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- GUARDRAIL OVER CULVERTS, TYPE 2
- CURVED GUARDRAIL SECTION
- END ANCHORAGE
- BURIED END SECTION
- POST, CONCRETE BLOCK, BURIAL ANCHOR DETAIL
- GUARDRAIL TO GUARDRAIL CONNECTION, APPROACH TYPE 1
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#### B-3 (2007) - BRIDGE RAIL RETROFIT, TYPE 1

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- SLOTTED PLATE CONNECTION DETAILS

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**DELAWARE DEPARTMENT OF TRANSPORTATION**

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**E/2/2008**
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NOTES:

1. THE AREA OF DETECTABLE WARNING TRUNCATED DOMES SHALL BE 24"x1600" LONG AND THE FULL WIDTH OF THE RAMP OR DEPRESSED CURB.
2. SEE SPECIFICATION FOR ADDITIONAL INFORMATION.

ELEVATION A-A

SECTION B-B

MAXIMUM DIFFERENCE IN GRADE

FOR EXAMPLE, IF THE CURB RAMP AND DEPRESSED CURB SLOPE X IS 4% AND THE PAVEMENT SLOPE Y IS 2%, THEN TO DETERMINE THE DIFFERENCE IN GRADE, ADD X + Y TO GET 6%, WHICH IS GREATER THAN THE 4% PRECEDING BUT LESS THAN THE 1% MAXIMUM.

CURB RAMP, TYPE I AND SECTIONS

NOTES:

1. WHERE A MAXIMUM SLOPE RAMP WILL NOT MEET THE SIDEWALK GRADE WITHIN A LENGTH OF 6' (1.83M) DUE TO STEEP ADJACENT ROADWAY, THE RAMP LENGTH MAY BE LIMITED TO 6' (1.83M) AND ALLOWED TO EXCEED 4%. 
2. RAMP AND SIDEWALK CROSS SLOPE SHALL BE 5% (0.05) MAXIMUM.
3. IF GRADE WILL BE STEEPER THAN 6%, THEN A TYPE I CURB OR RETAINING WALL SHOULD BE USED TO ELIMINATE THE NEED FOR THE STEEP SLOPE.
4. THE MAXIMUM DIFFERENCE IN GRADE BETWEEN THE CURB RAMP OR MODIFIED CURB AND THE PAVEMENT SHALL BE 1%/100, HOWEVER 0% IS PREFERRED.

DEPARTMENT OF TRANSPORTATION

DELTA USE (C-2 (2006))

STANDARD NO. C-2 (2006)

SHT. 1 OF 4

APPROVED

DATE: 4/18/2006

DESIGNER: M. O. L. 1/17/2008
PLAN

- **:** JOINT
- **:** EXPANSION MATERIAL

SECTION A-A

ENTRANCE WITH SIDEWALK

SECTION B-B

ENTRANCE WITHOUT SIDEWALK

NOTE: IF WIDTH OF DRIVEWAY IS 16' (4870) OR GREATER, THE Y-FLARE CAN BE OMITTED.

DELaware DEPARTMENT OF TRANSPORTATION

STANDARD NO. C-I (2006)

ENTRANCES

APPROVED

Recommended

09/30/2008
TYPE 1 JOINT DETAIL

- 2" (50) x 4" (100) temporary drainage opening
- Top unit (cast in place)
- Type 1 joint (typ.)
- Type 3 joint (typ.)
- Cast-in-place concrete flow channel (typ.)

TYPE 2 JOINT DETAIL

- Dimensions will vary
- Joint sealant as per specifications
- Only between 2 precast units

TYPE 3 JOINT DETAIL

- Cover slab
- Box wall
- Top unit (cast in place)
- Type 1 joint (typ.)
- Inlet box (pre-cast)

DOUBLE INLET SECTION

- Form and pour concrete to support frames
- Gutter flow line
- Type 1 joint (typ.)
- Type 3 joint (typ.)

SECTION A-A

- Section A-A

SECTION B-B

- Section B-B

DELAWARE
DEPARTMENT OF TRANSPORTATION

DRAINAGE INLET ASSEMBLY

STANDARD NO. D-6 (2008)

SHT. 1 OF 9

APPROVED

4/19/08

RECOMMENDED

11/15/08

D/16/2008
DELWARE DEPARTMENT OF TRANSPORTATION

DRAINAGE INLET COVER SLAB DETAILS


APPROVED  RECOMMENDED

NOTES:
8. "5" (125) THROAT IS FOR TYPE B TOP UNIT ONLY.
9. RELOCATE INCREASING REINFORCING BARS WHEN USING TYPE B UNIT.
10. COVER SLABS SHALL BE PRE-CAST AND MUST BE SIZED TO FIT INLET BOX DIMENSIONS.
11. ALL BARS TO BE "5" SPACED @ "5" SPACING UNLESS NOTED OTHERWISE. TOP REINFORCEMENT SHALL BE 0.2 IN (5 mm) HORIZONTAL REINFORCEMENT PER FOOT IN BOTH DIRECTIONS.
12. MINIMUM BAR COVER = 1/2 (12.5 CBM)

- DIMENSIONS TO MATCH OUTSIDE TO OUTSIDE DIMENSIONS OF BOX.

SECTION A-A

SECTION B-B
FOR TYPES A, C, D, & E TOP UNITS

66" (1675) x 66" (1675) INLET

48" (1220) x 30" (760) INLET

48" (1220) x 48" (1220) INLET

66" (1675) x 30" (760) INLET

66" (1675) x 48" (1220) INLET

THROAT OPENING: SEE NOTE 1

SCALE: 1" = 5'

THRUWS: 12' 0"
72" (830) x 72" (830) INLET

SECTION B-B
FOR TYPE B TOP UNITS

SECTION B-B
FOR TYPES A, C, D, E TOP UNITS

NOTES:
1. Throat is for Type 5 Top Units only.
2. Relocate overlapping reinforcing bars when using Type B Top Units.
3. Cover slabs are to be precast and must be sized to fit inlet box dimensions.
4. All bars are to be #5 spaced at 6" (150) unless noted otherwise. Top reinforcing shall be #8 in 70 mm² minimal horizontal reinforcement per foot in both directions.
5. Minimum bar cover = 1½" (36).

DELaware
DEPARTMENT OF TRANSPORTATION

DOUBLE INLET COVER SLAB DETAILS

SHT. 5 OF 9

APPROVED

RECOMMENDED
**Delaware Department of Transportation**

**34" (865) x 24" (610) Drainage Inlet and Cover Slab Details**

**Approved**

**Standard No.:** D-6 (2008)

**Sheet: 6 of 9**

**Diagram Notes:**
- See optional pipe opening detail on Standard No. D-4, Sheet 10F 1

**Top Unit Details:**
- Type A
- Type B
- Type D
- Type C
- Type E

**Section A-A:**
- Drainage inlet details
- Cast-in-place concrete flow channel (Typ)

**Section B-B:**
- 2 - #5 bars

**Section C-C:**
- 2 - #5 bars

**Section D-D:**
- 4 - #5 bars

**Plan:**
- Cover slab details

**Cover Slab Opening:**
- Edge of cover slab

**5503 Bending Diagram:**
- 5503 is not required to be one continuous bar if more than one bar is used, there must be a 2' (600) overlap between bars.

**Scale:** N.T.S.
Notes:

1. Refer to previous sheets for reinforcement requirements.
2. The height of this inlet is limited to 1/4200 maximum, therefore steps will not be required and should not be installed on this inlet.

SS04 is required to be one continuous bar. If more than one bar is used, there must be a 1/2 inch overlap between bars.

**DEL A WARE**
DEPARTMENT OF TRANSPORTATION

34" (860) x 18" (455) DRAINAGE INLET DETAILS

STANDARD NO. D-7 (2008)  SHT. 7 OF 9  RBRECOMMENDED

11/15/2008
LIMITS OF PAYMENT II - 6' (1830) FOR DOUBLE GRATE

TRANSITION FROM PCC CURB AND GUTTER TYPE 2 TO 8' (2440) PCC CURB TYPE 1 WITH CURB OPENING (TYP.)

50' (1520) FOR SINGLE GRATE
44' (1345) (TYP.)

0' (0)

5' (1520)

2' (610)

FLOW LINE

EDGE OF GUTTER

STEPS IN FRONT WALL

3'/105"

*4 (16) REBAR

COVER SLAB OPENING

FLOW LINE

SINGLE GRATE SETUP

LIMITS OF PAYMENT II - 4' (1220)

TRANSITION FROM PCC CURB AND GUTTER TYPE 2 TO 8' (2440) PCC CURB TYPE 1 WITH CURB OPENING (TYP.)

8' (2440)

44' (1345) (TYP.)

0' (0)

2' (610)

FLOW LINE

EDGE OF GUTTER

3'/105"

*4 (16) REBAR

COVER SLAB OPENING

FLOW LINE

DOUBLE GRATE SETUP

NOTES:

1. MINIMUM BOX SIZE TO BE 34" (850) X 24" (600).
2. PIPE OPENINGS IN THE FRONT WALL SHALL NOT INTERFERE WITH THE STEPS. THE PIPE SHALL BE SHIFTED HORIZONTALLY TO AVOID THE STEPS.
   IT MAY BE NECESSARY TO USE A LARGER BOX TO AVOID CONFLICT BETWEEN STEPS AND PIPE OPENING.
3. SEE DETAIL D-3, SHEET 3 OF 9 FOR 5501 BAR DIAGRAM

DELTA gehören
DEPARTMENT OF TRANSPORTATION

DEPARTMENT OF TRANSPORTATION

SUBDIVISION INLET DETAILS

SHT. 8 OF 9

APPROVED

D-5 (2008)
1/21/2008
NOTES:

1. The perforated pipe underdrain shall be located as shown on the typical sections of the construction plans.
2. Geotextile filter fabric shall be placed entirely over the top of underdrain trench and lapped as shown.
3. Slope of underdrains shall match roadway grade, unless otherwise directed by the engineer.
4. Outlet pipe configurations shall use 90 degree elbows or shall use straight pipe with a minimum radius of 3' (900) to direct underdrain pipe into side of drainage inlet or to positive grade. Pipe shall also be non-perforated and have a smooth interior.
5. Rodent screen shall snugly fit the provided slot with the screen lip fitting tight to the bottom flow line.
6. A 4' (1200) flexible delineator shall be furnished and installed at the direction of the engineer to mark the location of the concrete headwall.
7. When two lines of pipe underdrain drain to a low point, each pipe must have its own outlet.
8. Perforated pipe underdrain shall not be placed under guardrail in order to avoid puncturing.

DELAWARE
DEPARTMENT OF TRANSPORTATION

PERFORATED PIPE UNDERDRAIN DETAIL

STANDARD NO. D-9 (2006) SHT. 1 OF 1

APPROVED

12/23/2008
1 3/8" X 4" HOLE TO ACCOMMODATE SURVEY CAP

1/2" X 24" (6000) STEEL ROD

SPOT WELD

LONGITUDINAL STEEL 6 GAGE (.08) WIRE SPACED 3" (75) C.C. 26"-1650 LONG 17" W.P.

TRANSVERSE STEEL 7 GAGE (.06) WIRE SPACED 8" (200) C.C.

SECTION A-A

ELEVATION

1/2"

1 1/2"

1/2"

1/2"

TOP DETAIL

NOTES:
1. LONGITUDINAL STEEL SHALL BE HELD IN PLACE BY CRADLES.
2. LETTERS TO BE COUNTERSUNK IN TOP OF MARKER 1/4" depth.
NOTES:
1. If the shared use path ends at a roadway or railroad crossing, then detectable warning truncated domes 24" x 6000 long and the full width of the path shall be installed. See detail c-2.
2. Steel tube to extend 7/8" above ground with concrete to slope away from tube to keep water and sediment from draining into tube.
3. Bollards are not required for a shared-use path less than 8' x 14500 wide.
4. Have the post as necessary so that it will fit in the steel tube.
5. The landing section shall be a minimum of 5' 10500 in length and shall have a maximum cross slope of 2%. The entire landing section must also be concrete.
6. The ramp section shall have a maximum cross slope of 2%. If a 0% running slope does not allow the ramp meet existing grade within 15' (4200), the running slope may exceed 0%.
PLAN

1. Proposed locations for transverse joints shall exactly match the alignment of the final existing or relocated transverse joints in all immediately adjacent lanes.

NOTES:

1. When repairing existing transverse joints, the patch shall extend a minimum of 24"/600 through the existing joint, which will relocate the joint.
2. Proposed locations for transverse joints, when not aligned with the final expected transverse joint locations in the immediately adjacent lanes, shall be offset a minimum of 2"/600 from the aforementioned joints.
3. The longitudinal joint alignment shall be straight and continuous through the repaired area.

SLAB PLAN (WITH DOWEL AND TIE LOCATIONS)

FNC PAVEMENT PATCHING

DELAWARE
DEPARTMENT OF TRANSPORTATION

STANDARD NO. P-13 (2008) SHT. 1 OF 5

APPROVED
RECOMMENDED
POLE BASE DATA CHART

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<th>#8 (1&quot;) Vertical Reinforcing Bars</th>
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<td>10' (3050)</td>
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* - Additional depth for pole base extension, if required, to be determined by traffic engineering and management team/field representative.

TYPICAL SECTION (BASES 5 AND 6)

NOTE:
See specifications and details from current purchasing contract for anchor bolt dimensions.