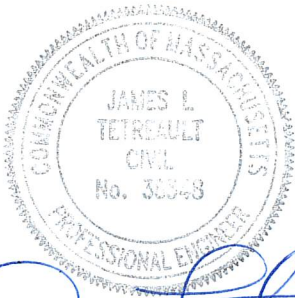


**SUPPLEMENTAL DRAINAGE REPORT
FOR COMPREHENSIVE PERMIT DEVELOPMENT
AT
AT 250 TURNPIKE ROAD, SOUTHBOROUGH, MA**

Job #245-502 Client #502

JULY 25, 2025



James L. Tetreault
7/25/2025

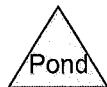
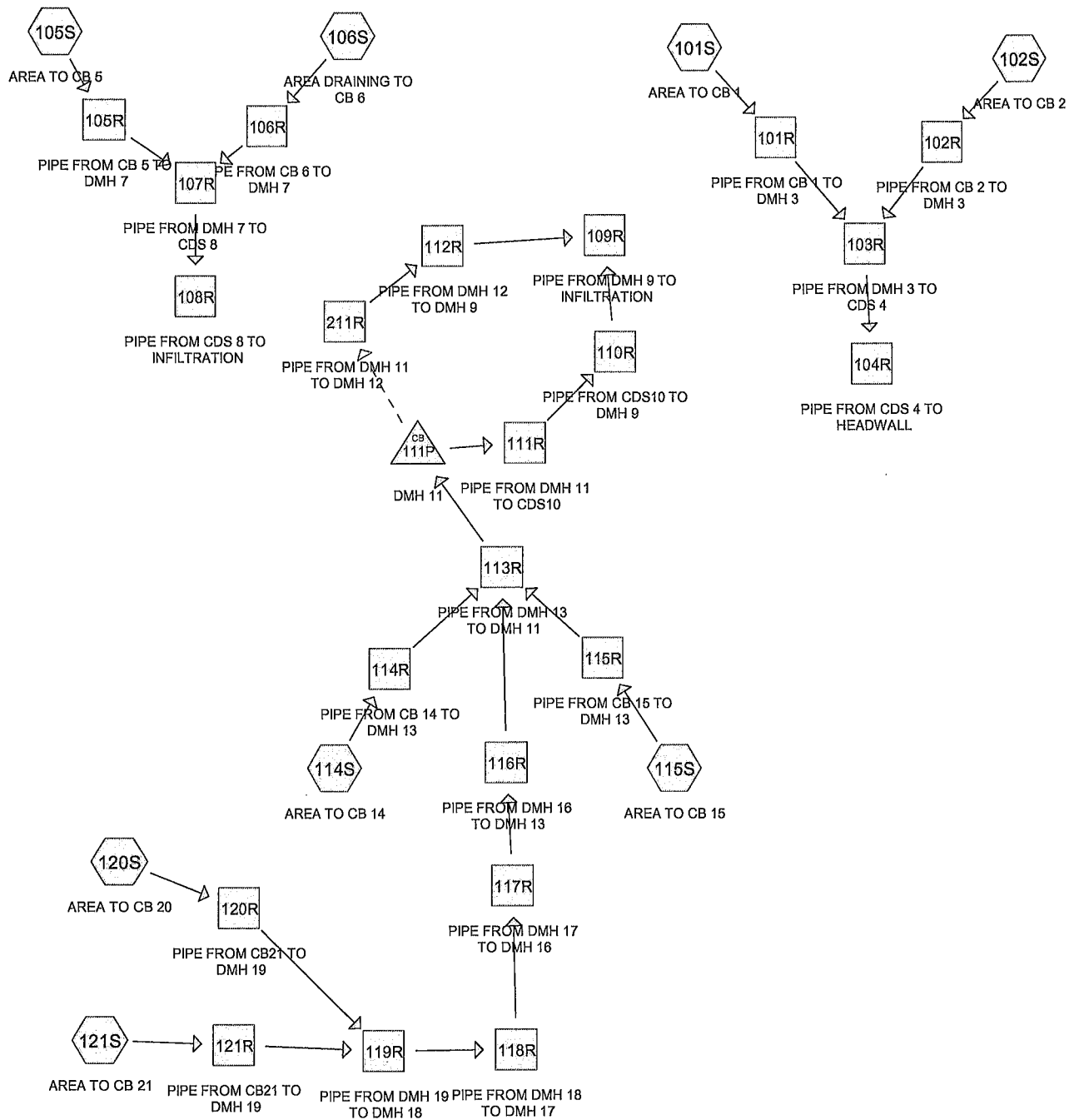
EXPEDITED ENGINEERING, LLC
118 Turnpike Road, Suite 300, Southborough, MA 01772 (508) 399-9993

INTRODUCTION

The purpose of this Drainage Report is to confirm that the proposed drainage pipes, from catch to drain manhole and from drain manhole to drain manhole are adequately sized to convey even 100 year return frequency storm events. These calculations look at whether these pipes will have sufficient capacity in the course of a rainfall event of 8.01 inches of rain in 24 hours.

The pipes themselves are modeled as reaches with the descriptions clearly explaining which pipe that reach is modeling. Each reach summary includes a cross-section showing the peak depth of flow in that pipe. At a glance, it can be seen that all the pipes have sufficient capacity and most of them will flow approximately half full in even that 100 year return frequency storm event.

100 YEAR STORM



Routing Diagram for POSTDEV for 250 Turnpike Rd Ch40B for drain pipes 7-25-25
 Prepared by Expedited Engineering, LLC, Printed 8/1/2025
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Summary for Subcatchment 101S: AREA TO CB 1

Runoff = 1.67 cfs @ 12.07 hrs, Volume= 0.129 af, Depth> 7.29"
 Routed to Reach 101R : PIPE FROM CB 1 TO DMH 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
98	98	Paved parking, HSG B
7,466	98	Paved parking, HSG C
1,669	74	>75% Grass cover, Good, HSG C
9,233	94	Weighted Average
1,669		18.08% Pervious Area
7,564		81.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 102S: AREA TO CB 2

Runoff = 1.04 cfs @ 12.19 hrs, Volume= 0.103 af, Depth> 6.80"
 Routed to Reach 102R : PIPE FROM CB 2 TO DMH 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
678	98	Paved parking, HSG C
4,472	98	Paved parking, HSG C
35	61	>75% Grass cover, Good, HSG B
2,710	74	>75% Grass cover, Good, HSG C
7,895	90	Weighted Average
2,745		34.77% Pervious Area
5,150		65.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	50	0.0050	0.06		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
0.2	19	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
14.5	69	Total			

POSTDEV for 250 Turnpike Rd Ch40B for drain pipe Type III 24-hr 100 YEAR Rainfall=8.01"

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Summary for Subcatchment 105S: AREA TO CB 5

Runoff = 1.32 cfs @ 12.07 hrs, Volume= 0.096 af, Depth> 6.46"

Routed to Reach 105R : PIPE FROM CB 5 TO DMH 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
4,206	98	Paved parking, HSG C
3,568	74	>75% Grass cover, Good, HSG C
7,774	87	Weighted Average
3,568		45.90% Pervious Area
4,206		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.1000	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
0.1	28	0.0900	4.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
0.4	115	0.0650	5.18		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.8	193	Total			

Summary for Subcatchment 106S: AREA DRAINING TO CB 6

Runoff = 0.68 cfs @ 12.07 hrs, Volume= 0.051 af, Depth> 7.05"

Routed to Reach 106R : PIPE FROM CB 6 TO DMH 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
2,886	98	Paved parking, HSG C
917	74	>75% Grass cover, Good, HSG C
3,803	92	Weighted Average
917		24.11% Pervious Area
2,886		75.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 114S: AREA TO CB 14

Runoff = 0.96 cfs @ 12.07 hrs, Volume= 0.069 af, Depth> 6.34"
 Routed to Reach 114R : PIPE FROM CB 14 TO DMH 13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
2,810	98	Paved parking, HSG C
2,855	74	>75% Grass cover, Good, HSG C
5,665	86	Weighted Average
2,855		50.40% Pervious Area
2,810		49.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.1000	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
0.3	106	0.0660	5.22		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.6	156	Total			

Summary for Subcatchment 115S: AREA TO CB 15

Runoff = 2.50 cfs @ 12.08 hrs, Volume= 0.195 af, Depth> 7.05"
 Routed to Reach 115R : PIPE FROM CB 15 TO DMH 13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
11,004	98	Paved parking, HSG C
3,428	74	>75% Grass cover, Good, HSG C
14,432	92	Weighted Average
3,428		23.75% Pervious Area
11,004		76.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	35	0.0300	0.11		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
0.8	212	0.0500	4.54		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.0	247	Total			

Summary for Subcatchment 120S: AREA TO CB 20

Runoff = 2.71 cfs @ 12.13 hrs, Volume= 0.233 af, Depth> 6.69"
 Routed to Reach 120R : PIPE FROM CB21 TO DMH 19

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
11,219	98	Paved parking, HSG C
2,602	74	>75% Grass cover, Good, HSG C
1,691	98	Paved parking, HSG B
2,723	61	>75% Grass cover, Good, HSG B
18,235	89	Weighted Average
5,325		29.20% Pervious Area
12,910		70.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	30	0.0070	0.06		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
1.6	188	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.9	218	Total			

Summary for Subcatchment 121S: AREA TO CB 21

Runoff = 2.90 cfs @ 12.22 hrs, Volume= 0.283 af, Depth> 5.62"
 Routed to Reach 121R : PIPE FROM CB21 TO DMH 19

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
3,578	55	Woods, Good, HSG B
3,690	98	Paved parking, HSG C
2,930	74	>75% Grass cover, Good, HSG C
9,246	98	Paved parking, HSG B
6,876	61	>75% Grass cover, Good, HSG B
26,320	80	Weighted Average
13,384		50.85% Pervious Area
12,936		49.15% Impervious Area

POSTDEV for 250 Turnpike Rd Ch40B for drain pipe Type III 24-hr 100 YEAR Rainfall=8.01"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0600	0.06		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.20"
0.5	55	0.1400	1.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.1	93	0.0430	1.45		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	122	0.0180	2.72		Shallow Concentrated Flow, Paved Kv= 20.3 fps
16.1	320	Total			

Summary for Reach 101R: PIPE FROM CB 1 TO DMH 3

Inflow Area = 0.212 ac, 81.92% Impervious, Inflow Depth > 7.29" for 100 YEAR event

Inflow = 1.67 cfs @ 12.07 hrs, Volume= 0.129 af

Outflow = 1.67 cfs @ 12.07 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min

Routed to Reach 103R : PIPE FROM DMH 3 TO CDS 4

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 6.17 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 2.16 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.48' , Surface Width= 0.60'

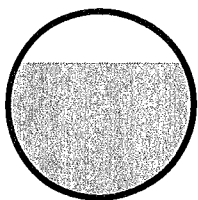
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.91 cfs

8.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 8.0' Slope= 0.0250 '/'

Inlet Invert= 319.30', Outlet Invert= 319.10'

**Summary for Reach 102R: PIPE FROM CB 2 TO DMH 3**

Inflow Area = 0.181 ac, 65.23% Impervious, Inflow Depth > 6.80" for 100 YEAR event

Inflow = 1.04 cfs @ 12.19 hrs, Volume= 0.103 af

Outflow = 1.04 cfs @ 12.19 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min

Routed to Reach 103R : PIPE FROM DMH 3 TO CDS 4

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 5.59 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 2.05 fps, Avg. Travel Time= 0.1 min

POSTDEV for 250 Turnpike Rd Ch40B for drain pipe Type III 24-hr 100 YEAR Rainfall=8.01"

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Peak Storage= 1 cf @ 12.19 hrs

Average Depth at Peak Storage= 0.35' , Surface Width= 0.67'

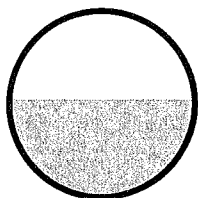
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.91 cfs

8.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 8.0' Slope= 0.0250 '/'

Inlet Invert= 319.30', Outlet Invert= 319.10'



Summary for Reach 103R: PIPE FROM DMH 3 TO CDS 4

Inflow Area = 0.393 ac, 74.23% Impervious, Inflow Depth > 7.06" for 100 YEAR event

Inflow = 2.42 cfs @ 12.09 hrs, Volume= 0.231 af

Outflow = 2.42 cfs @ 12.09 hrs, Volume= 0.231 af, Atten= 0%, Lag= 0.0 min

Routed to Reach 104R : PIPE FROM CDS 4 TO HEADWALL

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 7.66 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 2.69 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.09 hrs

Average Depth at Peak Storage= 0.42' , Surface Width= 0.99'

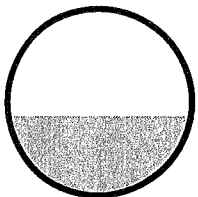
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.50 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 3.0' Slope= 0.0333 '/'

Inlet Invert= 318.90', Outlet Invert= 318.80'



Summary for Reach 104R: PIPE FROM CDS 4 TO HEADWALL

Inflow Area = 0.393 ac, 74.23% Impervious, Inflow Depth > 7.06" for 100 YEAR event

Inflow = 2.42 cfs @ 12.09 hrs, Volume= 0.231 af

Outflow = 2.41 cfs @ 12.09 hrs, Volume= 0.231 af, Atten= 0%, Lag= 0.2 min

POSTDEV for 250 Turnpike Rd Ch40B for drain pipe Type III 24-hr 100 YEAR Rainfall=8.01"

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Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 4.87 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.76 fps, Avg. Travel Time= 0.3 min

Peak Storage= 15 cf @ 12.09 hrs

Average Depth at Peak Storage= 0.60' , Surface Width= 0.98'

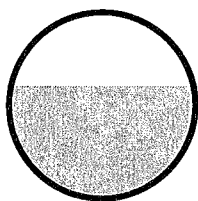
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 30.0' Slope= 0.0100 '/'

Inlet Invert= 318.80', Outlet Invert= 318.50'



Summary for Reach 105R: PIPE FROM CB 5 TO DMH 7

Inflow Area = 0.178 ac, 54.10% Impervious, Inflow Depth > 6.46" for 100 YEAR event

Inflow = 1.32 cfs @ 12.07 hrs, Volume= 0.096 af

Outflow = 1.32 cfs @ 12.07 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.1 min

Routed to Reach 107R : PIPE FROM DMH 7 TO CDS 8

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 5.22 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 1.72 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.36' , Surface Width= 0.96'

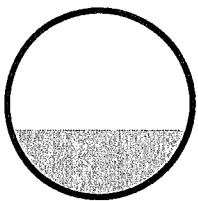
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.80 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 11.0' Slope= 0.0182 '/'

Inlet Invert= 326.60', Outlet Invert= 326.40'



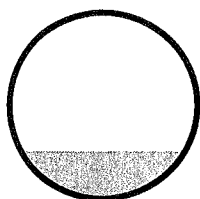
Summary for Reach 106R: PIPE FROM CB 6 TO DMH 7

Inflow Area = 0.087 ac, 75.89% Impervious, Inflow Depth > 7.05" for 100 YEAR event
Inflow = 0.68 cfs @ 12.07 hrs, Volume= 0.051 af
Outflow = 0.68 cfs @ 12.07 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.1 min
Routed to Reach 107R : PIPE FROM DMH 7 TO CDS 8

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.32 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.40 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.25', Surface Width= 0.87'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.80 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 11.0' Slope= 0.0182 '/'
Inlet Invert= 326.60', Outlet Invert= 326.40'



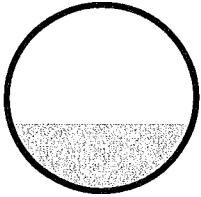
Summary for Reach 107R: PIPE FROM DMH 7 TO CDS 8

Inflow Area = 0.266 ac, 61.26% Impervious, Inflow Depth > 6.65" for 100 YEAR event
Inflow = 2.00 cfs @ 12.07 hrs, Volume= 0.147 af
Outflow = 2.00 cfs @ 12.07 hrs, Volume= 0.147 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 108R : PIPE FROM CDS 8 TO INFILTRATION

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.03 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.61 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.45', Surface Width= 1.20'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.22 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 8.0' Slope= 0.0125 '/'
Inlet Invert= 324.40', Outlet Invert= 324.30'



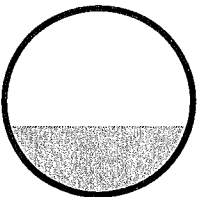
Summary for Reach 108R: PIPE FROM CDS 8 TO INFILTRATION

Inflow Area = 0.266 ac, 61.26% Impervious, Inflow Depth > 6.65" for 100 YEAR event
Inflow = 2.00 cfs @ 12.07 hrs, Volume= 0.147 af
Outflow = 1.99 cfs @ 12.08 hrs, Volume= 0.147 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.88 fps, Min. Travel Time= 0.1 min
Avg. Velocity= 1.56 fps, Avg. Travel Time= 0.3 min

Peak Storage= 11 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.46', Surface Width= 1.21'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.94 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 26.0' Slope= 0.0115 '/'
Inlet Invert= 324.30', Outlet Invert= 324.00'



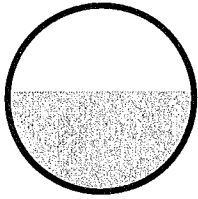
Summary for Reach 109R: PIPE FROM DMH 9 TO INFILTRATION

Inflow Area = 1.484 ac, 61.34% Impervious, Inflow Depth > 6.30" for 100 YEAR event
Inflow = 7.92 cfs @ 12.13 hrs, Volume= 0.779 af
Outflow = 7.91 cfs @ 12.13 hrs, Volume= 0.779 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 8.14 fps, Min. Travel Time= 0.0 min
Avg. Velocity= 2.89 fps, Avg. Travel Time= 0.1 min

Peak Storage= 17 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.81', Surface Width= 1.50'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 13.95 cfs

18.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 17.0' Slope= 0.0176 '/'
Inlet Invert= 324.30', Outlet Invert= 324.00'



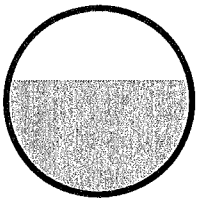
Summary for Reach 110R: PIPE FROM CDS10 TO DMH 9

Inflow Area = 1.484 ac, 61.34% Impervious, Inflow Depth > 5.35" for 100 YEAR event
Inflow = 3.90 cfs @ 12.13 hrs, Volume= 0.661 af
Outflow = 3.90 cfs @ 12.13 hrs, Volume= 0.661 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 109R : PIPE FROM DMH 9 TO INFILTRATION

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.74 fps, Min. Travel Time= 0.0 min
Avg. Velocity= 3.39 fps, Avg. Travel Time= 0.0 min

Peak Storage= 2 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.61', Surface Width= 0.97'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.63 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 4.0' Slope= 0.0250 '/'
Inlet Invert= 333.80', Outlet Invert= 333.70'



Summary for Reach 111R: PIPE FROM DMH 11 TO CDS10

Inflow Area = 1.484 ac, 61.34% Impervious, Inflow Depth > 5.35" for 100 YEAR event
Inflow = 3.90 cfs @ 12.13 hrs, Volume= 0.661 af
Outflow = 3.90 cfs @ 12.13 hrs, Volume= 0.661 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 110R : PIPE FROM CDS10 TO DMH 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.08 fps, Min. Travel Time= 0.0 min
Avg. Velocity= 3.13 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.66', Surface Width= 0.95'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.04 cfs

POSTDEV for 250 Turnpike Rd Ch40B for drain pipe Type III 24-hr 100 YEAR Rainfall=8.01"

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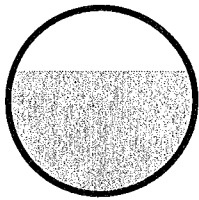
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12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 5.0' Slope= 0.0200 '/'

Inlet Invert= 333.90', Outlet Invert= 333.80'



Summary for Reach 112R: PIPE FROM DMH 12 TO DMH 9

Inflow = 4.02 cfs @ 12.13 hrs, Volume= 0.118 af
Outflow = 4.02 cfs @ 12.13 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 109R : PIPE FROM DMH 9 TO INFILTRATION

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 8.58 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 5.06 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.13 hrs

Average Depth at Peak Storage= 0.47', Surface Width= 1.39'

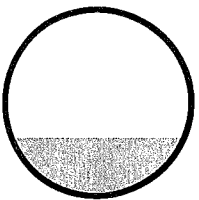
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 19.18 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 6.0' Slope= 0.0333 '/'

Inlet Invert= 334.20', Outlet Invert= 334.00'



Summary for Reach 113R: PIPE FROM DMH 13 TO DMH 11

Inflow Area = 1.484 ac, 61.34% Impervious, Inflow Depth > 6.30" for 100 YEAR event

Inflow = 7.92 cfs @ 12.12 hrs, Volume= 0.779 af

Outflow = 7.92 cfs @ 12.13 hrs, Volume= 0.779 af, Atten= 0%, Lag= 0.0 min

Routed to Pond 111P : DMH 11

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 8.54 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 3.02 fps, Avg. Travel Time= 0.1 min

POSTDEV for 250 Turnpike Rd Ch40B for drain pipe Type III 24-hr 100 YEAR Rainfall=8.01"

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Peak Storage= 9 cf @ 12.12 hrs

Average Depth at Peak Storage= 0.78' , Surface Width= 1.50'

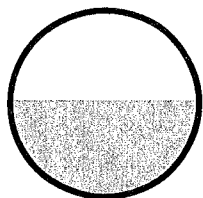
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 14.86 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 10.0' Slope= 0.0200 '/'

Inlet Invert= 334.30', Outlet Invert= 334.10'



Summary for Reach 114R: PIPE FROM CB 14 TO DMH 13

Inflow Area = 0.130 ac, 49.60% Impervious, Inflow Depth > 6.34" for 100 YEAR event

Inflow = 0.96 cfs @ 12.07 hrs, Volume= 0.069 af

Outflow = 0.96 cfs @ 12.07 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.1 min

Routed to Reach 113R : PIPE FROM DMH 13 TO DMH 11

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 4.76 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 1.56 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.30' , Surface Width= 0.92'

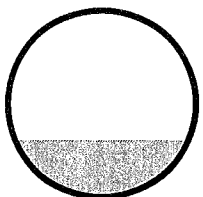
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.80 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 11.0' Slope= 0.0182 '/'

Inlet Invert= 336.60', Outlet Invert= 336.40'



Summary for Reach 115R: PIPE FROM CB 15 TO DMH 13

Inflow Area = 0.331 ac, 76.25% Impervious, Inflow Depth > 7.05" for 100 YEAR event

Inflow = 2.50 cfs @ 12.08 hrs, Volume= 0.195 af

Outflow = 2.49 cfs @ 12.09 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min

Routed to Reach 113R : PIPE FROM DMH 13 TO DMH 11

POSTDEV for 250 Turnpike Rd Ch40B for drain pipe Type III 24-hr 100 YEAR Rainfall=8.01"

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Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 6.17 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 2.09 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.09 hrs

Average Depth at Peak Storage= 0.51' , Surface Width= 1.00'

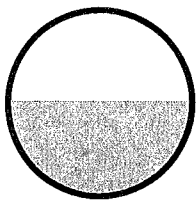
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.80 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 11.0' Slope= 0.0182 '/'

Inlet Invert= 336.60', Outlet Invert= 336.40'



Summary for Reach 116R: PIPE FROM DMH 16 TO DMH 13

Inflow Area = 1.023 ac, 58.01% Impervious, Inflow Depth > 6.06" for 100 YEAR event

Inflow = 5.30 cfs @ 12.17 hrs, Volume= 0.516 af

Outflow = 5.29 cfs @ 12.18 hrs, Volume= 0.516 af, Atten= 0%, Lag= 0.1 min

Routed to Reach 113R : PIPE FROM DMH 13 TO DMH 11

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 9.81 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 3.60 fps, Avg. Travel Time= 0.2 min

Peak Storage= 26 cf @ 12.18 hrs

Average Depth at Peak Storage= 0.65' , Surface Width= 0.95'

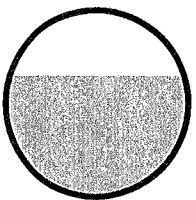
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.02 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 49.0' Slope= 0.0388 '/'

Inlet Invert= 338.00', Outlet Invert= 336.10'



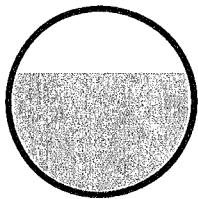
Summary for Reach 117R: PIPE FROM DMH 17 TO DMH 16

Inflow Area = 1.023 ac, 58.01% Impervious, Inflow Depth > 6.06" for 100 YEAR event
Inflow = 5.31 cfs @ 12.17 hrs, Volume= 0.516 af
Outflow = 5.30 cfs @ 12.17 hrs, Volume= 0.516 af, Atten= 0%, Lag= 0.2 min
Routed to Reach 116R : PIPE FROM DMH 16 TO DMH 13

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 9.71 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.57 fps, Avg. Travel Time= 0.2 min

Peak Storage= 29 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.66', Surface Width= 0.95'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.92 cfs

12.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 53.0' Slope= 0.0377 '/'
Inlet Invert= 341.60', Outlet Invert= 339.60'



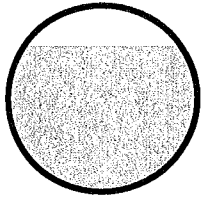
Summary for Reach 118R: PIPE FROM DMH 18 TO DMH 17

Inflow Area = 1.023 ac, 58.01% Impervious, Inflow Depth > 6.06" for 100 YEAR event
Inflow = 5.31 cfs @ 12.17 hrs, Volume= 0.516 af
Outflow = 5.31 cfs @ 12.17 hrs, Volume= 0.516 af, Atten= 0%, Lag= 0.1 min
Routed to Reach 117R : PIPE FROM DMH 17 TO DMH 16

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 9.59 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.63 fps, Avg. Travel Time= 0.1 min

Peak Storage= 17 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.72', Surface Width= 0.76'
Bank-Full Depth= 0.92' Flow Area= 0.7 sf, Capacity= 5.56 cfs

11.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 31.0' Slope= 0.0387 '/'
Inlet Invert= 344.80', Outlet Invert= 343.60'



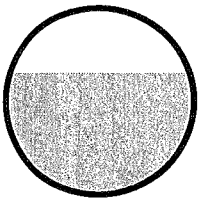
Summary for Reach 119R: PIPE FROM DMH 19 TO DMH 18

Inflow Area = 1.023 ac, 58.01% Impervious, Inflow Depth > 6.06" for 100 YEAR event
Inflow = 5.32 cfs @ 12.17 hrs, Volume= 0.516 af
Outflow = 5.31 cfs @ 12.17 hrs, Volume= 0.516 af, Atten= 0%, Lag= 0.1 min
Routed to Reach 118R : PIPE FROM DMH 18 TO DMH 17

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 9.79 fps, Min. Travel Time= 0.0 min
Avg. Velocity= 3.59 fps, Avg. Travel Time= 0.1 min

Peak Storage= 14 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.65' , Surface Width= 0.95'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.99 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 26.0' Slope= 0.0385 '/'
Inlet Invert= 346.60', Outlet Invert= 345.60'



Summary for Reach 120R: PIPE FROM CB21 TO DMH 19

Inflow Area = 0.419 ac, 70.80% Impervious, Inflow Depth > 6.69" for 100 YEAR event
Inflow = 2.71 cfs @ 12.13 hrs, Volume= 0.233 af
Outflow = 2.70 cfs @ 12.13 hrs, Volume= 0.233 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 119R : PIPE FROM DMH 19 TO DMH 18

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.28 fps, Min. Travel Time= 0.0 min
Avg. Velocity= 2.22 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.54' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.80 cfs

POSTDEV for 250 Turnpike Rd Ch40B for drain pipe Type III 24-hr 100 YEAR Rainfall=8.01"

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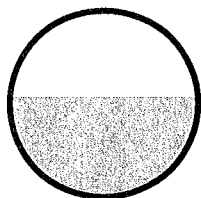
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12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 11.0' Slope= 0.0182 1'

Inlet Invert= 347.30', Outlet Invert= 347.10'



Summary for Reach 121R: PIPE FROM CB21 TO DMH 19

Inflow Area = 0.604 ac, 49.15% Impervious, Inflow Depth > 5.62" for 100 YEAR event

Inflow = 2.90 cfs @ 12.22 hrs, Volume= 0.283 af

Outflow = 2.90 cfs @ 12.22 hrs, Volume= 0.283 af, Atten= 0%, Lag= 0.0 min

Routed to Reach 119R : PIPE FROM DMH 19 TO DMH 18

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 6.39 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 2.45 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.22 hrs

Average Depth at Peak Storage= 0.56' , Surface Width= 0.99'

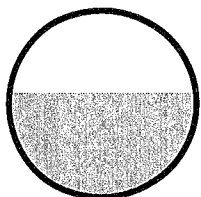
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.80 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 11.0' Slope= 0.0182 1'

Inlet Invert= 347.30', Outlet Invert= 347.10'



Summary for Reach 211R: PIPE FROM DMH 11 TO DMH 12

Inflow = 4.02 cfs @ 12.13 hrs, Volume= 0.118 af

Outflow = 4.02 cfs @ 12.13 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min

Routed to Reach 112R : PIPE FROM DMH 12 TO DMH 9

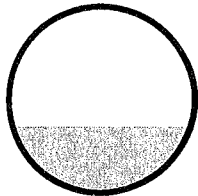
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Max. Velocity= 7.14 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 4.22 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.13 hrs
 Average Depth at Peak Storage= 0.53' , Surface Width= 1.44'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 14.86 cfs

18.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 5.0' Slope= 0.0200 1/
 Inlet Invert= 334.50', Outlet Invert= 334.40'



Summary for Pond 111P: DMH 11

Inflow Area = 1.484 ac, 61.34% Impervious, Inflow Depth > 6.30" for 100 YEAR event
 Inflow = 7.92 cfs @ 12.13 hrs, Volume= 0.779 af
 Outflow = 7.92 cfs @ 12.13 hrs, Volume= 0.779 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.90 cfs @ 12.13 hrs, Volume= 0.661 af
 Routed to Reach 111R : PIPE FROM DMH 11 TO CDS10
 Secondary = 4.02 cfs @ 12.13 hrs, Volume= 0.118 af
 Routed to Reach 211R : PIPE FROM DMH 11 TO DMH 12

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Peak Elev= 335.46' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	333.90'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Secondary	334.50'	18.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.89 cfs @ 12.13 hrs HW=335.46' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 3.89 cfs @ 4.96 fps)

Secondary OutFlow Max=3.99 cfs @ 12.13 hrs HW=335.46' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 3.99 cfs @ 3.34 fps)