

NCDOT Drainage Box Depth (English)

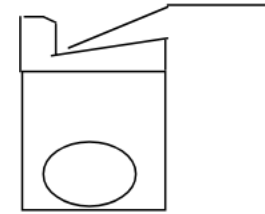
2/25/2025

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	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	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. Depth*
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	5.1 sq. ft.	7.7 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.