



D <sub>1</sub>	24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	90"	96"
T	2.50"	3.00"	3.50"	4.00"	5.00"	5.50"	6.00"	6.50"	7.00"	8.00"	8.50"	9.00"
A	3.75"	3.75"	4.25"	4.75"	6.50"	7.50"	8.00"	8.00"	8.50"	9.50"	10.00"	10.50"
Min. Rad.	60'	75'	90'	100'	120'	125'	130'	132'	135'	140'	143'	145'

**CAST-IN-PLACE CONCRETE PIPE (TRENCHING DETAIL)**

**NOTES:**

- Steps shall be 3/4" round, galvanized steel and anchored not less than 6" in the walls of the structures. Unless otherwise shown, steps shall be placed 1'-4" O.C. The lowest step shall not be more than 2.5' above the invert of the pipe.
- Laterals shall be joined to cast-in-place manhole with at least 1-8' long joint of reinforced concrete pipe.
- Laterals size shall be limited to D<sub>2</sub> < D<sub>1</sub>/2. Where D<sub>2</sub> > D<sub>1</sub>/2, construct Junction Structure per Std Plan.
- All reinforcing steel shall be 1/2" round, deformed, straight bars 1 1/2" clear from face of concrete.
- Rings, reducer, and pipe for access shaft shall be sealed in 1:2 mortar and neatly pointed or wiped inside shaft.
- Manhole shaft shall be 4' when depth of cover M > 15'.
- Concrete - f'c = 4,000 psi at 28 days.
- When trench height is above machine shields, the trench walls shall be sloped back to the angle of repose of the soil or a side slope of 3/4:1, whichever is the flatter slope.
- Raise manhole frames and cover 18" above finish surface when in unpaired areas.



4-2-04  
DATE APPROVED  
*[Signature]*  
PUBLIC WORKS DIRECTOR/C.E.  
*[Signature]*  
ASSISTANT CITY ENGINEER

CITY OF ORANGE PUBLIC WORKS DEPARTMENT  
CONSTRUCTION DETAILS  
CAST-IN-PLACE CONCRETE PIPE

STANDARD  
PLAN No.  
318