STORM SEWER NOTES
(ISSUE DATE: 04-20-18)
(THese NOTES ARE CONSIDERED SUPPLEMENTAL TO THE GENERAL CONSTRUCTION NOTES)

1. STORM SEWER CONSTRUCTION SHALL CONFORM TO THE CITY OF HUNTSVILLE SPECIFICATIONS FOR STORM SEWER CONSTRUCTION.

2. ALL STORM SEWER TO BE ASTM C-76, CLASS III REINFORCED CONCRETE PIPE WITH RUBBER GASKETED JOINTS CONFORMING TO ASTM C443. CLASS IV RCP REQUIRED UNDER PAVEMENT WITH LESS THEN 2' OF COVER.

3. ALL STORM SEWER INLETS SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND (1.5 SACKS PER TON). ALL BEDDING SHALL BE CLASS “AA”. ALL STORM SEWERS TO BE INSPECTED BY THE CITY PRIOR TO BACKFILL.

4. ALL STORM SEWER TRENCHES UNDER PROPOSED AND FUTURE PAVEMENT OR WITHIN THREE-FOOT (3') FROM BACK OF CURB TO BE BACKFILLED WITH CEMENT STABILIZED SAND (1.5 SACKS PER TON) TO A POINT OF ONE FOOT (1') BELOW PAVEMENT SUBGRADE. THE REMAINING BACKFILL TO BE MADE WITH COMPACTED SELECT MATERIAL. COST OF BACKFILL AND BEDDING TO BE INCLUDED IN UNIT PRICE PER LINEAR FOOT OF PIPE.

5. HIGH DENSITY POLYETHYLENE PIPE MAY BE SUBSTITUTED ON PRIVATE PROPERTY AND ON PUBLIC ROW (ON A CASE-BY-CASE BASIS), APPROVED BY THE CITY ENGINEER, FOR REINFORCED CONCRETE PIPE SUBJECT TO THE FOLLOWING:

   a) FOR PIPES 36" AND SMALLER - CEMENT STABILIZED SAND PLACED BEFORE PIPE IS LAID, TO 7" MIN. BEDDING DEPTH. FOR SEWERS 42"-60" CEMENT STABILIZED SAND PLACED BEFORE PIPE IS LAID, TO 10" MIN. BEDDING DEPTH. THE SIDES SHALL BE 12" MIN. FROM EDGE OF TRENCH TO SPRINGLINE.

   b) CEMENT STABILIZED SAND SHALL BE THOROUGHLY RODDED, PLACED AND COMPACTED TO 95% STANDARD PROCTOR DENSITY 1'-0" ABOVE THE TOP OF PIPE, AFTER PIPE IS LAID.

   c) PIPE AND FITTINGS: THE TYPES OF PIPE WILL BE INDICATED ON THE DRAWINGS BY THE FOLLOWING DESCRIPTION CONFORMING TO AASHTO M 252, AASHTO M 294, AND/OR AASHTO MP6-95, LATEST EDITION. PIPE DESCRIPTION: CPP (CORRUGATED POLYETHYLENE PIPE). 

   d) TYPE S (THIS PIPE SHALL HAVE A FULL CIRCULAR CROSS-SECTION, WITH AN OUTER CORRUGATED PIPE WALL AND A SMOOTH INNER LINE).
PRIVATE DRAINAGE AND DETENTION POND OPERATION AND MAINTENANCE REQUIREMENTS

AS-BUILT REQUIREMENTS
1. PRIOR TO FACILITY OCCUPANCY, THE ENGINEER OF RECORD (EOR) WILL PROVIDE AS-BUILT DRAWINGS CERTIFYING THE POND SYSTEM DESIGN AND THE VALUE PROVIDED IS IN ACCORDANCE TO THE APPROVED PLANS. THE OWNER OR THEIR DESIGNATED REPRESENTATIVE WILL BE RESPONSIBLE FOR PROVIDING SIGNAGE IDENTIFYING THE RESPONSIBLE CONTACT AND PHONE NUMBER FOR CONTINUED OPERATION AND MAINTENANCE OF THE POND IN ACCORDANCE TO THE APPROVED PLANS.

SITE INSPECTIONS AND REPORTING REQUIREMENTS
1. THE OWNER OR THEIR DESIGNATED REPRESENTATIVE WILL BE RESPONSIBLE FOR INSPECTING THE SITE TO ENSURE THAT ALL SYSTEMS ARE MAINTAINED AND ARE IN GOOD WORKING CONDITION.

ROUTINE INSPECTIONS
1. ROUTINE INSPECTIONS WILL DICTATE MAINTENANCE REQUIREMENTS FOR GENERAL ITEMS AT THE SITE INCLUDING (IF APPLICABLE TO SITE), LOCKS, FENCING, SIGNAGE, AND ROAD/ACCESS CONDITIONS.
2. DEFECTIVE OR MISSING LOCKS WILL BE REPLACED AND WILL BE KEYED TO MATCH ALL OTHER SITE LOCKS.
3. MISSING OR DAMAGE CHAIN LINK FENCE WILL BE REPAIRED OR REPLACED, AS NEEDED. FENCING REPAIR OR REPLACEMENT WILL BE IN ACCORDANCE WITH SPECIFICATIONS FROM THE ORIGINAL DESIGN PLANS.
4. DAMAGE OR MISSING SIGNS WILL BE REPLACED WITH A SIMILAR TYPE SIGN.
5. ROADWAY SURFACES WHICH ARE DAMAGED WILL BE REPAIRED IN ACCORDANCE TO THE ORIGINAL PLAN SPECIFICATIONS.
6. SURFACE WATER DITCHES AND DETENTION PONDS WILL BE OBSERVED FOR EROSION OR SEDIMENT BUILD-UP, WHICH COULD RESULT IN OVERTOPPING AND SEVER EROSION DOWN-SLOPE.

SPECIAL INSPECTIONS AFTER MAJOR HURRICANE OR TORNADO EVENTS
1. SPECIAL UNSCHEDULED INSPECTIONS WILL BE CONDUCTED AS NECESSARY AT THE SITE AFTER MAJOR HURRICANE OR TORNADO EVENTS. EVERY ATTEMPT WILL BE MADE TO HAVE THESE INSPECTIONS CONDUCTED WITHIN SEVERAL DAYS AFTER THE STORM EVENT TO ENSURE FENCING IS STILL IN PLACE AND MAJOR DAMAGE TO THE FACILITIES HAS NOT OCCURRED. ANY REPAIR WILL BE CONDUCTED AS SOON AS POSSIBLE.

MONTHLY MAINTENANCE
1. THE MAJORITY OF THE SITE WAS PLANTED WITH A TYPE OF DEFINITIVE GRASS, AS NOTED ON THE PLANS. TYPICALLY, THESE AREAS WILL REQUIRE MOWING TWICE A MONTH FROM APRIL THROUGH OCTOBER, AND MONTHLY MOWING FROM NOVEMBER THROUGH MARCH.

ANNUAL MAINTENANCE
1. ANNUAL MAINTENANCE OF THE SITE MAY INCLUDE FERTILIZING AND RESEEDING THE SITE, AS NECESSARY.

SURFACE MAINTENANCE
1. INSPECTIONS PERFORMED AS PART OF THE SCHEDULED ROUTINE INSPECTIONS AT THE SITE, WILL DICTATE MAINTENANCE REQUIREMENTS FOR THE SITE. THE ITEMS TO BE ROUTINELY INSPECTED INCLUDE SURFACE WATER RUNOFF CONTROL, PONDED WATER, PRESENCE OR EROSION OR GULLYING, AND WHETHER OR NOT THE TOPSOIL AND VEGETATION ARE INTACT.
2. THE SITE WILL BE INSPECTED TO DETERMINE WHETHER IT DRAINS WITHOUT PONDING AND EROSION.
3. TOPSOIL WILL BE INSPECTED FOR EROSION, SETTLEMENT, AND CRACKING. TOPSOIL WILL BE ADDED AS NECESSARY TO MAINTAIN DRAINAGE CHARACTERISTICS IN ACCORDANCE WITH THE ORIGINAL SPECIFICATIONS.
4. TOPOGRAPHIC SURVEYING OF THE DETENTION POND AND STORM DRAINAGE SYSTEM MAY NEED TO BE PERIODICALLY PERFORMED TO VERIFY FUNCTIONALITY OF THE SYSTEM.

SURFACE WATER MANAGEMENT SYSTEM MAINTENANCE
1. INSPECTIONS PERFORMED, AS PART OF THE SCHEDULED ROUTINE INSPECTIONS AT THE SITE WILL DICTATE MAINTENANCE REQUIREMENTS FOR THE SURFACE AFTER MANAGEMENT SYSTEM AT THE SITE. THE ITEMS TO BE ROUTINELY INSPECTED INCLUDE INLETS, CULVERTS, DRAINAGE PIPES, SEDIMENT CONTROLS, EROSION OF DRAINAGE DITCHES OR BERMS, AND THE CONDITION OF THE DETENTION PONDS.
2. INLETS CULVERTS AND PIPES WILL BE VISUALLY INSPECTED TO ENSURE THAT NO OBSTRUCTIONS ARE HINDERING THE PERFORMANCE OF THE SURFACE WATER DRAINAGE SYSTEM.
3. ANY SIGNIFICANT OBSTRUCTIONS FOUND WILL BE REMOVED.
4. INLETS ALSO WILL BE VISUALLY INSPECTED TO ENSURE THAT GRATES ARE IN PLACE.
5. ANY MISSING OR DAMAGED GRATES WILL BE REPLACED.
6. INLETS, CULVERTS, AND PIPES WILL BE VISUALLY INSPECTED FOR LEAKS OR STRUCTURAL DAMAGE.
7. ANY DAMAGED ITEMS WILL BE REPAIRED OR REPLACED IN ACCORDANCE WITH THE ORIGINAL SPECIFICATIONS.
8. AREAS TO BE VISUALLY INSPECTED FOR SEDIMENT BUILD-UP INCLUDES DRAINAGE PIPES, DRAINAGE DITCHES AND THE AREA WITHIN THE POND SITE.
9. IF SEDIMENT BUILDUP OCCURS IN THE SURFACE WATER PIPING SYSTEM, THE SEDIMENT WILL BE CLEANED FROM THE PIPES TO MAINTAIN THEIR ORIGINAL HYDRAULIC CAPACITY.
10. IF SEDIMENT BUILDUP IS OBSTRUCTING THE NORMAL FLOW PATTERN IN THE DRAINAGE DITCHES, THE SEDIMENTS WILL BE REMOVED.
11. SURFACE WATER DITCHES AND DETENTION POND SIDE SLOPES WILL BE VISUALLY INSPECTED FOR EROSION AND GULLYING.
12. IF EROSION OCCURS IN SURFACE WATER DITCHES, TOPSOIL WILL BE ADDED AS NECESSARY TO MAINTAIN DRAINAGE CHARACTERISTICS IN ACCORDANCE TO THE ORIGINAL PLANS.
13. IF EROSION OCCURS ON THE DETENTION POND SIDE SLOPES, A FILL MATERIAL WILL BE ADDED A NECESSARY TO MAINTAIN THE ORIGINAL GRADE OF THE SLOPE.
14. THE DETENTION POND WILL BE VISUALLY INSPECTED FOR THE PRESENCE OF LITTER. ANY LITTER WILL BE REMOVED ON A CONTINUAL BASIS.

EQUIPMENT REQUIREMENTS (WHEN APPLICABLE)
1. THE EQUIPMENT MAINTENANCE REQUIREMENTS WILL BE DETERMINED BASED UPON THE MANUFACTURERS RECOMMENDATIONS AND WILL BE INCLUDED ON THE DESIGN PLANS. AT A MINIMUM, LIFT STATIONS WILL REQUIRE DUPLEX SYSTEMS. THE ENGINEER OF RECORD WILL PROVIDE FOR CITY REVIEW EQUIPMENT OPERATION AND MAINTENANCE REQUIREMENTS.
1. ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING MINIMUM THICKNESS AND KEY DEPTH REQUIREMENTS.

2. THIS DETAIL SHALL BE USED WITH CEMENT STABILIZED SAND EMBEDMENT, OR OTHER CLASS II EMBEDMENT, IN WET STABLE TRENCH CONDITIONS.

3. PLACE TRENCH DAMS IN CLASS I EMBEDMENT AT THE MIDPOINT OF LINE SEGMENTS LONGER THAN 100 FEET BETWEEN MANHOLES.
1. WHERE WET SAND IS ENCOUNTERED, REINFORCED CONCRETE PIPE SEWERS SHALL BE CONSTRUCTED USING APPROVED SPECIAL DESIGN AS SHOWN ON DRAWINGS.

2. MIN TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE:
   - NOMINAL PIPE SIZE
   - 18" TO 30"  "A"  24"  OVER 30"  36"

3. MAX TRENCH WIDTH SHALL NOT BE GREATER THAN MIN TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.

4. SELECT BACKFILL FOR RIGID PAVEMENT: FLEXIBLE BASE MATERIAL FOR ASPHALT PAVEMENT.
NOTES:

1. WHERE MULTIPLE BOX SEWERS ARE USED IN THE SAME TRENCH, MIN OUTSIDE TO OUTSIDE BOX SEWER SEPARATION SHALL BE 6".
2. THIS DETAIL TO BE USED ONLY WHERE SOIL CONDITIONS ARE SATISFACTORY.
3. SELECT BACKFILL FOR RIGID PAVEMENT;
   FLEXIBLE BASE MATERIAL FOR ASPHALT PAVEMENT.
NOTES:

1. WHERE MULTIPLE BOX SEWERS ARE USED IN THE SAME TRENCH, MIN OUTSIDE TO OUTSIDE BOX SEWER SEPARATION SHALL BE 6".
2. ALTERNATE TRENCH BOTTOM TREATMENT MAY BE USED AS APPROVED BY THE CITY ENGINEER.
1. Reinforced concrete slab to be poured in dry trench only.
2. Concrete slab to reach min compressive strength of 1,000 PSI based on mix design before box is laid.
3. Where multiple box sewers are used in the same trench, min outside to outside box sewer separation shall be 6".
4. This bedding detail to be used for all locations where soil condition do not conform to following requirements:
   A. Strata from spring line (center) to 3 ft. below the flow line of the box to consist of non-waterbearing cohesive soil.
   B. No wet sand strata to exist in the area from 1 ft. above the top of the box to 3 ft. below the flow line.
5. Alternate trench bottom treatment may be used as approved by the city engineer and as paid for in the proposal.
6. Select backfill for rigid pavement: flexible base material for asphalt pavement.
ALL LETTERS SHALL BE 2" HIGH AND SHALL BE RAISED 1/8" LINE WIDTH FOR LETTERS SHALL BE 1/4" WIDE.

1/2" x 2 1/2" RECESS (SEE SECTION OF COVER THRU RECESS)

CROOVES 3/8" DIA X 3/8" DEEP APPROX. 3/8" TO 1" SPACES

3/4" HOLES

WORD "SEWER" OR "STORM SEWER"

MACHINE BEARING SURFACE

SECTION OF COVER THRU RECESS

32" MANHOLE FRAME & COVER
FRAME: VULCAN MODEL V-1420 OR EQUAL
COVER: VULCAN MODEL V-1419

HALF SECTION
32" MANHOLE COVER WITH FRAME
NOTE:
BRICK WALLS 12'-0" BELOW TOP OF CASTING TO BE 12" THICK. STD. FRAME & COVER SHALL BE PER COH STANDARD MH COVER

PLAN OF TYPE "C"

ADJUSTMENT RINGS AS REQUIRED

CONCENTRIC CONE

O-RING JOINTS

PRECAST SECTIONS PER ASTM C-478 OR 8" BRICK WALLS

5" THK. WALL (MIN.)

1 1/2 - SACK CEMENT PER CUBIC SAND YARD STABILIZED BACKFILL AROUND MANHOLE COMPACTED IN 6" LIFTS (MAX.).

CONCRETE SLAB

SECTION B-B

CITY OF HUNTSVILLE STANDARD DETAILS
TYPE "C" STORM SEWER MANHOLE FOR 42" PIPE AND SMALLER

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

NAME: TYPE C STSW MANHOLE
CATEGORY: STORM DRAINAGE
DRAWN DATE: 11/22/2016
DRAWN BY: WLSIII
SCALE: N.T.S.
APPROVED BY: YSR

CITY SERVICE CENTER
448 STATE HIGHWAY 75
HUNTSVILLE, TX 77320

REV# ISSUER DATE APPROVER
0 MAM 07/10/2018

SD-09
NOTES:
1. WHEN MANHOLE HAS LESS DEPTH THAN MIN. SHOWN ON CHART, BUILD SECTION A–A OTHERWISE BUILD SECTION B–B.
2. MANHOLE MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE.
CITY OF HUNTSVILLE, TEXAS
DIVISION
DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING

SHEET
STORM DRAINAGE
SPECIAL TYPE C MH N.T.S.

DRAWN DATE:
SCALE:
APPROVED BY:
NAME:
CATEGORY:

DRAWN BY:
11/22/2016
WLSIII

REV# ISSUER DATE APPROVER
0 MAM 07/10/2018

City Service Center
448 State Highway 75
Huntsville, TX 77320

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

NOTE:
1. MANHOLE MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE.

CITY OF HUNTSVILLE STANDARD DETAILS SPECIAL TYPE "C" STORM SEWER MANHOLE FOR 78" PIPE AND GREATER

PLAN

SECTION A-A

O.D. OF PIPE + 3'-0"
96" MIN.
12" BRICK WALL
8" BRICK WALL
8" BRICK WALL
2 - #7
2 - #7
CONCRETE
#6 @ 8" O.C.E.W.
32" STANDARD MANHOLE FRAME & COVER SEE DWG. NO. COT STM-08

* BRICK WALLS TO BE 12" THICK IF MANHOLE DEPTH IS MORE THAN 8 FT.

2 - #7 AS SHOWN
2 - #7 AS SHOWN

O.D. + C-6"
12" DIA. & GREATER

07/10/2018
### CITY OF HUNTSVILLE STANDARD DETAILS

**SD-12**

**PRECAST CONCRETE MANHOLE**

**DIMENSIONS AND WEIGHTS**

<table>
<thead>
<tr>
<th>DIAMETER (in)</th>
<th>W (in)</th>
<th>B (in)</th>
<th>RISER WEIGHT (lbs)</th>
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</thead>
<tbody>
<tr>
<td>48</td>
<td>5</td>
<td>6</td>
<td>868</td>
</tr>
<tr>
<td>60</td>
<td>6</td>
<td>8</td>
<td>1300</td>
</tr>
<tr>
<td>72</td>
<td>7</td>
<td>8</td>
<td>1811</td>
</tr>
<tr>
<td>96</td>
<td>9</td>
<td>8</td>
<td>3090</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS:**

- **CONCRETE:** CLASS 1 CONCRETE WITH A DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. RATES FOR H-20 LOADING.
- **REINFORCEMENT:** STRUCTURAL REINFORCEMENT CONFORMING TO ASTM C-478.
- **C.I. CASTINGS:** CAST IRON FRAMES AND GRATES ARE MANUFACTURED OF GREY CAST IRON CONFORMING TO ASTM A48-76 CLASS 35.

**NOTES:**

1. LIFTING INSERTS AS REQUIRED.
2. ALL JOINTS SHALL BE SEALED WITH APPROVED RUBBER GASKET.
3. STRUCTURE TO BE PLACED ON 12" STABILIZED BASE.
4. C.S.S. SHALL BE BROUGHT TO WITHIN 2-FT OF TOP OF MANHOLE.

**DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION**

CITY OF HUNTSVILLE, TEXAS

**NAME:** PRECAST CONC. MANHOLE

**CATEGORY:** STORM DRAINAGE

**DRAWN DATE:** 11/22/2016

**DRAWN BY:** WLSIII

**SCALE:** N.T.S.

**APPROVED BY:** YSR

**CITY OF HUNTSVILLE STANDARD DETAILS**

**PRECAST CONCRETE MANHOLE**

**ISSUER:** MAM

**DATE:** 07/10/2018

**APPROVER:**

**REV# | ISSUER | DATE | APPROVER**

| 0     | MAM    | 07/10/2018 |                      |

**SD-12**
NOTES:
1. DETAIL TO BE USED WHERE STORM SEWER SIZE IS 24" DIAMETER OR LESS.
2. FOR PIPE SEWERS GREATER THAN 24", USE TYPE "C" MANHOLE

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

NAME: STSW JUNCTION BOX
CATEGORY: STORM DRAINAGE
DRAWN DATE: 11/22/2016
DRAWN BY: WLSIII
SCALE: N.T.S.
APPROVED BY: YSR

CITY OF HUNTSVILLE STANDARD DETAILS
STORM SEWER JUNCTION BOX
FOR MAX 24" DIAMETER PIPE

REV#  ISSUER  DATE  APPROVER
0    MAM    07/10/2018

City Service Center
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MANHOLE FOR PROPOSED BOX STORM SEWER

CITY OF HUNTSVILLE STANDARD DETAILS

NOTE:
FOR SMALLER BOX SEWER WIDTHS, WHERE IT IS NOT POSSIBLE TO EXTEND REINFORCING STEEL BEYOND THE OPENING, REINFORCING STEEL SHALL BE EXTENDED 3" TO THE EDGE OF THE WALL.

<table>
<thead>
<tr>
<th>BOX WIDTH</th>
<th>OPENING SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>48&quot; AND LESS</td>
<td>36&quot;</td>
</tr>
<tr>
<td>GREATER THAN 48&quot;</td>
<td>48&quot;</td>
</tr>
</tbody>
</table>

2- #6 T&B

6" BEND TYP

2' - 6" SEE NOTE

VARIES SEE TABLE

VARIES

32" STANDARD MANHOLE FRAME AND COVER SEE DWG NO COT STM-08

STANDARD TYPE "E" INLET MAY BE USED AT TOP OF MANHOLE

CONCRETE BOX

BRICK OR PRECAST CONCRETE

ELEVATION

SECTION A-A

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

NAME: BOX ST SEWER MANHOLE
CATEGORY: STORM DRAINAGE
DRAWN DATE: 11/22/2016
DRAWN BY: WLSIII
SCALE: N.T.S.
APPROVED BY: YSR

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SD-14
#4 BARS 3' LONG
  TYP. EACH CORNER

#4 BARS
  (TYPICAL)

3/4" THICK DOWELLED EXPANSION JOINT

MANHOLE BLOCKOUT
(STORM SEWER)
IN PAVEMENT
TYPE "A" INLET

CAST IRON GRATE AND FRAME SEE DETAIL (THIS SHEET)

MORTAR (TYP)

8" BRICK MASONRY

1/2" MORTAR INSIDE AND OUTSIDE

2'-6"

8" BRICK MASONRY

MORTAR

DOWELS TO BE 3/4" x 6" BOLTS AT EACH SIDE

NOTES:
1. ALL BRICK CONSTRUCTION SHALL USE APPROVED CONCRETE BRICK WITH 1/2" (IN.) MORTAR INSIDE AND OUT. 1/4" TO 1/2" MORTAR JOINT, 3/8" (IN.) IS THE STANDARD.
2. REFER TO GENERAL NOTES, CONCRETE NOTES AND STORM SEWER NOTES.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING
CITY OF HUNTSVILLE, TEXAS

NAME: TYPE "A" INLET
CATEGORY: STORM DRAINAGE
DRAWN DATE: 11/22/2016
DRAWN BY: WLSIII
SCALE: N.T.S.
APPROVED BY: YSR

CITY OF HUNTSVILLE STANDARD DETAILS
SD-16

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SD-16
1. Dimension varies based on pipe diameter and wall thickness.
2. Center reinforcing in slab and walls.
3. Center steel beam on inlet and cast into walls as shown.
4. Use std. cast iron frame & plates. Lead shall leave inlet at location and grade required. When brick inlets are built extend dowels 4 inches from curb beam into brickwork. When brick inlets are built, walls shall be increased to 8 inches, and inlet beams to be 4 inches longer.
1. After removing exist. curb, raise exist. "I" beam to grade and reset exist. frames.
2. Replace exist. plates with grates.
3. Add new frames and grates next to existing frames.
4. Backfill inlet to a point one foot behind the curb with 1 sack/ton cement stabilized sand.
CAST IRON PLATE & FRAME FOR TYPE "B" INLETS

FRAME: VULCAN MODEL V–4241 (2 REQ'D)
PLATE: VULCAN MODEL V–4240–2 (2 REQ'D)
CITY OF HUNTSVILLE, TEXAS
DIVISION DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING

CAST IRON PLATE, FRAME & "I" BEAM
CITY OF HUNTSVILLE STANDARD DETAILS
SD-20

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING
DIVISION
CITY OF HUNTSVILLE, TEXAS

NAME: CAST IRON PLATE
CATEGORY: STORM DRAINAGE
DRAWN DATE: 11/22/2016
DRAWN BY: WLSIII
SCALE: N.T.S.
APPROVED BY: YSR

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FRAME TRANS SECTION

PLAN OF PLATE AND FRAME

LONG SECTION OF FRAME

LONG SECTION

TRANS SECTION

PLATE

"I" BEAM (CAST IRON)

FRAME: VULCAN MODEL V-4242L & V-4242R
PLATE: VULCAN MODEL V 4242-2
I-BEAM: VULCAN MODEL V 4881

CITY OF HUNTSVILLE STANDARD DETAILS
CAST IRON PLATE, FRAME & "I" BEAM
FOR TYPE "B-B" INLET

REV# ISSUER DATE APPROVER SHEET
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SD-20
NOTE:
TYPE "C-2" PROVIDE A CENTER 6"x6" COLUMNS IN THE CURB LINE BETWEEN ALL EXTENSIONS.

NOTE:
The walls may be built with brick and all top slabs doweled into the brick walls with # 4 x 8" @ 12

DEPRESSED PVMT. SURF.
10'-0" TYPE "C-2"
5'-0" TYPE "C-1"

MATCH LINE

MANHOLE COVER & FRAME SEE SECTION C-C

MANHOLE COVER PLAN
(FRAME: VULCAN MODEL V1851)
(COVER: VULCAN MODEL V1849)

\( \frac{3}{4}'' \) HOLE

GROOVES 3/16" DIA X 3/32"
DEEP APPROX. 3/4" TO 1" SPACES

\( \frac{5}{8}'' \times 2\frac{1}{8}'' \) RECESS
(SEE SECTION OF COVER THRU RECESS)

\( \frac{3}{4}'' \) HOLES

ALL LETTERS SHALL BE 2" HIGH AND SHALL BE RAISED \( \frac{3}{4}'' \) LINE WIDTH FOR LETTERS SHALL BE \( \frac{3}{4}'' \) WIDE.

\( \frac{1}{8}'' \) X \( \frac{3}{8}'' \)DIA.

GROUNDED TO FRAME

GENERAL NOTE
TYPE "C" INLET WITH ONE EXTENSION (5'-0" LONG)
TYPE "C-1" INLET WITH DOUBLE EXTENSION (10'-0" LONG)
TYPE "C-2" INLET WITH ONE EXTENSION ON EACH SIDE
TYPE "C-3" INLET WITH NO EXTENSION

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

NAME: TYPE C,C-1,C-2,C-3 INLETS
CATEGORY: STORM DRAINAGE
DRAWN DATE: 11/22/2016
DRAWN BY: WLSIII
SCALE: N.T.S.
APPROVED BY: YSR

CITY OF HUNTSVILLE STANDARD DETAILS
TYPE "C" "C-1" "C-2" & "C-3" INLETS

REV# ISSUER DATE APPROVER
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SD-21
SECTION A-A

SECTION B-B

SECTION C-C

NOTE:
THE WALLS MAY BE BUILT WITH BRICK AND ALL TOP SLABS DOWELED INTO THE BRICK WALLS WITH # 4 X 8" @ 12

WALLS TO BE 6" REINF. CONC. OR MAY BE MADE OF BRICK WITH 8" WALL, IF SO USE STRAIGHT WALL IN BACK WITH 6" REINF. CONC SLAB TOP
1. REFER TO GENERAL NOTES, STORM SEWER & CONCRETE NOTES.
NOTE:
8" BRICK WALLS MAY BE CONSTRUCTED IN LIEU OF 8" CONCRETE WALLS SHOWN.

STORM DRAINAGE

CITY OF HUNTSVILLE, TEXAS
DIVISION
DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING

SD-25

CITY OF HUNTSVILLE STANDARD DETAILS
TYPE "E" INLET

NAME:  TYPE "E" INLET
CATEGORY:  STORM DRAINAGE
DRAWN DATE:  11/22/2016
DRAWN BY:  WLSIII
SCALE:  N.T.S.
APPROVED BY:  YSR

City Service Center
448 State Highway 75
Huntsville, TX 77320

REV#  ISSUER  DATE  APPROVER
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DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING
DIVISION
CITY OF HUNTSVILLE, TEXAS

NOTE:
8" BRICK WALLS MAY BE CONSTRUCTED IN LIEU OF 8" CONCRETE WALLS SHOWN.
1. INLET WALLS MAY BE EXTENDED USING PRECAST RISER SECTION.
2. INLET TOPS MUST BE SECURED TO THE INLET WALL USING #6 DOWELS DRILLED AND GROUTED A MINIMUM DEPTH OF 5" INTO THE INLET WALL.
3. INLET BACKFILL SHALL BE CEMENT STABILIZED SAND TO THE TOP OF INLET FIRST STAGE.
4. GRADE 60 REINFORCED. #4 STEEL REBAR TO CONFORM TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.
5. PRECAST INLET MUST BE CONSTRUCTED TO SPECIFICATIONS REQUIRED BY APPROVED DRAWINGS. (SEE GENERAL NOTES).
6. TOPS Poured-IN-PLACE REQUIRE #4 REBAR @ 12" C-C EACH WAY, 3,000 PSI CONCRETE MINIMUM AND 3" THICK MINIMUM.
7. PAVEMENT DEPTH AT INLET SHALL BE EQUAL TO OR GREATER THAN REQUIRED PAVEMENT DEPTH.
**CITY OF HUNTSVILLE, TEXAS**

**DIVISION**

**DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING**

**SHEET**

**STORM DRAINAGE**

**PRECAST H-2 INLET**

**N.T.S.**

**DRAWN DATE:** 11/22/2016

**SCALE:** WLSIII

**APPROVED BY:** YSR

**REV#**

**ISSUER**

**DATE**

**APPROVER**

**CITY OF HUNTSVILLE STANDARD DETAILS**

**PRECAST "H-2" INLET**

Refer to:

1. General Notes
2. See C.S.S., Pavement Notes

**NOTE:** Refer to installation for Type H-2 5'-0" curb inlet on paving detail sheet.

**TYPE "H-2" PRECAST INLET**

- **#4 @ 12" C-C**
- **5"**
- **2'R**
- **TOP OF CURB**
- **PVMT SLOPE**
- **VARIATES 3", 6", & 12"**
- **MORTAR**
- **#4 @ 12" O.C.E.W. MIN.**
- **3" MIN CLR**
- **5'**
- **2'-6"**
- **3'-6"**
- **6'**

**SECTION 3**

**City Service Center**

448 State Highway 75
Huntsville, TX 77320
CAST IRON INLET GRATE

SECTION A-A
GRATE WILL FIT FRAME FOR "B" INLETS
"BB" INLETS
VULCAN MODEL V-4241-1

SECTION B-B

CITY OF HUNTSVILLE STANDARD DETAILS
CAST IRON INLET GRATE

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

NAME: CAST IRON INLET GRATE
CATEGORY: STORM DRAINAGE
DRAWN DATE: 11/22/2016
DRAWN BY: WLSIII
SCALE: N.T.S.
APPROVED BY: YSR

CITY SERVICE CENTER
448 STATE HIGHWAY 75
HUNTSVILLE, TX 77320

REV#  ISSUER  DATE  APPROVER
0       MAM     07/10/2018

SD-28
WRAP JOINTS w/4” WIDE APPROVED GEOTEXTILE FABRIC WRAP 2–TIMES CIRCUMFERENCE OF PIPE. SECURE WITH FASTENERS PER MANUFACTURER SPECS.

COUPLING BANDS w/RUBBER “O” RING GASKETS AS PER MANUFACTURER’S SPECIFICATIONS

NOTES:

1. ANY PIPE DEFLECTED MORE THAN 2% SHALL BE REJECTED AND REPLACED AT CONTRACTOR’S EXPENSE.

2. INSTALLATION SHALL BE AS PER MANUFACTURER’S RECOMMENDATIONS INCLUDING ITEMS AS DETAILED IN INSTALLATION MANUAL FOR CORRUGATED STEEL DRAINAGE STRUCTURES.

STORM SEWER JOINT WRAP DETAIL
RING GRATE FOR OPEN END OF 18" TO 72" STUBS TO DITCH

CITY OF HUNTSVILLE STANDARD DETAILS
SD-30

RING GRATE

END VIEW

TACK WELDS (TYP)

¼ PIPE DIAMETER OR 8" MAX CLEAR OPENING

# 4 FOR 18" TO 30"
# 5 FOR 36" TO 48"
# 6 FOR 54" TO 72"

NOTE:
BARS MAY BE VERTICAL OR HORIZONTAL AFTER INSTALLATION

SIDE VIEW

SET RING GRATE IN MORTAR
STORM SEWER CHOKE OUTFALL RESTRICTOR

DETAIL

REFER TO:
1. GENERAL NOTES
2. STORM SEWER NOTES
CITY OF HUNTSVILLE, TEXAS
DIVISION
DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING

CITY SERVICE CENTER
448 STATE HIGHWAY 75
Huntsville, TX 77320

SAFETY END TREATMENT

CITY OF HUNTSVILLE STANDARD DETAILS
SAFETY END TREATMENT
FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II-PARALLEL DRAINAGE

REV#  ISSUER  DATE  APPROVER
0    MAM    07/10/2018

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

NAME: TxDOT SETP-PD
CATEGORY: STORM DRAINAGE
DRAWN DATE: 11/22/2016
DRAWN BY: WLSIII
SCALE: N.T.S.
APPROVED BY: YSR

SD-35
CONCRETE HEADWALLS WITH FLARED WINGS
FOR 0 DEGREE SKEW PIPE CULVERTS

CITY OF HUNTSVILLE STANDARD DETAILS

City Service Center
448 State Highway 75
Huntsville, TX 77320

NAME: CONC. HDWALL FLARED WINGS
CATEGORY: STORM DRAINAGE
DRAWN DATE: 11/22/2016
DRAWN BY: WLSIII
SCALE: N T.S.
APPROVED BY: YSR

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

SD-38
CONCRETE HEADWALLS WITH FLARED WINGS
FOR 15 DEGREE SKEW PIPE CULVERTS

SD-39
Bridge Division

CITY OF HUNTSVILLE, TEXAS

DIVISION
DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING

SD-41

CONCRETE HEADWALLS WITH FLARED WINGS
FOR 45 DEGREE SKEW PIPE CULVERTS

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING
DIVISION

CITY OF HUNTSVILLE, TEXAS

NAME: CONCRETE HEADWALLS
CATEGORY: STORM DRAINAGE
DRAWN DATE: 11/22/2016
DRAWN BY: WLSIII
SCALE: N.T.S.
APPROVED BY: YSR

CITY OF HUNTSVILLE STANDARD DETAILS
CONCRETE HEADWALLS WITH FLARED WINGS
FOR 45 DEGREE SKEW PIPE CULVERTS

REV# ISSUER DATE APPROVER
0 MAM 07/10/2018

City Service Center
448 State Highway 75
Huntsville, TX 77320