

**STORMWATER DRAINAGE - GENERAL NOTES**

1. REINFORCED CONCRETE PIPE SHALL BE ASTM DESIGNATION C76 CLASS III. IDENTIFICATION NON-DETECTABLE UNDERGROUND WARNING TAPE SHALL BE PLACED 24 IN. ABOVE TOP OF THE PIPE FOR ENTIRE LENGTH OF PIPE OF ALL CLOSED CONDUIT STORMWATER DRAINAGE SYSTEMS. TAPE SHALL BE A MINIMUM 4 MIL OVERALL THICKNESS AND BE 6 IN. WIDE, APWA GREEN IN COLOR, COLORFAST, CHEMICALLY INERT, AND WITH BLACK LETTERING IMPRINTED LEGEND "CAUTION BURIED STORMWATER DRAIN BELOW." SEE G-8 NOTE 7.
2. PRE-CAST INLETS AND MANHOLES SHALL BE PER TXDOT GUIDE TO THE STANDARD INLET AND MANHOLE PROGRAM STANDARDS. CAST-IN-PLACE INLETS AND MANHOLES SHALL BE PER COW STANDARDS.
3. SEE PLAN-PROFILE SHEETS FOR INLET SIZE, LOCATION AND ELEVATIONS.
4. WHERE GROUNDWATER IS ENCOUNTERED, ALL LOOSE AND SPONGY MATERIAL WILL BE REMOVED AND 6 IN. MINIMUM DEPTH OF AGGREGATE MEETING ASTM 57 SPECIFICATIONS SHALL BE INSTALLED FOR BASE.
5. AGGREGATE MEETING ASTM 57 SPECIFICATIONS INCLUDING GRADATION AS SHOWN IN THE TABLE BELOW SHALL BE COMPACTED BY MECHANICAL/VIBRATORY COMPACTION METHODS.

ASTM 57 GRADATION SPECIFICATIONS	
SIEVE SIZE	PERCENTAGE PASSING
1 1/2 IN.	100
1 IN.	95-100
1/2 IN.	25-60
#4	0-10
#8	0-5

6. THE SIZE AND SPACING OF INLETS MUST COMPLY WITH CURRENT CITY DRAINAGE POLICIES.
7. MANHOLE INLET RING AND COVER FOR PRE-CAST AND CAST-IN-PLACE STRUCTURES SHALL BE IN ACCORDANCE WITH STANDARD DETAIL [SD-9](#).
8. TOP OF INLET SLOPE SHALL CONFORM TO ADJACENT PARKWAY GRADES AND NOT EXCEED 1/2 IN. PER FOOT SLOPE.
9. CONCRETE FOR INVERTS ON ALL MANHOLES AND INLETS SHALL BE PLACED AND SHAPED WITH THE CONCRETE THICKNESS RANGING FROM THE THICKNESS OF THE RCP TO 8 IN.

**CAST-IN-PLACE GENERAL NOTES:**

10. IN ACCORDANCE WITH [G-7](#) NOTE 6, PRIOR TO PLACEMENT OF CONCRETE FOR A DIAMOND IN PAVEMENT FOR A STORMWATER DRAINAGE MANHOLE, MATERIAL BELOW SHALL BE COMPACTED / RE-COMPACTED TO 95% STANDARD PROCTOR DENSITY AT ±2% OPTIMAL MOISTURE CONTENT.
11. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 POUNDS PER SQUARE INCH AT 28 DAYS UNLESS OTHERWISE NOTED. DESIGN MIX FOR 3000 POUND CONCRETE SHALL CONTAIN A MINIMUM OF 5 SACKS OF CEMENT PER CUBIC YARD.
12. REINFORCING STEEL COVER SHALL BE MINIMUM 2 IN. FORMED AND 3 IN. AGAINST EARTH IF UNFORMED FROM OUTSIDE LAYER OF STEEL TO FACE OF CONCRETE.
13. REINFORCED STEEL SHALL BE NEW BILLETED CONFORMING TO ASTM SPECS A615 GRADE 60 OR LATEST REVISIONS.
14. CONSTRUCTION JOINTS WILL BE PERMITTED AS SHOWN ON PLANS.
15. DIMENSIONS RELATING TO REINFORCING STEEL SHALL BE TO OUTSIDE OF BAR NEAREST TO FACE OF CONCRETE.
16. CITY OF WACO INLET SIZES NOTED ON PLAN & PROFILE SHEETS REFER TO DIMENSION "A". DIMENSION "A" MINIMUM IS 10 FEET.
17. PLACE MANHOLE RING & COVER ADJACENT TO OUTLET PIPE SOFFIT AT BACK WALL.
18. BARS SHALL BE SUPPORTED, SPACED AND ACCURATELY SECURED IN PLACE IN ACCORDANCE WITH SPECIFICATIONS FOR PLACING REINFORCEMENT AND FOR PLACING ACCESSORIES MEETING THE REQUIREMENTS OF THE CURRENT ACI MANUAL OF STANDARD PRACTICE FOR DETAILS AND DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315) WITH LATEST REVISIONS.
19. ALL INTERSECTING WALLS, TOPS, FLOORS, SHALL HAVE "L" BARS IN CORNERS LAPPED 40 BAR DIAMETERS.
20. ALL EXPOSED CORNERS SHALL BE TOOLED OR CHAMFERED TO A 1/2 IN. RADIUS.

**PRE-CAST GENERAL NOTES:**

21. PRE-CAST INLET SIZES NOTED ON PLAN & PROFILE SHEETS REFER TO DIMENSION "A". DIMENSION "A" MINIMUM IS 10 FEET.
22. PRECAST INLETS, MANHOLES, AND JUNCTION BOXES SHALL BE BEDDED WITH MIN. 6 IN. DEPTH OF AGGREGATE MEETING ASTM 57 SPECIFICATIONS TO A MINIMUM DISTANCE OF 12 IN. OUTSIDE PERIMETER.
23. FOR PRE-CAST AREA ZONE DRAIN (PAZD) CAST-IN-PLACE REINFORCED CONCRETE APRON IS REQUIRED. THE MINIMUM WIDTH OF THE CONCRETE APRON SHALL BE 3 FT. WITH 4 IN. VERTICAL CHANGE IN GRADE AND HAVE A PERIMETER TOEWALL OF 24 IN. DEPTH AND 9 IN. WIDTH. REINFORCING SHALL BE #4 BARS AT 12 IN. OCEW. AT THE CONSTRUCTION JOINT WITH PAZD SHALL BE PLACED 2 #4 DEFORMED TIE BARS 24 IN. LONG AT EACH CORNER PERPENDICULAR TO ONE ANOTHER AND PENETRATING WALLS 12 IN.



**ENGINEERING DIVISION**

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REVISIONS			
NO.	COMMENTS	BY	DATE
1	MODIFY NOTES 7 & 9; ADD NOTES 10 & 22; RENUMBER NOTES	MZ	04/19/2024
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**SD-1**