.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATED MATERIALS AND ALL WASTE RESULTING FROM WATER LINE INSTALLATION SHALL BE LEGALLY DISPOSED OF OFFSITE. ANY SURPLUS EXCAVATION OR DEBRIS SHALL BE REMOVED FROM THE PROJECT AREA BY THE CONTRACTOR.
- BEFORE ANY MACHINE WORK BEGINS, THE CONTRACTOR SHALL STAKE OUT AND MARK THE ITEMS ESTABLISHED BY THE ENGINEERING PLANS. CONTROL POINTS SHALL BE OBSERVED AT ALL TIMES DURING THE COURSE OF THE PROJECT. LACK OF PROPER WORKING POINTS AND GRADE MAY CAUSE A TEMPORARY STOPPAGE OF OPERATIONS UNTIL SUCH POINTS AND GRADES HAVE BEEN PLACED TO THE OWNER'S SATISFACTION.
- ALL SIGNS, PAVEMENT MARKING, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
- THE CONTRACTOR SHALL RECEIVE APPROVAL BY THE CITY OF MOORE PRIOR TO CLOSING ANY PUBLIC ROAD.
- THE CITY RESERVES THE RIGHT TO DICTATE CONSTRUCTION SEQUENCING SO AS TO LIMIT THE DISRUPTION TO LOCAL TRAFFIC.
- THE CONTRACTOR IS HEREBY ADVISED THAT THESE PLANS REPRESENT A GENERAL CONCEPT OF THE PROJECT TO BE CONSTRUCTED. CONDITION IN THE FIELD MAY DICTATE CHANGES INCLUDING QUANTITIES SHOWN. THE QUANTITIES SHOWN ARE NOT GUARANTEED AND MAY VARY BASED ON FIELD CONDITIONS.
- DAMAGE TO CURB AND PAVING: IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT FROM DAMAGE, ALL EXISTING FACILITIES INCLUDING CURBS AND PAVING. THE CONTRACTOR SHALL WORK WITH THE CITY'S REPRESENTATIVE TO MAKE ALL REASONABLE EFFORTS TO PROTECT THESE FACILITIES. THE CITY RECOGNIZES THAT THERE WILL BE SOME CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL WHICH MAY LEAD TO DAMAGE TO THESE FACILITIES. DAMAGE TO THESE FACILITIES WHICH ARISE AFTER REASONABLE PROTECTION SHALL BE PAID BY THE CITY.
- THE CITY OF MOORE WILL PAY FOR MATERIALS TESTING; HOWEVER THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING FOR ANY FAILED TESTS.
- THE CONTRACTOR SHALL GIVE THE CITY OF MOORE 14 DAYS WRITTEN NOTICE PRIOR TO THE START OF CONSTRUCTION.

- THE CONTRACTOR SHALL KEEP ANY OPEN TRENCH PROPERLY DRAINED AND DE-WATERED. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.
- ANY DAMAGE TO A FINISHED OR EXISTING SURFACE, TO REMAIN, RESULTING FROM CONSTRUCTION ZONE PAVEMENT MARKERS OR TUBE CHANNELIZERS AND THE ADHESIVE USED IN THEIR INSTALLATION, SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE ENGINEER.
- AT THE BEGINNING OF TURFING OPERATIONS, ANY AREAS INCLUDED IN PLANNED QUANTITIES THAT HAVE GROWN A SATISFACTORY VOLUNTEER TURF OF PERENNIAL GRASS, AS DETERMINED BY THE ENGINEER, SHALL NOT BE SEEDED, SODDED, OR SPRIGGED.
- DO NOT REMOVE EROSION CONTROL MEASURES UNTIL GRASS IS ESTABLISHED.
- CASING END SEALS SHALL BE NEOPRENE RUBBER END SEALS SECURED WITH T304 STAINLESS STEEL BANDING AND COMPLY WITH SECTION 965-STEEL CASING PIPE IN THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
- CASING VENT PIPES SHALL BE INSTALLED ON BOTH ENDS OF CASING FOR BORINGS THAT CROSS ODOT ROADS AND RAILROAD CROSSINGS. VENTS SHALL BE 2" DIAMETER FOR CASING SIZES LESS THAN 30-INCHES. VENTS SHALL BE 4" DIAMETER FOR CASING SIZES EQUAL TO OR GREATER THAN 30-INCHES. VENTS SHALL HAVE A 90 DEGREE BEND TO POINT TOWARDS THE GROUND AND SHALL BE PAINTED BLUE. BUG SCREENS SHALL BE INCLUDED ON THE OPEN END OF THE VENT PIPE. VENT MUST EXTEND A MINIMUM OF 36 INCHES ABOVE NATURAL GROUND LEVEL.
- CONTRACTOR SHALL COMPLY WITH ODOT UTILITY PERMIT FOR FEDERAL OR STATE HIGHWAYS.
- STEEL CASING PIPE MATERIAL SHALL CONFORM WITH ASTM A-139, STANDARD SPECIFICATION FOR ELECTRIC-FUSION (ARC) - WELDED STEEL PIPE (NPS4 AND OVER). THE STEEL MATERIAL SHALL BE NEW, SMOOTH WALL, CARBON STEEL, GRADE B, WITH A MINIMUM TENSILE STRENGTH AND MINIMUM THIRTY-FIVE-THOUSAND (35,000 PSI) POUNDS PER SQUARE INCH YIELD STRENGTH. ADDITIONAL SPECIFICATIONS FOR THE STEEL CASING PIPE CAN BE FOUND IN SECTION 965-STEEL CASING PIPE IN THE CITY OF MOORE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
- TOP OF STEEL CASING SHALL BE MINIMUM 60 INCHES BELOW TOP OF PAVEMENT AND MINIMUM 30 INCHES BELOW BOTTOM OF DITCHES WITHIN ODOT RIGHT-OF-WAY. CONTRACTOR SHALL IMMEDIATELY CONTACT ENGINEER IF THE FIELD CONDITIONS WILL NOT ALLOW FOR THESE COVER REQUIREMENTS.
- IDENTIFICATION MARKERS ARE REQUIRED TO BE ATTACHED TO EACH VENT PIPE. THE MARKER SHALL IDENTIFY OWNER'S NAME, ADDRESS, TELEPHONE NUMBER, AND EMERGENCY CONTACT NUMBER, SIZE OF FACILITY, AND MUST BE AT LEAST 130 SQUARE INCHES IN AREA. THE SIGN OR IDENTIFICATION MARKER SHALL CONFORM TO THE SPECIFICATIONS FOR SIGNS, SEE SECTIONS 1021 AND 1022.
- WHEN BORING BENEATH A ROADWAY, DRILLING FLUID SHALL BE USED PROVIDED THE ELEVATION IS A MINIMUM OF 6 FEET BELOW THE TOP OF PAVEMENT. SUFFICIENT DRILLING FLUID FOR LUBRICATING THE BIT IS ACCEPTABLE; HOWEVER, JETTING OR PRESSURE FLUSHING OF THE BORE WILL NOT BE PERMITTED. THE ALIGNMENT OF THE BORE IS TO BE ESTABLISHED BY DRILLING A PILOT HOLE BEFORE BEGINNING THE FULL SIZE BORE.
- WHEN DRILLING FLUID IS USED, THE ANNULAR SPACE OUTSIDE THE CONDUIT OR CARRIER PIPE IS TO HAVE GROUT PLACED AT A MINIMUM OF 10 PSI, TO INSURE AGAINST CAVITIES BENEATH THE ROAD BED.
- NO DIGGING OR EQUIPMENT WILL BE PERMITTED IN CENTER MEDIANS OR DITCH LINES WITHOUT SPECIAL PERMISSION FROM THE ODOT DISTRICT ENGINEER.
- TIME TO COMPLETE A BORE SHALL BE KEPT WITHIN THE LIMITS OF OPEN BORING OR ADVANCING A CONDUIT THAT CAN BE PROPERLY REAMED AND CLEANED OUT WITHIN ONE WORKING DAY. UNDER NO CIRCUMSTANCE SHALL MUCK OR DRILLING FLUID BE LEFT STANDING INSIDE THE BORE AT THE END OF THE WORKING DAY, OR DUE TO A BREAK-DOWN OF EQUIPMENT OF MORE THAN EIGHT (8) HOURS.
- TRENCHING AND THE PARKING OF EQUIPMENT SHOULD BE PERFORMED AS FAR AS POSSIBLE FROM TRAFFIC LANES.
- PIPE LAYING OPERATIONS SHOULD BE SUSPENDED DURING RAINS OR WHENEVER THE TRENCH CANNOT BE KEPT DEWATERED. A TIGHT PLUG SHALL BE PLACED IN THE OPEN ENDS OF A WATER LINE AT ALL TIMES WHEN WORK IS NOT IN PROGRESS IN ORDER TO PREVENT SEDIMENT AND DEBRIS ENTERING THE PROPOSED WATER LINE.
- CONTRACTOR IS RESPONSIBLE FOR NECESSARY SHEETING AND SHORING TO KEEP THE TRENCH SIDE VERTICAL WHERE TRENCH SLOPE WOULD ENTER PRIVATE PROPERTY OR DAMAGE IMPROVEMENTS AND AS REQUIRED BY OSHA REGULATIONS. NO CONSTRUCTION EASEMENTS HAVE BEEN ACQUIRED BEYOND THE RIGHT-OF-WAY SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXERCISE ALL PRECAUTIONS AND TAKE NECESSARY STEPS TO PROTECT ADJACENT STRUCTURES, IMPROVEMENTS, FUEL TANKS, SIDEWALKS, PAVEMENT, FENCES, LANDSCAPING, ETC. ANY DAMAGE TO EXISTING IMPROVEMENTS TO REMAIN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. COST OF SHEET PILING OR TRENCH BRACING TO BE INCLUDED IN OTHER ITEMS OF WORK.
- ALL FIRE HYDRANTS & VALVE BOXES TO BE SET TO PROPOSED FINAL GRADE WITH 4.5" STEAMER NOZZLE A MINIMUM OF 18" AND A MAXIMUM OF 24" ABOVE GROUND LEVEL. ALL HYDRANTS TO HAVE DUCTILE IRON LEADS.
- ALL VALVES, FIRE HYDRANT ASSEMBLIES, AND FITTINGS SHALL BE DUCTILE IRON AND SHALL BE FACTORY APPLIED FUSION EPOXY COATED INTERIOR AND EXTERIOR AND THE NUTS AND BOLTS SHALL BE STAINLESS STEEL.
- ALL STAKING FOR ALIGNMENT AND GRADE SHALL BE DONE UNDER THE SUPERVISION OF A LAND SURVEYOR REGISTERED IN THE STATE OF OKLAHOMA. GRADE STAKES WILL BE MARKED AND CUT SHEETS WILL BE FURNISHED TO THE CITY'S DESIGNATED REPRESENTATIVE ON THE PROJECT PRIOR TO CONSTRUCTION.

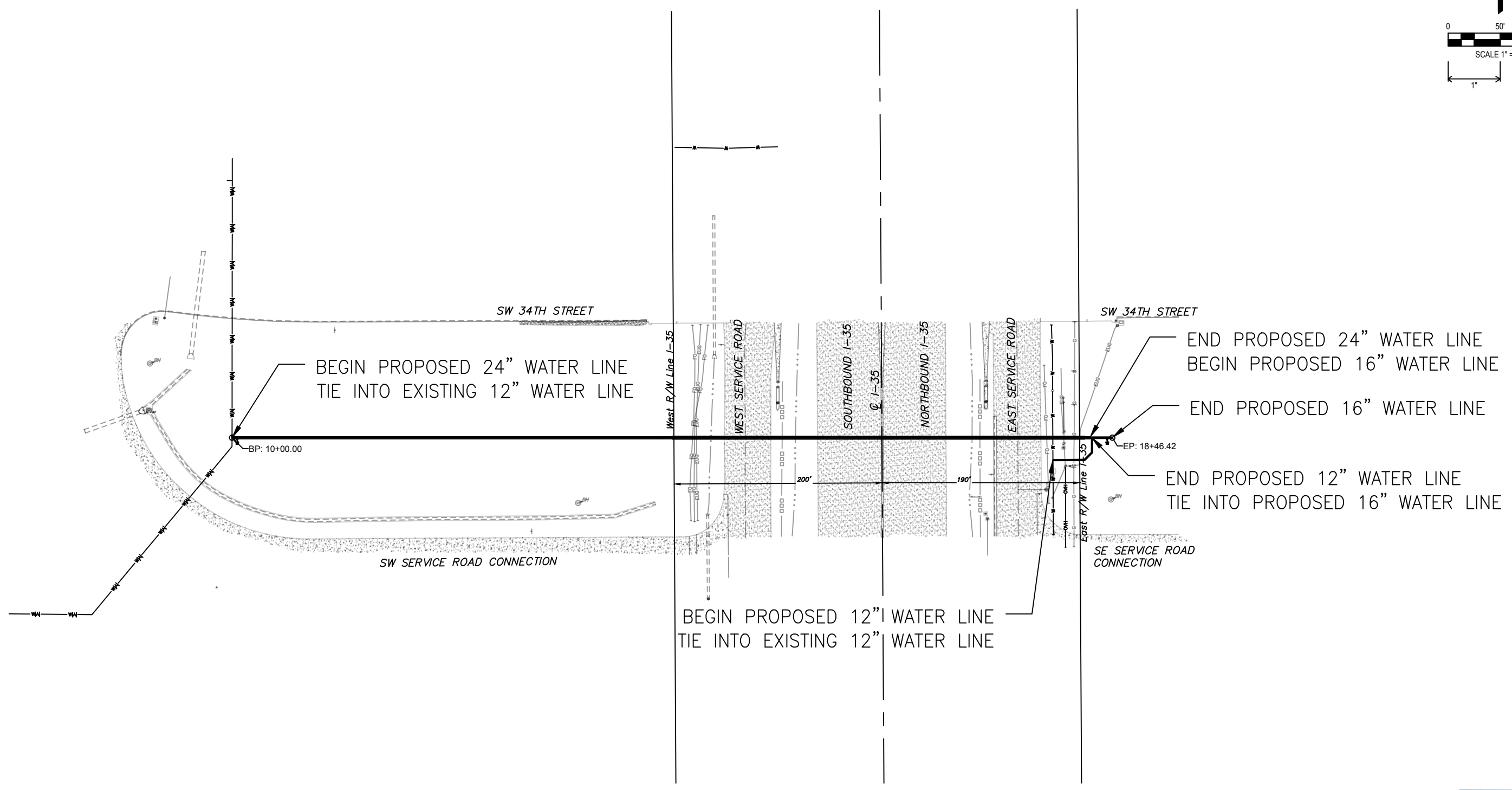
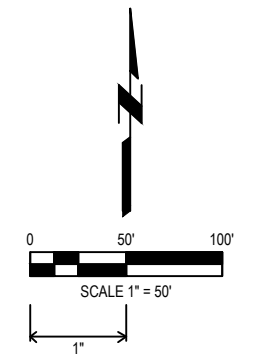
- POLYETHYLENE WRAP ALL VALVES AND CAST OR DUCTILE IRON FITTINGS ACCORDING TO ANSI/AWWA C105 PRIOR TO BACKFILLING.
- GATE VALVES, BUTTERFLY VALVES, AND TAPPING VALVES SHALL BE MECHANICAL JOINT. TAPPING SLEEVES SHALL BE DUCTILE IRON OR STEEL, MECHANICAL JOINT. ALL TAPPING SLEEVES MUST HAVE FUSION-BONDED EPOXY COATING AND TYPE 316 STAINLESS STEEL BOLTS AND NUTS. ALL STAINLESS STEEL TAPPING SLEEVES MUST BE TYPE 316 STAINLESS STEEL AND TYPE 316 STAINLESS STEEL BOLTS AND NUTS.
- ALL WATER LINE FITTINGS AND VALVES RESTRAINED ARE TO BE CONNECTED TO A FULL LENGTH OF PIPE, UNLESS NEXT JOINT IS A RESTRAINED JOINT. IN OTHER WORDS, NO SPLICING SHOULD OCCUR WITHIN 20 FEET OF A RESTRAINED JOINT.
- THE CONTRACTOR SHALL NOT TAMPER WITH EXISTING WATER VALVES AND OTHER INFRASTRUCTURE PRIOR TO COORDINATION WITH THE CITY OF MOORE'S WATER DEPARTMENT.
- NORTHING AND EASTING PROVIDED IN THE PLANS ARE APPROXIMATE LOCATIONS AND MAYBE ADJUSTED AS FIELD CONDITIONS REQUIRE.
- THE GENERAL PROPOSED WATER LINE LOCATIONS ARE SHOWN ON THE PLANS. EXISTING UTILITIES CONFLICTING WITH PROPOSED WATER LINE SHALL BE BROUGHT TO THE CITY OF MOORE'S IMMEDIATE ATTENTION PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR AND ENGINEER/INSPECTOR SHALL FIELD REVIEW THE OBSTRUCTIONS. THE CITY WILL CHANGE THE WATER LINE LOCATION OR THE UTILITY, EXCEPT WATER LINE OR IRRIGATION LINES, WILL BE RELOCATED BY THEIR RESPECTIVE OWNER. THERE ARE UTILITIES SUCH AS PIPE LINES, COMMUNICATION LINES, FIBER OPTIC LINES, AND ELECTRICAL LINES. THE COST OF HAND DIGGING AROUND THESE UTILITIES SHALL BE INCLUDED IN THE PRICE BID FOR WATER LINE PIPE.
- ALL WATER LINES SHALL BE PRESSURE AND LEAKAGE TESTED AND DISINFECTED IN ACCORDANCE WITH THE REQUIREMENTS OF OKLAHOMA ADMINISTRATIVE CODE (OAC) TITLE 252, CHAPTER 626, PUBLIC WATER SUPPLY CONSTRUCTION STANDARDS 252:626-19-2(5) AND (6). PRESSURE AND LEAKAGE TESTING SHALL BE IN ACCORDANCE WITH AWWA C600. ALL NEW, CLEANED, OR REPAIRED WATER LINES SHALL BE DISINFECTED IN ACCORDANCE WITH OAC 252:630 PUBLIC WATER SUPPLY OPERATION.
- DISINFECTION AND TESTING: AFTER DISINFECTING THE WATER LINES THE CONTRACTOR WILL BE REQUIRED TO PERFORM A BACTERIOLOGICAL TEST FOR REACH WATER LIEN INSTALLED. TESTS CONDUCTED BY INDEPENDENT LABORATORIES WILL NOT BE ACCEPTED. THE CONTRACTOR MUST COORDINATE SAMPLING AND TESTING WITH THE CITY.
- THRUST BLOCK CONCRETE TO BE 3500 PSI 7 DAY HIGH EARLY STRENGTH CONCRETE.
- WRAP FITTINGS AND/PIPE WITH 8 MIL POLYETHYLENE WRAPPING PRIOR TO POURING THRUST BLOCK.
- THRUST BLOCK TO BE POURED AGAINST UNDISTURBED EARTH. IF FILL IS REQUIRED, 95% COMPACTION IS REQUIRED FOR FILL MATERIAL.
- THRUST BLOCK DIMENSIONS CAN BE MODIFIED BUT MUST STILL MAINTAIN THE SURFACE AREA FOOTPRINT AGAINST THE SOIL.
- LEAVE ALL PIPE JOINTS COMPLETELY ACCESSIBLE. DO NOT POUR CONCRETE OVER ANY PIPE JOINTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE GPS "AS-BUILT" SURVEY, FOLLOWING THE COMPLETION OF CONSTRUCTION, FOR EVERY 100 FEET ALONG THE ALIGNMENT OF THE PROJECT. LOCATION OF CASINGS, VALVES, METERS, PUMPS, MANHOLES, RIM ELEVATIONS, INVERTS, AND SIMILAR APPURTENANCES SHALL BE LOCATED. AN AUTOCAD DRAWING AND COORDINATE DATA SHEET INCLUDING POINT DESCRIPTIONS, FLOW LINES, AND COORDINATE DATA SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL. THIS TASK MUST BE PERFORMED BY A REGISTERED PROFESSIONAL LAND SURVEYOR. ALL DRAWINGS MUST BE SIGNED AND CERTIFIED BY A REGISTERED PROFESSIONAL LAND SURVEYOR. DATA SUBMITTED SHALL BE TIED TO THE OKLAHOMA STATE PLAN COORDINATE SYSTEM.
- ODOT PERMIT 03-14-2024-002725 IS INCLUDED AS SPECIAL PROVISION IN THE CONTRACT DOCUMENTS. CONTRACTOR SHALL MAINTAIN A COPY OF THE PERMIT ON SITE AT ALL TIMES AND SHALL ADHERE TO THE PROVISIONS OF THE PERMIT THROUGHOUT THE CONSTRUCTION PROCESS.

10/3/2024 11:01 AM P:\140_Civil\1400373 COM 34th and 135 Waterline\21Design\Working\Civil\05AutoCAD\2Sheets\NOTES.dwg

Design	JB	CITY OF MOORE 24IN WATER LINE	CLEVELAND COUNTY
Drawn	JB		
Checked	MS		
Approved	GH		
Squad	BENHAM		

GENERAL NOTES

DESCRIPTION	REVISIONS	DATE
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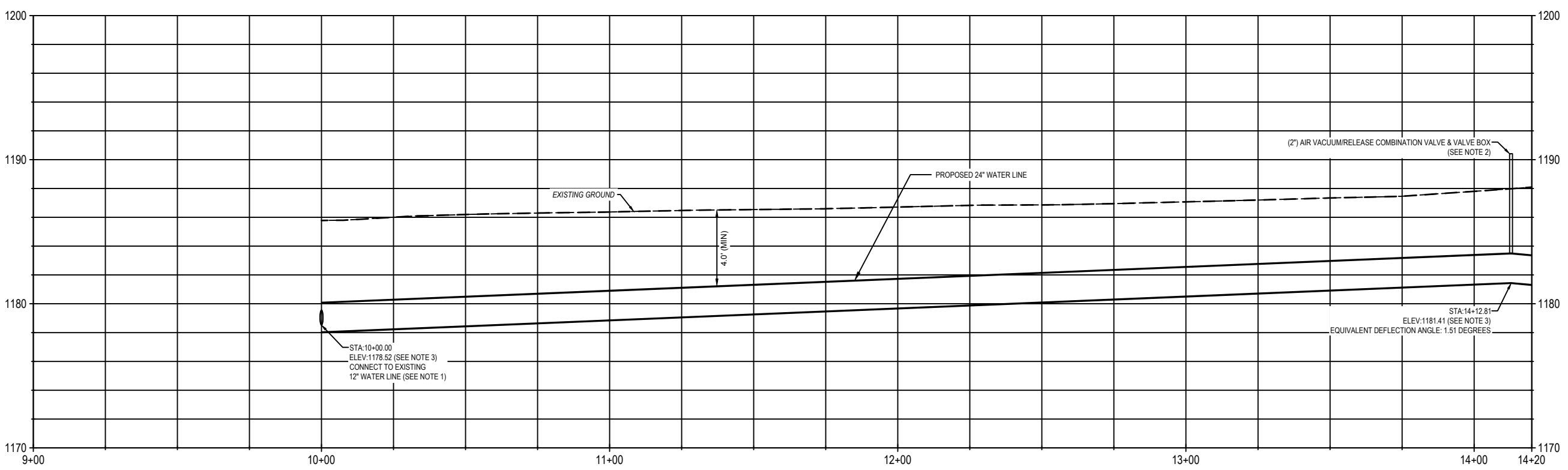
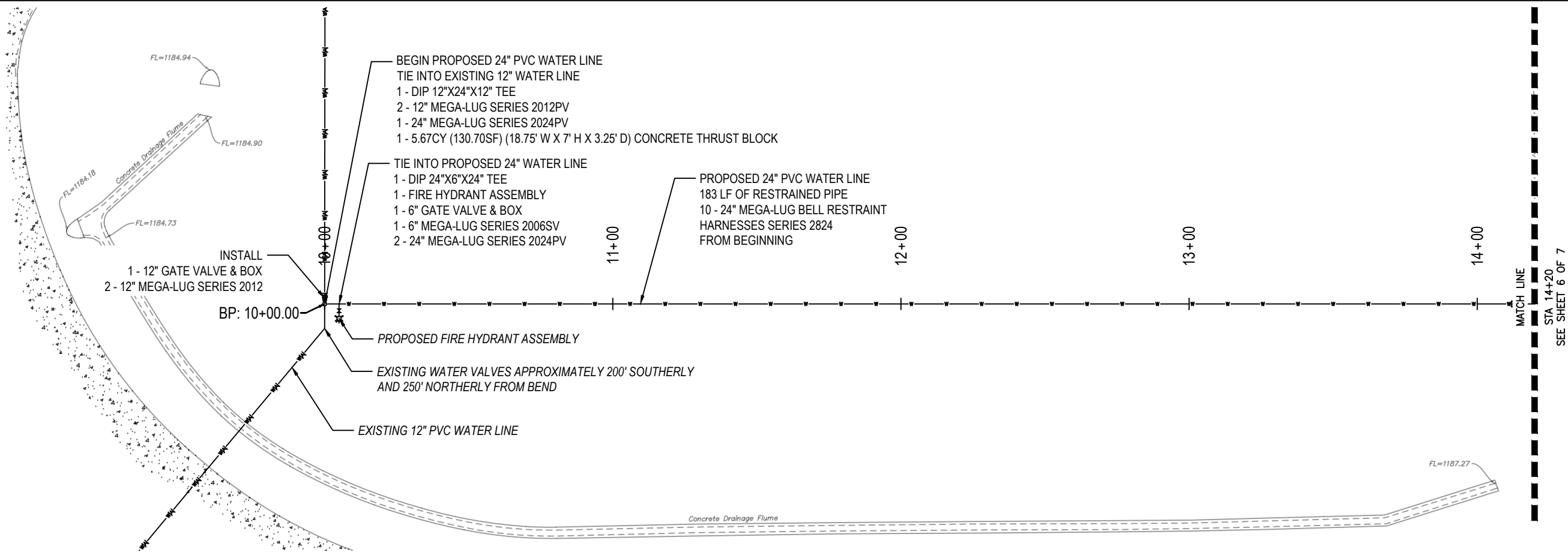
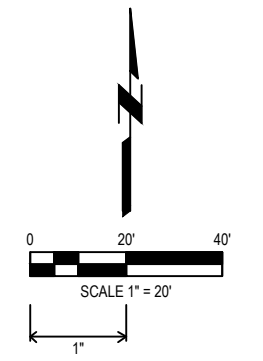


Design	JB	CITY OF MOORE 24IN WATER LINE CLEVELAND COUNTY
Drawn	JB	
Checked	MS	
Approved	GH	
Squad	Consultant	

GENERAL LAYOUT

Sheet No. 4

DESCRIPTION	REVISIONS	DATE
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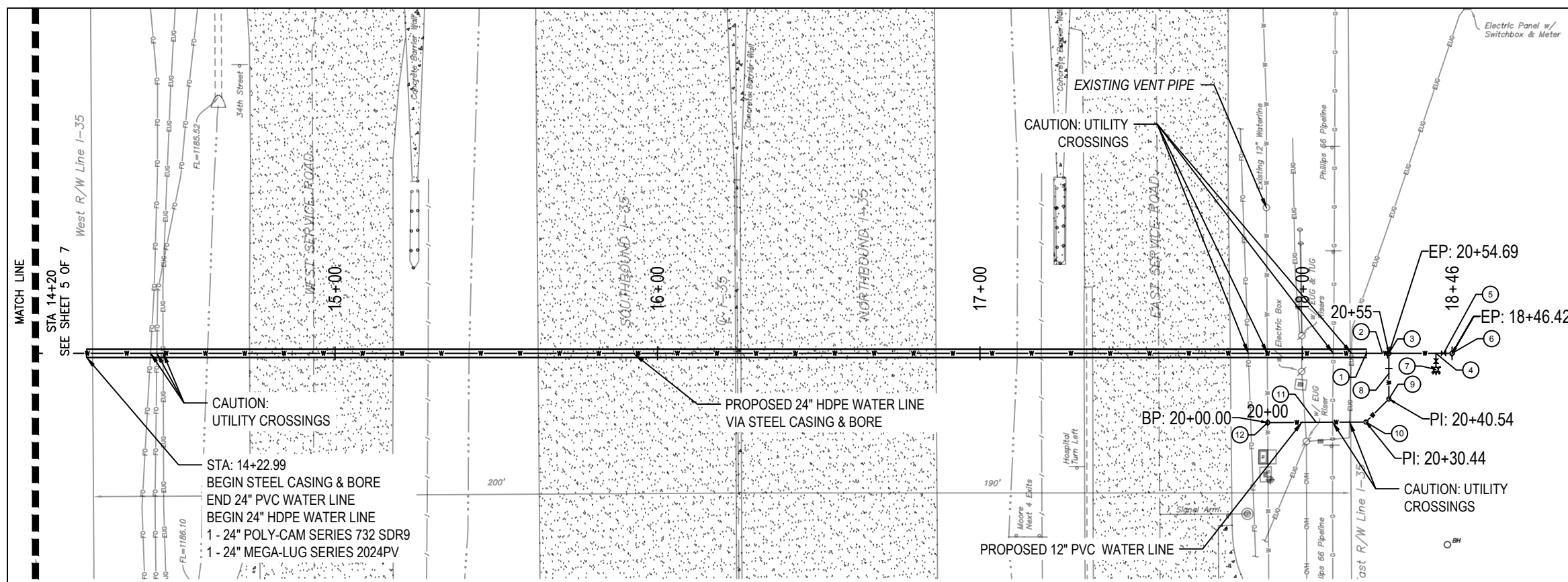


Proposed 24in Water Line
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 4'

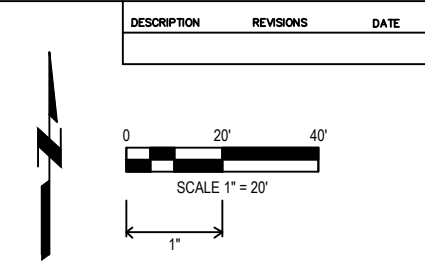
- NOTES:**
- CONTRACTOR TO VERIFY LOCATION & ELEVATION PRIOR TO CONSTRUCTION. CONTACT THE ENGINEER IF THE FIELD CONDITIONS DO NOT MATCH THE PLANS.
 - CONTRACTOR SHALL VERIFY THE PROPOSED PIPE LOW AND HIGH SPOT FIELD ELEVATIONS PRIOR TO INSTALLING THE FIRE HYDRANT(S) AND AIR RELEASE VALVES. CONTACT THE ENGINEER IF THE FIELD CONDITIONS DO NOT MATCH THE PLANS.
 - ELEVATIONS ARE TO THE CALLOUT NOTED ON THE PLANS. CONTRACTOR SHALL CONTACT THE ENGINEER IF THE FIELD CONDITIONS DO NOT MATCH THE PLANS.

Design	JB
Drawn	JB
Checked	MS
Approved	GH
Squad	Consultant

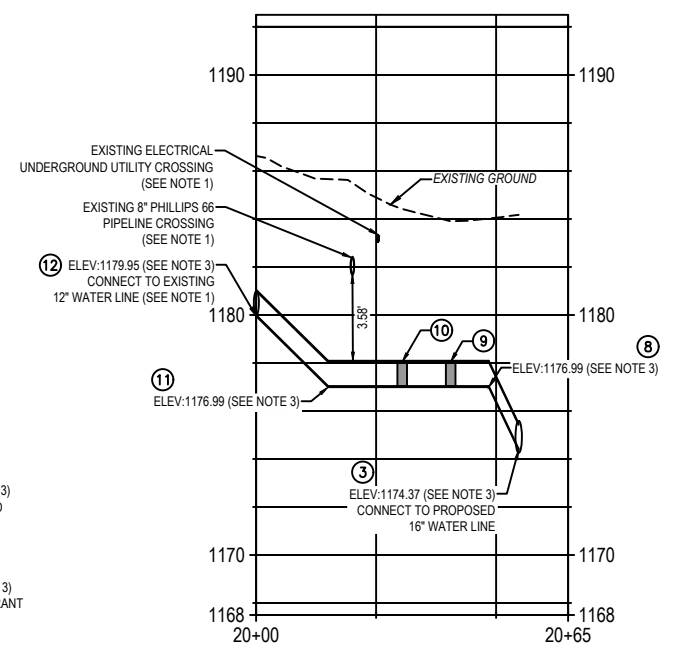
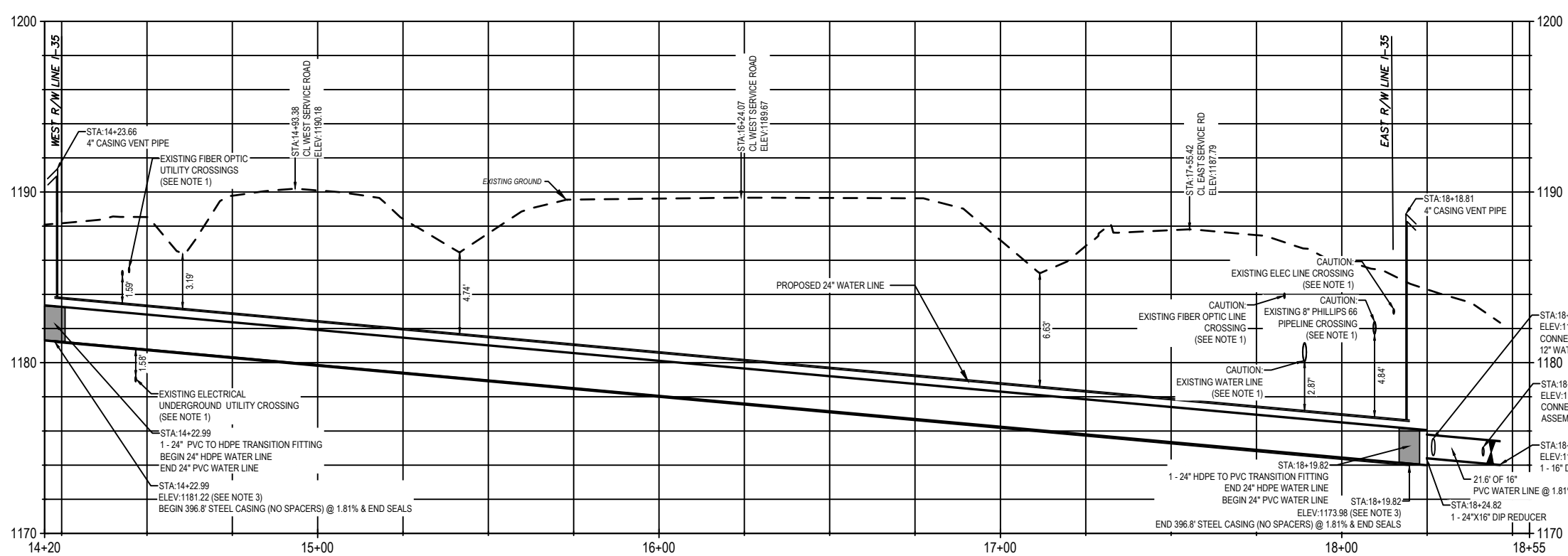




- ① END STEEL CASING & BORE
END PROPOSED 24" HDPE WATER LINE
BEGIN PROPOSED 24" PVC WATER LINE
1 - 24" MEGA-LUG SERIES 2024PV
1 - 24" POLY-CAM SERIES 732 SDR9
STA: 18+19.82
N: 717815.26
E: 2120888.24
- ② END PROPOSED 24" PVC WATER LINE
BEGIN PROPOSED 16" PVC WATER LINE
1 - 24"x16" DIP REDUCER
1 - 24" MEGA-LUG SERIES 2024PV
1 - 16" MEGA-LUG SERIES 2016PV
STA: 18+24.82
N: 717815.26
E: 2120893.24
- ③ END PROPOSED 12" PVC WATER LINE
1 - 16"x12"x16" DIP TEE
2 - 16" MEGA-LUG SERIES 2016PV
1 - 12" MEGA-LUG SERIES 2012PV
ALONG 16" PVC WATER LINE:
STA: 18+24.82
END 12" PVC WATER LINE:
STA: 20+54.69
N: 717815.26
E: 2120895.24
- ④ 1 - 16"x6" DIP TEE
2 - 16" MEGA-LUG SERIES 2016PV
1 - 6" MEGA-LUG SERIES 2006PV
STA: 18+41.43
N: 717815.26
E: 2120909.84
- ⑤ 1 - 16" GATE VALVE & BOX
2 - 16" MEGA-LUG SERIES 2016PV
N: 717815.26
E: 2120912.18
- ⑥ END PROPOSED 16" PVC WATER LINE
1 - 16" DIP END CAP
1 - 16" MEGA-LUG SERIES 2016PV
1 - 5.67CY (130.70SF) (18.75'W X 7'H X 3.25'D)
CONCRETE THRUST BLOCK
STA: 18+46.42
N: 717815.26
E: 2120914.84



- ⑦ 1 - FIRE HYDRANT ASSEMBLY (SEE DETAIL 301-2)
1 - 6" GATE VALVE & BOX
N: 717810.26
E: 2120909.83
- ⑧ 1 - 12" DIP 22.5-DEGREE BEND (VERTICAL)
2 - 12" MEGA-LUG SERIES 2012PV
STA: 20+48.45
N: 717809.01
E: 2120895.24
- ⑨ 1 - 12" DIP 45-DEGREE BEND
2 - 12" MEGA-LUG SERIES 2012PV
STA: 20+40.54
N: 717801.10
E: 2120895.24
- ⑩ 1 - 12" DIP 45-DEGREE BEND
2 - 12" MEGA-LUG SERIES 2012PV
STA: 20+30.44
N: 717793.96
E: 2120888.10
- ⑪ 1 - 12" DIP 11.25-DEGREE BEND (VERTICAL)
2 - 12" MEGA-LUG SERIES 2012PV
STA: 20+15.00
N: 717793.86
E: 2120872.67
- ⑫ BEGIN PROPOSED 12" PVC WATER LINE
TIE INTO EXISTING WATER LINE
1 - DIP 12"x12"x12" TEE
1 - 12" GATE VALVE & BOX
5 - 12" MEGA-LUG SERIES 2012PV
STA: 20+00.00
N: 717793.77
E: 2120857.67



- NOTES:**
- CONTRACTOR TO VERIFY LOCATION & ELEVATION PRIOR TO CONSTRUCTION. CONTACT THE ENGINEER IF THE FIELD CONDITIONS DO NOT MATCH THE PLANS.
 - CONTRACTOR SHALL VERIFY THE PROPOSED PIPE LOW AND HIGH SPOT FIELD ELEVATIONS PRIOR TO INSTALLING THE FIRE HYDRANT(S) AND AIR RELEASE VALVES. CONTACT THE ENGINEER IF THE FIELD CONDITIONS DO NOT MATCH THE PLANS.
 - ELEVATIONS ARE TO THE CALLOUT NOTED ON THE PLANS. CONTRACTOR SHALL CONTACT THE ENGINEER IF THE FIELD CONDITIONS DO NOT MATCH THE PLANS.

Proposed 24in Water Line
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

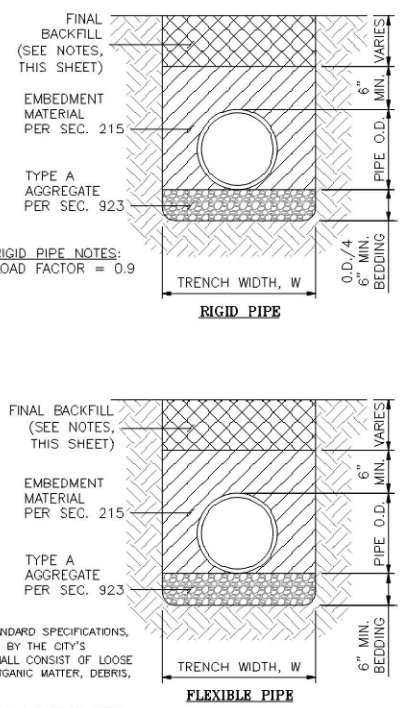
Proposed 12in Water Line
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



Design	JB	CITY OF MOORE 24IN WATER LINE	CLEVELAND COUNTY
Drawn	JB		
Checked	MS		
Approved	GH		
Squad	Consultant		

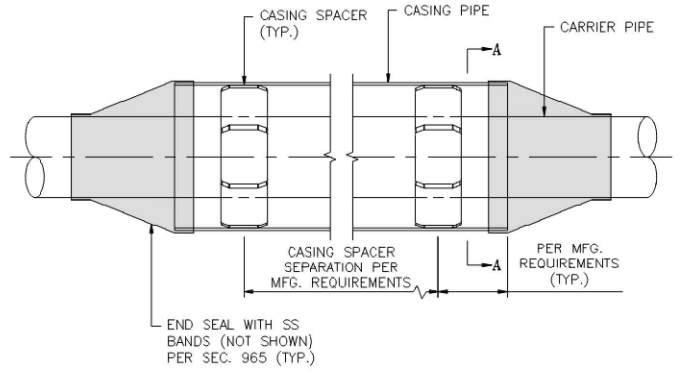
**WATER LINE
PLAN AND PROFILE**

NOM. PIPE DIA. (IN.)	TRENCH WIDTH (FT.)	
	MIN.	MAX.
≤12	3.00	5.00
15	3.25	5.00
18	3.50	5.00
21	3.75	5.25
24	4.00	6.00
27	4.25	6.25
30	4.50	6.75
33	4.75	8.25
36	5.25	9.00
42	6.25	9.50
48	7.00	10.00
54	8.00	10.50
60	9.00	11.00
66	9.75	11.50
72	10.50	12.00
78	10.50	12.50
84	11.00	13.00
90	11.50	13.50
96	12.00	14.00
102	12.50	14.50

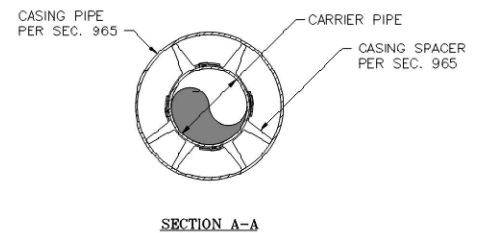


- GENERAL NOTES:**
- PER SECTION 212.04.04 OF THE STANDARD SPECIFICATIONS, FINAL BACKFILL SHALL BE APPROVED BY THE CITY'S DESIGNATED REPRESENTATIVE AND SHALL CONSIST OF LOOSE EARTH, FREE OF CLODS, STONES, ORGANIC MATTER, DEBRIS, OR OTHER OBJECTIONABLE MATERIAL.
 - FOR INSTALLATIONS BENEATH ROADWAYS AND OTHER PAVED AREAS, FINAL BACKFILL SHALL BE TYPE A AGGREGATE PER SECTION 923 OF THE STANDARD SPECIFICATIONS.

	TRENCH DETAILS	DETAIL NO. 102 APPROVED 09/18/2023
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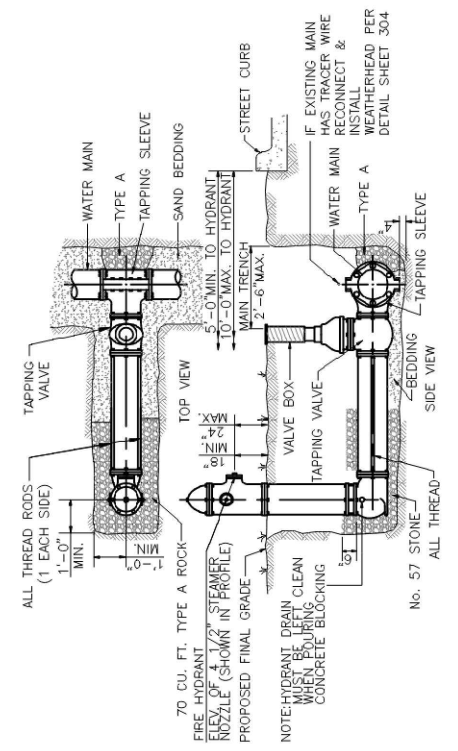
- NOTE:**
- CASING PIPE DIAMETERS PER SEC. 965.



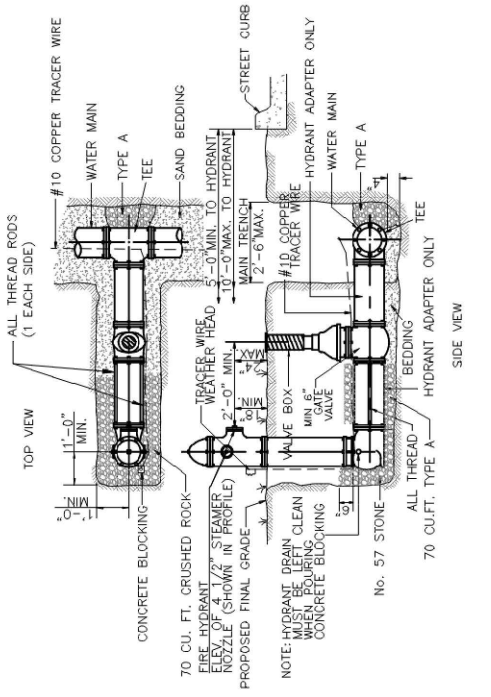
	STANDARD DETAIL FOR BORING	DETAIL NO. 104-1 APPROVED 09/18/2023
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- WATER NOTES**
- ALL CONSTRUCTION TO BE IN ACCORDANCE WITH CITY OF MOORE STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS.
 - ALL FIRE HYDRANTS & VALVE BOXES TO BE SET TO PROPOSED FINAL GRADE WITH 4 1/2" STEAMER NOZZLE A MINIMUM AT 18" & A MAXIMUM OF 24" ABOVE GROUND LEVEL. ALL FIRE HYDRANTS TO HAVE DUCTILE IRON LEADS.
 - ALL EXISTING WATER MAINS BEING ABANDONED BY THIS PROJECT ARE TO REMAIN THE PROPERTY OF THE CITY OF MOORE AND SHALL BE SALVAGED BY THE WATER/WASTEWATER DEPARTMENT AT THEIR DISCRETION. HOWEVER, ITEMS IN THE WAY OF CONSTRUCTION MAY BE REMOVED AND DELIVERED TO THE WATER DEPARTMENT WAREHOUSE.
 - IN CASES WHERE MINIMUM HORIZONTAL AND VERTICAL SEPARATION FROM ADJACENT SANITARY SEWER LINES (SEE OAC 252:626-19) CANNOT BE MAINTAINED, CONTRACTOR SHALL ENCLOSE WATER MAIN IN APPROPRIATELY SIZED STEEL CASING. CASING SHALL EXTEND A MINIMUM OF 10'-FT IN EITHER DIRECTION FROM WHERE HORIZONTAL OR VERTICAL SEPARATION IS LESS THAN MINIMUM ALLOWED BY OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ) REGULATIONS.
 - WHEN CROSSING STREETS, DRIVEWAYS SUBJECT TO HEAVY TRAFFIC, ALLEYS AND STRUCTURES, ETC., PIPE SHALL BE INSTALLED WITH COMPACTED 0001 TYPE "A" BACKFILL. ALL OTHER PIPE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS OR CITY SPECIFICATION.
 - SET END OF MAIN STUBS IN CUL-DE-SACS AT A POINT 5.0' OFF PROPERTY LINE. THIS POINT BEING IN LINE WITH SIDE PROPERTY LINE.
 - IN INSTANCES WHERE FLOW LINES ARE NOT INDICATED ON THE DRAWINGS, MAIN SHALL BE CONSTRUCTED WITH A MINIMUM OF 4' COVER OR AS DIRECTED BY THE CITY'S DESIGNATED REPRESENTATIVE.
 - ALL STAKING FOR ALIGNMENT AND GRADE WILL BE DONE UNDER THE SUPERVISION OF LAND SURVEYOR REGISTERED IN THE STATE OF OKLAHOMA. GRADE STAKES WILL BE MARKED AND CUT SHEETS WILL BE FURNISHED TO THE CITY'S DESIGNATED REPRESENTATIVE ON THE PROJECT PRIOR TO CONSTRUCTION.
 - UNLESS SPECIFICALLY AUTHORIZED, ALL GATE VALVES ARE TO BE LOCATED AT P.C. OR P.T. OF STREET CURB. WHEN FIRE HYDRANTS ARE REQUIRED THEY SHALL BE LOCATED WITHIN 5' OF GATE VALVES.
 - POLY WRAP ALL CAST OR DUCTILE STEEL FITTINGS PRIOR TO BACKFILLING.

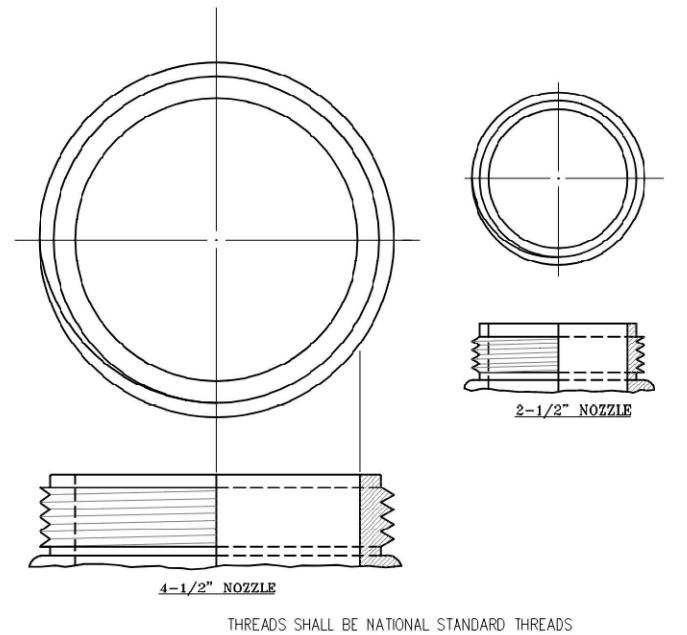
	GENERAL NOTES	DETAIL NO. 300 APPROVED 09/18/2023
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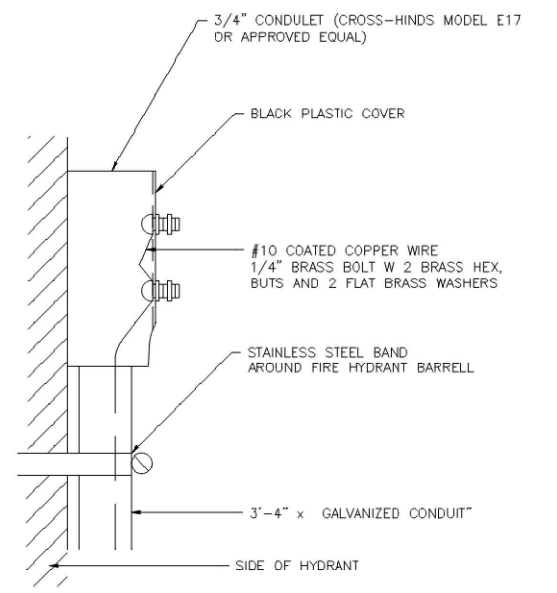
	INSTALLATION OF HYDRANT ON EXISTING MAIN	DETAIL NO. 301-1 APPROVED 09/18/2023
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	INSTALLATION OF HYDRANT ON NEW MAIN	DETAIL NO. 301-2 APPROVED 09/18/2023
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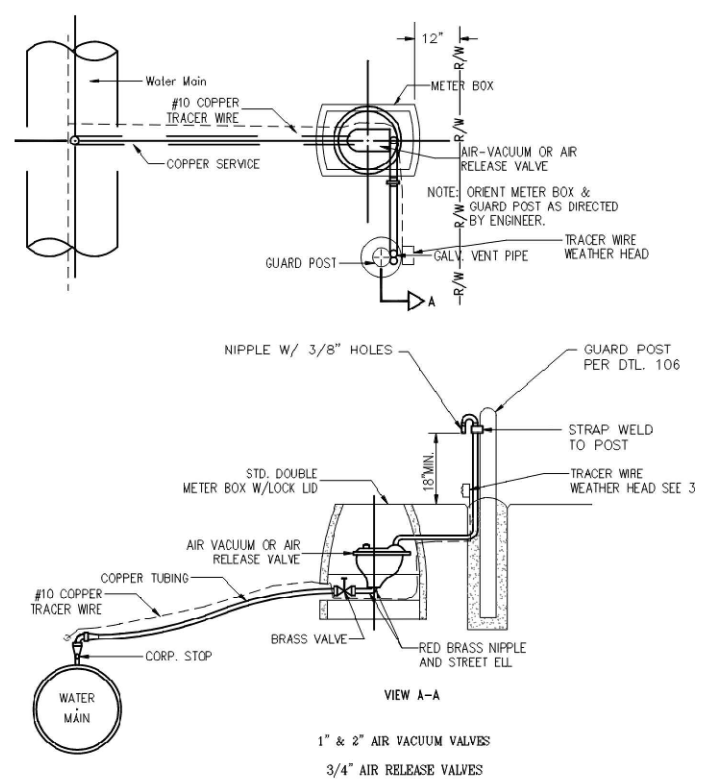


	FIRE HYDRANT NOZZLE THREADS	DETAIL NO. 303 APPROVED 09/18/2023
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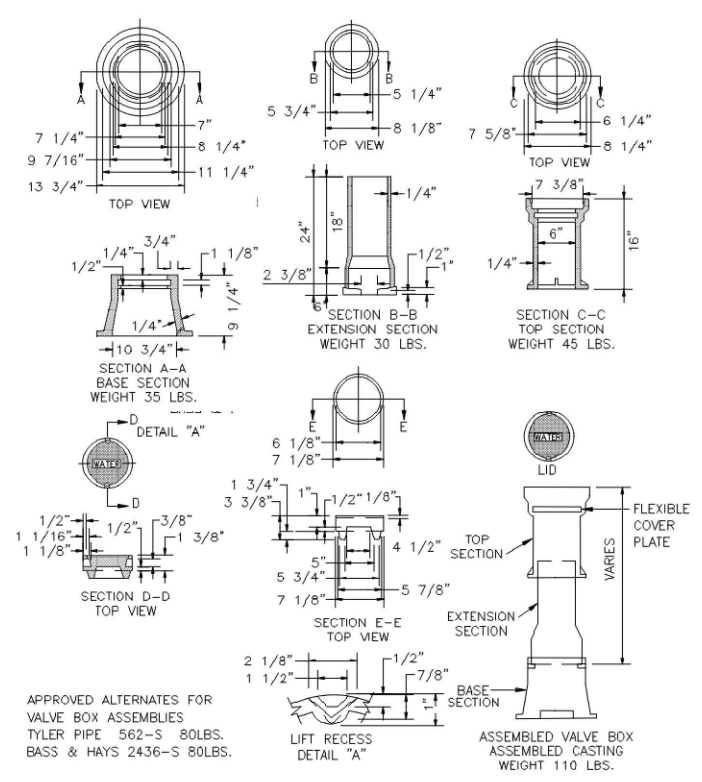


	TRACER WIRE WEATHER HEAD DETAILS	DETAIL NO. 304 APPROVED 09/18/2023
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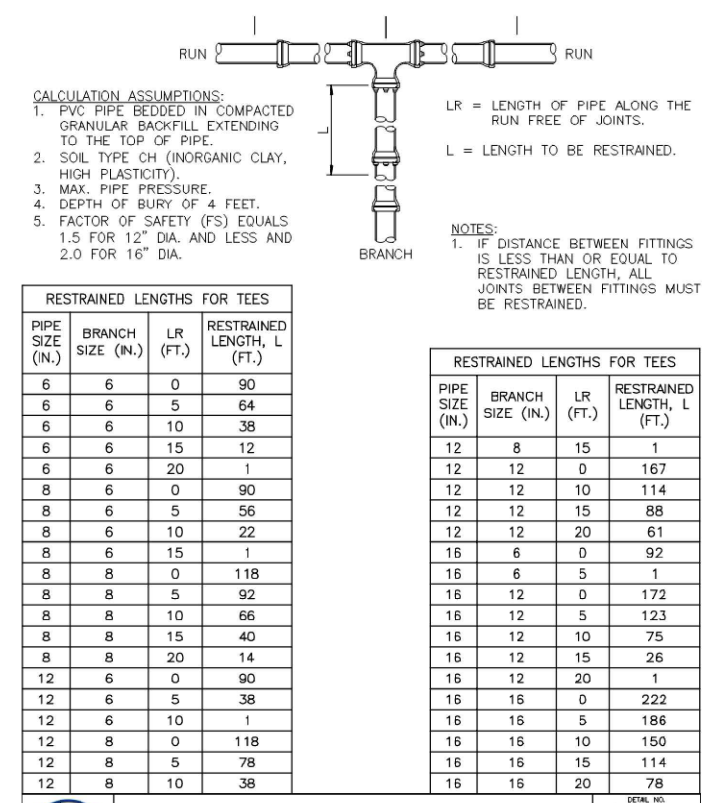
Design	-	CITY OF MOORE 24IN WATER LINE CLEVELAND COUNTY CITY OF MOORE STANDARD DETAILS Sheet No. <u>7</u>
Drawn	-	
Checked	-	
Approved	-	
Squad	Consultant	



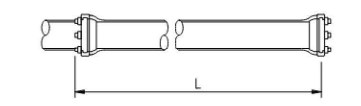
305
AIR VACUUM AND RELEASE VALVES
APPROVED 09/18/2023



310
CAST IRON VALVE BOX AND LID
APPROVED 09/18/2023



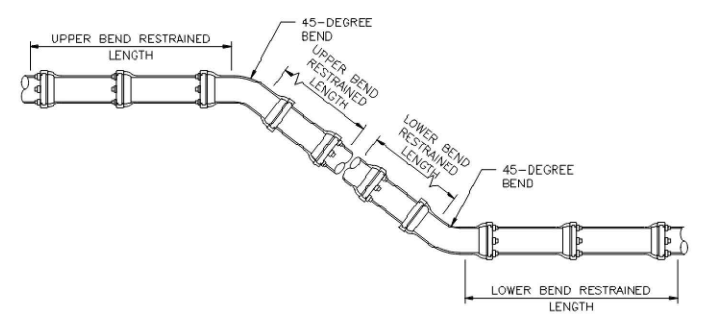
316-1
RESTRAINED JOINT DETAILS (1 OF 5)
APPROVED 09/18/2023



L = LENGTH TO BE RESTRAINED.

RESTRAINED LENGTHS FOR DEAD ENDS	
PIPE SIZE (INCH)	RESTRAINED LENGTH (FT)
6	90
8	118
12	167
16	222

316-2
RESTRAINED JOINT DETAILS (2 OF 5)
APPROVED 09/18/2023

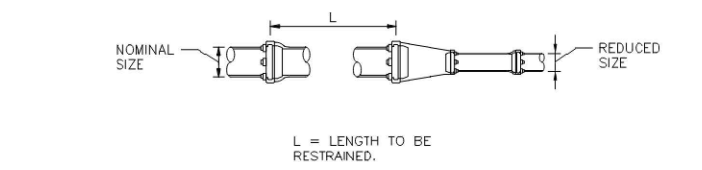


NOTES:
1. IF DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO RESTRAINED LENGTH, ALL JOINTS BETWEEN FITTINGS MUST BE RESTRAINED.

RESTRAINED LENGTHS FOR VERTICAL OFFSETS		
PIPE SIZE (INCH)	UPPER BEND RESTRAINED LENGTH (FT)	LOWER BEND RESTRAINED LENGTH (FT)
6	38	10
8	49	13
12	70	18
16	92	23

CALCULATION ASSUMPTIONS:
1. PVC PIPE BEDDED IN COMPACTED GRANULAR BACKFILL EXTENDING TO THE TOP OF PIPE.
2. SOIL TYPE CH (INORGANIC CLAY, HIGH PLASTICITY).
3. MAX. PIPE PRESSURE.
4. DEPTH OF BURY FOR UPPER BEND IS 4 FEET. LOWER DEPTH OF 6 FEET.
5. FACTOR OF SAFETY (FS) EQUALS 1.5 FOR 12" DIA. AND LESS AND 2.0 FOR 16" DIA.

316-3
RESTRAINED JOINT DETAILS (3 OF 5)
APPROVED 09/18/2023



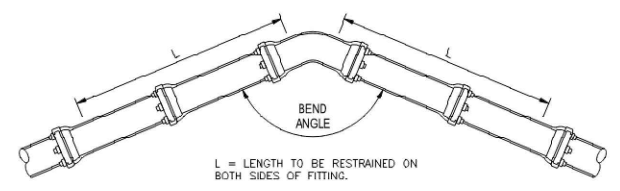
L = LENGTH TO BE RESTRAINED.

RESTRAINED LENGTHS FOR REDUCERS		
NOMINAL SIZE (INCH)	REDUCED SIZE (INCH)	RESTRAINED LENGTH (FT)
8	6	50
12	6	122
16	6	187
12	8	89
16	6	187
16	8	162
16	12	94

NOTES:
1. IF DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO RESTRAINED LENGTH, ALL JOINTS BETWEEN FITTINGS MUST BE RESTRAINED.

CALCULATION ASSUMPTIONS:
1. PVC PIPE BEDDED IN COMPACTED GRANULAR BACKFILL EXTENDING TO THE TOP OF PIPE.
2. SOIL TYPE CH (INORGANIC CLAY, HIGH PLASTICITY).
3. MAX. PIPE PRESSURE.
4. DEPTH OF BURY OF 4 FEET.
5. FACTOR OF SAFETY (FS) EQUALS 1.5 FOR 12" DIA. AND LESS AND 2.0 FOR 16" DIA.

316-4
RESTRAINED JOINT DETAILS (4 OF 5)
APPROVED 09/18/2023



L = LENGTH TO BE RESTRAINED ON BOTH SIDES OF FITTING.

RESTRAINED LENGTHS FOR HORIZONTAL BENDS		
PIPE SIZE (INCH)	BEND ANGLE (DEG)	RESTRAINED LENGTH (FT)
6	45	14
8	45	18
12	45	25
16	45	33
6	22.5	7
8	22.5	9
12	22.5	12
16	22.5	16
6	11.25	4
8	11.25	5
12	11.25	6
16	11.25	8
6	90	44
8	90	58
12	90	81
16	90	80

NOTES:
1. IF DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO RESTRAINED LENGTH, ALL JOINTS BETWEEN FITTINGS MUST BE RESTRAINED.

CALCULATION ASSUMPTIONS:
1. PVC PIPE BEDDED IN COMPACTED GRANULAR BACKFILL EXTENDING TO THE TOP OF PIPE.
2. SOIL TYPE CH (INORGANIC CLAY, HIGH PLASTICITY).
3. MAX. PIPE PRESSURE.
4. DEPTH OF BURY OF 4 FEET.
5. FACTOR OF SAFETY (FS) EQUALS 1.5 FOR 12" DIA. AND LESS AND 2.0 FOR 16" DIA.

316-5
RESTRAINED JOINT DETAILS (5 OF 5)
APPROVED 09/18/2023

01 505 TAPPING CONNECTION
Scale: N.T.S.

01 515 PVC PIPE TRACER WIRE INSTALLATION
Scale: N.T.S.

NOTES:

- ALL VALVES & VALVE BOXES ARE TO BE INSTALLED OUTSIDE EXISTING OR PROPOSED ADA RAMP.
- WHEN EXISTING DIP/PVC MAIN IS TO BE EXTENDED WITH A PVC MAIN, THE CONTRACTOR MUST EXCAVATE ALONG THE TOP OF EXISTING MAIN TO THE NEAREST EXISTING VALVE AND INSTALL A TRACER WIRE ON TOP OF EXISTING PIPE, AS SHOWN IN DETAIL.
- TRACER WIRE MUST HAVE THERMOPLASTIC INSULATION/NYLON SHEATH. ABRASION, HEAT, MOISTURE, OIL & GASOLINE RESISTANT.

NOTES:

- SEALING CASING ENDS - NEOPRENE RUBBER END SEALS SECURED WITH 316 STAINLESS STEEL BANDING REQUIRED
- PLUGGED PIPE ENDS - BOTH ENDS OF THE CASING PIPE MUST BE PLUGGED WITH A NON-SHRINK GROUT OR CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI OR GROUTED MASONRY. EACH PLUG MUST BE A MINIMUM LENGTH OF 18". GROUTING PRESSURE MUST NOT EXCEED THE PIPE MANUFACTURER'S RECOMMENDATIONS.
- VENT PIPES - VENT PIPES MUST BE INSTALLED ON BOTH ENDS OF CASING FOR BORINGS THAT CROSS ROAD AND RAILROAD CROSSINGS. VENTS MUST BE 2" DIA. FOR CASING SIZES < 30-IN. VENTS MUST BE 4" DIA. FOR CASING SIZES > 30-IN. VENTS MUST HAVE A 90 DEG BEND TO POINT TOWARDS THE GROUND AND MUST BE PAINTED INTERNATIONAL ORANGE. BUS SCREEN MUST BE INCLUDED ON THE OPEN END OF VENT PIPE.
- CASING PIPE SIZE - STEEL CASING PIPE MUST HAVE THE FOLLOWING MINIMUM DIAMETERS: SEE STANDARD SPECIFICATION 518.02.02 OR STANDARD DETAIL 635.02.
- CASING PIPE THICKNESS - STEEL CASING PIPE MUST HAVE THE FOLLOWING MINIMUM THICKNESS(ES), IN INCHES, FOR THE INDICATED MAXIMUM DEPTH OF COVER(S), IN FEET: SEE STANDARD SPECIFICATION 518.02.02 OR STANDARD DETAIL 635.02.
- CASING MATERIAL - STEEL CASING PIPE MUST CONFORM WITH ASTM A-139, STANDARD SPECIFICATION FOR ELECTRIC-FUSION (ARC)-WELDED STEEL PIPE (NPS AND OVER). THE STEEL MATERIAL MUST BE NEW, SMOOTH WALL, CARBON STEEL, GRADE B, WITH A MINIMUM TENSILE STRENGTH AND MINIMUM THIRTY-FIVE-THOUSAND (35,000 PSI) POUNDS PER SQUARE INCH YIELD STRENGTH.

The City of Oklahoma City
Utilities Department
Engineering Division

WATER STANDARD DETAILS
WATER MISCELLANEOUS
DETAILS 505.01, 515.01 AND 518.01

505

01 514 HORIZONTAL THRUST BLOCK - TEES, PLUGS, VALVES
Scale: N.T.S.

01 515 HORIZONTAL THRUST BLOCK - TEES, PLUGS, VALVES
Scale: N.T.S.

NOTES:

- SIZING OF THRUST BLOCK BASED ON THE FOLLOWING CONDITIONS:
 - SOIL BEARING: 1500 PSI
 - WORKING PRESSURE: 150 PSI
 - SURGE PRESSURE: 100 PSI
 - TOTAL DESIGN PRESSURE: 250 PSI
 - FACTOR OF SAFETY: 1.5
- THRUST BLOCK CONCRETE TO BE 3500 PSI 7 DAY HIGH EARLY STRENGTH CONCRETE.
- WRAP FITTINGS AND PIPE WITH 8 MIL POLYETHYLENE WRAPPING PRIOR TO POURING THRUST BLOCK.
- THRUST BLOCK TO BE POURED AGAINST UNDISTURBED EARTH. IF FILL IS REQUIRED, 95% COMPACTION IS REQUIRED FOR FILL MATERIAL.
- BEARING AREAS, VOLUMES, AND SPECIAL THRUST BLOCKING DETAILS SHOWN ON DRAWINGS TAKE PRECEDENCE OVER THIS PLAN.
- THRUST BLOCK DIMENSIONS CAN BE MODIFIED BUT MUST STILL MAINTAIN THE SURFACE AREA FOOTPRINT AGAINST THE SOIL.
- LEAVE ALL PIPE JOINTS COMPLETELY ACCESSIBLE. DO NOT POUR CONCRETE OVER ANY PIPE JOINTS.
- FITTINGS GREATER THAN 36-INCH REQUIRE CALCULATIONS FROM ENGINEER TO BE SUBMITTED FOR REVIEW.

Pipe Dia (in)	Thrust (Tons)	Dim "A" (ft)	Dim "B" (ft)	Dim "C" (ft)	Area (sq)	Volume (cu)
4	3.4	3.00	1.50	1.00	4.52	0.04
6	7.0	4.25	2.25	1.00	9.35	0.13
8	12.1	5.50	3.00	1.25	16.08	0.31
10	18.1	7.00	3.50	1.50	24.19	0.53
12	25.7	8.00	4.25	1.75	34.21	0.89
14	34.5	9.25	5.00	2.00	45.96	1.43
16	44.6	11.00	5.50	2.25	59.45	2.05
18	56.0	12.00	6.25	2.50	74.66	2.89
20	68.7	14.00	6.50	2.75	91.61	3.65
24	98.0	18.75	7.00	3.25	130.70	5.67
30	150.8	27.00	7.50	3.75	201.06	9.38