

# RIGGIN RD WATER MAIN EXTENSION

CITY OF TROY, ILLINOIS 62294

## ENGINEERS



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Collinsville St. Louis Belleville St. Charles  
ILLINOIS DESIGN FIRM LICENSE NO.: 184.001115

PROJECT MANAGEMENT & ENGINEER:

### OATES ASSOCIATES, INC.

EASTPORT BUSINESS CENTER 1  
100 LANTER COURT, SUITE 1  
COLLINSVILLE, ILLINOIS 62234

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PROJECT MANAGER  
618.345.2200  
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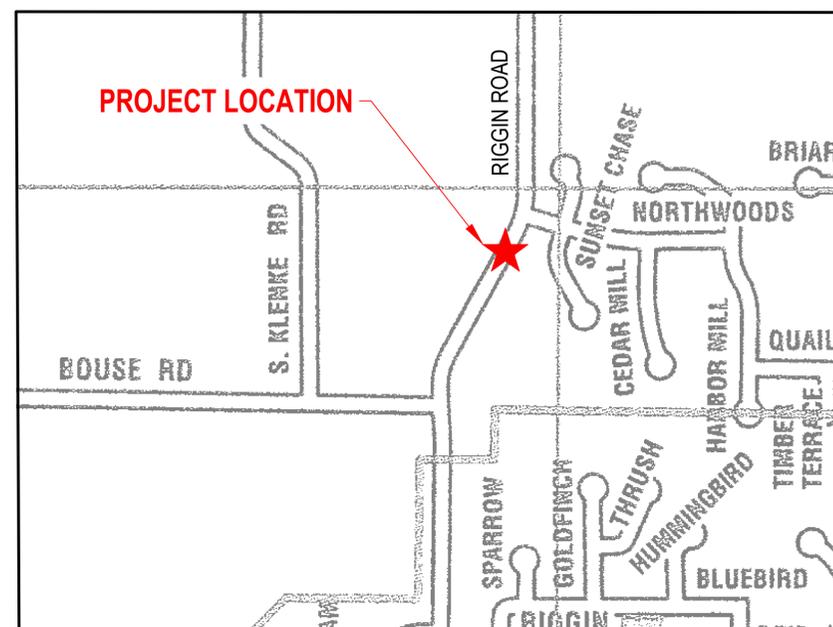
## LEGEND

EX	NEW		EX	NEW
		SIGN (TRAFFIC)		
		SIGN (ADVERTISEMENT)		
		TELEPHONE / POWER POLE		
		LIGHT POLE		
		ANCHOR POLE		
		GUY WIRE		
		FIRE HYDRANT		
		GAS VALVE		
		WATER VALVE		
		ELECTRIC METER		
		GAS METER		
		TELEPHONE BOX		
		ELECTRIC BOX		
		MAILBOX		
		CLEANOUT		
		AREA INLET		
		CATCH BASIN		
		CURB INLET		
		MANHOLE		
		TRAFFIC SIGNAL BOX		
		TRAFFIC SIGNAL		
		HANDHOLE		
		SHRUB		
		TREE (DECIDUOUS)		
		TREE (EVERGREEN)		
		CONTROL POINT		
		BENCHMARK		

## LINETYPES

EX		NEW
	WATER LINE	
	GAS LINE	
	TELEPHONE LINE	
	OVERHEAD ELECTRIC LINE	
	ELECTRIC LINE	
	FIBER OPTIC LINE	
	STORM SEWER	
	SANITARY SEWER	
	FENCE LINE	
	TREE LINE	
	CONTOUR LINE	
	LIMITS OF CONST	

## LOCATION MAP



## INDEX OF DRAWINGS

- 1.....COVER SHEET & GENERAL NOTES
- 2-3.....PLAN & PROFILE
- 4-6.....DETAILS

## GENERAL NOTES

1. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER AND AN AUTHORIZED SURVEYOR, OR AGENT, HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
2. THE CONTRACTOR SHALL USE A PORTION OF THE CONSTRUCTION SITE AS A STAGING AND CONTRACTOR PARKING AREA. ACCESS TO ALL HOMES SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. IF SIDEWALKS, LAWNS AND/OR DRIVEWAYS ARE DAMAGED BY THE CONTRACTOR, THEY SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL PROVIDE A PORTABLE RESTROOM FACILITY IN THE STAGING AREA.
3. FULL DEPTH SAW CUTTING ON ALL EDGES FOR REMOVAL ITEMS SHALL BE INCLUDED IN THE REMOVAL ITEMS ACCORDING TO SECTION 440 OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION."
4. ALL EXISTING FEATURES SUCH AS PAVEMENT, CURB, SIDEWALK, DRIVEWAY PAVEMENT, CULVERTS, HEADWALLS, RIPRAP, FENCING, RETAINING WALLS, ABANDONED UTILITIES, ETC. WHICH INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR UNLESS NOTED OTHERWISE ON THE PLANS.
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO ORDERING MATERIALS AND COMMENCING CONSTRUCTION.
6. THE CONTRACTOR SHALL STAGE ALL WORK IN SUCH A WAY AS TO MAINTAIN INGRESS AND EGRESS TO ALL ABUTTING PROPERTIES AT ALL TIMES DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL CONFINE ALL OPERATIONS TO THE AREA SHOWN ON THE PLANS. ANY AREA DISTURBED BEYOND THESE LIMITS SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
8. FOR LAWN AREAS, SEED SHALL CONSIST OF JAGUAR FESCUE APPLIED AT A RATE OF 10# PER 1,000-SF. FERTILIZER SHALL BE APPLIED AT A RATE OF 1:1:1 AT 6# OF NUTRIENT PER 1,000-SF. STRAW MULCH SHALL BE BROADCAST OVER ALL AREAS THAT ARE SEEDED. MULCH SHALL BE APPLIED AT A RATE OF 2 TONS PER ACRE AND CRIMPED TO THE EARTH FOR STABILIZATION.
9. FINAL PAYMENT ON RETAINAGE WILL NOT BE MADE UNTIL THE LAWN HAS ESTABLISHED TO A 95% LEVEL WITH NO INDIVIDUAL BARE SPOTS LARGER THAN 6"x6" IN SIZE AFTER ONE GROWING SEASON (APRIL TO MAY OR SEPTEMBER TO OCTOBER).
10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SIGNS AND BARRICADES THROUGHOUT THE CONSTRUCTION PERIOD. ALL MATERIAL PILES, EQUIPMENT, OPEN EXCAVATIONS OR THEIR OBSTRUCTIONS OR HAZARDS TO MOTORISTS OR PEDESTRIANS SHALL BE ENCLOSED BY FENCES OR PROTECTED BY BARRICADES.

## UTILITY CONFLICT

11. THE CONTRACTOR SHALL HAND LOCATE ALL POTENTIALLY AFFECTED UTILITIES BY POTHOLING. ONCE THE UTILITY LOCATION IS KNOWN, THE CONTRACTOR SHALL PROTECT AND WORK AROUND OR HAVE THE UTILITY RELOCATED BY ITS OWNER. THERE WILL BE NO ADDITIONAL COST TO PERFORM THIS WORK.

## UTILITY CONTACTS

THE FOLLOWING UTILITY COMPANIES MAY HAVE FACILITIES LOCATED WITHIN THE LIMITS OF CONSTRUCTION THAT MAY REQUIRE ADJUSTMENT, RELOCATION OR REMOVAL. ALL ARE MEMBERS OF J.U.L.I.E., UNLESS NOTED OTHERWISE.

CHARTER COMMUNICATIONS (CABLE TV)  
210 WEST DIVISION STREET  
MARYVILLE, IL 62062  
(618) 345-8121

AMEREN IP (GAS)  
2600 NORTH CENTER  
MARYVILLE, IL 62062  
(618) 346-1287

SOUTHWESTERN ELECTRIC COOPERATIVE (ELECTRIC)  
525 US ROUTE 40  
GREENVILLE, IL 62246  
(800) 637-8667

AT&T (TELEPHONE)  
203 GOETHE STREET  
COLLINSVILLE, IL 62234  
(618) 346-6400

CITY OF TROY (WATER & SANITARY SEWER)  
116 EAST MARKET STREET  
TROY, IL 62294  
(618) 667-9924

THE ABOVE INFORMATION REPRESENTS THE BEST INFORMATION AVAILABLE TO THE OWNER AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACTOR HAS TAKEN THE FOREGOING INTO CONSIDERATION IN PREPARING HIS/HER BID, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ANY DELAYS OR INCONVENIENCE CAUSED BY SAME.

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEIR LOCATIONS MUST BE CONSIDERED TO BE APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. ILLINOIS LAW REQUIRES A MINIMUM 48-HOUR NOTICE TO ALL UTILITY COMPANIES BEFORE DIGGING. FIELD LOCATIONS OF UNDERGROUND FACILITIES MAY BE OBTAINED BY CALLING THE J.U.L.I.E. SYSTEM AT 800-892-0123 AND PROVIDING 48 HOURS ADVANCE NOTICE. NON-J.U.L.I.E. MEMBERS MAY BE CONTACTED DIRECT. AGENCIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT LIMITS ARE LISTED ABOVE.

ANY FACILITIES OR APPURTENANCES WHICH ARE THE PROPERTY OF ANY PUBLIC UTILITY LOCATED WITHIN THE LIMITS OF CONSTRUCTION SHOULD BE RELOCATED OR ADJUSTED BY THEIR RESPECTIVE OWNERS. THE CONTRACTOR SHALL NOTIFY AND COOPERATE WITH THE OWNERS OF ANY SUCH FACILITY IN THEIR REMOVAL AND REARRANGEMENT OPERATIONS IN ORDER THAT THESE OPERATIONS AND THE CONSTRUCTION OF THIS PROJECT MAY PROGRESS IN A REASONABLE MANNER. ALL ROADSIDE OBJECTS (UTILITY POLES, FIRE HYDRANTS, SIGNS, ETC.) SHALL BE RELOCATED TO PROVIDE A MINIMUM OF 2 FEET CLEARANCE, MEASURED FROM THE FACE OF CURB TO THE NEAR EDGE OF THE OBJECT. THE COST OF ANY NECESSARY RELOCATIONS MAY BE INCURRED BY THE OWNER IF OTHER ARRANGEMENTS CANNOT BE MADE OR PRIOR AGREEMENTS ARE NOT IN PLACE.

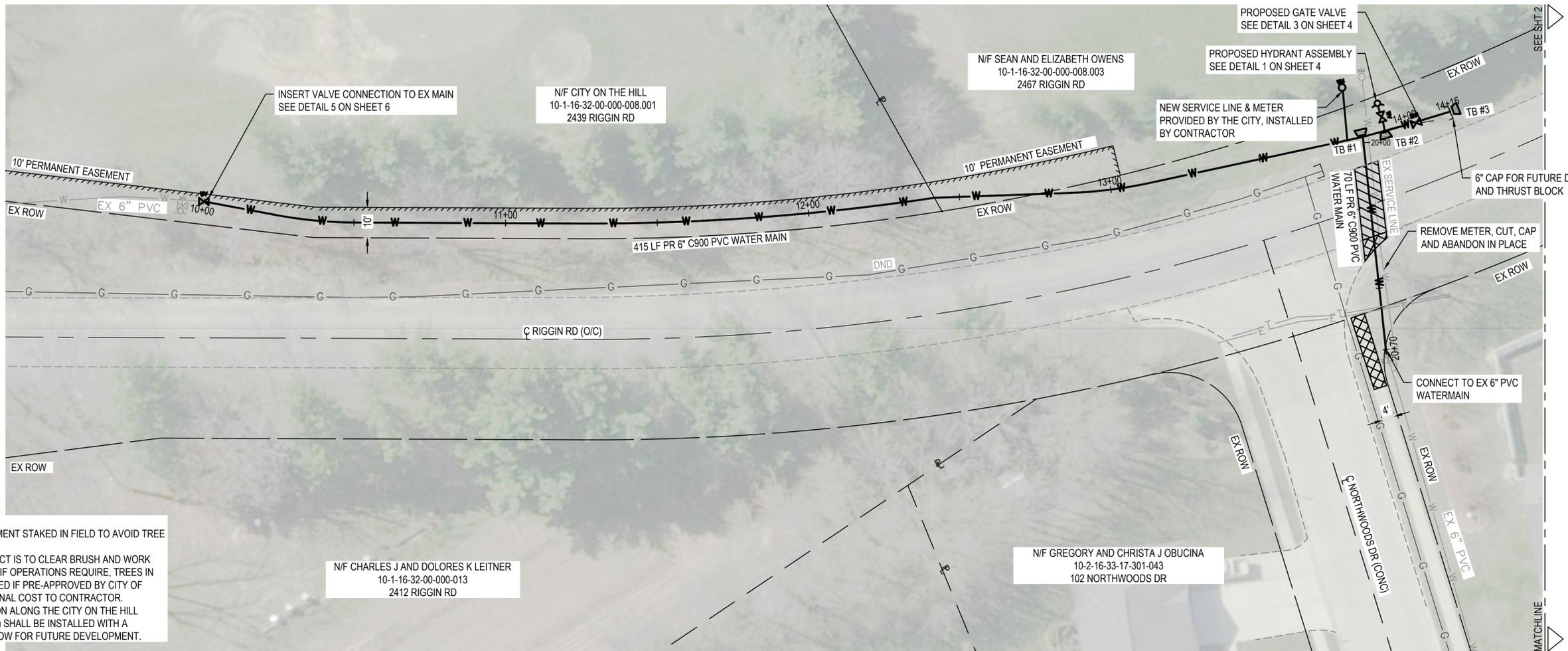
JOINT UTILITY LOCATING INFORMATION FOR EXCAVATIONS  
PHONE: 800-892-0123

04/19/2022 - BID DOCUMENTS

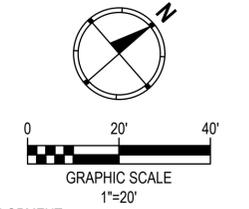
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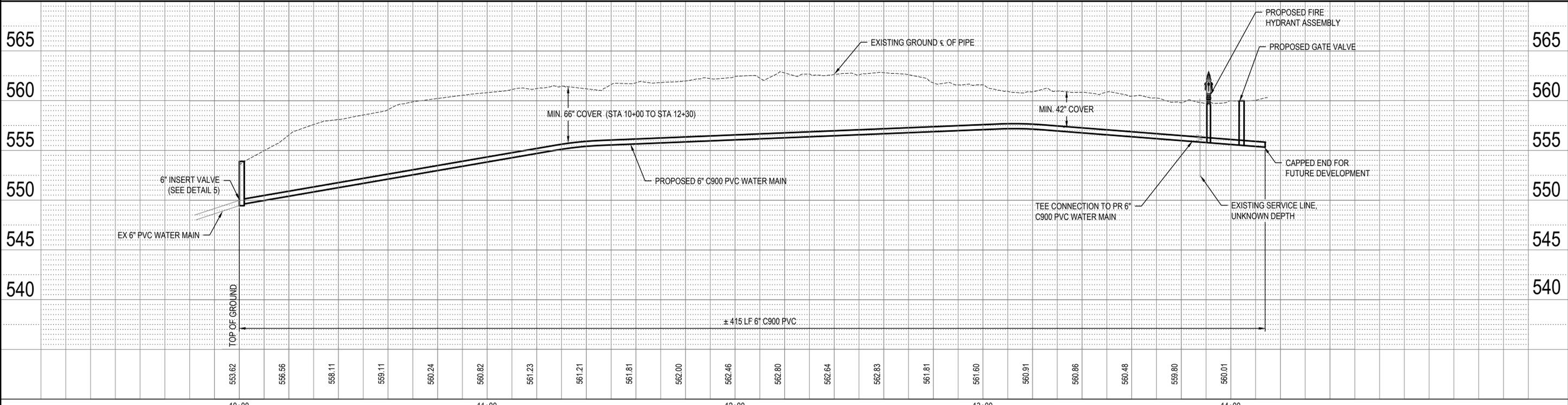
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**NOTE:**  
 1. FINAL WATER LINE ALIGNMENT STAKED IN FIELD TO AVOID TREE REMOVAL.  
 1a. INTENT OF PROJECT IS TO CLEAR BRUSH AND WORK AROUND TREES BUT IF OPERATIONS REQUIRE, TREES IN ROW CAN BE REMOVED IF PRE-APPROVED BY CITY OF TROY AT NO ADDITIONAL COST TO CONTRACTOR.  
 2. WATER MAIN INSTALLATION ALONG THE CITY ON THE HILL PROPERTY (2439 RIGGIN RD) SHALL BE INSTALLED WITH A MINIMUM 66\"/>



TB#	"A" (IN)	"B" (IN)
1	30	18
2	30	18
3	30	18

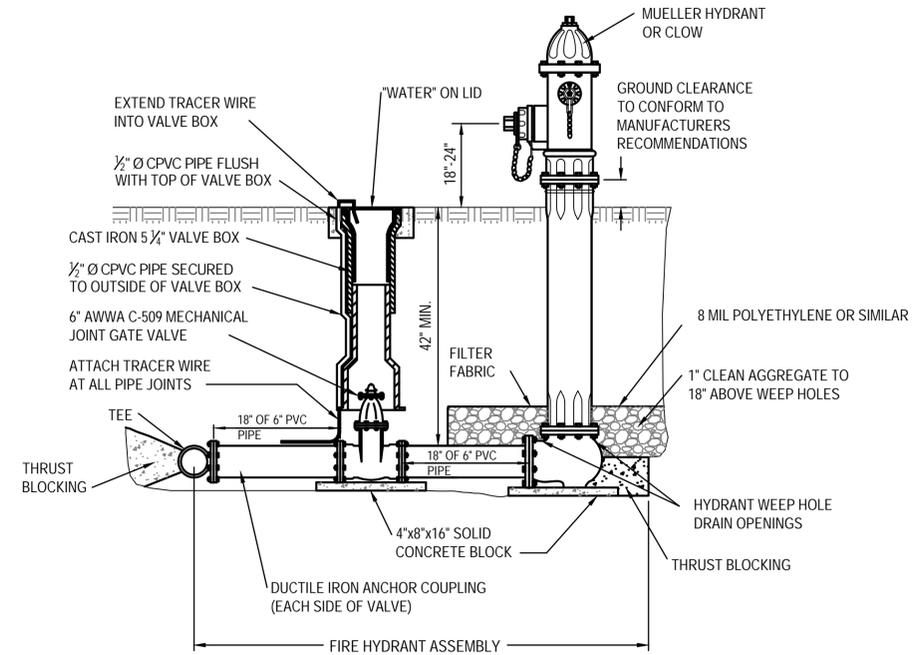


<p>OATES ASSOCIATES www.oatesassociates.com ILLINOIS DESIGN FIRM LICENSE NO.: 184.001115</p>	USER NAME = ANDREA MENSE	DESIGNED - JS	REVISED -	<b>CITY OF TROY</b> <b>RIGGIN ROAD</b> <b>WATER MAIN EXTENSION</b>	<b>PLAN &amp; PROFILES</b>	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 1" = 1'	DRAWN - RDG	REVISED -			MADISON	6	2		
	PLOT DATE = 2021-02-23	CHECKED - TLC	REVISED -			RIGGIN ROAD WATER MAIN EXTENSION				
	DATE = 2021-02-23	REVISIONS	REVISED -			SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.



**WATER MAIN SPECIFICATIONS**

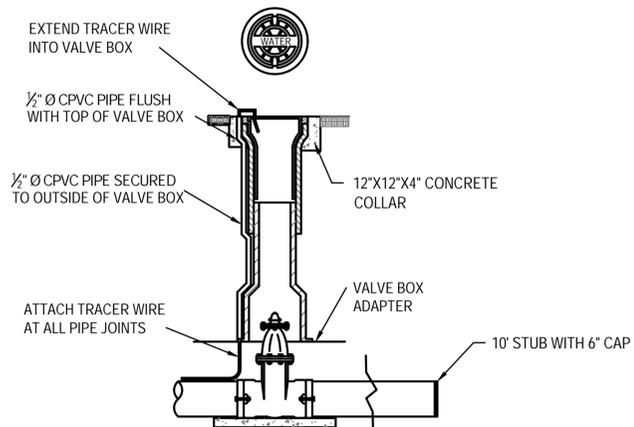
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER CONSTRUCTION IN ILLINOIS" 8TH EDITION, THESE PLANS, THE SPECIAL PROVISIONS, THE CONDITIONS OF THE I.E.P.A. PERMIT, AND THE REQUIREMENTS OF THE CITY OF TROY.
- ALL WATER MAIN SHALL COMPLY WITH THE SPECIFICATIONS AS OUTLINED IN SECTION 40 OF THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER CONSTRUCTION IN ILLINOIS" 8TH EDITION OR MOST CURRENT.
- PRIOR TO COMMENCEMENT OF ANY WORK, THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS OF THE PLANS WITH THE ACTUAL DIMENSIONS AND CONDITIONS OF THE SITE. THE GENERAL CONTRACTOR MUST VERIFY THE ENGINEER'S LINES AND GRADES. IF A DISCREPANCY OCCURS FROM WHAT IS SHOWN ON THE PLANS, STANDARD SPECIFICATIONS, AND/OR DETAILS, THE GENERAL CONTRACTOR SHALL NOTIFY THE ENGINEER AND SECURE WRITTEN INSTRUCTION FROM THE ENGINEER PRIOR TO PROCEEDING WITH ANY PART OF THE AFFECTED WORK. FAILING TO DO SO WILL BE CONSIDERED AS THE GENERAL CONTRACTOR HAVING PROCEEDED AT HIS OWN RISK AND EXPENSE.
- ALL WATER MAIN AND WATER SERVICE WORK SHALL BE COORDINATED WITH THE PUBLIC WORKS DIRECTOR OF THE CITY OF TROY.
- ALL WATER MAIN FITTINGS AND VALVES TO BE SECURED BY USE OF RESTRAINT JOIN GLANDS, EBBA, MODEL 2000 OR EQUAL.
- ALL HYDRANTS SHALL BE 5-1/4" BARREL, 3-WAY MUELLER CENTURION MODEL A-423 OR CLOW MEDALLION MODEL F-2545. A HYDRANT ASSEMBLY SHALL CONSIST OF A 6" RESILIENT WEDGE GATE VALVE ANCHORED TO THE HYDRANT BY USE OF AN ANCHORING COUPLING OR RESTRAINT JOINT GLANDS IN ACCORDANCE WITH AWWA AND IEPA GUIDELINES. USE OF RODS IS PROHIBITED. ASSEMBLY SHALL INCLUDE VALVE BOX.
- ALL HYDRANTS TO BE INSTALLED/ADJUSTED STRAIGHT (PLUMB) AND AT THE PROPER FINISHED GRADE PER MANUFACTURER'S SPECIFICATIONS.
- ALL VALVES SHALL BE LEFT OPEN, RESILIENT WEDGE GATE VALVES WITH INTEGRAL STAINLESS STEEL NUTS AND BOLTS (BONNET AND PACKING BOLTS).
- ALL TAPPING SLEEVES SHALL BE STAINLESS STEEL SLEEVES WITH DUCTILE IRON FLANGES, ROMAC INDUSTRIES MODEL SST OR EQUAL. FLANGE BOLTS AND NUTS TO BE 316 STAINLESS STEEL.
- ALL WATER MAINS SHALL BE INSTALLED WITH TRACER WIRE PLACED ADJACENT TO THE PIPE.
- ALL WATER MAIN FITTINGS SHALL BE MECHANICAL JOINT AWWA C153 COMPACT DUCTILE IRON.
- TRACER WIRE TO BE COPPERHEAD #12 CCH HIGH STRENGTH, SOFT DRAWN 380# OR EQUAL, SHALL BE INSTALLED ADJACENT TO ALL WATERLINES AND CONNECTED TO HYDRANTS AND VALVES. WIRE TO BE PLACED OUTSIDE OF VALVE BOX AND THREADED THRU A PENETRATION AT 8" BELOW TOP OF BOX. ALL SPLICES SHALL BE SOLDERED AND MADE WATER TIGHT BY USE OF SILICONE FILLED WIRE NUTS.
- ALL THRUST BLOCKS SHALL BE POURED CONCRETE AS SPECIFIED ON SHEET 5.
- DETAILED "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE CITY UPON COMPLETION OF THE PROJECT.
- ALL EXISTING FIRE HYDRANTS, METER LIDS, AND FRAMES SHALL REMAIN THE PROPERTY OF THE CITY.
- ALL WATER MAINS AND SERVICES SHALL BE INSTALLED BY A STATE OF ILLINOIS LICENSED PLUMBER.
- CONTRACTOR SHALL NOTIFY THE TROY WATER DEPARTMENT 48 HOURS PRIOR TO STARTING WORK.
- ALL WORK SHALL BE INSPECTED BY WATER DEPARTMENT STAFF PRIOR TO BACKFILLING.
- ALL WATER METER LIDS AND VALVE BOXES SHALL BE ADJUSTED TO THE PROPER FINISHED GRADE.
- CONTRACTOR SHALL WARRANT ALL WORK FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE WORK BY THE CITY OF TROY.



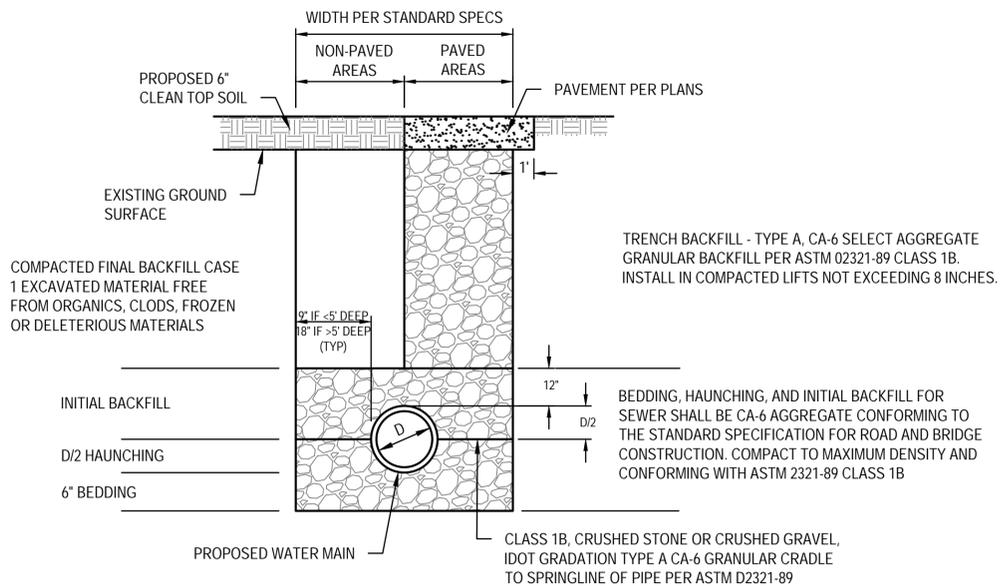
1  
4 FIRE HYDRANT & VALVE DETAIL  
SCALE: NO SCALE

**WATER SERVICE SPECIFICATIONS**

- WATER SERVICE LINES SHALL BE A MINIMUM 1" Ø CTS SDR 9.250PSI POLYETHYLENE TUBING.



3  
4 GATE VALVE INSTALLATION DETAIL  
SCALE: NO SCALE



2  
4 WATER MAIN INSTALLATION DETAIL  
SCALE: NO SCALE

DATE	BY	SURVEYED	PLANNED	NOTED	CHECKED	FILED
PLAN	NO.	NO.	NO.	NO.	NO.	NO.

DATE	BY	SURVEYED	PLANNED	NOTED	CHECKED	FILED
PROFILE	NO.	NO.	NO.	NO.	NO.	NO.

FILE NAME = 15082 - DETAILS.DWG



USER NAME =	ANDREA MENSE	DESIGNED -	JS	REVISED -	
PLOT SCALE =	1" = 1'	DRAWN -	RDG	REVISED -	
PLOT DATE =	2021-02-23	CHECKED -	TLC	REVISED -	
		DATE -	2021-02-23	REVISED -	

**CITY OF TROY**  
RIGGIN ROAD  
WATER MAIN EXTENSION

DETAILS			
SCALE:	SHEET NO.	OF SHEETS	STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		MADISON	6	4
RIGGIN ROAD WATER MAIN EXTENSION				

**THRUST BLOCK SIZING TABLE & NOTES:**

- COVER OVER TOP OF PIPE SHALL BE BELOW FROST LINE OR 30" MINIMUM, 72" MAXIMUM ACCORDING TO REGULATORY REQUIREMENTS. IF GRADING PLANS RECEIVED BY THE ENGINEER/OWNER WITH THE REQUEST FOR WATER MAIN LAYOUT, INDICATE ADJUSTMENTS TO EXISTING GRADE, THEN PIPE SHALL BE INSTALLED TO MEET MINIMUM AND MAXIMUM COVER FROM PROPOSED GRADES SHOWN ON SAID PLANS.
- THRUST BLOCKS SHALL BE BUILT AGAINST UNDISTURBED SOIL WITH ADEQUATE BACKING TO PREVENT MOVEMENT OF FITTING.
- NO THRUST BLOCKS TO BE PLACED IN SEWER LATERAL DITCHES,.
- THRUST BLOCKING MUST FIT IN EASEMENT, IN SOME CASES ADDITIONAL RESTRAINT MAY BE REQUIRED.
- BASED ON 200 PSI (150 PSI STATIC PRESSURE PLUS 50 PSI WATER HAMMER) AND 2000 PSF SOIL BEARING.
- POLYETHYLENE ENCASEMENT ON ALL D.I. PIPE AND FITTINGS.
- PIPE JOINTS AND BOLTS MUST BE ACCESSIBLE.
- ALLOW SUFFICIENT CLEARANCE BETWEEN CONCRETE AND BOLTS FOR FUTURE MAINTENANCE.
- ALL ANCHOR BOLTS SHALL BE COR-BLUE, MINIMUM 1/2" DIAMETER. COAT EXPOSED ROD WITH ASPHALT CEMENT AFTER CONCRETE HAS SET.
- ALL M.J. AND FLG. FITTINGS TO RECEIVE THRUST BLOCKS SHALL HAVE THE FASTENER AREAS FELT WRAPPED AND TAPED PRIOR TO THE CONCRETE POUR TO ALLOW FUTURE ACCESS TO THE FASTENERS AT THE JOINTS.
- THRUST BLOCKING DETAILS ARE SHOWN HERE FOR TYPICAL INSTALLATIONS. IN SOME CASES, ADDITIONAL RESTRAINT MAY BE REQUIRED.
- PORTLAND CEMENT CONCRETE USED FOR THRUST BLOCKS SHALL BE MIN 3000 PSI CONCRETE.
- FOR UNSTABLE SOIL CONDITIONS, CHECK WITH ENGINEER FOR THRUST BLOCK DIMENSIONS.
- FOR MAIN SIZES GREATER THAN 16", SEE ENGINEER FOR THRUST BLOCK DIMENSIONS.

**REQUIRED BEARING AREA ON UNDISTURBED SOIL AND TYPICAL DIMENSIONS**

PIPE SIZE	90 DEGREE BENDS			45 DEGREE BENDS			11.25 DEGREE BENDS			22.5 DEGREE BENDS			TEES/PLUGS		
	AREA (sq ft)	"A"	"B"	AREA (sq ft)	"A"	"B"	AREA (sq ft)	"A"	"B"	AREA (sq ft)	"A"	"B"	AREA (sq ft)	"A"	"B"
6	5.3	43"	18"	2.9	23"	18"	0.7	6"	18"	1.5	12"	18"	3.7	30"	18"
8	9.2	55"	24"	5.0	30"	24"	1.3	8"	24"	2.5	15"	24"	6.4	39"	24"
10	13.8	66"	30"	7.5	36"	30"	1.9	9"	30"	3.8	18"	30"	9.7	46"	30"
12	19.4	78"	36"	10.6	42"	36"	2.7	11"	36"	5.3	21"	36"	13.8	55"	36"
14	26.0	89"	42"	14.0	48"	42"	3.6	12"	42"	7.2	25"	42"	18.5	63"	42"
16	33.7	101"	48"	18.3	55"	48"	4.7	14"	48"	9.4	28"	48"	23.9	72"	48"

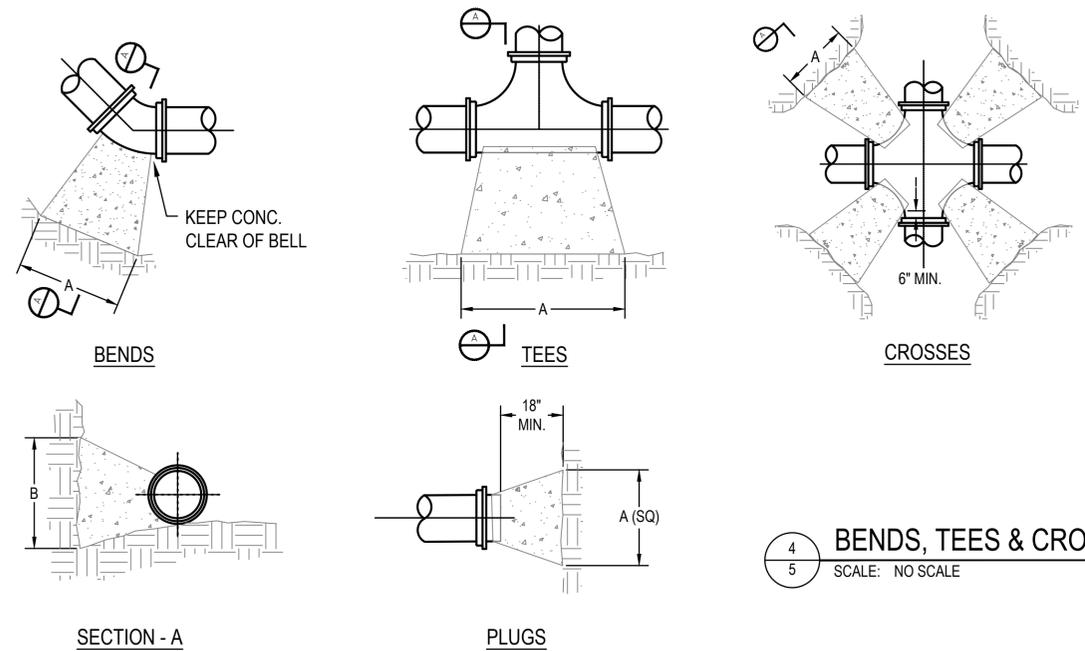
Area in square feet "A" and "B" in inches

Bearing table area is based on 200 psi maximum with soil bearing capacity of 2000 lbs/square foot.

For higher water pressures or lower soil pressures, consult Engineer for adjustments.

Bearing table area does not include a safety factor.

A safety factor and additional bearing area may be required as directed by the Engineer.



**4 BENDS, TEES & CROSSES**  
5 SCALE: NO SCALE

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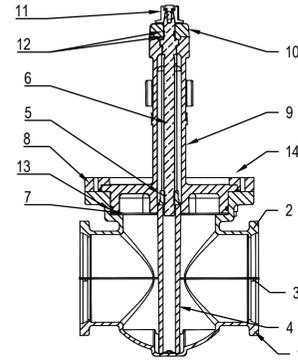
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	STRUCTURE NOTATIONS CHECKED	

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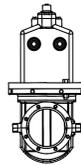
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NO.	PART	MATERIAL
1.	VALVE BODY BOTTOM	DUCTILE IRON ASTM A536 65-45-12
2.	VALVE BODY TOP	DUCTILE IRON ASTM A536 65-45-12
3.	VALVE BODY GASKET	EPDM RUBBER
4.	RESILIENT WEDGE GATE	DUCTILE IRON ASTM A536 65-45-12
5.	STEM NUT	BRONZE ASTM B584
6.	VALVE STEM	BRONZE ASTM B584
7.	BONNET GASKET	EPDM RUBBER
8.	BONNET RETAINER RING	DUCTILE IRON ASTM A536 65-45-12
9.	BONNET	DUCTILE IRON ASTM A536 65-45-12
10.	STEM GLAND	DUCTILE IRON ASTM A536 65-45-12
11.	2" OPERATOR NUT	DUCTILE IRON ASTM A536 65-45-12
12.	STEM O-RINGS	EPDM RUBBER
13.	BONNET O-RING	EPDM RUBBER
14.	BONNET BOLTS/NUTS/WASHERS	ZINC PLATED STEEL 304SS (OPTIONAL)
	VALVE BODY BOLTS/NUTS/WASHERS	ZINC PLATED STEEL 304SS (OPTIONAL)
	STEM GLAND BOLTS	ZINC PLATED STEEL 304SS (OPTIONAL)
		*EPDM ENCAPSULATED ASTM D429

NOTE: DIMENSIONS FOR INSERT VALVES ON ALL A/C PIPES SHALL BE CONSIDERED "OVERSIZED" IN THE BASE BID. ALL NON-A/C PIPES SHALL BE CONSIDERED DUCTILE IRON IN THE BASE BID.



5 INSERT VALVE DETAIL  
6 SCALE: NO SCALE

**THE INSERT VALVE SHALL CONFORM TO THE FOLLOWING:**

THE DUCTILE IRON 250 P.S.I.G. INSERT VALVE SHALL BE A RESILIENT WEDGE DESIGNED FOR USE IN POTABLE WATER, RAW WATER, RECLAIMED WATER, SEWAGE, IRRIGATION AND BACKFLOW CONTROL SYSTEMS. THE DESIGN WILL ALLOW THE VALVE TO BE INSTALLED INTO AN EXISTING PRESSURIZED PIPELINE WHILE MAINTAINING CONSTANT PRESSURE AND SERVICE AS USUAL. AFTER CLOSING THE WEDGE AND ADEQUATELY RESTRAINING THE VALVE BODY THE DOWNSTREAM PIPE CAN BE COMPLETELY REMOVED AND REPLACED (ALLOWING FOR UPSIZING OF THE PIPE IF NECESSARY). THE HOST PIPE SHALL NOT BE A PERMANENT COMPONENT OF THE INSERT VALVE.

**CERTIFIED INSTALLER:**

1. INSERT VALVE MUST BE INSTALLED BY AUTHORIZED AND TRAINED COMPANIES. ALL SUCH INSTALLERS HAVE RECEIVED WRITTEN CERTIFICATES AND SHALL PROVIDE DOCUMENTATION VALIDATING THEIR CERTIFICATION. THIS WILL ENSURE HIGH QUALITY INSTALLATION AND GUARANTEE THE WARRANTY OF THE PRODUCT.

**DUCTILE IRON CONSTRUCTION:**

1. THE DUCTILE IRON BODY, BONNET AND WEDGE PROVIDE STRENGTH AND A PRESSURE RATING THAT MEETS OR EXCEEDS THE REQUIREMENTS OF AWWA C515. INSERT VALVE SHALL BE DUCTILE IRON CONSTRUCTION MEETING ASTM A536 GRADE 65-45-12. HEAVY-DUTY DUCTILE IRON CONSTRUCTION FOR MAXIMUM TOUGHNESS AND STRENGTH.
2. CHEMICAL AND MODULARITY TESTS SHALL BE PERFORMED AS RECOMMENDED BY THE DUCTILE IRON SOCIETY, ON A PER LADLE BASIS. TESTING FOR TENSILE, YIELD AND ELONGATION SHALL BE DONE IN ACCORDANCE WITH ASTM E8.
4. SIZES 12" AND SMALLER MUST BE CAPABLE OF WORKING ON CAST/GREY IRON OR DUCTILE IRON CLASS A, B, C AND D, IPS PVC, C900 AND C909 PVC, STEEL, AC PIPE DIAMETERS WITHOUT CHANGING EITHER TOP OR BOTTOM PORTION OF SPLIT VALVE BODY.
5. 250 PSIG MAXIMUM WORKING PRESSURE. THE PRESSURE RATING MARKINGS MUST BE CAST INTO THE BODY OF THE INSERT VALVE.
6. AFTER THE INSTALLATION OF THE INSERT VALVE BODY ON TO THE EXISTING PIPE A PRESSURE TEST OF 1.1 TIMES THAT OF THE CONTENTS SHALL SUSTAINED FOR 15 MINUTES. ONCE THE PRESSURE TEST IS AFFECTIVELY ACHIEVED THE INSERT VALVE BODY MUST NOT BE MOVED IN ACCORDANCE WITH AWWA STANDARDS. IF THE INSERT VALVE IS MOVED THE PRESSURE TEST MUST BE COMPLETED AGAIN. THE INSERT VALVE MUST NOT BE MOVED OR REPOSITIONED ONCE THE PRESSURE TEST IS ACHIEVED.

**RESILIENT WEDGE GATE ASSEMBLY:**

7. THE CONSTRUCTION OF THE RESILIENT WEDGE SHALL COMPLY WITH AWWA C509 REQUIREMENTS.
8. THE DUCTILE IRON WEDGE SHALL BE FULLY ENCAPSULATED WITH EPDM RUBBER BY A HIGH PRESSURE AND HIGH TEMPERATURE COMPRESSION OR INJECTION MOLD PROCESS. THIS WILL ASSURE THE DUCTILE GATE IS FULLY COATED WITH MOLDED RUBBER - NO EXPOSED IRON.
9. THE RESILIENT WEDGE SHALL SEAT ON THE VALVE BODY AND NOT THE PIPE TO OBTAIN THE OPTIMUM SEATING AND FLOW CONTROL RESULTS. THE RESILIENT WEDGE SHALL BE TOTALLY INDEPENDENT OF THE CARRIER PIPE.
10. THE RESILIENT WEDGE SHALL NOT COME INTO CONTACT WITH THE CARRIER PIPE OR DEPEND ON THE CARRIER PIPE TO CREATE A SEAL. ABRASION RESULTS THUS SHORTING THE LIFE AND QUALITY OF THE SHUT DOWN IF THE WEDGE CONTACTS THE PIPE.
11. PRESSURE EQUALIZATION ON THE DOWN OR UPSTREAM SIDE OF THE CLOSED WEDGE SHALL NOT BE NECESSARY TO OPEN THE VALVE.
12. THE WEDGE SHALL BE SYMMETRICAL AND SEAL EQUALLY WELL WITH FLOW IN EITHER DIRECTION.
13. THE RESILIENT WEDGE MUST RIDE INSIDE THE BODY CHANNELS TO MAINTAIN WEDGE ALIGNMENT THROUGHOUT ITS TRAVEL TO ACHIEVE MAXIMUM FLUID CONTROL REGARDLESS OF HIGH OR LOW FLOW PRESSURE OR VELOCITY.
14. OVERSIZED FLOW WAY. UNOBSTRUCTED TO PROVIDE OPTIMUM FLOW.

**FUSION-BONDED EPOXY:**

15. THE INSERT VALVE IS FULLY EPOXY COATED ON THE INTERIOR AND THE EXTERIOR. THE FUSION-BONDED COATING IS APPLIED PRIOR TO ASSEMBLY SO THAT EVEN THE BOLT HOLES AND BODY-TO-BONNET FLANGE SURFACES ARE FULLY EPOXY COATED.
16. VALVE SHALL BE COATED WITH A MINIMUM OF 10 MILS EPOXY IN COMPLIANCE WITH AWWA C550 AND CERTIFIED TO ANS/NSF-61.

**GASKETS AND TRIPLE O-RING STEM SEALS:**

17. THIS INSERT VALVE FEATURES TRIPLE O-RING STEM SEALS. TWO O-RINGS ARE LOCATED ABOVE, AND ONE O-RING IS LOCATED BELOW THE THRUST COLLAR.
18. THE LOWER TWO O-RINGS PROVIDE A PERMANENTLY SEALED LUBRICATION CHAMBER THAT WILL MAKE THE VALVE EASIER TO OPERATE OVER A LONGER PERIOD OF TIME. THE UPPER O-RING ENSURES THAT SAND, DIRT OR GRIT CANNOT ENTER THE VALVE TO CAUSE DAMAGE TO THE LOWER O-RINGS. THIS IS ESPECIALLY IMPORTANT FOR BURIED AND SEWAGE SERVICE APPLICATIONS.
19. SIDE FLANGE SEALS SHALL BE OF THE O-RING TYPE OF EITHER ROUND, OVAL, OR RECTANGULAR CROSS- SECTIONAL SHAPE.

**VALVE STEM & THRUST WASHERS:**

20. THE GATE VALVE STEM AND WEDGE NUT SHALL BE COPPER ALLOY IN ACCORDANCE WITH SECTION 4.4.5.1 OF THE AWWA C515 STANDARD.
21. THE NRS STEM MUST HAVE AN INTEGRAL THRUST COLLAR IN ACCORDANCE WITH SECTION 4.4.5.3 OF AWWA C515 STANDARD. TWO-PIECE STEM COLLARS ARE NOT ACCEPTABLE. THE WEDGE NUT SHALL BE INDEPENDENT OF THE WEDGE AND HELD IN PLACE ON THREE SIDES BY THE WEDGE TO PREVENT POSSIBLE MISALIGNMENT.
22. TWO THRUST WASHERS ARE USED. ONE IS LOCATED ABOVE, AND ONE IS LOCATED BELOW THE STEM THRUST COLLAR. TWO THRUST WASHERS ENSURE EASY OPERATION AT ALL TIMES.
23. NRS WITH AWWA STANDARD TURNS.
24. OPERATED BY 2" SQUARE WRENCH NUT ACCORDING TO ASTM A126 CL.B - OPEN LEFT OR OPEN RIGHT

**AMERICAN MADE QUALITY:**

25. ALL PARTS AND COMPONENTS TO BE EXCLUSIVELY AND COMPLETELY ASSEMBLED, MANUFACTURED, MACHINED AND COATED IN THE USA.
26. ALL PHYSICAL AND CHEMICAL TEST RESULTS SHALL BE RECORDED SUCH THAT THEY CAN BE ACCESSED VIA THE IDENTIFICATION NUMBER ON THE CASTING. THESE MATERIAL TRACEABILITY RECORDS (MTR'S) ARE TO BE MADE AVAILABLE, IN HARD COPY, TO THE PURCHASER THAT REQUESTS SUCH DOCUMENTATION..
27. ALL COMPONENTS SHALL BE MANUFACTURED AND ASSEMBLED IN THE UNITED STATES. THE PURCHASER SHALL, WITH REASONABLE NOTICE, HAVE THE RIGHT TO PLANT VISITATION AT HIS/HER EXPENSE.

**HARDWARE:**

28. BOLTING MATERIALS SHALL DEVELOP THE PHYSICAL STRENGTH REQUIREMENTS OF ASTM A307 WITH DIMENSIONS CONFORMING TO ANSI B18.2.1.

**EXTENDED LIFE VALUE:**

29. THE STUFFING BOX, OPERATING STEM AND RESILIENT WEDGE (COMPLETE BONNET AND ALL MOVING PARTS) SHALL BE REMOVABLE, REPAIRABLE AND OR REPLACEABLE UNDER PRESSURE. IN OTHER WORDS, EVEN WHILE THE VALVE IS FULLY PRESSURIZED IN THE SYSTEM ALL MOVING COMPONENTS CAN BE REMOVED UNDER PRESSURE. IN THE EVENT THE VALVE STEM IS BROKEN OR DAMAGED THE BONNET CAN BE REMOVED UNDER PRESSURE.
30. INTERNAL PRESSURE EQUALIZATION SYSTEM ASSURES THE SAFE ENTRY AND REMOVAL OF THE VALVE BONNET DURING INITIAL INSTALLATION AS WELL AS FUTURE MAINTENANCE. THIS ALLEVIATES THE NEED FOR ADDITIONAL PIPE PENETRATION TAPS OR FOREIGN METHODS (I.E. COMPRESSED AIR OR AUXILIARY WATER SOURCE) TO EQUALIZE PRESSURE.

**SPLIT RESTRAINT DEVICES:**

31. SHALL CONSIST OF MULTIPLE GRIPPING WEDGES INCORPORATED INTO A FOLLOWER GLAND MEETING THE APPLICABLE REQUIREMENTS OF ANSI/AWWA C110/A21.10.
32. THE DEVICES SHALL HAVE A WORKING PRESSURE RATING OF 350 PSI FOR 4-12 INCH. RATINGS ARE FOR WATER PRESSURE AND MUST INCLUDE A MINIMUM SAFETY FACTOR OF 2 TO 1 IN ALL SIZES.
33. CHEMICAL AND MODULARITY TESTS SHALL BE PERFORMED AS RECOMMENDED BY THE DUCTILE IRON SOCIETY, ON A PER LADLE BASIS. THREE TEST BARS SHALL BE INCREMENTALLY POURED PER PRODUCTION SHIFT AS PER U.L. SPECIFICATIONS AND ASTM A536. TESTING FOR TENSILE, YIELD AND ELONGATION SHALL BE DONE IN ACCORDANCE WITH ASTM E8.
34. GLAND BODY WEDGES AND WEDGE ACTUATING COMPONENTS SHALL BE CAST FROM GRADE 65-45-12 DUCTILE IRON MATERIAL IN ACCORDANCE WITH ASTM A536.
35. MECHANICAL JOINT RESTRAINT SHALL REQUIRE CONVENTIONAL TOOLS AND INSTALLATION PROCEDURES PER AWWA C600, WHILE RETAINING FULL MECHANICAL JOINT DEFLECTION DURING ASSEMBLY AS WELL AS ALLOWING JOINT DEFLECTION AFTER ASSEMBLY.
36. PROPER ACTUATION OF THE GRIPPING WEDGES SHALL BE ENSURED WITH TORQUE LIMITING TWIST OFF NUTS. SET SCREW PRESSURE POINT TYPE HARDWARE SHALL NOT BE USED.

**OATES ASSOCIATES**  
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ILLINOIS DESIGN FIRM LICENSE NO.: 184.001115

USER NAME =	ANDREA MENSE	DESIGNED -	JS	REVISED -	
PLOT SCALE =	1' = 1'	DRAWN -	RDG	REVISED -	
PLOT DATE =	2021-02-23	CHECKED -	TLC	REVISED -	
		DATE -	2021-02-23	REVISED -	

**CITY OF TROY**  
RIGGIN ROAD  
WATER MAIN EXTENSION

<b>DETAILS</b>			
SCALE:	SHEET NO.	OF SHEETS	STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		MADISON	6	6
RIGGIN ROAD WATER MAIN EXTENSION				