**GENERAL NOTES**

1. **Underdrain shall be grouted in place in the provided knockout or 4 x 4 holes (CIP).**

2. **Lift holes to be provided for handling precast riser(s) and base. Holes to be filled with mix #3 concrete upon installation.**

3. **Precast joints - manufacturer shall form male and female ends of joints using their own design. Joints shall be sealed and made watertight by the contractor using the manufacturer's recommended ASTM or AASHTO-approved sealant.**

4. (Precast riser section): 8 ft. maximum height, 1 ft. minimum.

5. (Precast base): 8 ft. maximum height, minimum height as necessary to provide indicated clearances.

6. Pipe openings to be provided as required. For size, location and invert elevations, refer to plans.

7. Placement of subgrade drainage will be as directed by the engineer or as noted on plans.

8. **Precast walls: use cast-in-place mix #3 concrete or brick to grade - 2 courses minimum, 6 courses maximum. Install brick flush with interior of precast wall. Precast structures may not be broken to meet grade. Cast-in-place walls: top 4" of walls shall be brick masonry.**

9. **Grout around all pipes using non-shrink grout joint filler.**

10. **No part of pipe shall pass through any structure corner as defined by projection of interior walls. See detail G-1. Center line pipe allowable range: ± 30" from perpendicular.**

11. **Invert shall have a bench similar to a type A manhole where pipe 24" & larger runs through inlet. See std. detail D-3.00.**

12. **Invert shall be approved precast, plain mix #3 concrete or brick laid on edge, invert to slope down toward outlet at the rate of 2" per foot, or as shown on specific detail or as directed. Invert brick shall be ASTM C32-91 Grade SS.**

13. **Cast-in-place reinforcement: size & placement as shown on specific details, 16" bar laps; reinforcement continuous around all edges.**

14. **Cast-in-place structure: 6" min. Precast structure: 2" min.**

---

**RECTANGULAR INLETS**

**GENERAL REQUIREMENTS**
NOTES
1. SEE STD. DETAIL D-2.00 FOR GENERAL NOTES.
2. SEE STD. DETAIL D-2.05 FOR PRECAST TOP SLAB.
3. DRAWING SHOWS PRECAST INLET. CAST-IN-PLACE INLET PER TABLE, STD. DETAIL D-2.03.
4. PREVIOUSLY STD. DETAIL D-2.00.
5. INLETS SHALL NOT BE USED IN LOCATIONS WHERE THE TOP SLAB MAY REASONABLY BE EXPECTED TO EXPERIENCE TRAFFIC LOADS.
6. DEVELOPMENT PROJECTS: CURB SECTION PAID FOR BY THE HIGHWAY CONTRACT.
NOTES

1. SEE STD. DETAIL D-2.00 FOR GENERAL NOTES.
2. SEE STD. DETAIL D-2.05 FOR PRECAST TOP SLAB.
3. DRAWING SHOWS PRECAST INLET. CAST-IN-PLACE INLET PER TABLE, STD. DETAIL D-2.03.
4. PREVIOUSLY STD. DETAIL D-2.01.
5. INLETS SHALL NOT BE USED IN LOCATIONS WHERE THE TOP SLAB MAY REASONABLY BE EXPECTED TO EXPERIENCE TRAFFIC LOADS.
6. DEVELOPMENT PROJECTS: CURB SECTION PAID FOR BY THE HIGHWAY CONTRACT.
NOTES

1. SEE DETAIL D-2.00 FOR GENERAL NOTES.
2. SEE DETAIL D-2.05 FOR PRECAST TOP SLAB.
3. DRAWING SHOWS PRECAST INLET. CAST-IN-PLACE INLET PER TABLE, STD. DETAIL D-2.03.
4. PREVIOUSLY STD. DETAIL D-2.02
5. INLETS SHALL NOT BE USED IN LOCATIONS WHERE THE TOP SLAB MAY REASONABLY BE EXPECTED TO EXPERIENCE TRAFFIC LOADS.
6. DEVELOPMENT PROJECTS: CURB SECTION PAID FOR BY THE HIGHWAY CONTRACT.
NOTES

1. SEE DETAIL D-2.00 FOR GENERAL NOTES.
2. SEE DETAIL D-2.05 FOR PRECAST TOP SLAB.
3. DRAWING SHOWS PRECAST INLET. CAST-IN-PLACE INLET
   PER TABLE, STD. DETAIL D-2.03.
4. PREVIOUSLY STD. DETAIL D-2.03.
5. INLETS SHALL NOT BE USED IN LOCATIONS WHERE THE
   TOP SLAB MAY REASONABLY BE EXPECTED TO EXPERIENCE
   TRAFFIC LOADS.
6. DEVELOPMENT PROJECTS: CURB SECTION PAID FOR BY THE
   HIGHWAY CONTRACT.

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS

TYPE B-2 INLET

PLATE D-2.02B
DETAIL A FOR PRECAST A AND B INLETS
(SEE STD. DETAILS D-2.01A & B, D-2.02 A & B)

TOP SLAB ANCHOR DETAIL
(NO SIDEWALK)

<table>
<thead>
<tr>
<th>PRECAST</th>
<th>CAST-IN-PLACE (CIP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>6&quot; MIN.</td>
</tr>
<tr>
<td></td>
<td>8&quot; WIDE TO 7' DEPTH; 12&quot; WIDE, 7' TO 10' DEPTH</td>
</tr>
<tr>
<td>REINF.</td>
<td>2 LAYERS- 4x4 W4.0 x W4.0- WWF</td>
</tr>
<tr>
<td></td>
<td>#4 @ 9&quot; O/C E.W. IN BOTH FACES; 16&quot; BAR LAPS; CONTINUOUS AT CORNERS</td>
</tr>
<tr>
<td>REINF.COVER</td>
<td>15 INCH MIN.</td>
</tr>
<tr>
<td></td>
<td>15 INCH MIN.</td>
</tr>
<tr>
<td>INVERT</td>
<td>APPROVED PRECAST, PLAIN MIX #3 CONCRETE OR BRICK</td>
</tr>
<tr>
<td></td>
<td>PLAIN MIX #3 CONCRETE OR BRICK</td>
</tr>
<tr>
<td>SUBGRADE OPENING</td>
<td>SEE DETAIL D-2.00</td>
</tr>
<tr>
<td></td>
<td>4&quot; x 4&quot; OPENINGS OR AS DIRECTED.</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>4,500 PSI</td>
</tr>
<tr>
<td></td>
<td>MIX NO. 3</td>
</tr>
</tbody>
</table>
NOTES:

1. SEE STANDARD DETAIL D-2.00 FOR GENERAL NOTES.
2. MANHOLE STEPS — SEE DETAIL G-4.
3. PLACE 1/4" EXPANSION MATERIAL OF SAME TYPE, APPROVED FOR PAVEMENT AT LOCATIONS SHOWN ON STD. DETAIL D-2.26.
4. USE COMBINATION INLET IN SUMPS IN ROAD. SEE STANDARD DETAIL D-2.07.
5. SUBGRADE DRAINAGE — 1 EACH WALL, OFFSET AS REQUIRED TO AVOID STEPS, PIPES. SEE TABLE.
6. CAST-IN-PLACE REINFORCEMENT REQUIRED ON OUTSIDE, AS WELL AS INSIDE, OF WALLS BELOW 7'-0" WHEN "H" IS GREATER THAN 7'-0". SPACING IS SAME AS FOR INSIDE OF WALL.
7. USE APPROVED BICYCLE SAFE GRATE (STD. DETAIL D-2.09A) WITHIN ALLEYS AND PUBLIC ROAD RIGHT-OF-WAY. GRATE SHOWN SHALL BE USED ONLY OUTSIDE OF THESE AREAS.

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PRECAST</th>
<th>CAST-IN-PLACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6&quot; MIN.</td>
<td>8 1/2&quot;</td>
</tr>
<tr>
<td>REINF.</td>
<td>2 LAYERS- 4x4</td>
<td>4 BARS @ 6&quot; CE EW</td>
</tr>
<tr>
<td>W4.0 x W4.0- WWF</td>
<td>2&quot; COVER (NOTE 6)</td>
<td></td>
</tr>
<tr>
<td>CONCRETE</td>
<td>4,500 PSI</td>
<td>MIX NO. 3</td>
</tr>
<tr>
<td>ALLOWABLE DEPTH</td>
<td>B.C.B.E/C APPROVAL REQUIRED OVER 15'</td>
<td></td>
</tr>
<tr>
<td>SUBGRADE OPENING</td>
<td>AS SHOWN</td>
<td>4&quot; x 4&quot; OPENINGS</td>
</tr>
</tbody>
</table>

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS
TYPE E INLET

D-2.06
NOTES:

1. SEE DETAIL D-2.00 FOR GENERAL NOTES.

2. INLET MAY BE CONSTRUCTED OF REINFORCED OR PRECAST CONCRETE. SIZE, TYPE AND DIRECTION OF INLET CONNECTION WILL VARY TO SUIT CONDITIONS. SEE STD. DETAIL G-1.

3. CAST-IN-PLACE REINFORCEMENT REQUIRED ON OUTSIDE, AS WELL AS INSIDE, OF WALLS BELOW 7'-0" WHEN 'H' IS GREATER THAN 7'-0". SPACING IS SAME AS FOR INSIDE OF WALL.

4. PLACE 1/4" EXPANSION MATERIAL OF SAME TYPE APPROVED FOR PAVEMENT AT LOCATIONS SHOWN ON DETAIL D-2.26.

5. USE APPROVED BICYCLE-SAFE GRATE (DETAIL D-2.09A, SHOWN) WITHIN RIGHT-OF-WAY.

6. SUBGRADE DRAINAGE - 1 EACH WALL - OFFSET AS REQUIRED. SEE TABLE.

### TABLE

<table>
<thead>
<tr>
<th></th>
<th>PRECAST</th>
<th>CAST-IN-PLACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6&quot; MIN.</td>
<td>8 1/2&quot;</td>
</tr>
<tr>
<td>REINF.</td>
<td>2 LAYERS - 4x4 W4.0 x W4.0 - WWF</td>
<td>#4 BARS @ 6&quot;O/C E.W. 2&quot; COVER (NOTE 3)</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>4,500 PSI</td>
<td>MIX NO. 3</td>
</tr>
<tr>
<td>ALLOWABLE DEPTH</td>
<td>B.C.B.E/C APPROVAL REQUIRED OVER 15&quot;</td>
<td></td>
</tr>
<tr>
<td>SUBGRADE OPENING</td>
<td>SEE DETAIL D-2.00</td>
<td>4&quot; x 4&quot; OPENINGS OR AS DIRECTED</td>
</tr>
</tbody>
</table>
#3 x 10" bent bars welded to L @ 16" C/C (shown) or 4" @ 5.4# (Detail D-2.10 only)

2 1/2" x 2 1/2" x 1 1/2" L

8"

3 5/8"

2 1/2"

3 3/16"

1 1/2"

7 1/2"

6"

CONCRETE MIX #6

SECTION A-A

SPECIAL PREFAB CURB DETAIL

NOTE: FOR STATE HIGHWAYS USE APPROPRIATE CURB PIECE FROM MQSHA DETAILS.

<table>
<thead>
<tr>
<th>INLET TYPE</th>
<th>DETAIL</th>
<th>THROAT WIDTH &quot;W&quot;</th>
<th>SUPPORT BEAM NOTCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>E COMB.†</td>
<td>D-2.07</td>
<td>4&quot; - 1&quot;</td>
<td>OMIT</td>
</tr>
<tr>
<td>Dbl. E COMB‡</td>
<td>D-2.10</td>
<td>8&quot; - 2&quot;</td>
<td>REQUIRED</td>
</tr>
<tr>
<td>S COMB.†</td>
<td>D-2.18</td>
<td>4&quot; - 1&quot; *</td>
<td>OMIT</td>
</tr>
<tr>
<td>Dbl. S COMB‡</td>
<td>D-2.20</td>
<td>5&quot; - 6 1/2&quot;</td>
<td>REQUIRED</td>
</tr>
</tbody>
</table>

† FOR S COMBINATION MODIFY FOR LEFT OR RIGHT INLET OFFSET. SEE PLAN AND SECTION "B - B" ON PLATE D-2.18.
‡ EXPOSED ANGLES TO BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A-123 EXCEPT FOR ADHERENCE WHICH SHALL BE IN ACCORDANCE WITH A.S.T.M. A-153.
‡ EXPOSED CHANNEL TO BE PRIMERED & PAINTED WITH APPROVED PAINT PRIOR TO DELIVERY.
NOTES

1. OPENINGS IN FRONT AND REAR WALLS FOR BEAM SHALL BE FILLED WITH MIX #3 CONCRETE OR BRICK (MORTARED AND SEALED ON BOTH SIDES).

2. PROVIDE DURABLE, NON-DETERIORATING SUPPORT PIECE TO ADJUST SUPPORT BEAM AND FRAME TO STREET GRADE. USE OF WOOD IS FORBIDDEN.

3. SUPPORT BEAMS SHALL BE GALVANIZED AFTER FABRICATION.

<table>
<thead>
<tr>
<th>TYPE OF INLET</th>
<th>STD. DETAIL</th>
<th>CONSTRUCTION METHOD</th>
<th>BEAM</th>
<th>L</th>
<th>A</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBL E COMB.</td>
<td>D-2.10</td>
<td>PRECAST</td>
<td>W 5 x 19</td>
<td>3'-10&quot;</td>
<td>1'-3&quot;</td>
<td>7'-1/2&quot;</td>
</tr>
<tr>
<td>DBL E COMB.</td>
<td>D-2.10</td>
<td>CAST IN PLACE</td>
<td>W 5 x 19</td>
<td>3'-10&quot;</td>
<td>1'-3&quot;</td>
<td>7'-1/2&quot;</td>
</tr>
<tr>
<td>DBL S COMB.</td>
<td>D-2.20</td>
<td>PRECAST</td>
<td>W 8 x 21</td>
<td>4'-6&quot;</td>
<td>1'-3&quot;</td>
<td>7'-1/2&quot;</td>
</tr>
<tr>
<td>DBL S COMB.</td>
<td>D-2.20</td>
<td>CAST IN PLACE</td>
<td>W 8 x 21</td>
<td>4'-6&quot;</td>
<td>1'-3&quot;</td>
<td>7'-1/2&quot;</td>
</tr>
</tbody>
</table>
NOTE: ALL DIMENSIONS ARE SHOWN IN ENGLISH AND [METRIC].
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
WEIGHT: GRATE APPROX. 230#
GRATE SHALL SIT SQUARE UPON FRAME SUPPORTS WITHOUT ROCKING OR SHIFTING UNDER LOAD. GRATE SHALL MEET OR EXCEED AASHTO M 306 PROOF LOAD REQUIREMENTS.
FRAME: PER THIS DETAIL OR PER DETAIL D-2.09
NOTE: ALL DIMENSIONS ARE SHOWN IN ENGLISH AND [METRIC].
REFER TO STANDARD DETAIL PLATE D-2.10.
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
WEIGHT: GRATE APPROX. 230#
GRATE SHALL SIT SQUARE UPON FRAME SUPPORTS WITHOUT ROCKING OR SHIFTING UNDER LOAD. GRATE SHALL MEET OR EXCEED AASHTO M 386 PROOF LOAD REQUIREMENTS.
FRAME: PER THIS DETAIL OR PER DETAIL D-2.09
NOTES

1. SEE STD. DETAIL D-2.00 FOR GENERAL NOTES.

2. INLET MAY BE CONSTRUCTED OF REINFORCED OR PRECAST CONCRETE. SIZE, TYPE & DIRECTION OF INLET CONNECTIONS WILL VARY TO SUIT CONDITIONS. SEE DETAIL G-1.

3. USE CURVED VANE GRATE (D-2.09B) AS SHOWN WITHIN ROAD RIGHT-OF-WAY.

4. PLACE 1/4" EXPANSION MATERIAL OF SAME TYPE APPROVED FOR PAVEMENT AT LOCATIONS SHOWN ON DETAIL D-2.26.

5. MIN. 6" CLEAR BETWEEN SUPPORT BEAM & PIPES IN FRONT OR REAR WALL.

6. SUBGRADE DRAINS - 2 EA. IN FRONT & REAR WALL - SEE TABLE.

7. INLET FRAME SUPPORT BEAMS - SEE STD. DETAIL D-2.08A

CONCRETE GUTTER FLARE - WHERE APPLICABLE - SEE STD. DETAIL D-2.26

PLAN

8 1/2"

4 1/4" MIN.

6 3/4" MAX.

GENERAL NOTE 8

3" X 2 1/2" X 1/2"
ANGLES 6" LONG
WELDED BEFORE GALVANIZING.
W 5X19 (GALVANIZED)
GENERAL NOTE 8

BACKFILL - ALL SIDES - SEE STD. DETAIL D-2.00
GENERAL NOTES 11 AND 12

SECTION A-A

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS
DOUBLE TYPE E COMBINATION INLET
D-2.10
NOTES

1. CONCRETE TO BE 4500 PSI.
2. REINFORCING-2 LAYERS OF 4x4-W4.0xW4.0 WELDED WIRE FABRIC.
3. THREADED PLASTIC INSERTS TO BE PROVIDED FOR HANDLING.
4. GRADE AND SLOPE ADJUSTMENTS TO BE COMPLETED IN THE FIELD USING CONCRETE MIX NO.6.
5. PIPE OPENINGS TO BE PROVIDED AS REQUIRED FOR SIZE, LOCATION, AND INVERT ELEVATIONS REFER TO THE PLANS.
6. PLACEMENT OF SUBGRADE DRAINAGE WILL BE AS DIRECTED BY THE ENGINEER OR AS NOTED ON THE PLANS.
7. MANHOLE STEPS SHALL BE IN ACCORDANCE WITH STANDARD DETAIL G-4.
8. 5" THICK PRECAST TOP SLAB, CONCRETE TO BE 4500 PSI. PLACE LAYER OF 4x4-W4.0xW4.0 WELDED WIRE FABRIC OR NO.4 DEFORMED BARS 6" C/C 2 WAYS.
9. FIELD-CONSTRUCT THIS PORTION OF INLET USING BRICK, MASONRY OR REINFORCED CONCRETE MIX #6. REINFORCE WITH TWO LAYERS OF 4x4-W4.0xW4.0 WELDED WIRE FABRIC OR NO. 4 DEFORMED BARS 6" C/C EACH WAY.
10. SEE STANDARD DETAIL D-2.00 FOR GENERAL NOTES.
SEE DETAIL D-2.14 FOR SECTION A - A.

TACK WELD TYPICAL

RAISE EX. WALL AS REQUIRED, MIX #2 CONC.

ISOMETRIC VIEW

SECTION B-B

DIMENSIONS

<table>
<thead>
<tr>
<th>D</th>
<th>L</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot;</td>
<td>4'-0&quot;</td>
<td>2'-10&quot;</td>
</tr>
<tr>
<td>15&quot;</td>
<td>4'-0&quot;</td>
<td>3'-1&quot;</td>
</tr>
<tr>
<td>18&quot;</td>
<td>4'-0&quot;</td>
<td>3'-4&quot;</td>
</tr>
<tr>
<td>21&quot;</td>
<td>4'-0&quot;</td>
<td>3'-7&quot;</td>
</tr>
<tr>
<td>24&quot;</td>
<td>5'-0&quot;</td>
<td>3'-10&quot;</td>
</tr>
<tr>
<td>30&quot;</td>
<td>6'-0&quot;</td>
<td>4'-4&quot;</td>
</tr>
<tr>
<td>36&quot;</td>
<td>6'-0&quot;</td>
<td>4'-10&quot;</td>
</tr>
</tbody>
</table>

NOTES:

1. GRATE TO BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH A.S.T.M. DESIGNATION A-123 EXCEPT FOR ADHERENCE WHICH SHALL BE IN ACCORDANCE WITH A.S.T.M. A-153.

2. GRATE TO BE OF STEEL CONSTRUCTION AND SHALL BE SQUARE, FLAT AND TRUE.

3. INSTALL FOUR 5/8" DIA. CONCRETE EXPANSION ANCHORS WITH FOUR 5/8" DIA. HEX. HEAD BOLTS. (GALVANIZED)

4. WHEN INLETS ARE ON GRADE, OMIT CONCRETE GUTTER ON ONE SIDE AND BUILD UP WALL TO CLOSE END.

5. WHEN TRIPLE GRATE IS REQUIRED, SEE SPECIAL PROVISIONS. CONTACT DPW-ENGINEERING AND CONSTRUCTION.

SECTION D-D

MC 4 x 13.8

PL 1"x2"x6 1/8" TYPICAL

PL 5/8"x3"x2" TYPICAL

PL 5/8"x3"x2"-2" CHAMFER 1/2" TO 1/2" BOTTOM BOTH ENDS

MC 4 x 13.8

PLAN-GRATE 5/8" Ø HHALES FOR 5/8" Ø EXPANSION ANCHORS (TYP.)

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS
TYPE J INLET WITH MODIFIED GRATE

PLATE D-2.13

ISSUED: AUGUST, 1997
REVIEWED
REVISED

WILLIAM T. FRANZEN
DIRECTOR
BUREAU OF ENGINEERING CONSTRUCTION
10/23/97
SLOTTED HOLE TO RECEIVE 1/2\"x4\" MACHINE BOLT (GALV.) EMBEDDED 3\" IN CONCRETE WALL. NUT TO BE PLACED ON END OF BOLT AFTER GRATE IS INSTALLED.

A 5'-0" 10'-0" 2-#4 BARS 1'-2" LONG

PLAN

SECTION A-A

NOTES:
1. SEE STD. DETAIL D-2.00 FOR GENERAL NOTES.
2. THE CONCRETE VALLEY GUTTER TO BE USED IN CONNECTION WITH THIS INLET WILL BE WARNED FROM THE STANDARD SECTION TO MEET THE SECTION AT THE END OF THE INLET. THIS TRANSITION WILL TAKE PLACE WITHIN A DISTANCE OF TEN FEET FROM THE INLET. VALLEY GUTTER PAVING WITHIN TEN FEET OF THE INLET TO BE INCLUDED IN THE UNIT PRICE BID FOR THE INLET.
3. PIPE OUTLETS AND GUTTER APPROACHES CAN BE REVISED TO MEET EXISTING CONDITIONS.
4. THIS TYPE OF INLET SHALL NOT BE USED IN MEDIANs OR IN OTHER AREAS TRAVESED BY VEHICLES.
5. THIS INLET MAY BE USED WITH A SINGLE OPENING AT ONE END.
6. GRATINGS ARE SUBJECT TO APPROVAL FOR EACH JOB. ANY TYPE OF SUBSTANTIAL TRANSVERSE BARS MAY BE USED WHICH WILL SUPPORT A MINIMUM UNIFORM LOAD OF 150 LBS./SQ.FT. THE TRANSVERSE BARS SHALL BE HELD RIGID BY SPACER BARS. AREA TO BE MADE UP OF TWO EQUAL WIDTH PANELS ARRANGED FOR BOLTING TOGETHER IN THE FIELD. ALL MATERIAL TO BE HOT-DIP GALVANIZED.
7. SUBGRADE OPENINGS PER PLANS OR AS DIRECTED BY ENGINEER.

<table>
<thead>
<tr>
<th></th>
<th>PRECAST</th>
<th>CAST-IN-PLACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 6&quot; MIN.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REINF. 2 LAYERS- 4x4</td>
<td>#4 BARS 6&quot; C/C E.W.</td>
<td></td>
</tr>
<tr>
<td>W4.0 x W4.0- WWF 2&quot; COVER (AS SHOWN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONCRETE</td>
<td>4,500 PSI</td>
<td>MIX NO. 3</td>
</tr>
<tr>
<td>ALLOWABLE DEPTH</td>
<td>AS SHOWN</td>
<td></td>
</tr>
</tbody>
</table>
**NOTES**

1. SEE STD. DETAIL D-2.00 FOR GENERAL NOTES. SEE TABLE ON STD. DETAIL D-2.16B FOR INFORMATION REGARDING CONCRETE, REINFORCING, ALLOWABLE DEPTH AND SUBGRADE OPENINGS FOR PRECAST & OP INLETS.

2. INLET MAY BE CONSTRUCTED OF PRECAST OR REINFORCED CONCRETE (SEE TABLE, DETAIL D-2.16B). SIZE, TYPE AND DIRECTION OF INLET CONNECTION WILL VARY TO SUIT CONDITIONS. SEE STD. DETAIL D-1.

3. THIS INLET SHALL NOT BE USED IN ROADWAY SUMPS. USE EQUIVALENT (D-2.1B) OR LARGER COMBINATION INLET AT A SUMP WITHIN ROAD RIGHT-OF-WAY.

4. PLACE APPROVED 1/4" EXPANSION MATERIAL FOR PAVEMENT AT LOCATIONS SHOWN ON DETAIL D-2.26.

5. INLET MAY BE USED IN MEDIAN DITCHES OR AS A YARD INLET, WITH OR WITHOUT A CONCRETE COLLAR. SEE STD. DETAIL D-2.16B. PARALLEL BAR GRATE (STD. DETAIL D-2.17) SHALL BE USED IN THESE APPLICATIONS, UNLESS OTHERWISE DIRECTED ON PLANS OR BY THE ENGINEER.

6. SUBGRADE DRAINAGE - 1 EACH WALL, OFFSET AS REQUIRED TO AVOID STEPS AND PIPES. SEE TABLE ON STANDARD DETAIL D-2.16B.

7. CAST-IN-PLACE REINFORCEMENT REQUIRED ON OUTSIDE & INSIDE OF WALLS BELOW 7'-0" WHEN "H" IS GREATER THAN 7'-0". SPACING IS SAME AS FOR INSIDE OF WALL.

8. USE APPROVED BICYCLE-SAFE GRATE (SEE DETAIL D-2.21A) WITHIN ALLEYS & PUBLIC ROAD R/W.
NOTE: THE CONCRETE MEDIAN DITCH TO BE USED IN CONNECTION WITH THIS INLET WILL BE WARPed FROM THE STANDARD SECTION TO MEET THE SECTION AT THE END OF THE INLET. THIS TRANSITION WILL TAKE PLACE WITHIN A DISTANCE OF TEN FEET FROM THE INLET. PAYING WITHIN TEN FEET OF THE INLET TO BE INCLUDED IN THE UNIT PRICE BID FOR THE INLET.

FOR INLET IN SUMP, MODIFY SLOPES AS SHOWN IN THE ISOMETRIC VIEW ON DETAIL PLATE D-2.19B

ISOMETRIC VIEW
MEDIAN DITCH APPLICATION

SECTION B-B
MEDIAN DITCH APPLICATION

SECTION A-A
MEDIAN DITCH APPLICATION

SECTION B-B
YARD INLET APPLICATION

PLAN VIEW
OPTIONAL CONCRETE COLLAR

W = 2" OR AS SHOWN ON PLANS

#4 BARS

OPTIONAL CONCRETE COLLAR SHOWN

TYPE S SINGLE FRAME AND GRATE SEE DETAIL D-2.17

10' PAYMENT LIMIT (TYP)

W 6" 20" 110"

#4 BAR

SECTION A-A
YARD INLET APPLICATION

REFER TO NOTES 1 THROUGH 7 ON DETAIL D-2.16A.

<table>
<thead>
<tr>
<th></th>
<th>PRECAST</th>
<th>CAST-IN-PLACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6&quot; MIN.</td>
<td>8.1/2&quot;</td>
</tr>
<tr>
<td>REINF.</td>
<td>2 LAYERS- 4x4</td>
<td>#4 BARS @ 8&quot; O/C E.W.</td>
</tr>
<tr>
<td></td>
<td>W4.0 x W4.0 = WWF</td>
<td>2&quot; COVER SEE NOTE 7 ON DETAIL D-2.16A</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>4.500 PSI</td>
<td>MIX NO. 3</td>
</tr>
<tr>
<td>ALLOWABLE DEPTH</td>
<td>B.C.BE/C APPROVAL REQUIRED OVER 15&quot;</td>
<td></td>
</tr>
<tr>
<td>SUBGRADE OPENINGS</td>
<td>SEE DETAIL D-2.00</td>
<td>4&quot; x 4&quot; OPENINGS OR ALTERNATE AS DIRECTED</td>
</tr>
</tbody>
</table>

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS
TYPE S INLET
SINGLE GRATE
YARD & MEDIAN APPLICATIONS

PLATE D-2.16B

ISSUED: AUGUST, 1997
REVISED: OCTOBER, 2001
DATE 3/18/02
DIRECTOR WILLIAM KOPPENHAN
BUR OF ENGINEERING/CONSTRUCTION
NOTE: ALL DIMENSIONS ARE SHOWN IN ENGLISH AND [METRIC].
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
WEIGHT: GRATE APPROX. 338#/EA., FRAME APPROX. 182#/EA.
FRAME: PER THIS DETAIL OR PER DETAIL D-2.17
CONCRETE HEAD PIECE

6'-3"

FLOW

CONC. GUTTER FLARE(TYP.) SEE DETAIL D-2.26

PLAN
TYPE S GRATE AND FRAME WITH CUT FLANGE.

SUBGRADE DRAIN OPENING - 1 EACH SIDE. SEE TABLE

PERSPECTIVE VIEW

NOTES:
1. SEE STD. DETAIL D-2.00 FOR GENERAL NOTES.
2. SEE NOTES 2 THROUGH 5 AS SHOWN ON STD. DETAIL D-2.19A.

SECTION Y-Y
OFFSET SUBGRADE DRAIN OPENING AS REQ'D TO AVOID STEPS, PIPES. MAINTAIN 6" CLEAR TO PIPE, EDGE OF WALL

SECTION X-X
BACKFILL (ALL SIDES) PER STANDARD DETAIL G-2

GENERAL NOTES
11, 12

TABLE

<table>
<thead>
<tr>
<th></th>
<th>PRECAST</th>
<th>CAST-IN-PLACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6&quot; MIN.</td>
<td>8 1/2&quot;</td>
</tr>
<tr>
<td>REINF.</td>
<td>2 LAYERS- 4x4 W4.0 x W4.0- WWF</td>
<td>#4 BARS @ 6&quot; C/C E.W. 2&quot; COVER (NOTE 5)</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>4,500 PSI</td>
<td>MIX NO. 3</td>
</tr>
<tr>
<td>ALLOWABLE DEPTH</td>
<td>B.C.B.E/C APPROVAL REQUIRED OVER 15'</td>
<td></td>
</tr>
<tr>
<td>SUBGRADE OPENING</td>
<td>SEE DETAIL D-2.00</td>
<td>4&quot; x 4&quot; OPENINGS OR AS DIRECTED.</td>
</tr>
</tbody>
</table>

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS
TYPE S
COMBINATION INLET
D-2.18
NOTES

1. SEE STD. DETAIL D-2.00 FOR GENERAL NOTES.

2. INLET MAY BE CONSTRUCTED OF PRECAST OR REINFORCED CONCRETE. SIZE, TYPE AND DIRECTION OF INLET CONNECTION WILL VARY TO SUIT CONDITIONS. SEE DETAIL G-1.

3. PLACE 1/4" EXPANSION MATERIAL OF SAME TYPE APPROVED FOR PAVEMENT AT LOCATIONS SHOWN ON STD. DETAIL D-2.26, & BETWEEN THE FRAME AND ABUTTING RIGID PAVEMENT.

4. SUBGRADE DRAINAGE - 1 EACH WALL OFFSET AS REQ'D TO AVOID STEPS, PIPES. SEE TABLE.

5. CAST-IN-PLACE REINFORCEMENT REQUIRED ON OUTSIDE, AS WELL AS INSIDE, OF WALLS BELOW 7'-0" WHEN 'H' IS GREATER THAN 7'-0". SPACING IS SAME AS FOR INSIDE OF WALL.

6. SUPPORT BEAM SHALL NOT BE USED.

7. USE APPROVED BICYCLE-SAFE GRATE (STD. DETAIL D-2.21A) WITHIN ALLEYS AND PUBLIC ROAD RIGHT-OF-WAY.

8. INLET MAY BE USED IN MEDIAN DITCHES OR AS A YARD INLET, WITH OR WITHOUT A CONCRETE COLLAR. SEE STD. DETAIL D-2.19B. USE PARALLEL BAR GRATE (STD. DETAIL D-2.21) FOR YARD AND MEDIAN INLETS OUTSIDE OF PUBLIC ROAD RIGHT-OF-WAY.

9. TYPE 'S' INLET - DOUBLE GRATE TANDEM MAY BE USED WITH ONE END ADJACENT TO CURB. FRAME WILL BE LAID ON NORMAL SLOPE OF ROADWAY UNLESS NOTED OTHERWISE. ORIENT FRAMES & GRATES AS REQUIRED TO COLLECT RUNOFF. FRAME & GRATE DIMENSIONS SAME AS WHEN SIDE IS ADJACENT TO CURB AS SHOWN ON LEFT.

10. THIS INLET SHALL NOT BE USED IN ROADWAY SUMPS. USE A COMBINATION INLET (STD. DETAIL D-2.20) AT A SUMP WITHIN ROAD RIGHT-OF-WAY.

<table>
<thead>
<tr>
<th>PRECAST</th>
<th>Poured-in-place</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> 6&quot; MIN.</td>
<td><strong>8 1/2&quot;</strong></td>
</tr>
<tr>
<td>REINF.</td>
<td>#4 BARS @ 6&quot; C/C E.W.</td>
</tr>
<tr>
<td>W4.0 x W4.0 = WWF</td>
<td>2&quot; COVER SEE NOTE 5.</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>MIX NO. 3</td>
</tr>
<tr>
<td>4,500 PSI</td>
<td></td>
</tr>
<tr>
<td>ALLOWABLE DEPTH</td>
<td>B.C.B.E/C APPROVAL REQUIRED OVER 15'</td>
</tr>
<tr>
<td>SUBGRADE OPENINGS</td>
<td>SEE DETAIL D-2.00</td>
</tr>
</tbody>
</table>

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS

TYPE S INLET
DOUBLE GRATE TANDEM
(NO SUPPORT BEAM)

PLATE D-2.19A
NOTE: THE CONCRETE MEDIAN DITCH TO BE USED IN CONNECTION WITH THIS INLET WILL BE WARPED FROM THE STANDARD SECTION TO MEET THE SECTION AT THE END OF THE INLET. THIS TRANSITION WILL TAKE PLACE WITHIN A DISTANCE OF TEN FEET FROM THE INLET. CONCRETE DITCH PAVING WITHIN TEN FEET OF THE INLET TO BE INCLUDED IN THE UNIT PRICE BID FOR THE INLET.

FOR INLET ON GRADE, MODIFY SLOPES AS SHOWN IN THE ISOMETRIC VIEW ON DETAIL PLATE D-2.16B

SUPPORT BEAM IS NOT TO BE USED.

ISOMETRIC VIEW
MEDIAN DITCH APPLICATION

SECTION B-B
MEDIAN DITCH APPLICATION

SECTION A-A
MEDIAN DITCH APPLICATION

SECTION B-B
YARD INLET APPLICATION

SECTION A-A
YARD INLET APPLICATION

REFER TO NOTES 1 THROUGH 8 ON DETAIL D-2.19A.

<table>
<thead>
<tr>
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<th>PRECAST</th>
<th>Poured-In-Place</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>6' MIN.</td>
<td>8 1/2&quot;</td>
</tr>
<tr>
<td>REINF.</td>
<td>2 LAYERS - 4x4</td>
<td>#4 BARS @ 6&quot; C/C E.W.</td>
</tr>
<tr>
<td></td>
<td>W4.0 x W4.0 - WWF</td>
<td>2&quot; COVER; SEE NOTE 5 ON STD. DETAIL D-2.19A</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>4,500 PSI</td>
<td>MIX NO. 3</td>
</tr>
<tr>
<td>ALLOWABLE DEPTH</td>
<td>B.C.B.E/C APPROVAL REQUIRED OVER 15'</td>
<td></td>
</tr>
<tr>
<td>SUBGRADE OPENINGS</td>
<td>SEE DETAIL D-2.00</td>
<td>4&quot; x 4&quot; OPENINGS OR ALTERNATE AS DIRECTED</td>
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</table>

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS
TYPE S INLET
DOUBLE GRATE TANDEM
YARD & MEDIAN APPLICATIONS

ISSUED: AUGUST, 1997
REVISED: NOVEMBER, 2001
PLATE D-2.19B
NOTES
1. SEE STD. DETAIL D-2.00 FOR GENERAL NOTES.

2. INLET MAY BE CONSTRUCTED OF PRECAST OR REINFORCED CONCRETE. SIZE, TYPE AND DIRECTION OF INLET CONNECTION WILL VARY TO SUIT CONDITIONS. SEE STANDARD DETAIL D-1.

3. CAST-IN-PLACE REINFORCEMENT REQUIRED ON OUTSIDE, AS WELL AS INSIDE, OF WALLS BELOW 7'-0" WHEN 'H' IS GREATER THAN 7'-0". SPACING IS SAME AS FOR INSIDE OF WALL.

4. PLACE 1/4" EXPANSION MATERIAL OF SAME TYPE APPROVED FOR PAVEMENT AT LOCATIONS SHOWN ON STANDARD DETAIL D-2.26, AND BETWEEN FRAME & ABUTTING RIGID PAVEMENT.

5. SUBGRADE DRAINAGE - 1 OPENING PER SIDE. OFFSET AS REQ'D. SEE TABLE.

6. USE APPROVED BICYCLE-SAFE GRATE (STD. DETAIL D-2.21A) WITHIN ROAD RIGHT-OF-WAY.

7. PIPE OPENINGS IN FRONT OR REAR WALL OF INLET SHALL MAINTAIN 6" MINIMUM CLEARANCE TO SUPPORT BEAM.

SECTION A-A
SEE STD. DETAIL G-2 (PRECAST)
BACKFILL ALL SIDES (SEE STD. DETAIL D-2.00)

<table>
<thead>
<tr>
<th>PRECAST</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>6&quot; MIN.</td>
</tr>
<tr>
<td>REINF.</td>
<td>2 LAYERS - 4x4</td>
</tr>
<tr>
<td></td>
<td>W4.0 x W4.0 WWF</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>4,500 PSI</td>
</tr>
<tr>
<td>ALLOWABLE DEPTH</td>
<td>B.C.B.E/C APPROVAL REQUIRED OVER 15'</td>
</tr>
<tr>
<td>SUBGRADE OPENINGS</td>
<td>SEE DETAIL D-2.00</td>
</tr>
</tbody>
</table>
CURVED VANE (S-CV) GRATE
FOR TYPE S INLET FRAMES

NOTE: ALL DIMENSIONS ARE SHOWN IN ENGLISH AND [METRIC].
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
WEIGHT: GRATE APPROX. 33.8#.
GRATE SHALL SIT SQUARE UPON FRAME SUPPORTS WITHOUT ROCKING OR SHIFTING UNDER LOAD. GRATE SHALL MEET OR EXCEED AASHTO HS20 LOAD STANDARDS.
FRAME: PER DETAIL D-221B OR DETAIL D-2.21

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS

CURVED VANE (S-CV) GRATE
FOR TYPE S INLET FRAMES

PLATE
D-2.21A
DOUBLE TYPE S FRAME (CLASS 35)
WITH CURVED VANE (S-CV) GRATES

NOTE: ALL DIMENSIONS ARE SHOWN IN ENGLISH AND METRIC.
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
WEIGHT: GRATE APPROX. 33#/EA., FRAME APPROX. 165#/EA.

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS

PLATE D-2.21B
NOTES

1. SEE GENERAL NOTES, STANDARD DETAIL D-2.00.

2. SEE DETAIL D-2.22B FOR PRECAST TOP SLAB AND OPTIONAL CONCRETE COLLAR DETAIL.

3. FOR PIPE SIZE, LOCATION AND INVERT ELEVATIONS, REFER TO PLANS. USE 24" MAXIMUM DIAMETER PIPE OUTFALL WITH STRUCTURE SHOWN. CONSTRUCT INLET HEADPIECE OVER TYPE A MANHOLE STRUCTURE WHERE 27" OR LARGER DRAIN PIPES ARE REQUIRED. SHOW HEADPIECE DETAIL ON PLANS IN THIS CASE.

4. THIS INLET SHALL NOT BE USED ADJACENT TO PUBLIC ROADS OR ALLEYS NOR IN ANY LOCATION WHERE VEHICLES COULD ENCOUNTER IT.

5. OPENINGS TO BE PLACED IN ANY OR ALL SIDES AS DIRECTED BY ENGINEER OR ON PLANS. OPENING LIP ELEVATION TO BE SET IN THE FIELD.

6. PRECAST RISER TO BE REPLACED AT CONTRACTOR'S EXPENSE IF TOP SLAB SUPPORTS ARE BROKEN.
CROSS SECTION

<table>
<thead>
<tr>
<th>PRECAST</th>
<th>CAST-IN-PLACE (CIP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>6&quot; MINIMUM</td>
</tr>
<tr>
<td>REINF.</td>
<td>2 LAYERS- 4x4</td>
</tr>
<tr>
<td>W4.0 x W4.0- WWF</td>
<td>BOTH FACES; 16&quot; BAR LAPS; CONTINUOUS AT CORNERS</td>
</tr>
<tr>
<td>REINF.COVER</td>
<td>1.5 INCH MIN.</td>
</tr>
<tr>
<td>INVERT</td>
<td>APPROVED PRECAST, PLAIN MIX #3</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>CONCRETE OR BRICK</td>
</tr>
<tr>
<td>SUBGRADE OPENING</td>
<td>SEE DETAIL D-2.00</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>4,500 PSI</td>
</tr>
</tbody>
</table>

NOTES

1. SEE GENERAL NOTES, STANDARD DETAIL D-2.00.
2. USE MIX #2 CONCRETE FOR CONCRETE APRON.
3. FOR PIPE SIZE, LOCATION AND INVERT ELEVATIONS, REFER TO PLANS. USE 24" MAXIMUM DIAMETER PIPE OUTFALL WITH STRUCTURE SHOWN. CONSTRUCT INLET HEADPIECE OVER TYPE A MANHOLE STRUCTURE WHERE 27" OR LARGER DRAIN PIPES ARE REQUIRED. SHOW HEADPIECE DETAIL ON PLANS IN THIS CASE.
4. PRECAST RISER TO BE REPLACED AT CONTRACTOR'S EXPENSE IF TOP SLAB SUPPORTS ARE BROKEN.
5. OPENINGS TO BE PLACED IN ANY OR ALL SIDES AS DIRECTED BY ENGINEER OR ON PLANS. SUPPORT FRAME ABOVE OPENING ON 2" HIGH CORNER PEDESTALS.
6. CAST IRON CURVED VANE GRATES OR CAST IRON PARALLEL BAR GRATES SHALL BE USED WITH CAST IRON FRAME FOR THIS APPLICATION. SEE STD. DETAILS D-2.17, D-2.17A.

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS
ALTERNATE Y-1 INLET

PLATE D-2.22C
NOTE: INLET TO BE USED IN SUMP, NOT FOR USE IN PUBLIC ROAD. CONNECTIONS TO BE LIMITED AS SHOWN TO ONE INCOMING & ONE OUTGOING 15" PIPE EACH, WITH HORIZONTAL ANGLES AS SHOWN. NOT FOR USE ADJACENT TO WOODED AREAS.
NOTE:
SEE DETAIL PLATE D-2.22A FOR ALL DATA NOT SHOWN.

SECTION A - A

NOTE:
8" DIAMETER KNOCKOUT (TYP) SEE STANDARD PLATE D-2.36. NO KNOCKOUT AT STEP LOCATION.

CENTRAL LINE SWALE
FLOW
FLOW TO DOWN-GRAD
STRUCTURE OR TO COUNTY DRAINAGE EASEMENT OR ROAD RIGHT OF WAY.

FLOW

CENTER LINE SWALE
1' 0"

8" DIA. KNOCKOUT * 8" MIN.

8" MIN.

2'-6" (Y-1) (SHOWN)

4'-0" (B-MH)

4'-0" (B-MH)

6" MIN.

2" CROSS-SECTION

USE SHAPED INVERT WITH INCOMING PIPE

USE B MANHOLE & TOP SLAB IF PIPES ARE LARGER THAN 24" OR IF PIPES ENTER AT ANGLE OTHER THAN 90' TO INLET FACE. SEE DETAIL G-1.

NOTE:
INLET TO BE USED IN SUMP, MAXIMUM DESIGN CAPACITY Q= 3.0 CFS.
TO BE USED WITH 15" RCCP MINIMUM, 24" RCCP MAXIMUM CONNECTION.
NOT TO BE USED IN ROADWAY OR ADJACENT TO PARKING OR DRIVEWAY AREA. NOT FOR USE ADJACENT TO WOODED AREAS DUE TO POSSIBLE DEBRIS BLOCKAGE. USE OF PRECAST OR CAST-IN-PLACE Y-1 INLET (D-2.22A) IS REQUIRED FOR OTHER SWALE CONDITIONS.

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS

TYPE Y-3 INLET
WITH Y-1 INLET BASE, BEEHIVE GRATE

PLATE D-2.24A

ISSUED: AUGUST, 1997
REVISED: MAY, 2002

APPROVAL
DIRECTOR
BUREAU OF ENGINEERING/CONSTRUCTION

William Breed

SIGNATURE
DATE

5/1/02
NOTE: INLET TO BE USED IN SUMP, MAXIMUM DESIGN CAPACITY Q = 3.0 CFS. TO BE USED WITH 15" RCCP CONNECTION, NOT TO BE USED IN ROADWAY OR ADJACENT TO PARKING OR DRIVEWAY AREAS. CONNECTIONS SHALL BE LIMITED AS SHOWN ON DETAIL D-2.23. NOT FOR USE ADJACENT TO WOODED AREAS DUE TO POSSIBLE DEBRIS BLOCKAGE.
NOTE:
SEE DETAIL PLATE D-2.22A FOR ALL DATA NOT SHOWN.

SECTION A - A

6' APPROX. LIMITS OF SODDING

SPILLWAY 6' MINIMUM (DEPTH TO BE SET ASSUMING COMPLETE CLOGGING OF GRATE OPENINGS.)

CENTER LINE OF SWALE

TOP OF BANK

CENTER LINE OF SWALE

FLOW TO NEXT DOWN-GRADE STRUCTURE OR TO COUNTY DRAINAGE EASEMENT OR ROAD RIGHT OF WAY.

ONE 24" DIA. PRECAST CONC. GRADE ADJUSTING RING (DETAIL G-3) - 2', 3' OR 6' HIGH, MORTARED IN PLACE

TOP SLAB WITH SIDEWALK FRAME ONLY. (NO COVER) (SEE DETAIL D-2.22 FOR FABRICATION DETAILS.)

PRECAST JOINTS - SEE NOTE 3, DETAIL D-2.00

USE SHAPED INVERT WITH INCOMING PIPE

USE B MANHOLE & TOP SLAB IF PIPES ARE LARGER THAN 24" OR IF PIPES ENTER AT ANGLE OTHER THAN 90° TO INLET FACE. SEE DETAIL G-1.

CROSS-SECTION

NOTE:
INLET TO BE USED IN SUMP. MAXIMUM DESIGN CAPACITY Q= 3.0 CFS. TO BE USED WITH 15" RCCP MINIMUM, 24" RCCP MAXIMUM CONNECTION. NOT TO BE USED IN ROADWAY OR AdjACENT TO PARKING OR DRIVEWAY AREA. NOT FOR USE ADJACENT TO WOODED AREAS DUE TO POSSIBLE DEBRIS BLOCKAGE. USE OF PRECAST OR CAST-IN-PLACE Y-1 INLET (D-2.22A) REQUIRED FOR OTHER SWALE CONDITIONS.

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS

TYPE Y-4 INLET
WITH Y-1 INLET BASE, STOOL GRATE

PLATE D-2.25A
STOOL TYPE GRATE

ISOMETRIC

6" APPROX. LIMITS
OF SODDING

CENTER LINE
OF SWALE

FLOW TO NEXT
DOWN-GRADE
STRUCTURE OR
TO COUNTY DRAINAGE
EASEMENT OR ROAD
RIGHT OF WAY.

FLOW

TOP SLAB WITH SIDEWALK
FRAME ONLY. (NO COVER)
(SEE DETAIL D-2.22 FOR
FABRICATION DETAILS.)

MIN. CIRCUM. REINFORCING
PER ASTM C-478 UNLESS
OTHERWISE NOTED.

USE SHAPED INVERT
WITH INCOMING PIPE

POUR AGAINST
UNDISTURBED
EARTH

MIX NO. 3 CONCRETE

UNDISTURBED EARTH

CROSS-SECTION

NOTES:

INLET TO BE USED IN SUMP. MAXIMUM DESIGN CAPACITY Q = 3.0 CFS.
TO BE USED WITH 15" RCCP CONNECTION.

NOT FOR USE IN ROADWAY OR ADJACENT TO PARKING OR DRIVEWAY
AREA. NOT FOR USE ADJACENT TO WOODED AREAS DUE TO POSSIBLE
DEBRIS BLOCKAGE.

CONNECTIONS LIMITED TO ONE INCOMING AND ONE OUTGOING 15" PIPE,
WITH HORIZONTAL CONNECTIONS AS SHOWN IN SECTION A-A ON DETAIL
D-2.23.

A MINIMUM OF 6" OF RISER WALL SHALL BE MAINTAINED BETWEEN PIPE
OPENINGS.

30" DIA. RCCP CL3, 4 OR 5 MAY BE SUBSTITUTED FOR BASE SHOWN.

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS

TYPE Y-4 INLET
WITH Y-2 INLET BASE, STOOL GRATE

PLATE
D-2.25B
GENERAL NOTES
1. CONCRETE TO BE 4500 psi PRECAST.
2. REINFORCING - 2 LAYERS OF 4x4 - W4.0xW4.0 WELDED WIRE FABRIC.
3. THREADED PLASTIC INSERTS TO BE PROVIDED FOR HANDLING.
4. GRATING SHALL BE STEEL "IRVING X-BAR TYPE AA" OR APPROVED EQUIVALENT. ALL MATERIAL TO BE HOT DIP GALVANIZED PER ASTM A-153.
5. GRADE AND SLOPE ADJUSTMENTS TO BE COMPLETED IN THE FIELD USING CONCRETE MIX NO. 6, BRICK AND MORTAR OR APPROVED GRADE RING. MINIMUM 1 LAYER OF BRICK OR 3" OF CONCRETE.
6. PIPE OPENINGS TO BE PROVIDED AS REQUIRED. FOR SIZE, LOCATION AND INVERT ELEVATIONS REFER TO PLANS.
7. PLACEMENT OF SUBGRADE DRAINAGE WILL BE AS DIRECTED BY THE ENGINEER OR AS NOTED ON THE PLANS.
8. INVERT TO BE CONCRETE OR BRICK AND SHALL SLOPE 2" PER FOOT TOWARD OUTLET OR AS DIRECTED BY THE ENGINEER. (INVERT PROVIDED IN THE FIELD OR AS NOTED ON PLANS.)
9. NOT FOR USE WHERE VEHICLE WHEEL LOADING CAN OCCUR. USE SINGLE "S" INLET WHERE WHEEL LOADS ARE POSSIBLE.
10. 5'-0" MAX., 3'-6" MIN. DEPTH TO TOP OF GRATE WHEN RISER IS NOT USED.
11. EXPANSION ANCHORS MAY BE USED INSTEAD OF BOLTS.

SECTION A-A

SECTION B-B

LAP SPlice TO MAKE REINFORCEMENT CONTINUOUS AROUND OUTSIDE CORNER.

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS
PRECAST Y-5
YARD INLET

PLATE D-2.25C
PLAN
STD. CURB & GUTTER (DETAIL R-21)

LENGTH OF INLET OR INLETS
5'-0" FACE OF CURB

EXPANSION JOINT AT GRADE BREAK (TYP)

STD. CURB & GUTTER (DETAIL R-21)

GRADE BREAKS (TYP)

ADJUST CROSS-SLOPE AS REQ'D. TO MATCH CONCRETE GUTTER FLARE (TYP)

CONCRETE GUTTER FLARE

EXTEND GUTTER FLARE TO FRONT EDGE OF FRAME

BEGIN BREAK IN CROSS-SLOPE GRADE AT OUTER EDGE OF INLET FRAME

SECTION A - A
UNDEPRESSED GUTTER SLOPE
INLET CURB PIECE
CURB OPENING

TRANSITION SECTION TO TERMINUS OR TO MOUNTABLE CURB.
7-3/16" 1" DEPRESSION
3" AT TERMINUS
FLOW LINE

NORMAL CURB FACE

5'-0" CURB SHALL BE TRANSITION SECTION WHERE ADJACENT CURB & GUTTER ISN'T USED OR IS MOUNTABLE (R-21).

SEE STANDARD DETAILS D-2.00 THROUGH D-2.03 FOR GUTTER DEPRESSIONS AT TYPE A & B INLETS

SECTION B - B

DEPRESSED X-SLOPE

NORMAL X-SLOPE

FACE OF CURB

DEPR.

PROJECTED NORMAL X-SLOPE
NOTES

1. APPLICABLE TO TYPE E, TYPE S AND DOUBLE TYPE S GRATE & COMBINATION INLETS. DOUBLE TYPE E AND CURB OPENING INLETS REQUIRE A SPECIAL DETAIL.

2. SLAB TO BE OF MIX #3 CONCRETE WITH #5 REBARS @ 6" O/C EACH WAY.

3. BACKFILL OVER SLAB WITH FLOWABLE FILL OR SELECT BORROW AS DIRECTED BY THE ENGINEER. WHERE ACCESS MUST BE MAINTAINED, SET 24" STD. HEAVY TRAFFIC FRAME & COVER TO GRADE ATOP SLAB MODIFIED WITH 24" OPENING.