1. All concrete shall be 6 Sack PCC per CU per Section 90 of the STATE STANDARD SPECIFICATIONS.

2. The curb opening shall be as shown on plan, but not less than 4 feet for Type 1, 10 feet for Type 2.

3. Provide 3 inch radius rounded edge at pipe inlet.

4. Manhole cover shall be lettered with the words "Storm Drain" unless otherwise specified in plans.

5. Top slab surface shall be a light broom finish.


7. Gutter depression shall be Type B OR Type B1, Standard Detail STM-5 or Standard Detail STM-6 unless otherwise specified on plans.

8. Reinforcing steel in the top slab shall be #4 @12 inches on center.

9. Wall thickness (T) and reinforcing requirements shall be per Table A, Standard Details STM-2 and STM-3.

10. Clear drying fugitive dye curing compound shall be applied to all exposed surfaces immediately after finishing.

11. Aggregate base shall be placed 6 inches deep and compacted to 95% minimum relative compaction on undisturbed native soil before placing concrete.

12. Manhole shall be set 6 inches from inside wall of inlet.

13. All interior walls, floor, and top shall be sacked and patched upon completion.

14. Extend top slab rebar 4" into walls of drop inlet and 12" into adjacent curbs and sidewalks.

15. Install "Drains to Ocean" medallion on top slab per Standard Details STM-2 and STM-3.

16. An American Storm Water "Surf Gate" catch basin debris screen may be required at discretion of Public Works Director/City Engineer.

17. Drain inlet openings may vary in length, as determined by the Engineer/Designer.

18. Manhole frame and cover shall be GMI Composites 2400 Series lockable, non-metallic, AASHTO H-20 load rated, or approved equivalent. Label as "Storm Drain."
DRAIN INLET - TYPE 1

SECTION A-A

<table>
<thead>
<tr>
<th>CONCRETE</th>
<th>REINFORCING</th>
</tr>
</thead>
<tbody>
<tr>
<td>H RANGE</td>
<td>T (TYP.)</td>
</tr>
<tr>
<td>LESS THAN 4'</td>
<td>6''</td>
</tr>
<tr>
<td>4' - 8'</td>
<td>8''</td>
</tr>
<tr>
<td>*4' - 8'</td>
<td>6''</td>
</tr>
<tr>
<td>GREATER THAN 8'</td>
<td>8''</td>
</tr>
</tbody>
</table>

*OPTIONAL

SECTION B-B

PLAN

FRAME & COVER 22‘ CLEAR OPEN (SEE NOTE 20, STD. DET. STM-1)
REBAR SHALL EXTEND 4” INTO DROP INLET WALLS
6” @ MID-DEPTH CURB FACE
INSTALL "DRAINS TO OCEAN" MEDALLION PER STOPPP
PLAN

REQUIRED 2’ TOP BAR HOOK
1.5% OR MATCH EXISTING SIDEWALK
FACE PLATE, SEE STD. DET. STM-4
GUTTER FL
GUTTER DEPRESSION STD. DET. STM-5 OR STM-6
CONNECTOR PIPE
CLASS II CRUSHED AGGREGATE BASE

SECTION A-A

<table>
<thead>
<tr>
<th>H RANGE</th>
<th>T (TYP.)</th>
<th>BOTTOM</th>
<th>SIDES</th>
<th>TOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>LESS THAN 4'</td>
<td>6''</td>
<td>NONE</td>
<td>NONE</td>
<td>#4@12''</td>
</tr>
<tr>
<td>4' - 8'</td>
<td>8''</td>
<td>NONE</td>
<td>NONE</td>
<td>#4@12''</td>
</tr>
<tr>
<td>*4' - 8'</td>
<td>6''</td>
<td>#4@18''</td>
<td>#4@18'</td>
<td>#4@12''</td>
</tr>
<tr>
<td>GREATER THAN 8'</td>
<td>8''</td>
<td>#4@12''</td>
<td>#4@12'</td>
<td>#4@12''</td>
</tr>
</tbody>
</table>

*OPTIONAL

TABLE A

DRAWN BY: CSG   SCALE: N.T.S.
CHECKED BY:     
LAST REVISED: 8/6/14

SECTION: STORM DRAIN  
DRAWING NO.: STM-2  

APPROVED BY: 

RICHARD J. STEVENS  
CITY ENGINEER  
8-18-14
FRAME & COVER 22" CLEAR OPEN
(SEE NOTE 20, STD. DET. STM-1)

REBAR SHALL EXTEND
4" INTO DROP INLET WALLS

OUTLET PIPE

INSTALL "DRAINS TO OCEAN" MEDALLION
PER STOPPP

CURB FACE

REBAR SHALL EXTEND
12" INTO ADJACENT CURB

PLAN

STREET GUTTER FL

L - 4' MIN. (SEE NOTE 17, STD. DET. STM-1)

VARIABLE - 6.5' MIN.

SECTION B-B

SECTION A-A

1.5% OR MATCH
EXISTING SIDEWALK

FACE PLATE, SEE
STD. DET. STM-4

GUTTER FL

GUTTER DEPRESSION
STD. DET. STM-5 OR STM-6

CONNECTOR PIPE

CRUSHED
AGGREGATE BASE

SECTION

H RANGE | CONCRETE | REINFORCING
---|---|---
| T (TYP.) | BOTTOM | SIDES | TOP |
*LESS THAN 5' | 8" | NONE | NONE | #4@12"
5' - 8' | 8" | NONE | NONE | #4@12"
**5' - 8' | 6" | #4@18" | #4@18" | #4@12"
GREATER THAN 8' | 8" | #4@12" | #4@12" | #4@12"

*REQUIRES SPECIAL APPROVAL BY CITY ENGINEER/DPW
**OPTIONAL

TABLE A

DROP INLET-TYPE 2

DRAWN BY: CSG
CHECKED BY: DS
LAST REVISED: 8/6/14

SECTION: STORM DRAIN
DRAWING NO.: STM-3

APPROVED BY:

CITY ENGINEER

DATE: 8-18-14

SCALE: N.T.S.
NOTES:

1. FACE PLATE SHALL BE ALHAMBRA FOUNDRY A-3912 OR APPROVED EQUAL, EMBEDDED 3" INTO SIDEWALKS.

2. SUPPORT BOLTS SHALL BE INSTALLED, WHEN CURB OPENING EXCEEDS 7" AND SHALL BE SPACED EVENLY NOT MORE THAN 7' AND NOT LESS THAN 5' ON CENTER.

3. 3/4" DIAMETER LONGITUDINAL PROTECTION BAR ASSEMBLY SHALL BE INSTALLED WHEN INLET CURB OPENING IS MORE THAN 4". THE PROTECTION BAR SHALL BE FITTED TO EACH SUPPORT BOLT.

4. INLET OPENING SHALL BE EQUAL TO THE EXISTING CURB HEIGHT PLUS 3".

TYPICAL SECTION OF DROP INLET THROAT
NOTES:

1. GUTTER DEPRESSION, CURB TRANSITION AND STRUCTURE'S TOP SLAB SHALL BE POURED MONOLITHIC.
2. SURFACE FINISH OF GUTTER DEPRESSION SHALL BE LIGHT BROOM FINISH.
3. THE WIDTH OF THE DEPRESSED GUTTER SHALL MATCH STREET GUTTER WIDTH.
4. CONCRETE STRENGTH AND CURING COMPOUND PER STANDARD DETAIL STM-1.
5. GUTTER DEPRESSION SHALL BE 3".
6. DEEP JOINT SHALL BE 2" DEEP.

GUTTER DEPRESSION - TYPE B

STORM DRAIN

DRAWN BY: CSG
CHECKED BY: LAST REVISED: 06/14
SCALE: N.T.S.
SECTION: STM-5

CITY OF GIBSON CITY ENGINEER

8-18-14
1. GUTTER DEPRESSION, CURB TRANSITION AND STRUCTURE'S TOP SLAB SHALL BE Poured MONOLITHIC.
2. SURFACE FINISH OF GUTTER DEPRESSION SHALL BE LIGHT BROOM FINISH.
3. THE WIDTH OF THE DEPRESSED CUTTER SHALL MATCH STREET CUTTER WIDTH.
4. CONCRETE STRENGTH AND CURING COMPOUND PER STANDARD DETAIL STM-1.
5. GUTTER DEPRESSION SHALL BE 3".
6. DEEP JOINT SHALL BE 2" DEEP.

GUTTER DEPRESSION - TYPE B1

DRAWN BY: CSG  SCALE:  N.T.S.
CHECKED BY:  LAST REVISED: 8/6/14
STORM DRAIN  DRAWING NO.: STM-6

APPROVED BY:  
8-18-14  DATE

CITY ENGINEER
FIBERSHED MANHOLE COVER
(WITH H2O LOADING AND
INTEGRATED LOCKING SYSTEM)
OR EQUAL

NOSING ANGLE
3.5"x2.5"x25"

1/2" DIA. GUARD ROD

NOTE:
1. SHIM BACK JOINT TO CREATE TOP SLOPE

ISOMETRIC

1.5% OR MATCH
EXISTING SIDEWALK

47"

5"

24" DIA.

35"

SECTION A-A

B6" CURVED PLATE

1/2" DIA. ANCHOR
EACH END

ANCHOR WITH
.300° POWDER
ACTIVATED
FASTENER WITH
WASHER

SECTION B-B
CURVED PLATE NOSING ANGLE

PVC GUTTER RADIUS FORM
GUTTER RADIUS 6"

SECTION C-C

PRE-CAST DROP INLET
(UP TO 24" PIPE)

DRAWN BY: CSG
CHECKED BY:
LAST REVISION: 8/6/14
N.T.S.

SECTION:
STORM DRAIN

APPROVED BY:
CITY ENGINEER
8-18-14
DATE

DRAWING NO.: STM-7A
PRE-CAST DROP INLET
(UP TO 24" PIPE)

STORM DRAIN

DRAWING NO.: STM-7B

CITY ENGINEER
DATE: 8-18-14

CITY OF GLOUCESTER

DRAWN BY: CSG
CHECKED BY:
LAST REVISED: 10/9/14

SCALE: N.T.S.
NOTE:
REINFORCING STEEL SHALL BE REQUIRED IN WALLS OF DROP INLETS WHICH ARE GREATER THAN 6' IN DEPTH. HORIZONTAL AND VERTICAL BARS SHALL BE #4, SPACED 12" O.C. AND PLACED BETWEEN 1 1/2" AND 2 1/2" FROM SURFACE OF INSIDE WALL.

PLAN

SECTION A-A

SECTION B-B

STANDARD FIELD INLET (24" X 36")

STORM DRAIN

DRAWING NO.: STM-8

N.T.S.
INSTALL MANHOLE FRAME AND COVER TO FINISH GRADE BEFORE PLACING LAST LIFT OF PAVING. SEE STM-1 NOTE 18.

STREET SURFACE

CONCRETE COLLAR Poured IN PLACE

CONCRETE GRADE RINGS @ 18" MIN. HEIGHT AND 24" MAX. HEIGHT

ECCENTRIC CONE

MORTAR (TYP. ALL JOINTS)

18", 24", 36", OR 48" PRECAST RISER SECTIONS AS NEEDED

5'-0" DIAMETER MANHOLE FOR 39" TO 48" I.D. PIPE

4'-0" DIA. MANHOLE FOR 36" AND SMALLER PIPE

FORM GROOVE IN BASE

#4 BARS @ 12" O.C. EACH WAY IN 5'-0" DIAMETER MANHOLES ONLY

3" min.

4'-8 1/4" FOR 4'-0" DIA. M.H. 5'-10 1/4" FOR 5'-0" DIA. M.H.

NOTES:
1. MANHOLE STEPS ARE NOT REQUIRED.
2. 500' MAX. SPACING BETWEEN MANHOLES.

STANDARD STORM DRAIN MANHOLE

DRAWN BY: CSC  CHECKED BY:  SCALE: N.T.S.

CHECKED BY:

LAST REvised: 8/6/14

SECTION:
STORM DRAIN

DRAWING NO.: STM—9

APPROVED BY:

8-18-14

DATE

CITY ENGINEER
Typical standard manhole

Pour concrete collar around R.C.P. penetration on all storm drain laterals.

Shape smooth channel

Make smooth grout finish around pipe end and interior wall.

SECTION A-A

Shape and trowel smooth channel

Connecting main or lateral

Main

PLAN

TYPICAL MANHOLE CONNECTION

DRAWN BY: CSC
CHECKED BY:
LAST REVISED: 6/19/14
SCALE: N.T.S.

SECTION: STORM DRAIN

DRAWING NO.: STM-10

APPROVED BY:

R. L. Snyder
CITY-ENGINEER

DATE: 8-18-14
### TABLE OF INTERNAL DIAMETERS AND WALL THICKNESS

<table>
<thead>
<tr>
<th>Nominal internal diameter in inches</th>
<th>Minimum wall thickness in inches</th>
<th>&quot;T&quot; in inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 to 30</td>
<td>3</td>
<td>3 3/4</td>
</tr>
<tr>
<td>33 or 36</td>
<td>3 1/2</td>
<td>4 1/4</td>
</tr>
<tr>
<td>42</td>
<td>4</td>
<td>4 3/4</td>
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<tr>
<td>48</td>
<td>5</td>
<td>6 1/2</td>
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<tr>
<td>54</td>
<td>5 1/2</td>
<td>7 1/2</td>
</tr>
<tr>
<td>60</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>65</td>
<td>6 1/2</td>
<td>9</td>
</tr>
<tr>
<td>72</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>84</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>96</td>
<td>9</td>
<td>10 1/2</td>
</tr>
</tbody>
</table>

Native backfill @ 95% relative compaction

Sand backfill @ 95% relative compaction

No. 4 x 23" long steel dowels @ 18" O.C. required when time interval between pours exceeds thirty minutes

See table for pipe thickness and wall diameters

I.D. of pipe + 2"

12" Max

12" Min

Varies

2 Mil polyethylene moisture barrier

No. 6 sack Class "A" PCC. All concrete to be mechanically vibrated. Pipe to be machine extruded.

Undisturbed earth

CAST IN PLACE CONCRETE PIPE

**DRAWN BY:** CSC **CHECKED BY:** **SCALE:** N.T.S.

**SECTION:** STORM DRAIN **DATE:** 8-18-14

**APPROVED BY:**

R.H. SLOAN, CITY ENGINEER