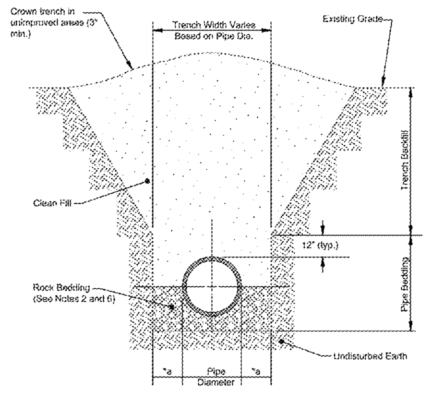


*a See Note 3

NOTES:

1. Pipe bedding material and trench backfill shall be select common (clean) fill compacted to 95% (98% in roadway) of the maximum density as per AASHTO T-180.
2. Contractor shall install crushed rock (or equivalent bedding material) where pipe bedding does not provide solid support (yielding or plastic). Depth of material shall be a minimum of 6", or as needed, to provide non-yielding support for the pipe. All unsuitable material shall be removed from pipe bedding unless special provisions are approved by the City.
3. Excavated trench width at pipe haunch shall be sufficient in size for haunch compaction, but shall be no greater than 15" on each side of pipe for pipes less than 24" in diameter (24" for pipes 24" in diameter or greater.)
4. Water shall not be permitted in trench line during construction.
5. Pipe line shall be installed with bell fitting facing upgrade.
6. Gravity sewer shall have a 6" minimum rock bed.

DETAIL NO.	CITY OF OCOEE CONSTRUCTION DETAILS
UT101	Pipe Bedding and Trench
DATE: Jan. 2016	SCALE: n/a

PVC/HDPE Restraint Table

Minimum Length (FT) to be Restrained on each side of Fitting(s)

Fittings	Pipe Size 4"	6"	8"	10"	12"	16"
90° Bend	18	24	32	38	44	55
45° Bend	10	10	13	16	18	23
22 1/2" Bend	10	10	10	10	10	11
11 1/4° Bend	10	10	10	10	10	10
Plug or Branch of Tee	30	47	64	81	98	133

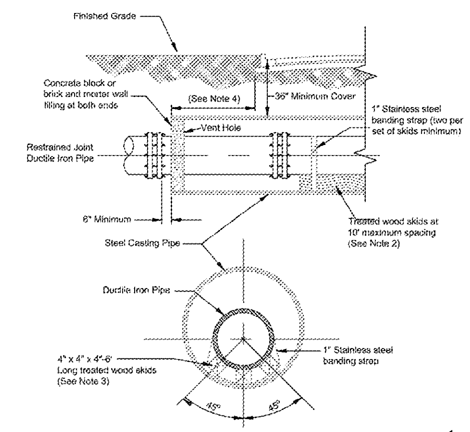
NOTES:

1. The restraint values as indicated by the "Restraint Table" are minimum values. Design engineer shall be responsible for confirming field conditions, and make adjustments accordingly.
2. All fittings shall have restrained joints unless otherwise indicated.
3. No restraints required if continuous pipe length to fitting is greater than value provided in "Restraint Table" above.
4. Where two or more fittings are laid in-line, use greatest restraint length for coverage.
5. For in-line valves and through run of tees: outside limits of restrained joints from other fittings need not be restrained unless otherwise indicated.
6. Lengths shown in the table have been calculated in accordance with the procedures outlined in "Thrust Restraint Design for Ductile Iron Pipe" as published by DIPRA, with the following assumptions:

   Working Pressure: 150 PSI
   Soil Designation: SM (Silty Sand, Sand-Silt Mix.)
   Laying Conditions: 5

7. For pipe sizes not included in the Restraint Table or pipe material not adhering to given conditions, design engineer shall determine and specify pipe lengths which shall be approved by the City.

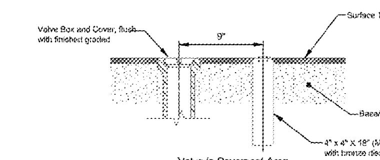
DETAIL NO.	CITY OF OCOEE CONSTRUCTION DETAILS
UT104	Restrained Pipe Table
DATE: Jan. 2016	SCALE: n/a



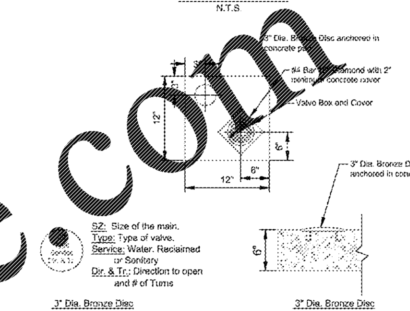
NOTES:

1. When construction is within foot jurisdiction, additional requirements of the utility accommodation guide shall be met.
2. Casing spacers, as specified in section 33.4.4. of the manual, may be required by the city of may be substituted in lieu of wood skids and banding strap.
3. Larger skids shall be required for pipe greater than 24" diameter.
4. Where practical, casing shall extend 10' beyond edge of pavement and shall not be less than 6' beyond edge of pavement in any case. The city may require longer casings for deeper bores.

DETAIL NO.	CITY OF OCOEE CONSTRUCTION DETAILS
UT106	Boring & Jacking
DATE: Mar. 2016	SCALE: n/a



Valve in Pavement Area
N.T.S.

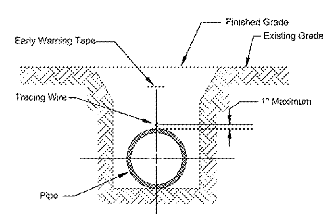


Valve in Non-Pavement Area
N.T.S.

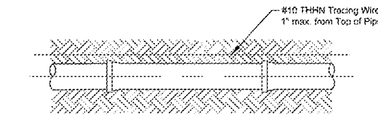
WARNING TAPE NOTES:

1. Bronze identification disc shall be required for all valves as required by the City.
2. Exact shape and size of bronze disc shall be approved by the City.
3. Valve collar shall be 24" x 24" x 6" for bronze disc applications, and 18" x 18" x 6" all other locations.
4. Concrete for collar shall be fc' of 2,500 PSI minimum @ 28 days.
5. Valve box top and collar shall be even with sod, with grading transitioned over 5'.

DETAIL NO.	CITY OF OCOEE CONSTRUCTION DETAILS
UT107	Valve Collar
DATE: Dec. 2015	SCALE: n/a



Cross Section

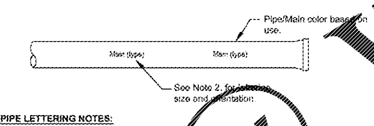


Transverse Section

NOTES:

1. All pipe shall include the installation of #10 THHN copper tracing wire capable of detection by cable locating equipment.
2. Tracing wire shall be buried directly above the transverse centerline of the pipe.
3. End(s) of the locating wire shall be such that wire can be accessed by locating equipment assessing the wire in a valve vault or blowoff box. Wire is required to extend 12" minimum above finished grade.
4. Unless approved by the City, early warning tape indicating the type of pipe shall be required.
5. All directional drill pipe shall have locating wire attached to the top of pipe and shall remain on top of the pipe during installation.
6. All service lines shall have locating wire placed on the pipe as described in City of Ocoee detail UT405 "Utility Service Connection"

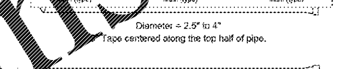
DETAIL NO.	CITY OF OCOEE CONSTRUCTION DETAILS
UT108	Pipe Locating Wire
DATE: Jan. 2016	SCALE: n/a



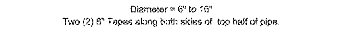
PIPE LETTERING NOTES:

1. Lettering shall be per the American Water Works Association.
2. Lettering shall be a minimum of 3/4" in height and shall be bearing up when the pipe is installed.
3. Lettering must be permanently imbedded into the pipe/main, not painted or stenciled.
4. Lettering shall be of contrasting color to pipe/main color.

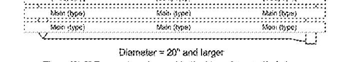
Pipe Marking (Lettering)
N.T.S.



Diameter = 2.5" to 4"
Tape centered along the top half of pipe.



Diameter = 6" to 16"
Two (2) 6" Tapes along both sides of top half of pipe.



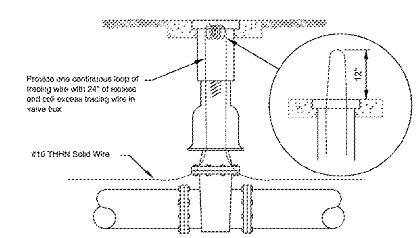
Diameter = 20" and larger
Three (3) 6" Tapes along top and both sides of top half of pipe.

Warning Tape
N.T.S.

WARNING TAPE NOTES:

1. Tape color shall be in accordance with (same) as main/pipe color.
2. Tape lettering shall be at least 1" in height with no greater than 12" in spacing.
3. Warning tape shall extend total length of pipe.

DETAIL NO.	CITY OF OCOEE CONSTRUCTION DETAILS
UT111	Pipe Identification & Warning Tape
DATE: Feb. 2016	SCALE: n/a



NOTES:

1. All pipe shall be installed with # 10 THHN solid copper tracing wire. Tracing wire must be installed directly above the pipe in a continous circuit.
2. Tracing wire shall cover all main, pipe, branches (including fire hydrants) and service connections.
3. Tracing wire shall extend a minimum of 12" above grade at required intervals and/or valve lids.
4. Tracing wire shall be coiled and placed in a valve box and shall be easily accessible.
5. At dead ends of mains, pipe, and/or service, the tracing wire shall be placed in a properly identified PVC valve box.

DETAIL NO.	CITY OF OCOEE CONSTRUCTION DETAILS
UT112	Tracing Wire Location
DATE: Feb. 2016	SCALE: n/a

ORANGE COUNTY UTILITIES
STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL

APPENDIX A **STANDARD DRAWINGS** **GENERAL**

DATE: February 11, 2011 **SEPARATION REQUIREMENTS FOR WATER, WASTEWATER AND RECLAIMED WATER MAINS** **FIGURE A116**

HORIZONTAL & VERTICAL SEPARATION REQUIREMENTS								
PROPOSED UTILITY	POTABLE WATER		RECLAIMED WATER		WASTEWATER (GRAVITY & FM)		STORM SEWER	
	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT
POTABLE WATER	3' NOTE 1	12"	3' NOTE 1 & 3	12" NOTE 3	6' NOTE 3	12" NOTE 3	3' NOTE 1 & 3	12"/18" NOTE 2 & 3
RECLAIMED WATER	3' NOTE 1 & 3	12" NOTE 3	3' NOTE 1	12"	3' NOTE 1	12"	3' NOTE 1	12"/18" NOTE 2
WASTEWATER (GRAVITY AND FM)	6' NOTE 3	12" NOTE 3	3' NOTE 1	12"	3' NOTE 1	12"	3' NOTE 1	12"/18" NOTE 2
RIGHT OF WAY	3' NOTE 1	N/A	3' NOTE 1	N/A	3' NOTE 1	N/A	N/A	N/A

NOTES.

1. THIS SEPARATION REQUIREMENT IS TO PROVIDE ACCESSIBILITY FOR CONSTRUCTION AND MAINTENANCE. THREE FEET OF HORIZONTAL SEPARATION IS THE MINIMUM FOR PIPES WITH THREE FEET OF COVER. FOR PIPES INSTALLED AT GREATER DEPTHS, PROVIDE AN ADDITIONAL FOOT OF SEPARATION FOR EACH ADDITIONAL FOOT OF DEPTH.
2. THE 18-INCH SEPARATION REQUIREMENT APPLIES WHEN THE STORM PIPE CROSSES ABOVE THE OCU MAIN, AND WHEN THE STORM PIPE HAS A DIAMETER EQUAL TO OR GREATER THAN 24 INCHES. OTHERWISE, THE REQUIRED SEPARATION IS 12 INCHES.
3. THIS SEPARATION REQUIREMENT COMPLIES WITH MINIMUM FDEP SEPARATION REQUIREMENTS OUTLINED IN 62-555.314, FAC. VARIANCES FROM THE FDEP REQUIREMENTS MUST COMPLY WITH 62-555.314(5), FAC AND MUST BE APPROVED INDIVIDUALLY BY BOTH FDEP AND OCU.
4. DISTANCES GIVEN ARE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
5. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF SANITARY OR STORM WATER MANHOLE OR STRUCTURE.

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4950 W. KENNEDY BLVD, SUITE 600
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ThomasEngineeringGroup.com

REV.	DATE	DRN / CHK	DESCRIPTION
2	05/15/2019	CTD / CTD	PER CITY OF OCOEE COMMENTS 5/13/19
1	01/17/2019	AG / CTD	PER CITY OF OCOEE COMMENTS 3/29/19

DOCUMENT CONTROL

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DOLLAR TREE

OCOEE, FL

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