

NCDOT Drainage Box Depth (English)

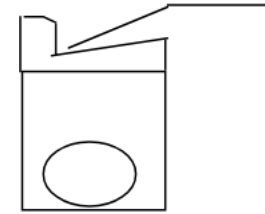
12/12/2024

| Catch Basin (CB) Max Depth = 16.0' |             |             |
|------------------------------------|-------------|-------------|
| Std. No.:                          | 840.01, .02 | 840D01, D02 |
| Type:                              | Std.        | Min. Depth  |
| Min. Cover =                       | 1.75'       | 1.0' - 1.5' |
| Pipe DIA                           | Depth       | Depth       |
| (in)                               | (ft)        | (ft)        |
| 12                                 | 2.75        | 2.00        |
| 15                                 | 3.00        | 2.25        |
| 18                                 | 3.25        | 2.50        |
| 24                                 | 3.75        | 3.08        |
| 30                                 | 4.25        | 3.83        |
| 36                                 | 4.75        | 4.50        |
| 42                                 | 5.25        | 4.92        |
| 48                                 | 5.75        | 5.50        |
| 54                                 | 6.25        | 6.00        |

Grate Std. No.: 840.03 Type E / F / G  
 Total Clear Area Orifice Opening = 3.1 sq. ft. (Type E)

**General Note:** Box minimum cover is measured from inside crown of pipe.

**Note:** Box minimum cover requirements do not ensure that pipes meet minimum cover structural requirements outside of the box. Refer to [Pipe Material Selection Guide](#) instead.



**Note:** Minimum Cover (for Geopak Drainage) is referenced to Face of Curb. Use a Constant Source elevation -0.17' to account for 2" depression. This is not an issue for ORD Drainage & Utilities.

**Note:** Depth of Box and the Elevation for the Drainage Summary Sheets are taken from the Face of Curb - 0.17' (2" depression)

| Open Throat Catch Basin (OTCB) Max Depth = 16.0' |             |                            |                 |
|--|-------------|----------------------------|-----------------|
| Std. No.:  | 840.04, .05 | 6" Opening                 | 8" Opening      |
| Type:  | Std.        | Orifice Opening            |                 |
| Min. Cover =                                     | 0.83'       | 1.8-2.5 sq. ft.            | 2.3-3.3 sq. ft. |
| Pipe DIA   | Depth       | Inlet Capacity per Opening |                 |
| (in)   | (ft)        | (cfs)                      | (cfs)           |
| 12   | 1.83        | 6.86                       | 8.62            |
| 15   | 2.08        | 6.86                       | 8.62            |
| 18   | 2.33        | 7.84                       | 9.85            |
| 24   | 2.83        | 7.84                       | 9.85            |
| 30   | 3.33        | 7.84                       | 9.85            |
| 36   | 3.83        | 8.82                       | 11.1            |
| 42   | 4.33        | 9.80                       | 12.3            |
| 48   | 4.83        | 9.80                       | 12.3            |

| Drop Inlets (DI) Max Depth = 12.0' |                |             |             |
|------------------------------------|----------------|-------------|-------------|
| Std. No.:                          | 840.14         | 840.14, .15 | 840D14, D15 |
| Type:                              | Under Pavement |             | Yard Inlet* |
| Min. Cover =                       | 1.92'          | 1.0'        | 0.67'       |
| Pipe DIA                           | Depth          | Depth       | Depth       |
| (in)                               | (ft)           | (ft)        | (ft)        |
| 12                                 | 2.92           | 2.00        | 1.67        |
| 15                                 | 3.17           | 2.25        | 1.92        |
| 18                                 | 3.42           | 2.50        | 2.08        |
| 24                                 | 3.92           | 3.00        | 2.75        |
| 30                                 | 4.42           | 3.50        | 3.17        |

1) 36" and above requires special detail.  
 2) 24" and above cannot tie into narrow side of Std. DI. Use a Type A 2GI with narrow slot grates in this case.  
 \*Do not use when piping under pavement.

| Grate Std. No.: | Total Clear Area Orifice Opening | Inlet Capacity (sag)^^^ |
|-----------------|----------------------------------|-------------------------|
| 840.16          | 3.7 sq. ft.                      | 5.0 cfs                 |

^^ Based on 50% blockage.

| Driveway Drop Inlet (DDI) |           |
|---------------------------|-----------|
| Std. No.:                 | 840.30    |
| Type:                     | Std.      |
| Min. Cover =              | 1.5'-2.5' |
| Pipe DIA                  | Depth     |
| (in)                      | (ft)      |
| 12                        | 3.50      |
| 15                        | 3.50      |
| 18                        | 3.50      |
| 24                        | 3.50      |

1) 30" and above requires special detail.  
 2) 18" and above cannot tie into narrow side of DDI.  
 \*Do not use when piping under pavement.

| Grate Inlet (GI, 2GI, 3GI, 4GI) Max Depth^ = 12.0' |        |               |  |        |   |
|--|--------|---------------|--|--------|---|
| Std. No.:  | 840.17 | 840D17        | 840.18   | 840.19 | 840.18, .35, .36                                  |
| Type:  | A      | Min. Depth A  | B*   | D*     | B Under Pavement, TB**                            |
| Min. Cover =                                       | 2.75'  | 1.25' - 1.58' | 1.5'   | 0.67'  | 1.92'   |
| Pipe DIA   | Depth  | Depth         | Depth  | Depth  | Depth   |
| (in)   | (ft)   | (ft)          | (ft)   | (ft)   | (ft)  |
| 12   | 3.75   | 2.25          | 2.50   | 1.67   | 2.92  |
| 15   | 4.00   | 2.42          | 2.75   | 1.92   | 3.17  |
| 18   | 4.25   | 2.67          | 3.00   | 2.17   | 3.42  |
| 24   | 4.75   | 3.25          | 3.50   | 2.67   | 3.92  |
| 30   | 5.25   | 3.83          | 4.00   | 3.17   | 4.42  |
| 36   | 5.75   | 4.33          | 4.50   | 3.67   | 4.92  |
| 42   | 6.25   | 5.00          | Use Type "A" for 3GIs, etc., for 42" and above, and/or 24" or larger coming into Dim. B (narrow side). |        |   |
| 48   | 6.75   | 5.50          |  |        |   |
| 54   | 7.25   | 6.00          |  |        |   |
| 60   | 7.75   | 6.58          | *Do not use when piping under pavement.  |        | **Pipes up to 54" may be used w/ std. no. 840.46. |
| 66   | 8.25   | 7.08          |  |        |   |
| 72   | 8.75   | 7.67          |  |        |   |

^Pipes up to 48" may be used up to 30.0' deep w/ std. no. 840.52.

| Grate Std. No.: | Total Clear Area Orifice Opening | Inlet Capacity (sag)^^^ |
|-----------------|----------------------------------|-------------------------|
| 840.20, .22     | 4.4 sq. ft.                      | 6.2 cfs                 |
| 840.24          | 4.1 sq. ft.                      | 5.6 cfs                 |
| 840.37          | 5.8 sq. ft.                      | 9.4 cfs                 |
| 840.39          | 5.4 sq. ft.                      | 8.4 cfs                 |

| Junction Box (JB) Max Depth^ = 12.0' |             |        |   |
|--------------------------------------|-------------|--------|---|
| Std. No.:                            | 840.31, .32 | 840.34 |   |
| Type:                                | w/ slab lid | MH lid | TB** w/ MH lid, Under Pavement                    |
| Min. Cover =                         | 1.75'       | 2.38'  | 2.88'   |
| Pipe DIA                             | Depth       | Depth  | Depth   |
| (in)                                 | (ft)        | (ft)   | (ft)  |
| 12                                   | 2.75        | 3.38   | 3.88  |
| 15                                   | 3.00        | 3.63   | 4.13  |
| 18                                   | 3.25        | 3.88   | 4.38  |
| 24                                   | 3.75        | 4.38   | 4.88  |
| 30                                   | 4.25        | 4.88   | 5.38  |
| 36                                   | 4.75        | 5.38   | 5.88  |
| 42                                   | 5.25        | 5.88   | 6.38  |
| 48                                   | 5.75        | 6.38   |   |
| 54                                   | 6.25        | 6.88   | **Pipes up to 54" may be used w/ std. no. 840.46. |
| 60                                   | 6.75        | 7.38   |   |
| 66                                   | 7.25        | 7.88   |   |

^Pipes up to 48" may be used up to 30.0' deep w/ std. no. 840.52.

^^Based on 50% blockage.