DelDOT
2020 Standard Details Changes: Sections II thru VIII
October 27, 2020

• 2020 Standard Details
  • Deletions
  • Major changes
  • Additions
THE STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION

STANDARD CONSTRUCTION DETAILS

THIS DOCUMENT USES U.S. CUSTOMARY UNITS
Section II: Curb and Gutter

Revised Standard Details

C-1  PCC Curb, Integral PCC Curb and Gutter, PCC Roundabout and Guardrail Median Curb (NEW)
C-2  Pedestrian Connection, Types 1 - 5
C-3  Entrances
C-5  Curb/Sidewalk Opening
Added Borrow Type F, Topsoil, and Finished Grade location. GABC is no longer mentioned as Type B. All items are no longer incidental to the curb.
DETAIL C-1

- NOTE 6 – INSTALL TYPE IV POLYURETHANE – BONDED RECYCLED RUBBER EXPANSION MATERIAL BETWEEN THE FACE OF CURB AND EDGE OF PCC PAVEMENT.
DETAIL C-1
Sheet 2

2017 INTEGRAL P.C.C. CURB & GUTTER

2020 INTEGRAL PCC CURB & GUTTER
Note 6 – “INSTALL TYPE IV POLYURETHANE – BONDED RECYCLED RUBBER EXPANSION MATERIAL BETWEEN THE FACE OF CURB AND EDGE OF PCC PAVEMENT.”
New detail for PCC Roundabout Curb and a new curb detail for median guardrail application to allow for deflection.
GUARDRAIL SECTION
MEDIAN APPLICATION

10:1 OR FLATTER

6" GABC
BORROW MATERIAL

6" X 6" CONCRETE CURB TO BE USED ONLY WHEN INDICATED ON PLANS.
CURB JOINTS TO BE LOCATED EVERY 5'.

PCC CURB
TYPE 1-2 GUARDRAIL MEDIAN CURB
INSTALL JOINTS AT 5'.

PAVEMENT
9). IF THE RUNNING SLOPE OF THE PEDESTRIAN CONNECTION IS 5% (20:1) OR LESS WITH NO REQUIRED TURNING MOVEMENTS, THE LANDING CAN BE OMITTED AS IT IS A BLENDED TRANSITION. DETECTABLE WARNING SURFACE TO BE INSTALLED AS DIRECTED BY THE ENGINEER.
10. Where there is no depressed curb at a cut-through or pedestrian connection, install the detectable warning surface a minimum of 8" from the pavement edge. Where there is depressed curb, install the detectable warning surface directly behind the full width of the depressed curb.
Note Removed: "IF WIDTH OF DRIVEWAY IS 15' OR GREATER, THE FLARE EXTENSIONS CAN BE OMITTED."

Plans must include Paving Section and Payment.

Note Added: “SIDEWALK RUNNING SLOPE OF 20:1 (5%) IS PREFERRED WITH ALLOWANCE TO FOLLOW THE ADJACENT ROAD GRADES. SIDEWALK GRADE EXCEEDING THE ADJACENT ROAD GRADES OR 5%, MUST THEN MAINTAIN A MAXIMUM ALLOWABLE 12:1 (8.3%) RUNNING SLOPE.”
"WHEN NOT ADJACENT TO CURB, USE A SLAB WIDTH 12” WIDER THAN THE SIDEWALK ON BOTH SIDES."
### Section III: Drainage

#### Revised Standard Details

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>D-R</td>
<td>Drainage Inlet Reference Sheet</td>
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<tr>
<td>D-4</td>
<td>Inlet Box</td>
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<td>D-5</td>
<td>Drainage Inlet Assembly, Drainage Inlet Cover Slab, Doghouse Inlet Box</td>
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<tr>
<td>D-6</td>
<td>Box and Round Manhole Assembly, Manhole GR, TU, Fr, &amp; Cover, Round Manhole Cover Slab</td>
</tr>
<tr>
<td>D-8</td>
<td>Pipe Bedding and Pipe Flared End Support</td>
</tr>
<tr>
<td>D-9</td>
<td>Perforated Pipe Underdrain</td>
</tr>
<tr>
<td>D-10</td>
<td>Pipe Plugging</td>
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#### Removed From Standard Details

- **D-7 Junction Box Detail** – Without access presented an issue with pipe maintenance.
- **D-11 Safety Metal End Section** – Removed to conform with removal of metal pipe from Section 601
<table>
<thead>
<tr>
<th>INLET BOX SIZE</th>
<th>COVER SLAB SIZE (L x W)</th>
<th>DRAINAGE INLET</th>
<th>INLET TOP UNIT</th>
<th>INLET TOP UNIT LIMIT OF PAYMENT</th>
<th>INLET TOP UNIT BAR BENDING DIAGRAM</th>
<th>FRAME &amp; GRATE</th>
<th>MAXIMUM PIPE SIZES</th>
<th>MAXIMUM HEIGHT (INCHES TO TOP OF GRATE)</th>
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</table>

NOTES:
1. MAXIMUM PIPE SIZES ARE CALCULATED USING REINFORCED CONCRETE PIPE PERPENDICULAR TO THE BOX WALL. FOR OTHER PIPE SIZES, TYPES AND SIZES OTHER THAN PERPENDICULAR, SEE CHART ON D-5, SHEET 7.
Note 9: “EXTEND PIPE TO BE FLUSH WITH THE INSIDE WALL OF THE INLET BOX IN ACCORDANCE WITH SECTION 602.3.B OF THE STANDARD SPECIFICATIONS.”

Note 11: “INSTALL STEPS IN ACCORDANCE WITH SECTION 602.3.B WHEN INLETS ARE 4’ OR DEEPER FROM THE TOP OF GRATE TO THE INVERT OF THE LOWEST PIPE.”
"10) PIPE SHALL NOT ENCROACH ON ADJACENT WALL."
(No Longer 1 ½” Minimum)
Standard Specifications, 602.3.A.4 Drainage Structures.
Use drainage inlet frames and grates, and manhole frames and covers capable of meeting or exceeding HS-25 load rating requirements in accordance with AASHTO M306.

“5) JOINTS ARE OMITTED FROM PLAN VIEWS FOR CLARITY.”

4" MIN. (TYP.)

1'-0" MIN.
#57 STONE (TYP.)
Changed TOP UNIT to GRADE RING
**MINIMUM PRECAST ROUND MANHOLE REQUIREMENTS**

<table>
<thead>
<tr>
<th>MANHOLE DIAMETER</th>
<th>MINIMUM WALL THICKNESS</th>
<th>CIRCUMFERENTIAL REINFORCEMENT (PER VERTICAL FOOT)</th>
<th>BASE SLAB THICKNESS**</th>
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</thead>
<tbody>
<tr>
<td>60&quot;</td>
<td>4&quot;</td>
<td>0.32&quot; IN.</td>
<td>6&quot;</td>
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<td>80&quot;</td>
<td>5&quot;</td>
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<td>8&quot;</td>
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</table>

**ADDITIONAL MINIMUM REQUIREMENTS:**

- **MINIMUM VERTICAL REINFORCEMENT:** Assemble each line of horizontal reinforcement into a cage containing sufficient vertical bars or membes to maintain the reinforcement in shape and position within the form.

- **MINIMUM BASE SLAB REINFORCEMENT:** Provide a minimum of one layer in each direction, located above the midpoint, providing minimum area of 0.32 sq. in. per linear foot in each layer.

- **ADDITIONAL REINFORCEMENT FOR COVER:** Place an additional horizontal reinforcing bar set 1/2" above, 1/2" below, a longitudinal reinforcing bar opening in manhole riser or base sections, make bar length = opening size + 6".

**NOTES:**

3. Construct round manholes in accordance with AASHTO M 193.
4. Structure base toe is recommended to counteract reinforcement.
5. Provide a minimum cover of 2" for all reinforcement.
6. See D-6, Sheet 3 of 5, for grade ring details.
7. Install pipes flush with manhole wall per AASHTO standard specifications section 602.
8. Fabricator is responsible for lifting, handling, and transportation stresses.
9. Steps are required for all manholes 4" depth or greater. Steps shall be installed in accordance with AASHTO M 193.
Title Change

Added Notes for Clarification

Changed TOP UNIT to GRADE RING

New Detail
NEW
Standard Specifications, 601.3.5 Flared End Section.

E. Place support footer in accordance with the Standard Construction Details.

Added Notes 3 & 4

Title Change
NOTE:
FURNISH FLOWABLE FILL MATERIAL AND PLUG ABANDONED DRAINAGE PIPES WITH CONCRETE AS DIRECTED BY THE ENGINEER.

Changed Material to Flowable Fill
# Section IV: Erosion

## Revised Standard Details

<table>
<thead>
<tr>
<th>E-1</th>
<th>Concrete Washout</th>
<th>E-8</th>
<th>Skimmer Dewatering Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-2</td>
<td>Silt Fence, Super Silt Fence</td>
<td>E-9</td>
<td>Check Dam</td>
</tr>
<tr>
<td>E-3</td>
<td>Sediment Trap</td>
<td>E-10</td>
<td>Temporary Slope Drain</td>
</tr>
<tr>
<td>E-4</td>
<td>Inlet Sediment Control, Drainage Inlet</td>
<td>E-17</td>
<td>Geotextile-Lined Channel Diversion</td>
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<tr>
<td>E-5</td>
<td>Inlet Sediment Control, Culvert Inlet</td>
<td>E-19</td>
<td>Stilling Well</td>
</tr>
<tr>
<td>E-6</td>
<td>Portable Sediment Tank</td>
<td>E-21</td>
<td>Stone Outlet</td>
</tr>
</tbody>
</table>

## Removed From Standard Details

- **E-11 Incremental Stabilization** – Contract plans and duration will determine stabilization requirement.
- **E-12 Erosion Control Blanket Applications** – From APL. Installed per Manufacturer’s recommendations.
- **E-13 Turf Reinforcement Mat Applications** – From APL. Installed per Manufacturer’s recommendations.
Added to Note: “CONNECT ACCESS DRIVE TO PAVED OR GRAVEL SURFACE.”

Slope 50:1 Added

Notes edited in accordance with the DNREC Details
Removed 4" Leg from buried fabric material

Notes edited in accordance with the DNREC Details
Reduced from 33" to 24"

Notes edited in accordance with the DNREC Details

Removed 4” Leg from buried fabric material

Reduced from 33” to 24”
7) IF R4 RIPRAP IS UTILIZED ON THE DOWNSTREAM SIDE OF THE SEDIMENT TRAP, CHOOSE THE R-4 RIPRAP WITH DELAWARE NO. 3 STONE ON THE FLOW FACE.
Wood frame replaced with post and fence in accordance with DNREC Detail

Stone Check Dam Removed

Note added

Compost filter log is placed separately from sediment control, drainage inlet.
5' Max spacing for stakes

Increased to 6'0”

18” Height added

R-4 Riprap or Compost Log

Notes and Details edited in accordance to the DNREC Details
Depth of Cleanout changed from 24” to 1/3 depth
4). FOR ANY NON-TYPICAL SKIMMER OUTLET CONNECTION, SUBMIT A SHOP DRAWING FOR ENGINEER APPROVAL.
Changed Title and added Sheet 2

NOTES:
1. The minimum height of the check dam is 6" at the center of the weir.
2. Construct check dam so that the center of the dam is 6" lower than the center edge, forming a weir that water can flow across.
3. Install geotextile fabric underneath riprap on permanent check dams only.
4. Space dams so that the toe of the upstream dam is at the same elevation as the top of the water of the downstream dam. Place dams no further than 200' away when the slope is less than 1:1.

STONE CHECK DAM
Note the Staking Requirements

2" x 2" x 36" HARDWOOD STAKE PLACED 5'-0" MAX ON CENTER (TYP.)
Added Dimensions for R-4 Riprap

Added Hold-Down Stakes

Outfall Riprap Dimensioned and not Recessed

New Note 4
Changed from Maximum Capacity to Stream Base Flow
Added 9” Minimum depth of Riprap

Removed 6” Minimum Freeboard

Removed Float

Not excavated into Stream Bed

Added Note 2

2). NO STREAMBED MATERIAL SHALL BE ALLOWED TO PASS THROUGH THE DEWATERING HOSE.
Adjusted Geotextile Lapping not to go under the Roadway
Section VI: Miscellaneous

Revised Standard Details

M-2  Right of Way Monumentation
M-3  Shared-Use Path & Sidewalk
M-5  Wood Rail Fence
M-7  Chain Link Fence
M-9  Bus Stop Pad, Types 1,2, & 3, Bus Stop Pad with Shelter, Types 1 & 2
M-12 Driveway Transverse Slope Grading
M-13 Temporary Pedestrian Pathway

NEW
5. DO NOT CHAMFER THE CONCRETE MONUMENT WHEN PLACED WITHIN BITUMINOUS OR PCC.
Material depth and side slopes shown

Added Typical Sections

Revised Notes

1. If the shared-use path on sidewalk ends at a roadway or railroad crossing, install a pedestrian crossing at the width of the path or sidewalk (60-120).
2. A 3% grade is required for a minimum of 740’ immediately adjacent to the shared use path or sidewalk.
3. For sidewalks, place construction joints every 5’ in accordance with Section 795.3.
4. Place expansion joint material in accordance with Section 795.3.
5. On rehabilitation projects, where existing structures (fire hydrants, utility pole, etc.) are located in the sidewalk, maintain a minimum width of 34' and maximum length of 34’.
6. Not to exceed 5% or adjacent road grade.
4). Fence to be located outside of clear zone or along low speed areas as directed by the engineer.

**Added Note**
Revised Notes,
Added Note 8
All notes match PAS Requirements

Hatching Provided

Material Key

- PCC Sidewalk
- PCC 6"
Notes match PAS Requirements

Material Key

Hatching
Matched 10’ Transition and Slopes on the Departure as shown on the Approach
New Detail based on Section 301 of the Standard Specifications
Section VII: Pavement

Revised Standard Details

P-1  Slab Plan (with Dowel and Tie Locations), Joint and Sealant
P-2  Full Depth Patch, Sealant, Grout Retention Disk, and Dowel Bars
P-4  Permanent Cross-Road Patch over Pipe Trench
P-6  Pavement Safety Edge
Slab Length changed from 20’ TO 15’

6. CURB WITHOUT GUTTER WILL REQUIRE TYPE IV POLYURETHANE-BONDED RECYCLED RUBBER EXPANSION MATERIAL BETWEEN THE FACE OF CURB AND EDGE OF PCC PAVEMENT.
Added 3/4” width

Removed Backer Rod
¼" width for all Joints and removed Initial Saw Cut

Added Dowel Bar Chart

Combined Transverse and Longitudinal Joint into one Detail
Referenced DGM 1-20 for Min. Cover

Labeled Joints - Saw Cut and Seal

Added Bedding Below Pipe
WHERE LANE WIDTH ≤ 13' OR SHOULDER WIDTH ≤ 5'

PROPOSED LANE, OR, SHOULDER EDGE

FINAL WEARING COURSE
30° SEE NOTE 2

THICKNESS

COMPACTED FILL
OR IN-SITU MATERIAL

PAVEMENT BASE

TOPSOIL

WHERE LANE WIDTH > 13' OR SHOULDER WIDTH > 5'

PROPOSED LANE, OR, SHOULDER EDGE

FINAL WEARING COURSE
30° SEE NOTE 2

THICKNESS

COMPACTED FILL
OR IN-SITU MATERIAL

PAVEMENT BASE

TOPSOIL

THICKNESS OF SAFETY EDGE

CONCRETE PAVEMENT

8"

BITUMINOUS CONCRETE PAVEMENT FINAL WEARING COURSE

> 1½"

NOTE:
1). LEVEL COMPACTED FILL OR IN-SITU MATERIAL WITH THE PAVEMENT BASE PRIOR TO FINAL BITUMINOUS CONCRETE PAVING LIFT.
2). ANGLE ALLOWANCE OF 26° MINIMUM TO 40° MAXIMUM.
### Section VIII: Traffic

#### Revised Standard Details

| T-1 | Conduit Junction Well, Type 7 | **NEW** |
| T-4 | Cabinet Bases, Types M, K, & F and Types P & R |
| T-5 | Pole Bases |
| T-9 | Wiring Installation Typicals |

#### Removed From Standard Details

| T-3 | Conduit Junction Well, Type II – Junction well types 11, 14, and 15 were removed. |
| T-6 | Special Pole Base – Special pole bases removed. |
| T-7 | Sign Foundation – Detail currently in review, look for updates. |
| T-13 | Conduit Junction Well, Type 7 – Conduit junction wells were relocated and edits made to Type 7. |
Section VIII: Traffic

Added to Standard Details

T-12 Attachment Between Poles
T-16 Permanent Wood Barricade
T-17 Electrical Service Pedestal – Signal & ITS Component Installations
  – 100 Amp (3+ Devices)
  – 100 Amp (Condensed)
  – 100 Amp (Up to 2 Devices)
  – 200 Amp – Standard Lighting Component Installations
  – Lighting Component Installations (12 or Less Fixtures)
T-18 Pedestrian Pushbutton Location – Assembly Location on Pole
T-18 Pedestrian Pushbutton Location – Sign Attachment
NEW

Note 4 added to all Conduit Junction Wells
Base increased to 84”

Notes have been revised

Added K Cabinet Base
Base increased to 84”

Changed Section B-B
Removed Concrete Apron

Revised Notes
Bolt Height varies in accordance to Note 6
ANGLE OF SAW CUT PROVIDED

>= 135°

1. When a proposed loop detector sawcut crosses a lateral roadway joint or other obstruction (e.g., curb, manhole, junction well, etc.), loop detector installation shall be modified into two separate loop detectors which shall not traverse joints or obstructions.
2. The loops shall be placed in the center of the lane unless noted otherwise on plans.
3. Precast loop detectors are to be placed 12" behind the existing or proposed stop line.
4. Loop detector and lead-in sawcuts shall be 6" wide.
5. During multiple loop installations, all loop lead-ins to the junction well shall be offset 12" from each other.

NOTES:

SECTION A:A
HOT-MIX SURFACE

LOOPER DETECTOR SAWCUT TYPICAL
(The is typical of hot-mix surface typical section, and splicer kit)

WIRING INSTALLATION TYPICALS - LOOP DETECTOR SAWCUT TYPICAL, HOT-MIX SURFACE TYPICAL SECTION, AND SPICER KIT

Recommended

Standard no.

T-9 (2020)

Sht.

1

Of

4

Reviewed

DelDOT

01/28/2021

2021

Approved

01/28/2021
Lane Assignments have been adjusted for the West and EAST Bound Directions

NOTES
1. ORANGE BANDS SHALL DESIGNATE THE LANE ASSIGNMENT. ALL LINES SHALL BE DESIGNATED FROM LEFT TO RIGHT IN THE DIRECTION OF TRAVEL. EXAMPLE: FOR A DOUBLE LEFT TURN WITH 2 LANE LINES FOR NORTHBOUND, THE LINES WILL BE IDENTIFIED AS 1 RED W/ 1 ORANGE (LT LANE 1), 1 RED W/ 2 ORANGE (LT LANE 2), 1 RED W/ 1 ORANGE (THRU LANE 1) AND 2 RED W/ 2 ORANGE (THRU LANE 2). THIS CODE IS THEN FOLLOWED FOR THE REMAINING APPROACHES TO THE INTERSECTION.
Added Conductor
Cable Color
Too Much to Cover in One Presentation

KNOW THE STANDARD DETAILS!!

When questions arise, I can still hear my first boss.....

“What does the Spec say?”

“What does the Standard Detail show?”