



October 23, 2017

Conservation Commission
New Bedford City Hall
133 Williams Street
New Bedford, MA 02740

**RE: Response Letter
Notice of Intent – Parallel Products (SE49-0771)
100 Duchaine Blvd. – New Bedford, Massachusetts**

Dear Members of the Commission:

We have enclosed a response letter, revised HydroCAD calculations, revised Site Plan sheets and accompanying documentation in response to the comment letter prepared by Nitsch Engineering dated October 17, 2017 in regards to their review of the Site Plans and attached documents.

We trust the attachments noted above and included herewith will provide the necessary documentation to address their comments. If you should have any questions, please feel free to contact us.

Very Truly Yours,

FARLAND CORPORATION, INC.

Christian A. Farland

Christian A. Farland, P.E., LEED AP
Principal Engineer and President

Nitsch Engineering Comments

Comment #1:

The improvements on the parking lot to the east of the existing building include a new 100-foot-long access driveway. The plans do not show any proposed grades on this driveway, implying that the driveway is flat. The plans have been revised to show a small rain garden to collect and treat stormwater generated by the driveway. The rain garden appears to be appropriate for the project.

Farland Corp. agrees with this statement.

Comment #2:

We recommend that additional information be provided describing the outlet control structure from the underground infiltration system. The calculations show one six-inch reinforced concrete pipe controlling the flow from the leaching system. Six-inch reinforced pipes are not manufactured. The detail shows the invert at the bottom of the chambers. The plans show four outlet pipes, one from each row of recharge units. Details need to be provided that are consistent among the calculations, plans and details, and are clear for the contractor to build.

Discrepancies within the plans and calculations have been revised to be consistent with one another. Additional descriptions have been added to the plans and details to show the proposed construction of the outlet manifold structure.

Comment #3:

We recommend the underground piping be labelled for size and pipe material.

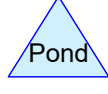
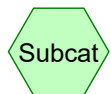
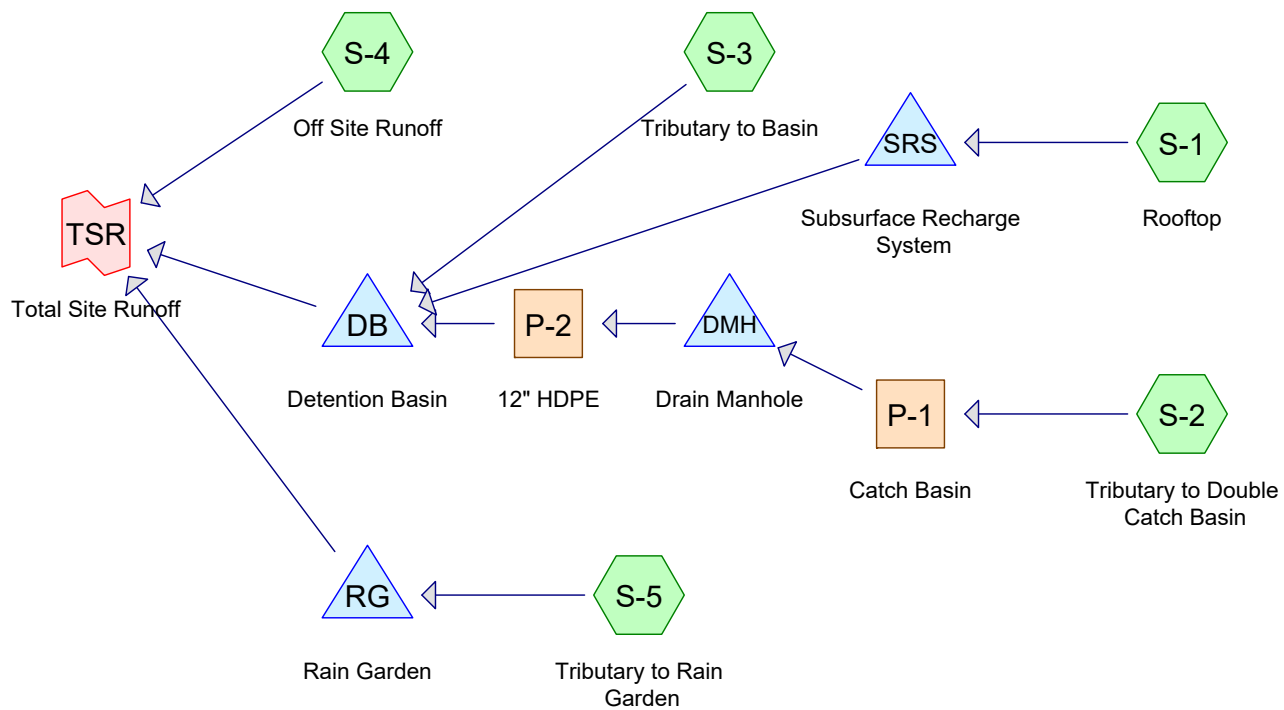
Pipe sizes and material have been added to the plan.

Comment #4:

A water quality unit detail was added to the plans. The detail is generic and does not specify the manufacturer. The detail should show the manufacturer or type of unit proposed by the applicant.

The water quality unit detail has been updated to show model and type of the proposed unit.

If you have any questions or require any further information please contact this office at (508) 717-3479.



Drainage Diagram for 15500.2POST

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15500.2POST

Type III 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment S-1: Rooftop

Runoff = 1.14 cfs @ 12.08 hrs, Volume= 0.091 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Type III 24-hr 2-yr Rainfall=3.40"

| | Area (sf) | CN | Description |
|---|-----------|----|-----------------|
| * | 15,000 | 98 | Roof |
| | 15,000 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0 | | | | | Direct Entry, Min Tc |

Summary for Subcatchment S-2: Tributary to Double Catch Basin

Runoff = 1.80 cfs @ 12.08 hrs, Volume= 0.143 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Type III 24-hr 2-yr Rainfall=3.40"

| | Area (sf) | CN | Description |
|---|-----------|----|-----------------|
| * | 23,660 | 98 | Roadway |
| | 23,660 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

Summary for Subcatchment S-3: Tributary to Basin

Runoff = 2.06 cfs @ 12.09 hrs, Volume= 0.147 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Type III 24-hr 2-yr Rainfall=3.40"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------------|
| * | 16,450 | 98 | Basin |
| * | 26,600 | 76 | Gravel roads, HSG A |
| | 2,050 | 39 | >75% Grass cover, Good, HSG A |
| | 45,100 | 82 | Weighted Average |
| | 28,650 | | Pervious Area |
| | 16,450 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

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Type III 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment S-4: Off Site Runoff

Runoff = 0.03 cfs @ 12.46 hrs, Volume= 0.012 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Type III 24-hr 2-yr Rainfall=3.40"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------------|
| * | 3,500 | 98 | Pavement |
| | 10,900 | 76 | Gravel roads, HSG A |
| | 8,800 | 39 | >75% Grass cover, Good, HSG A |
| | 20,440 | 30 | Woods, Good, HSG A |
| | 43,640 | 49 | Weighted Average |
| | 40,140 | | Pervious Area |
| | 3,500 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

Summary for Subcatchment S-5: Tributary to Rain Garden

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.018 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Type III 24-hr 2-yr Rainfall=3.40"

| | Area (sf) | CN | Description |
|--|-----------|----|-----------------------|
| | 3,008 | 98 | Paved parking & roofs |
| | 3,008 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

Summary for Reach P-1: Catch Basin

Inflow Area = 0.543 ac, 100.00% Impervious, Inflow Depth = 3.17" for 2-yr event

Inflow = 1.80 cfs @ 12.08 hrs, Volume= 0.143 af

Outflow = 1.79 cfs @ 12.09 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Max. Velocity= 3.48 fps, Min. Travel Time= 0.4 min

Avg. Velocity= 1.19 fps, Avg. Travel Time= 1.1 min

Peak Storage= 41 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.62'

Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.52 cfs

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Type III 24-hr 2-yr Rainfall=3.40"

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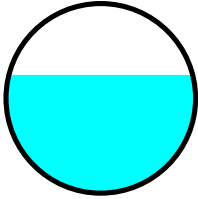
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12.0" Diameter Pipe, n= 0.013

Length= 80.0' Slope= 0.0050 '/

Inlet Invert= 79.00', Outlet Invert= 78.60'



Summary for Reach P-2: 12" HDPE

Inflow Area = 0.543 ac, 100.00% Impervious, Inflow Depth = 3.17" for 2-yr event
Inflow = 1.79 cfs @ 12.09 hrs, Volume= 0.143 af
Outflow = 1.78 cfs @ 12.10 hrs, Volume= 0.143 af, Atten= 1%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Max. Velocity= 3.48 fps, Min. Travel Time= 0.7 min

Avg. Velocity= 1.18 fps, Avg. Travel Time= 2.0 min

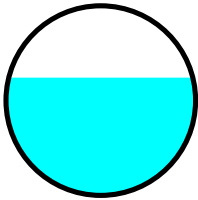
Peak Storage= 72 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.62'

Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.52 cfs

12.0" Diameter Pipe, n= 0.013

Length= 140.0' Slope= 0.0050 '/

Inlet Invert= 78.50', Outlet Invert= 77.80'



Summary for Pond DB: Detention Basin

Inflow Area = 1.923 ac, 65.80% Impervious, Inflow Depth = 1.81" for 2-yr event
Inflow = 3.84 cfs @ 12.09 hrs, Volume= 0.290 af
Outflow = 0.07 cfs @ 18.17 hrs, Volume= 0.141 af, Atten= 98%, Lag= 364.7 min
Discarded = 0.07 cfs @ 18.17 hrs, Volume= 0.141 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 77.74' @ 18.17 hrs Surf.Area= 11,966 sf Storage= 8,458 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 306.4 min (1,102.1 - 795.8)

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Type III 24-hr 2-yr Rainfall=3.40"

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| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|--|
| #1 | 77.00' | 39,678 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 77.00 | 10,760 | 0 | 0 |
| 78.00 | 12,380 | 11,570 | 11,570 |
| 79.00 | 14,040 | 13,210 | 24,780 |
| 80.00 | 15,756 | 14,898 | 39,678 |

| Device | Routing | Invert | Outlet Devices |
|---|-----------|--------|---|
| #1 | Discarded | 77.00' | 0.270 in/hr Exfiltration over Surface area |
| #2 | Primary | 79.00' | 15.0' long x 5.0' breadth Broad-Crested Rectangular Weir |
| Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 | | | |
| 2.50 3.00 3.50 4.00 4.50 5.00 5.50 | | | |
| Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 | | | |
| 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 | | | |

Discarded OutFlow Max=0.07 cfs @ 18.17 hrs HW=77.74' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=77.00' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)**Summary for Pond DMH: Drain Manhole**

Inflow Area = 0.543 ac, 100.00% Impervious, Inflow Depth = 3.17" for 2-yr event
 Inflow = 1.79 cfs @ 12.09 hrs, Volume= 0.143 af
 Primary = 1.79 cfs @ 12.09 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Summary for Pond RG: Rain Garden

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth = 3.17" for 2-yr event
 Inflow = 0.23 cfs @ 12.08 hrs, Volume= 0.018 af
 Outflow = 0.01 cfs @ 14.74 hrs, Volume= 0.018 af, Atten= 96%, Lag= 159.5 min
 Discarded = 0.01 cfs @ 14.74 hrs, Volume= 0.018 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 77.78' @ 14.74 hrs Surf.Area= 1,566 sf Storage= 398 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 334.7 min (1,089.9 - 755.1)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|--|
| #1 | 77.50' | 770 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

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Type III 24-hr 2-yr Rainfall=3.40"

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| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 77.50 | 1,301 | 0 | 0 |
| 78.00 | 1,779 | 770 | 770 |

| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 77.50' | 0.270 in/hr Exfiltration over Surface area |
| #2 | Primary | 78.00' | 7.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

Discarded OutFlow Max=0.01 cfs @ 14.74 hrs HW=77.78' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=77.50' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)**Summary for Pond SRS: Subsurface Recharge System**

Inflow Area = 0.344 ac, 100.00% Impervious, Inflow Depth = 3.17" for 2-yr event
 Inflow = 1.14 cfs @ 12.08 hrs, Volume= 0.091 af
 Outflow = 0.02 cfs @ 8.27 hrs, Volume= 0.034 af, Atten= 99%, Lag= 0.0 min
 Discarded = 0.02 cfs @ 8.27 hrs, Volume= 0.034 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 79.62' @ 19.84 hrs Surf.Area= 2,519 sf Storage= 2,856 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 258.0 min (1,013.2 - 755.1)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|--|
| #1 | 78.00' | 2,423 cf | 22.00'W x 114.50'L x 4.00'H Prismatic 10,076 cf Overall - 4,019 cf Embedded = 6,057 cf x 40.0% Voids |
| #2 | 78.50' | 4,019 cf | 52.6"W x 34.0"H x 7.50'L Cultec R-V8 x 60 Inside #1 |
| | | 6,442 cf | Total Available Storage |

| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 78.00' | 0.270 in/hr Exfiltration over Surface area |
| #2 | Primary | 80.50' | 6.0" x 136.2' long Culvert X 4.00 CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 77.20' S= 0.0242 '/' Cc= 0.900 n= 0.013 |

Discarded OutFlow Max=0.02 cfs @ 8.27 hrs HW=78.04' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=78.00' TW=77.00' (Dynamic Tailwater)↑**2=Culvert** (Controls 0.00 cfs)

Summary for Link TSR: Total Site Runoff

Inflow Area = 2.994 ac, 47.25% Impervious, Inflow Depth = 0.05" for 2-yr event
Inflow = 0.03 cfs @ 12.46 hrs, Volume= 0.012 af
Primary = 0.03 cfs @ 12.46 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

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Type III 24-hr 10-yr Rainfall=4.80"

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Summary for Subcatchment S-1: Rooftop

Runoff = 1.62 cfs @ 12.08 hrs, Volume= 0.131 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|-----------|----|-----------------|
| * | 15,000 | 98 | Roof |
| | 15,000 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0 | | | | | Direct Entry, Min Tc |

Summary for Subcatchment S-2: Tributary to Double Catch Basin

Runoff = 2.55 cfs @ 12.08 hrs, Volume= 0.207 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|-----------|----|-----------------|
| * | 23,660 | 98 | Roadway |
| | 23,660 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

Summary for Subcatchment S-3: Tributary to Basin

Runoff = 3.52 cfs @ 12.09 hrs, Volume= 0.250 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------------|
| * | 16,450 | 98 | Basin |
| * | 26,600 | 76 | Gravel roads, HSG A |
| | 2,050 | 39 | >75% Grass cover, Good, HSG A |
| | 45,100 | 82 | Weighted Average |
| | 28,650 | | Pervious Area |
| | 16,450 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

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Type III 24-hr 10-yr Rainfall=4.80"

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Summary for Subcatchment S-4: Off Site Runoff

Runoff = 0.34 cfs @ 12.13 hrs, Volume= 0.047 af, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------------|
| * | 3,500 | 98 | Pavement |
| | 10,900 | 76 | Gravel roads, HSG A |
| | 8,800 | 39 | >75% Grass cover, Good, HSG A |
| | 20,440 | 30 | Woods, Good, HSG A |
| | 43,640 | 49 | Weighted Average |
| | 40,140 | | Pervious Area |
| | 3,500 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

Summary for Subcatchment S-5: Tributary to Rain Garden

Runoff = 0.32 cfs @ 12.08 hrs, Volume= 0.026 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

| | Area (sf) | CN | Description |
|--|-----------|----|-----------------------|
| | 3,008 | 98 | Paved parking & roofs |
| | 3,008 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

Summary for Reach P-1: Catch Basin

Inflow Area = 0.543 ac, 100.00% Impervious, Inflow Depth = 4.56" for 10-yr event
 Inflow = 2.55 cfs @ 12.08 hrs, Volume= 0.207 af
 Outflow = 2.54 cfs @ 12.09 hrs, Volume= 0.207 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
 Max. Velocity= 3.66 fps, Min. Travel Time= 0.4 min
 Avg. Velocity= 1.33 fps, Avg. Travel Time= 1.0 min

Peak Storage= 56 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.83'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.52 cfs

15500.2POST

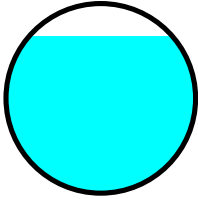
Type III 24-hr 10-yr Rainfall=4.80"

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12.0" Diameter Pipe, n= 0.013
Length= 80.0' Slope= 0.0050 '/'
Inlet Invert= 79.00', Outlet Invert= 78.60'

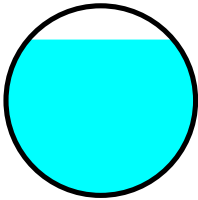
**Summary for Reach P-2: 12" HDPE**

Inflow Area = 0.543 ac, 100.00% Impervious, Inflow Depth = 4.56" for 10-yr event
Inflow = 2.54 cfs @ 12.09 hrs, Volume= 0.207 af
Outflow = 2.52 cfs @ 12.10 hrs, Volume= 0.207 af, Atten= 1%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.66 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.32 fps, Avg. Travel Time= 1.8 min

Peak Storage= 97 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.52 cfs

12.0" Diameter Pipe, n= 0.013
Length= 140.0' Slope= 0.0050 '/'
Inlet Invert= 78.50', Outlet Invert= 77.80'

**Summary for Pond DB: Detention Basin**

Inflow Area = 1.923 ac, 65.80% Impervious, Inflow Depth = 2.85" for 10-yr event
Inflow = 6.02 cfs @ 12.09 hrs, Volume= 0.457 af
Outflow = 0.08 cfs @ 21.57 hrs, Volume= 0.156 af, Atten= 99%, Lag= 568.6 min
Discarded = 0.08 cfs @ 21.57 hrs, Volume= 0.156 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 78.26' @ 21.57 hrs Surf.Area= 12,813 sf Storage= 14,860 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 285.5 min (1,073.1 - 787.5)

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Type III 24-hr 10-yr Rainfall=4.80"

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| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|--|
| #1 | 77.00' | 39,678 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 77.00 | 10,760 | 0 | 0 |
| 78.00 | 12,380 | 11,570 | 11,570 |
| 79.00 | 14,040 | 13,210 | 24,780 |
| 80.00 | 15,756 | 14,898 | 39,678 |

| Device | Routing | Invert | Outlet Devices |
|---|-----------|--------|---|
| #1 | Discarded | 77.00' | 0.270 in/hr Exfiltration over Surface area |
| #2 | Primary | 79.00' | 15.0' long x 5.0' breadth Broad-Crested Rectangular Weir |
| Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 | | | |
| 2.50 3.00 3.50 4.00 4.50 5.00 5.50 | | | |
| Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 | | | |
| 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 | | | |

Discarded OutFlow Max=0.08 cfs @ 21.57 hrs HW=78.26' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.08 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=77.00' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)**Summary for Pond DMH: Drain Manhole**

Inflow Area = 0.543 ac, 100.00% Impervious, Inflow Depth = 4.56" for 10-yr event
 Inflow = 2.54 cfs @ 12.09 hrs, Volume= 0.207 af
 Primary = 2.54 cfs @ 12.09 hrs, Volume= 0.207 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Summary for Pond RG: Rain Garden

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth = 4.56" for 10-yr event
 Inflow = 0.32 cfs @ 12.08 hrs, Volume= 0.026 af
 Outflow = 0.01 cfs @ 15.56 hrs, Volume= 0.020 af, Atten= 97%, Lag= 208.9 min
 Discarded = 0.01 cfs @ 15.56 hrs, Volume= 0.020 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 77.93' @ 15.56 hrs Surf.Area= 1,711 sf Storage= 646 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 319.4 min (1,068.1 - 748.7)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|--|
| #1 | 77.50' | 770 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

15500.2POST

Type III 24-hr 10-yr Rainfall=4.80"

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| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 77.50 | 1,301 | 0 | 0 |
| 78.00 | 1,779 | 770 | 770 |

| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 77.50' | 0.270 in/hr Exfiltration over Surface area |
| #2 | Primary | 78.00' | 7.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

Discarded OutFlow Max=0.01 cfs @ 15.56 hrs HW=77.93' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=77.50' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)**Summary for Pond SRS: Subsurface Recharge System**

Inflow Area = 0.344 ac, 100.00% Impervious, Inflow Depth = 4.56" for 10-yr event
 Inflow = 1.62 cfs @ 12.08 hrs, Volume= 0.131 af
 Outflow = 0.02 cfs @ 6.65 hrs, Volume= 0.036 af, Atten= 99%, Lag= 0.0 min
 Discarded = 0.02 cfs @ 6.65 hrs, Volume= 0.036 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 80.46' @ 23.24 hrs Surf.Area= 2,519 sf Storage= 4,481 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 224.2 min (972.9 - 748.7)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|--|
| #1 | 78.00' | 2,423 cf | 22.00'W x 114.50'L x 4.00'H Prismatic 10,076 cf Overall - 4,019 cf Embedded = 6,057 cf x 40.0% Voids |
| #2 | 78.50' | 4,019 cf | 52.6"W x 34.0"H x 7.50'L Cultec R-V8 x 60 Inside #1 |
| | | 6,442 cf | Total Available Storage |

| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 78.00' | 0.270 in/hr Exfiltration over Surface area |
| #2 | Primary | 80.50' | 6.0" x 136.2' long Culvert X 4.00 CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 77.20' S= 0.0242 '/' Cc= 0.900 n= 0.013 |

Discarded OutFlow Max=0.02 cfs @ 6.65 hrs HW=78.04' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=78.00' TW=77.00' (Dynamic Tailwater)↑**2=Culvert** (Controls 0.00 cfs)

Summary for Link TSR: Total Site Runoff

Inflow Area = 2.994 ac, 47.25% Impervious, Inflow Depth = 0.19" for 10-yr event
Inflow = 0.34 cfs @ 12.13 hrs, Volume= 0.047 af
Primary = 0.34 cfs @ 12.13 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

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Type III 24-hr 100-yr Rainfall=7.00"

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Summary for Subcatchment S-1: Rooftop

Runoff = 2.36 cfs @ 12.08 hrs, Volume= 0.194 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

| | Area (sf) | CN | Description |
|---|-----------|----|-----------------|
| * | 15,000 | 98 | Roof |
| | 15,000 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0 | | | | | Direct Entry, Min Tc |

Summary for Subcatchment S-2: Tributary to Double Catch Basin

Runoff = 3.73 cfs @ 12.08 hrs, Volume= 0.306 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

| | Area (sf) | CN | Description |
|---|-----------|----|-----------------|
| * | 23,660 | 98 | Roadway |
| | 23,660 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

Summary for Subcatchment S-3: Tributary to Basin

Runoff = 5.87 cfs @ 12.09 hrs, Volume= 0.424 af, Depth= 4.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------------|
| * | 16,450 | 98 | Basin |
| * | 26,600 | 76 | Gravel roads, HSG A |
| | 2,050 | 39 | >75% Grass cover, Good, HSG A |
| | 45,100 | 82 | Weighted Average |
| | 28,650 | | Pervious Area |
| | 16,450 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

15500.2POST

Type III 24-hr 100-yr Rainfall=7.00"

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Summary for Subcatchment S-4: Off Site Runoff

Runoff = 1.58 cfs @ 12.10 hrs, Volume= 0.132 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------------|
| * | 3,500 | 98 | Pavement |
| | 10,900 | 76 | Gravel roads, HSG A |
| | 8,800 | 39 | >75% Grass cover, Good, HSG A |
| | 20,440 | 30 | Woods, Good, HSG A |
| | 43,640 | 49 | Weighted Average |
| | 40,140 | | Pervious Area |
| | 3,500 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

Summary for Subcatchment S-5: Tributary to Rain Garden

Runoff = 0.47 cfs @ 12.08 hrs, Volume= 0.039 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

| | Area (sf) | CN | Description |
|--|-----------|----|-----------------------|
| | 3,008 | 98 | Paved parking & roofs |
| | 3,008 | | Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------|
| 6.0 | | | | | Direct Entry, Min. Tc |

Summary for Reach P-1: Catch Basin

Inflow Area = 0.543 ac, 100.00% Impervious, Inflow Depth = 6.76" for 100-yr event

Inflow = 3.73 cfs @ 12.08 hrs, Volume= 0.306 af

Outflow = 2.64 cfs @ 12.02 hrs, Volume= 0.306 af, Atten= 29%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Max. Velocity= 3.65 fps, Min. Travel Time= 0.4 min

Avg. Velocity= 1.49 fps, Avg. Travel Time= 0.9 min

Peak Storage= 63 cf @ 12.03 hrs, Average Depth at Peak Storage= 1.00'

Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.52 cfs

15500.2POST

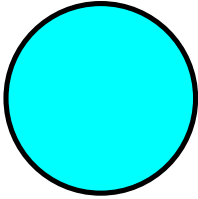
Type III 24-hr 100-yr Rainfall=7.00"

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12.0" Diameter Pipe, n= 0.013
Length= 80.0' Slope= 0.0050 '/'
Inlet Invert= 79.00', Outlet Invert= 78.60'



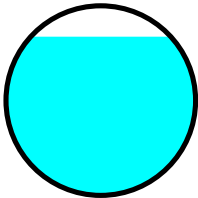
Summary for Reach P-2: 12" HDPE

Inflow Area = 0.543 ac, 100.00% Impervious, Inflow Depth = 6.76" for 100-yr event
Inflow = 2.64 cfs @ 12.02 hrs, Volume= 0.306 af
Outflow = 2.55 cfs @ 12.32 hrs, Volume= 0.306 af, Atten= 3%, Lag= 17.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.66 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 1.6 min

Peak Storage= 98 cf @ 12.32 hrs, Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.52 cfs

12.0" Diameter Pipe, n= 0.013
Length= 140.0' Slope= 0.0050 '/'
Inlet Invert= 78.50', Outlet Invert= 77.80'



Summary for Pond DB: Detention Basin

Inflow Area = 1.923 ac, 65.80% Impervious, Inflow Depth = 4.92" for 100-yr event
Inflow = 8.39 cfs @ 12.09 hrs, Volume= 0.789 af
Outflow = 0.35 cfs @ 15.96 hrs, Volume= 0.260 af, Atten= 96%, Lag= 232.2 min
Discarded = 0.09 cfs @ 15.96 hrs, Volume= 0.178 af
Primary = 0.26 cfs @ 15.96 hrs, Volume= 0.083 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 79.04' @ 15.96 hrs Surf.Area= 14,106 sf Storage= 25,319 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 270.0 min (1,057.4 - 787.4)

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Type III 24-hr 100-yr Rainfall=7.00"

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| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|--|
| #1 | 77.00' | 39,678 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 77.00 | 10,760 | 0 | 0 |
| 78.00 | 12,380 | 11,570 | 11,570 |
| 79.00 | 14,040 | 13,210 | 24,780 |
| 80.00 | 15,756 | 14,898 | 39,678 |

| Device | Routing | Invert | Outlet Devices |
|---|-----------|--------|---|
| #1 | Discarded | 77.00' | 0.270 in/hr Exfiltration over Surface area |
| #2 | Primary | 79.00' | 15.0' long x 5.0' breadth Broad-Crested Rectangular Weir |
| Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 | | | |
| 2.50 3.00 3.50 4.00 4.50 5.00 5.50 | | | |
| Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 | | | |
| 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 | | | |

Discarded OutFlow Max=0.09 cfs @ 15.96 hrs HW=79.04' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.09 cfs)**Primary OutFlow** Max=0.26 cfs @ 15.96 hrs HW=79.04' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.46 fps)**Summary for Pond DMH: Drain Manhole**

Inflow Area = 0.543 ac, 100.00% Impervious, Inflow Depth = 6.76" for 100-yr event
 Inflow = 2.64 cfs @ 12.02 hrs, Volume= 0.306 af
 Primary = 2.64 cfs @ 12.02 hrs, Volume= 0.306 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Summary for Pond RG: Rain Garden

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth = 6.76" for 100-yr event
 Inflow = 0.47 cfs @ 12.08 hrs, Volume= 0.039 af
 Outflow = 0.20 cfs @ 12.31 hrs, Volume= 0.029 af, Atten= 58%, Lag= 13.6 min
 Discarded = 0.01 cfs @ 12.30 hrs, Volume= 0.022 af
 Primary = 0.19 cfs @ 12.31 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 78.05' @ 12.31 hrs Surf.Area= 1,779 sf Storage= 770 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 233.2 min (976.2 - 743.0)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|--|
| #1 | 77.50' | 770 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

15500.2POST

Type III 24-hr 100-yr Rainfall=7.00"

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| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 77.50 | 1,301 | 0 | 0 |
| 78.00 | 1,779 | 770 | 770 |

| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 77.50' | 0.270 in/hr Exfiltration over Surface area |
| #2 | Primary | 78.00' | 7.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

Discarded OutFlow Max=0.01 cfs @ 12.30 hrs HW=78.05' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Primary OutFlow** Max=0.18 cfs @ 12.31 hrs HW=78.05' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.18 cfs @ 0.52 fps)**Summary for Pond SRS: Subsurface Recharge System**

Inflow Area = 0.344 ac, 100.00% Impervious, Inflow Depth = 6.76" for 100-yr event
 Inflow = 2.36 cfs @ 12.08 hrs, Volume= 0.194 af
 Outflow = 0.45 cfs @ 12.52 hrs, Volume= 0.096 af, Atten= 81%, Lag= 26.0 min
 Discarded = 0.02 cfs @ 4.37 hrs, Volume= 0.037 af
 Primary = 0.44 cfs @ 12.52 hrs, Volume= 0.059 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 80.70' @ 12.52 hrs Surf.Area= 2,519 sf Storage= 4,900 cf

Plug-Flow detention time= 303.5 min calculated for 0.096 af (50% of inflow)

Center-of-Mass det. time= 169.9 min (912.9 - 743.0)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|--|
| #1 | 78.00' | 2,423 cf | 22.00'W x 114.50'L x 4.00'H Prismatic 10,076 cf Overall - 4,019 cf Embedded = 6,057 cf x 40.0% Voids |
| #2 | 78.50' | 4,019 cf | 52.6"W x 34.0"H x 7.50'L Cultec R-V8 x 60 Inside #1 |
| | | 6,442 cf | Total Available Storage |

| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 78.00' | 0.270 in/hr Exfiltration over Surface area |
| #2 | Primary | 80.50' | 6.0" x 136.2' long Culvert X 4.00 CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 77.20' S= 0.0242 '/' Cc= 0.900 n= 0.013 |

Discarded OutFlow Max=0.02 cfs @ 4.37 hrs HW=78.04' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)**Primary OutFlow** Max=0.44 cfs @ 12.52 hrs HW=80.70' TW=78.50' (Dynamic Tailwater)↑**2=Culvert** (Inlet Controls 0.44 cfs @ 1.51 fps)

Summary for Link TSR: Total Site Runoff

Inflow Area = 2.994 ac, 47.25% Impervious, Inflow Depth = 0.89" for 100-yr event
Inflow = 1.58 cfs @ 12.10 hrs, Volume= 0.222 af
Primary = 1.58 cfs @ 12.10 hrs, Volume= 0.222 af, Atten= 0%, Lag= 0.0 min

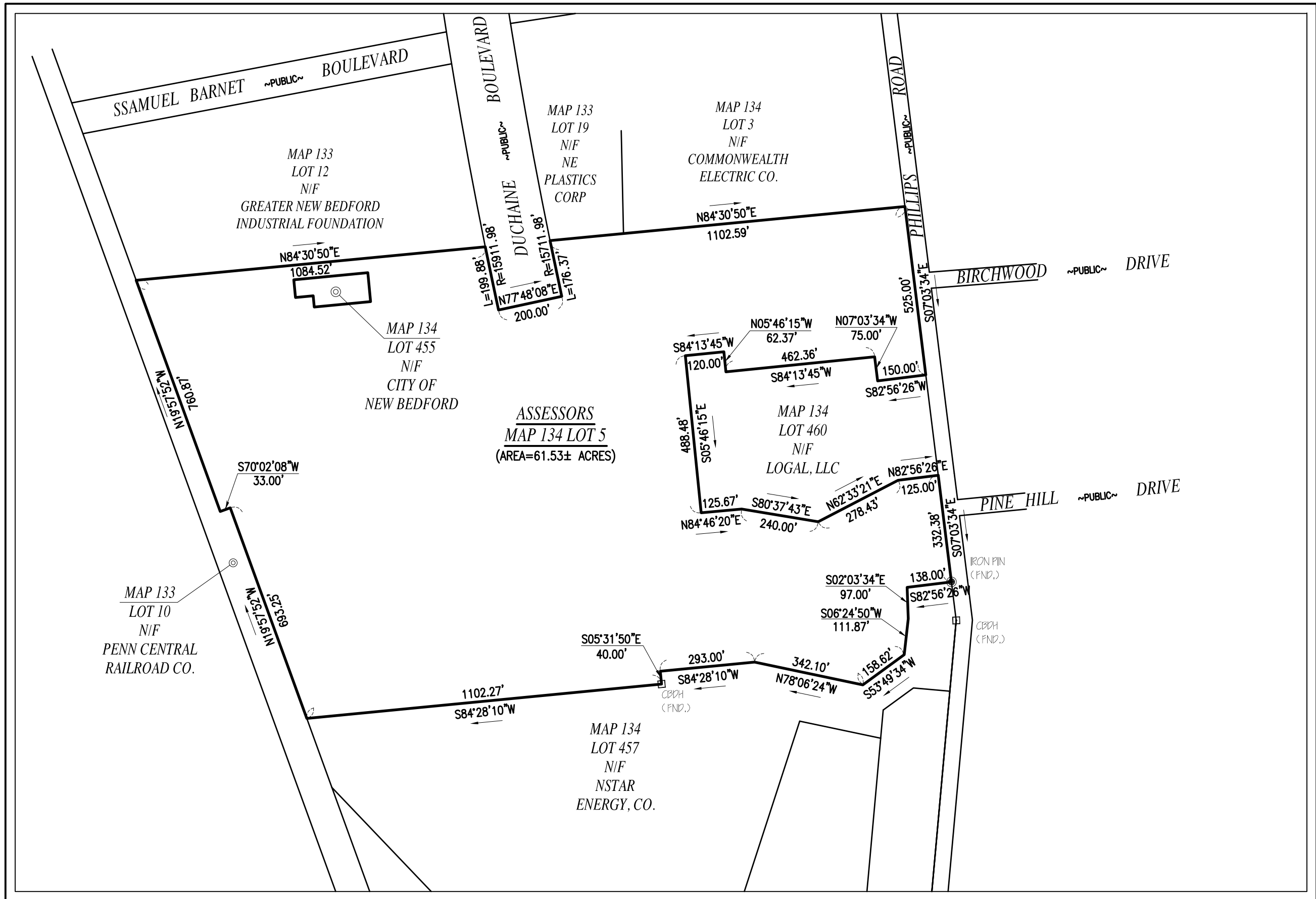
Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

S I T E P L A N

100 DUCHAINE BOULEVARD

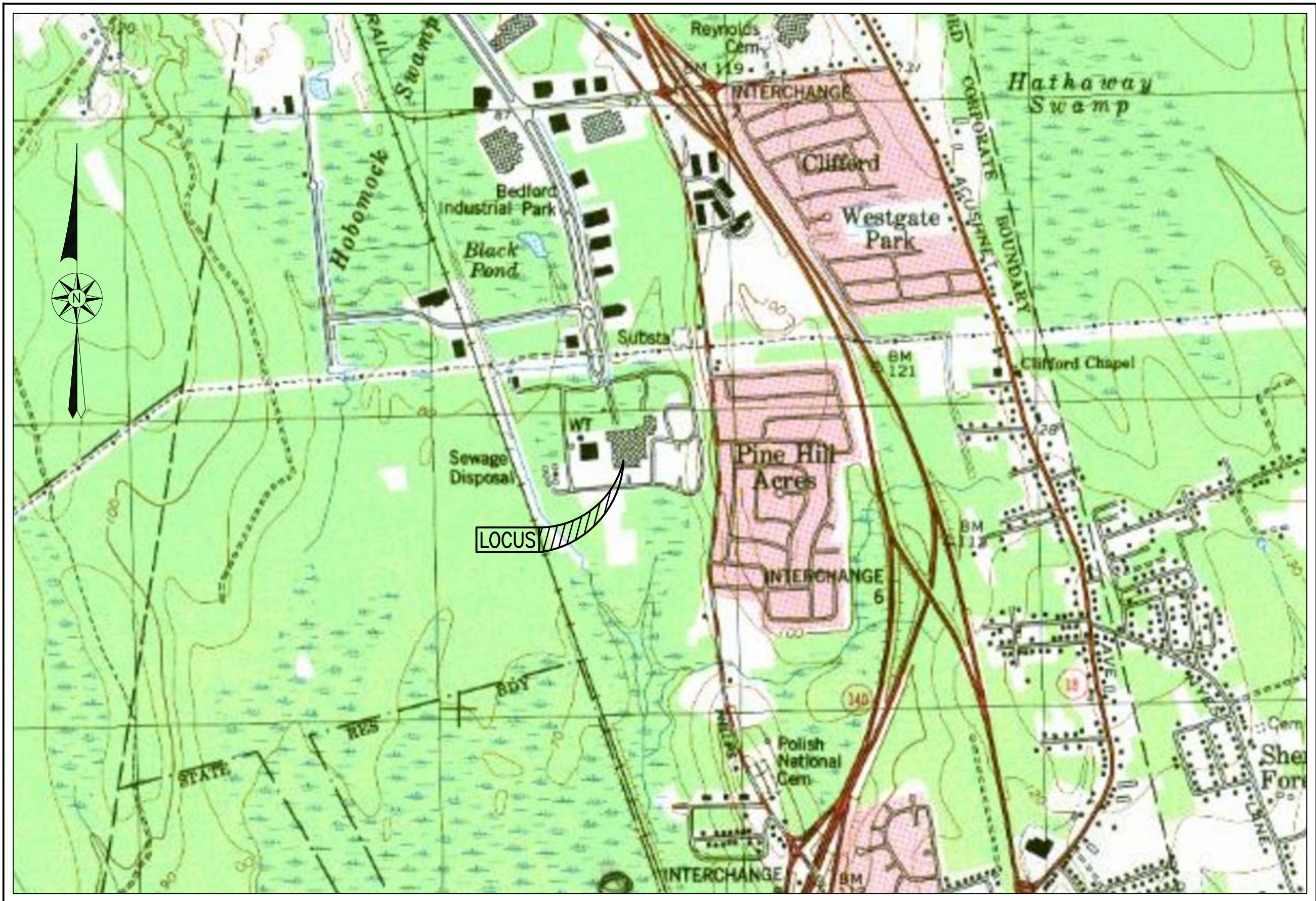
ASSESSORS MAP #134 LOT #5

NEW BEDFORD, MASSACHUSETTS



— OVERALL SITE MAP —

SCALE: 1"=300'



— AREA MAP —

SCALE: 1"=1,000'±

| — ZONING DATA — | | | |
|--|-------------------------|--------------------------|-----------|
| DISTRICT: INDUSTRIAL C | | | |
| DESCRIPTION | REQUIRED | EXISTING | PROVIDED |
| LOT AREA | 0 S.F. | 651± AC | 651± AC |
| LOT FRONTAGE | 0 FT | 57617 FT | 57617 FT |
| FRONT SETBACK | 25 FT | 843.6± FT | 843.6± FT |
| SIDE SETBACK | 25 FT | 192.3± FT | 192.3± FT |
| REAR SETBACK | 25 FT | 828.9± FT | 828.9± FT |
| BUILDING HEIGHT (MAXIMUM) | 100 FT | 400 FT | 400 FT |
| BUILDING COVERAGE (MAXIMUM) | 50 % | 3A± % | 3B± % |
| LOT COVERAGE (MAXIMUM) | 80 % | 450 % | 450 % |
| — PARKING & LOADING REQUIREMENTS — | | | |
| PRINCIPAL USE: RECYCLING FACILITY | | | |
| (FOR PARKING REGULATION PURPOSES: BUSINESS ENGAGED IN WAREHOUSING & DISTRIBUTION) | | | |
| REQUIREMENT | REQUIRED | PROVIDED | |
| 1 SPACE PER 1,500 S.F. OF G.F.A. UP TO 15,000 S.F. THEREAFTER, ONE ADDITIONAL SPACE FOR EACH 5,000 S.F. OR PORTION THEREOF IN EXCESS OF 15,000 S.F., PLUS ONE SPACE FOR EACH VEHICLE UTILIZED IN THE BUSINESS. | 55 TOTAL PARKING SPACES | 142 TOTAL PARKING SPACES | |
| WHEN 26-50 TOTAL PARKING SPACES ARE PROVIDED, 2 MUST BE ACCESSIBLE SPACES. ONE IN EVERY EIGHT ACCESSIBLE SPACES, BUT NOT LESS THAN ONE, SHALL BE VAN ACCESSIBLE | 2 TOTAL SPACES (1 VAN) | 2 SPACES (1 VAN) | |
| TWO (2) LOADING SPACES FOR EACH BUILDING CONTAINING 10,000 S.F. OF GROSS FLOOR AREA. THEREAFTER, ONE (1) ADDITIONAL LOADING SPACE SHALL BE REQUIRED FOR EACH FIFTEEN (15) FEET OF DOCK, PLATFORM, OR OPENING IN THE BUILDING WHERE THE LOADING OR UNLOADING OF COMMODITIES IS INTENDED TO OCCUR. | 17 LOADING SPACES | 20 LOADING SPACES | |

| — INDEX — | | | |
|-----------|---------------------|-------|---------------------|
| SHEET | DESCRIPTION | SHEET | DESCRIPTION |
| 1 | COVER | 5 | UTILITIES & GRADING |
| 2 | NOTES & LEGEND | 6 | LIGHTING |
| 3 | EXISTING CONDITIONS | 7-8 | DETAILS |
| 4 | LAYOUT | 9-10 | ARCHITECTURALS |

RECORD OWNER:
ASSESSORS MAP 134 LOT 5
SM REAL ESTATE, LLC
401 INDUSTRY ROAD
LOUISVILLE, KY 40208
LC CERT# 23339
LC PLAN# 36318C

REVISIONS

| | | |
|---|----------|-----------------------|
| 1 | 9/29/17 | CONSERVATION COMMENTS |
| 2 | 10/23/17 | CONSERVATION COMMENTS |
| | | |
| | | |

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401 COUNTY STREET
NEW BEDFORD, MA 02740
P.508.717.3479
OFFICES IN:
● TAUNTON
● MARLBOROUGH
● WARWICK, RI

DRAWN BY: MJW
DESIGNED BY: JKM
CHECKED BY: CAF

SITE PLAN

— 100 DUCHAINE BOULEVARD —
ASSESSORS MAP 134 LOT 5
NEW BEDFORD, MASSACHUSETTS

PARALLEL PRODUCTS OF NEW ENGLAND
401 INDUSTRY ROAD
LOUISVILLE, KY 40208

PREPARED FOR:

AUGUST 10, 2017

SCALE: AS NOTED

JOB NO. 15-500.2

LATEST REVISION:
OCTOBER 23, 2017

COVER

SHEET 1 OF 10

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIG SAFE" AT LEAST 72 HOURS BEFORE ANY EXCAVATION OR TO REVEAL EXACT FIELD LOCATION OF UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.
2. TOPOGRAPHIC AND PROPERTY LINE SURVEY PERFORMED BY FARLAND CORP. IN SEPTEMBER OF 2015.
3. VERTICAL ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 AND HORIZONTAL LOCATIONS REFER TO THE NORTH AMERICAN DATUM (NAD) OF 1983.
4. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL STANDARDS AND REGULATIONS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCH MARKS NECESSARY FOR THE WORK.
6. ALL BENCHMARKS SHOWN ON THE PLAN ARE TO BE CHECKED FOR CONSISTENCY BY THE CONTRACTOR. ANY DISCREPANCIES MUST BE RESOLVED BY THIS OFFICE PRIOR TO CONSTRUCTION.
7. WHERE PROPOSED PAVEMENT AND WALKS ARE TO MEET EXISTING, THE CONTRACTOR SHALL SAWCUT A NEAT LINE AND MATCH GRADE. SEAL ALL JOINTS WITH HOT BITUMINOUS ASPHALT JOINT SEALER.
8. CURBING TO BE AS INDICATED ON THE PLANS.
9. ALL EXISTING TREES, SHRUBS AND GROUND COVER WHERE NATURAL GRADE IS TO BE RETAINED SHALL BE KEPT IN THEIR EXISTING STATE UNLESS REMOVAL IS REQUIRED FOR CONSTRUCTION PURPOSES.
10. ALL AREAS DISTURBED BY CONSTRUCTION AND NOT TO BE PAVED OR OTHERWISE TREATED AS NOTED ON PLAN SHALL BE TREATED WITH 4" OF LOAM, SEEDED AND HAY MULCHED FOR EROSION CONTROL.
11. SITE IMPROVEMENTS SHALL CONFORM TO A.D.A. SPECIFICATIONS.
12. ALL HANDICAP ACCESS, RAMPS AND ACCESS SHALL CONFORM TO AAB & MAAB REQUIREMENTS.
13. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO MUTCD REQUIREMENTS.
14. LIGHTING SHALL BE DIRECTED ON SITE AND AWAY FROM TRAFFIC INTERFERENCE.
15. TEST PITS AND/OR BORINGS WERE TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY. THEY DO NOT NECESSARILY SHOW THE NATURE OF ALL MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
16. THE CONTRACTOR SHALL PROTECT AND/OR CAP OFF ALL EXISTING ON-SITE UTILITY SERVICES ACCORDING TO THE LOCAL AUTHORITY'S SPECIFICATIONS. SERVICES SHALL BE CAPPED OFF WHERE SAME ENTER THE PERIMETER OF THE PROPERTY LINE.
17. ANY WORK AND MATERIAL WITHIN THE CITY RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF NEW BEDFORD REQUIREMENTS.
18. CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
19. ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
20. ANY MINOR MODIFICATIONS (AS DETERMINED BY THE CITY ENGINEER) TO THE INFORMATION SHOWN ON THE APPROVED SITE PLANS SHALL BE SUBMITTED TO THE CITY ENGINEER AS A MINOR PLAN REVISION FOR APPROVAL PRIOR TO THE WORK BEING PERFORMED.
21. THESE PLANS ARE PERMITTING PLANS AND SHALL NOT TO BE USED FOR CONSTRUCTION. A FINAL SET OF STAMPED PLANS FOR CONSTRUCTION WILL BE ISSUED AFTER RECEIVING FINAL APPROVAL FROM THE LOCAL AND/OR STATE DEPARTMENTS.

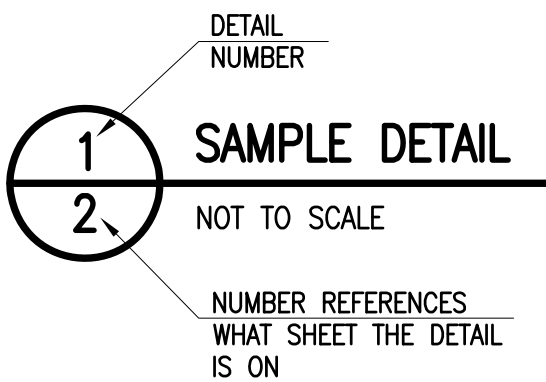
1. ALL BMP EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO DEMOLITION OR ANY SITE WORK.
2. EROSION CONTROL BMPs SHALL CONFORM TO USE EPA, NPDES, MA DEP AND MASSACHUSETTS EROSION AND SEDIMENTATION CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS.
3. CONSTRUCT TEMPORARY AND PERMANENT EROSION CONTROL FACILITIES. EROSION CONTROL FACILITIES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING.
4. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO CONSTRUCTION. EROSION CONTROL SHALL CONFORM TO THE CITY OF NEW BEDFORD CONSERVATION COMMISSION REQUIREMENTS AS STATED IN THE ORDER OF CONDITIONS.
5. TREE PROTECTION FENCE SHALL BE INSTALLED AND APPROVED BY THE OWNER REPRESENTATIVE PRIOR TO ANY EARTH MOVING.
6. ALL PERMANENT DITCHES AND SWALES ARE TO BE STABILIZED WITH VEGETATION OR RIP RAP PRIOR TO DIRECTING RUNOFF TO THEM.
7. CLEAR CUT, DEMOLISH AND DISPOSE OF EXISTING SITE ELEMENTS NOT TO REMAIN.
8. STORMWATER SHALL NOT BE DIRECTED TOWARDS THE INFILTRATION BASINS UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.
9. GRADE AND GRAVEL ALL PAVED AREAS. ALL PROPOSED PAVED AREAS SHALL BE STABILIZED IMMEDIATELY AFTER GRADING.
10. BEGIN ALL PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDS AND MULCHED IMMEDIATELY AFTER THEIR CONSTRUCTION.
11. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SILT FENCES AND MULCH AND SEED AS REQUIRED.
12. FINISH PAVING ALL HARD SURFACE AREAS.
13. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
14. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
15. REMOVE TEMPORARY EROSION CONTROL MEASURES.
16. THE CONSTRUCTION SEQUENCE SHALL BE CONFINED TO THE LIMIT OF WORK AS SHOWN ON THE DRAWINGS.
17. UPON COMPLETION OF CONSTRUCTION THE OWNER SHALL AGREE TO MAINTAIN AND CLEAN ALL DRAINAGE STRUCTURES AS REQUIRED.
18. MAINTENANCE SPECIFICATIONS SHALL BE PROVIDED FOR ALL PROPOSED EROSION AND SEDIMENTATION CONTROLS.

1. THE CONTRACTOR SHALL OBTAIN A STREET DISTURBANCE AND OBSTRUCTION PERMIT PRIOR TO ANY CONSTRUCTION WITHIN THE RIGHT-OF-WAY.
2. ALL WATER AND SEWER MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE CITY OF NEW BEDFORD REQUIREMENTS.
3. ALL WATER AND SEWER CONSTRUCTION SHALL BE INSPECTED BY THE CITY OF NEW BEDFORD BEFORE BEING BACKFILLED.
4. THE CITY SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO THE REQUIRED INSPECTIONS.
5. ALL CITY STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE PIPE (HDPE) OR RCP, UNLESS NOTED OTHERWISE.
6. HDPE PIPE SHALL CONFORM WITH ASHOTO DESIGNATIONS M294 AND M252. SHALL BE MANUFACTURED WITH HIGH DENSITY POLYETHYLENE PLASTIC AND SHALL BE ADS N-12 PIPE AS MANUFACTURED BY ADVANCE DRAINAGE SYSTEM, INC. OR HANCOR HI Q PIPE AS MANUFACTURED BY HANCOR, INC. OR APPROVED EQUAL UNLESS OTHERWISE NOTED OR DETAILED.
7. A MINIMUM OF 18" VERTICAL CLEARANCE SHALL BE MAINTAINED WHERE WATER SERVICES CROSS STORM DRAIN LINES.
8. ALL SERVICE CONNECTIONS SHALL BE INSTALLED TO A POINT OF 10 FEET FROM THE BUILDING WALL UNLESS OTHERWISE NOTED OR DETAILED.
9. BEFORE THE DEVELOPMENT SITE IS GRADED, THE AREA OF THE DRAINAGE BASINS SHOULD BE FENCED OFF TO PREVENT HEAVY EQUIPMENT FROM COMPACTING THE UNDERLYING SOIL.
10. WHERE PROPOSED GRADES MEET EXISTING GRADES, CONTRACTOR SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK. PONDING AT TRANSITION AREAS WILL NOT BE ALLOWED.
11. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AHEAD FROM ALL BUILDING FOUNDATIONS AND STRUCTURES.
12. MAXIMUM SLOPE IN DISTURBED AREAS SHALL NOT EXCEED 3:1, UNLESS OTHERWISE NOTED.
13. CONTRACTOR SHALL VERIFY EXISTING GRADES AND NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
14. CONTRACTOR SHALL ADJUST UTILITY ELEMENT MEANT TO BE FLUSH WITH GRADE THAT IS AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER OR NOT SPECIFICALLY NOTED ON PLANS OR NOT.
15. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE OFFICIALLY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE OWNER'S REPRESENTATIVE FOR RESOLUTION OF THE CONFLICT.
16. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ALL GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
17. ELECTRICAL DUCT BANK LOCATION IS SHOWN FOR COORDINATION PURPOSES. REFER TO ELECTRICAL PLANS FOR SECTIONS AND DETAILS OF THE UTILITY DUCT BANK.
18. THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY AND APPROVED BY THE RESPECTIVE UTILITY COMPANY (GAS, TELEPHONE AND ELECTRICAL). FINAL DESIGN AND LOCATIONS AT THE BUILDING WILL BE PROVIDED BY THE ARCHITECT. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE UTILITY CONNECTIONS WITH THE RESPECTIVE COMPANIES PRIOR TO ANY UTILITY CONSTRUCTION.

1. CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
2. ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
3. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND ALL DETAILS CONTIGUOUS TO THE BUILDING INCLUDING SIDEWALKS, RAMPS, UTILITY ENTRANCE LOCATIONS, WALL PACKS, CONCRETE DOOR PADS, ROOF DRAINS, ETC.
4. ACCESSIBLE CURB RAMPS SHALL BE PER THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD AND THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES, WHICH IS MORE STRINGENT.
5. THE FOLLOWING LAYOUT CRITERIA SHALL CONTROL UNLESS OTHERWISE NOTED ON THE PLAN:
 ALL DIMENSIONS ARE TO OUTSIDE FACE OF BUILDING.
 ALL DIMENSIONS ARE TO FACE OF CURB AT GUTTER LINE.
 ALL DIMENSIONS ARE TO CENTER OF PAVEMENT MARKINGS.
 ALL TIES TO PROPERTY LINES ARE PERPENDICULAR TO THE PROPERTY LINE UNLESS OTHERWISE NOTED.

1. THE CONSERVATION COMMISSION SHALL BE NOTIFIED, AT LEAST 72 HOURS PRIOR TO ANY LAND DISTURBANCE.
2. A COPY OF THE SOIL EROSION AND SEDIMENT CONTROL PLAN MUST BE MAINTAINED ON THE PROJECT SITE DURING CONSTRUCTION.
3. SOIL EROSION AND SEDIMENT CONTROL PRACTICES IN THE PLAN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
4. ALL APPLICABLE SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN PLACE PRIOR TO ANY DEMOLITION GRADING OPERATIONS AND/OR INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES.
5. ALL APPLICABLE SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE LEFT IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND/OR THE AREA IS STABILIZED.
6. ALL SOIL EROSION AND SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED AND MAINTAINED ON A REGULAR BASIS AND AFTER EVERY STORM EVENT.
7. THE MAINTENANCE OF SOIL EROSION AND SEDIMENT CONTROL MEASURES AND FACILITIES DURING AND IMMEDIATELY AFTER CONSTRUCTION RESTS WITH THE GENERAL CONTRACTOR. UPON ACCEPTANCE OF THE PROJECT, THE OWNER SHALL BECOME RESPONSIBLE FOR MAINTENANCE OF ANY REMAINING MEASURES AND FACILITIES.
8. OFF SITE SEDIMENT DISTURBANCE MAY REQUIRE ADDITIONAL CONTROL MEASURES TO BE DETERMINED BY THE ENGINEER.
9. THE CONSERVATION COMMISSION AND/OR ENGINEER MAY REQUIRE ADDITIONAL SOIL EROSION MEASURES TO BE INSTALLED, AS DIRECTED BY THE DISTRICT INSPECTOR.
10. ADJOINING PROPERTIES SHALL BE PROTECTED FROM EXCAVATION AND FILLING OPERATIONS AT ALL TIMES.
11. THE CONTRACTOR SHALL UTILIZE ALL METHODS NECESSARY TO PREVENT BLOWING AND MOVEMENT OF DUST FROM THE EXPOSED SOIL SURFACES.
12. PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES.
13. A CRUSHED STONE TIRE CLEANING PAD WILL BE INSTALLED WHEREVER A CONSTRUCTION ENTRANCE EXISTS. SEE LOCATION DETAIL ON PLAN.
14. ALL CATCH BASIN INLETS SHALL BE PROTECTED DURING CONSTRUCTION AS DETAILED ON THE PLAN, IF APPLICABLE.
15. ALL STORM DRAINAGE OUTLETS SHALL BE PROTECTED AS REQUIRED HEREON BEFORE DISCHARGE POINTS BECOME OPERATIONAL.
16. THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SUCH THAT ALL STORMWATER RUNOFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.
17. LAND AREAS EXPOSED AT ANY ONE TIME AND THE LENGTH OF EXPOSURE SHALL BE KEPT TO A PRACTICAL MINIMUM. THEY SHALL BE LEFT IN A NEAT AND FINISHED APPEARANCE AND PROTECTED FROM EROSION.
18. ANY DISTURBED AREA THAT WILL BE LEFT EXPOSED FOR MORE THAN SIXTY (60) DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC SHALL IMMEDIATELY RECEIVE A TEMPORARY SEEDING AND FERTILIZATION. IF THE SEASON PROHIBITS TEMPORARY SEEDING, THE DISTRIBUTED AREAS SHALL BE MULCHED.
19. ALL CRITICAL AREAS SUBJECT TO EROSION SHALL RECEIVE A TEMPORARY SEEDING AND BE MULCHED IN ACCORDANCE WITH THE SPECIFICATIONS IMMEDIATELY FOLLOWING ROUGH GRADING.
20. IMMEDIATELY AFTER COMPLETION OF STRIPPING AND STOCKPILING OF TOPSOIL, SEED THE STOCKPILE WITH ANNUAL RYE GRASS. STABILIZE TOPSOIL STOCKPILES WITH STRAW MULCH FOR PROTECTION IF THE SEASON DOES NOT PERMIT THE APPLICATION AND ESTABLISHMENT OF TEMPORARY SEEDING.
21. SOIL STOCKPILES ARE NOT TO BE LOCATED WITHIN FIFTY (50) FEET OF WETLANDS, THE FLOODPLAIN, SLOPE, ROADWAY OR DRAINAGE FACILITIES. THE BASE OF ALL STOCKPILES SHALL BE PROTECTED BY A HAY BALE BARRIER OR SEDIMENT FENCE. LOCATIONS ARE DELINEATED ON THE PLAN.
22. MAXIMUM SLOPE SLOPES OF ALL EXPOSED SURFACES SHALL NOT BE CONSTRUCTED STEEPER THAN 3:1 UNLESS OTHERWISE APPROVED BY THE DISTRICT.
23. ALL AREAS NOT STABILIZED BY CONSTRUCTION, SODDING OR LANDSCAPING SHALL BE SEEDDED AND STABILIZED IN ACCORDANCE WITH THE SEEDING AND MULCHING SPECIFICATIONS.
24. MULCHING IS REQUIRED ON ALL SEEDD AREAS TO INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED TO PROMOTE EARLIER VEGETATIVE COVER.
25. ALL DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTRATION DEVICE. THE SEDIMENT FILTER MUST BE CAPABLE OF FILTERING THE SEDIMENT AND BE PLACED SO AS NOT TO CAUSE EROSION OF THE DOWNSTREAM AREA.

| EXISTING | | PROPOSED |
|----------|-----------------------------|----------|
| | CONTOUR LINE | |
| | SPOT GRADE | |
| | EDGE OF PAVEMENT | |
| | VERTICAL GRANITE CURB | |
| | SLOPED GRANITE CURB | |
| | VERTICAL CONCRETE CURB | |
| | BITUMINOUS CONCRETE CURB | |
| | CAPE COD BERM | |
| | STONE WALL | |
| | CHAIN LINK FENCE | |
| | IRON FENCE | |
| | POST & RAIL FENCE | |
| | STOCKADE FENCE | |
| | GUARD RAIL | |
| | HAY BALES | |
| | WATER LINE | |
| | FIRE HYDRANT | |
| | POST INDICATOR VALVE | |
| | WATER GATE | |
| | WATER METER PIT | |
| | IRRIGATION HAND HOLE | |
| | WELL | |
| | SEWER LINE | |
| | SEWER MANHOLE | |
| | GAS LINE | |
| | GAS METER | |
| | GAS GATE | |
| | DRAIN LINE | |
| | DRAIN MANHOLE | |
| | CATCH BASIN | |
| | OVERHEAD WIRES | |
| | ELECTRIC, TELEPHONE & CABLE | |
| | UTILITY POLE | |
| | GUY WIRE | |



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| 1 | 9/29/17 | CONSERVATION COMMENTS |
| 2 | 10/23/17 | CONSERVATION COMMENTS |



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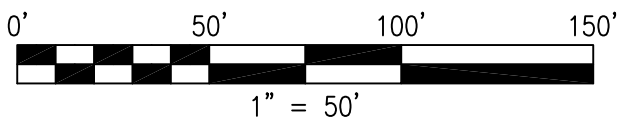
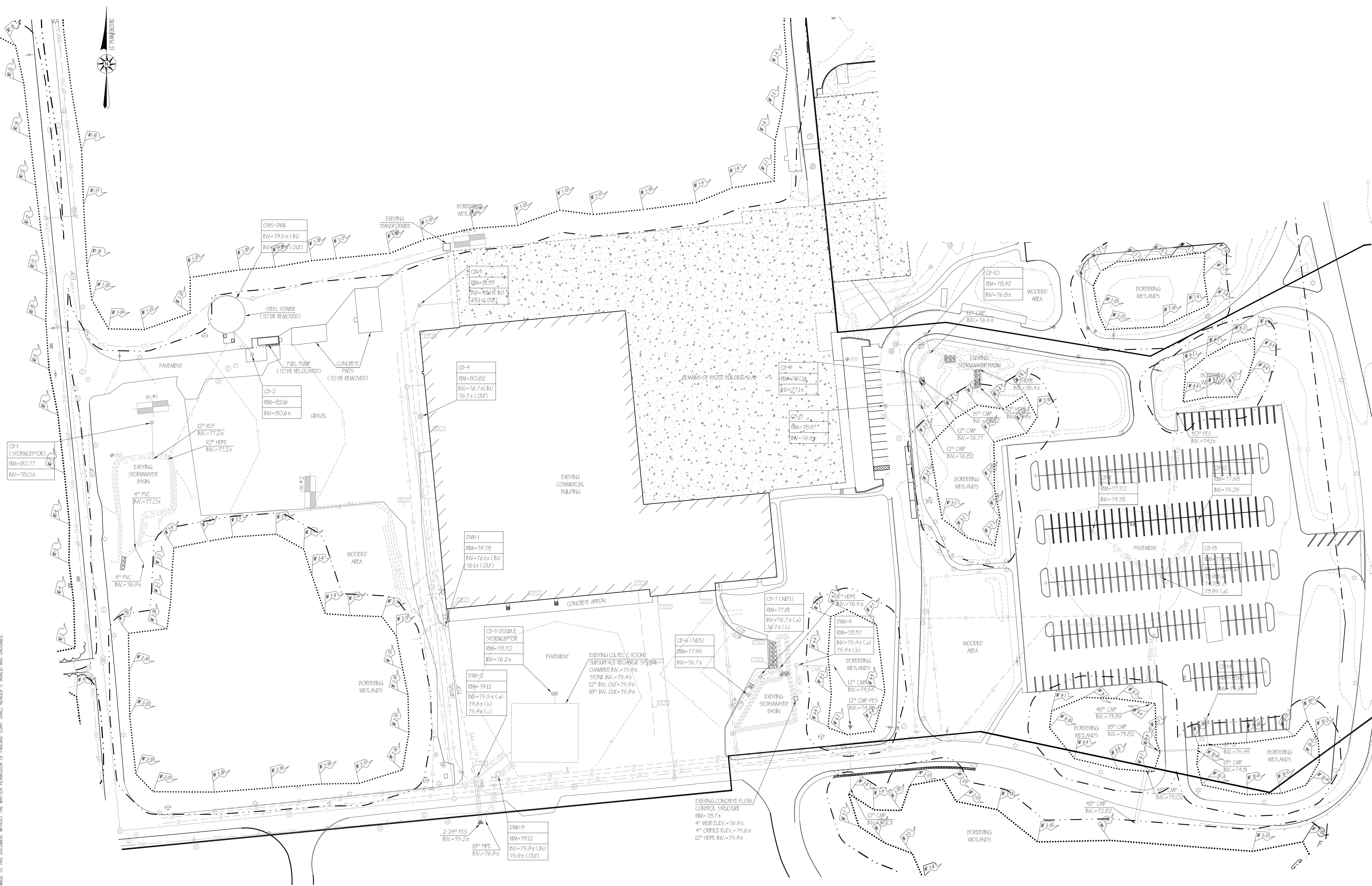
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— 100 DUCHAINE BOULEVARD —
ASSESSORS MAP 134 LOT 5
NEW BEDFORD, MASSACHUSETTS

PREPARED BY: PARALLEL PRODUCTS OF NEW ENGLAND
FOR: 401 INDUSTRY ROAD
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VERIFICATION OF MATERIALS

CHRISTIAN ALBERT FARLAND
CIVIL ENGINEER
No. 47544
MASS. REG. ENG.

FARLAND CORP.

www.FarlandCorp.com

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DESIGNED BY: JKM
CHECKED BY: CAF

SITE PLAN

100 DUCHAINE BOULEVARD
ASSESSORS MAP 134 LOT 5
NEW BEDFORD, MASSACHUSETTS

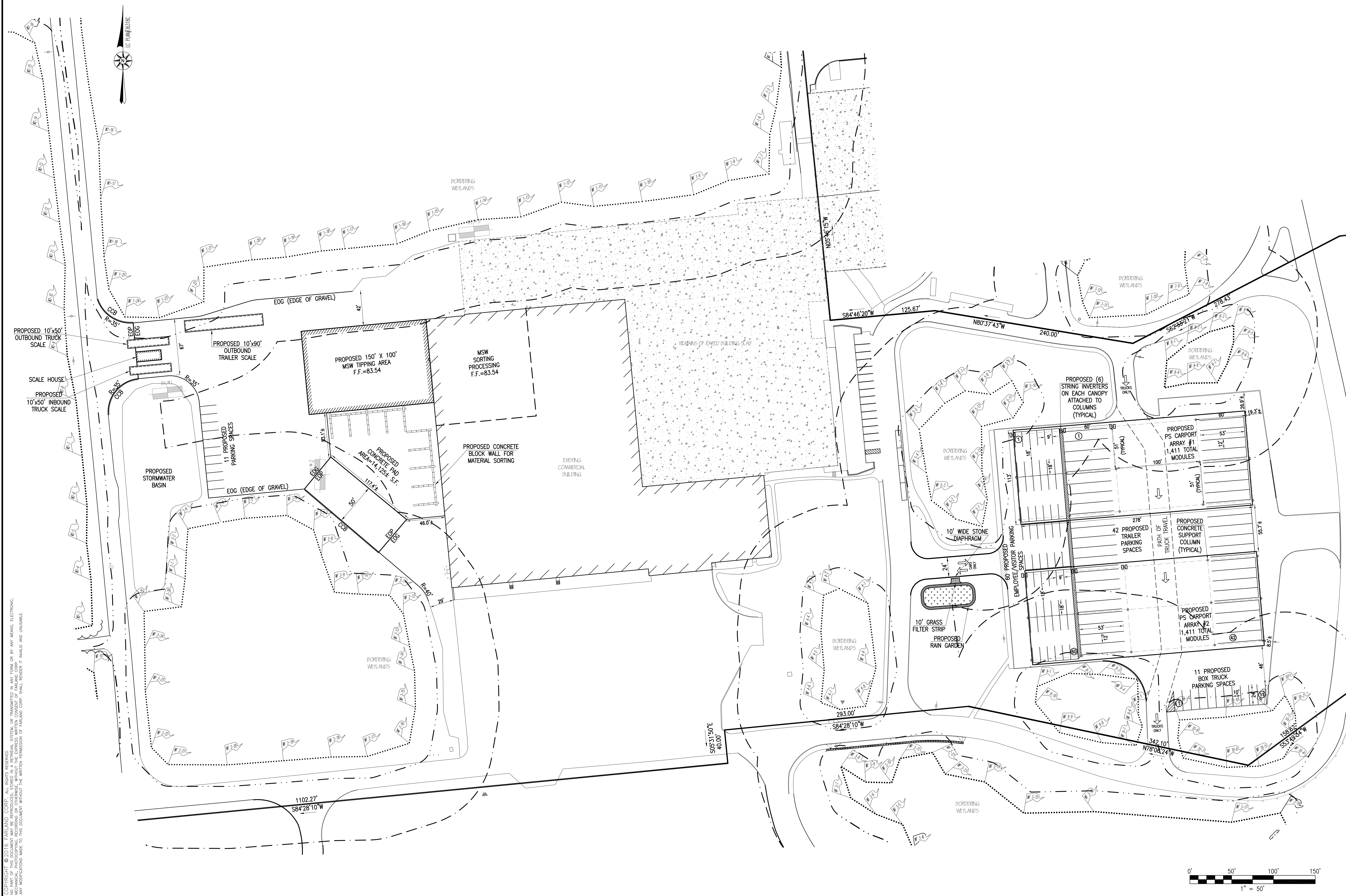
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LOUISVILLE, KY 40208

AUGUST 10, 2017
SCALE: 1"=50'
JOB NO. 15-500.2
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EXISTING CONDITIONS

SHEET 3 OF 10

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UNIVERSITY OF MASSACHUSETTS

CHRISTIAN ALBERT FARLAND

No. 47544

Civil Engineer

2016

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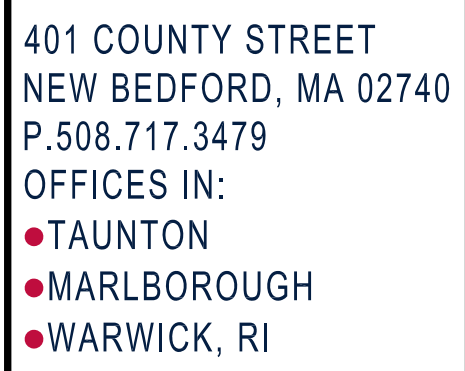
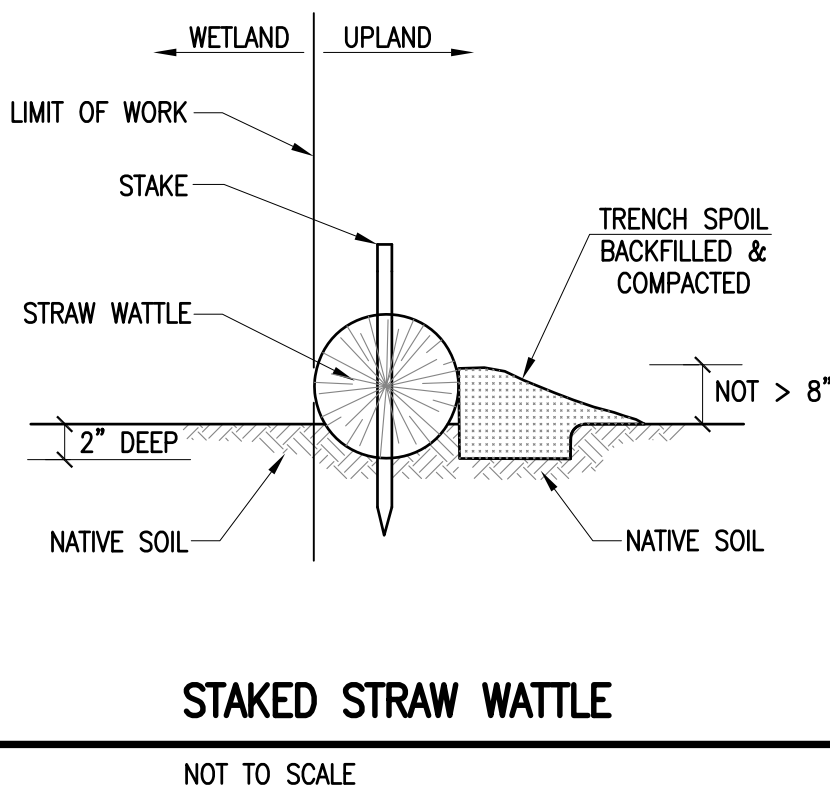
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SITE PLAN

100 DUCHAINE BOULEVARD
ASSESSORS MAP 134 LOT 5
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR:
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LOUISVILLE, KY 40208

AUGUST 10, 2017
SCALE: 1"=50'
JOB NO. 15-500.2
LATEST REVISION:
OCTOBER 23, 2017
LAYOUT
SHEET 4 OF 10



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FOR:

UTILITIES & GRADING
SHEET 5 OF 10



COMMONWEALTH OF MASSACHUSETTS
CHRISTIAN
ALBERT
FARLAND
No. 47544
CIVIL
REGISTERED
ENGINEER

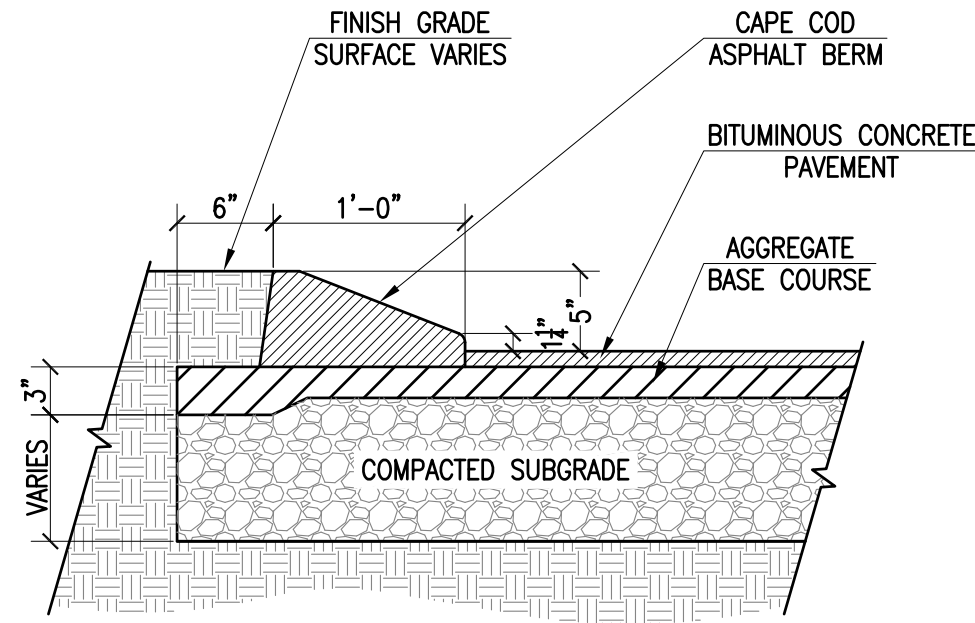


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— 100 DUCHAINE BOULEVARD —
ASSESSORS MAP 134 LOT 5
NEW BEDFORD, MASSACHUSETTS

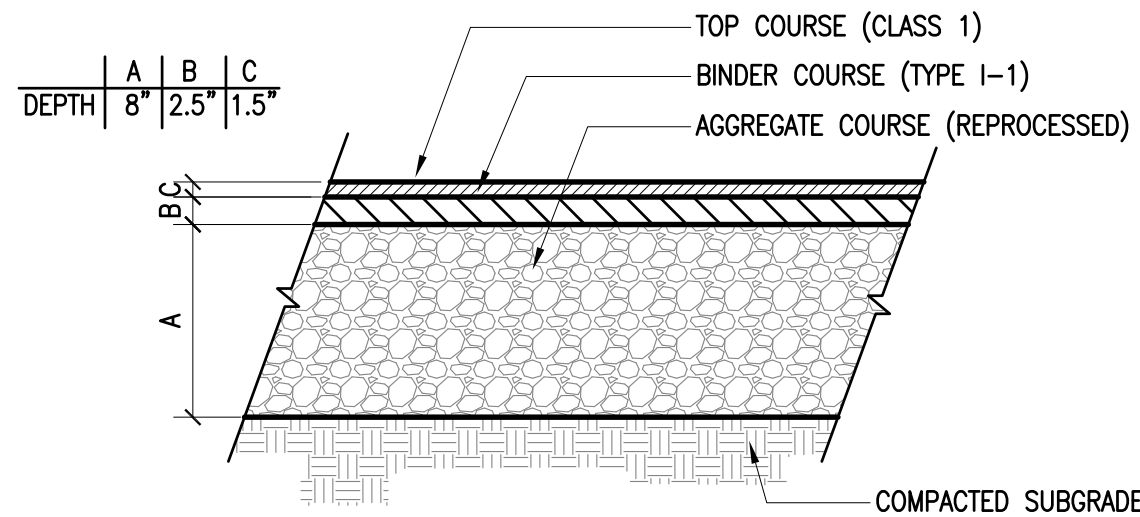
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SHEET 6 OF 10



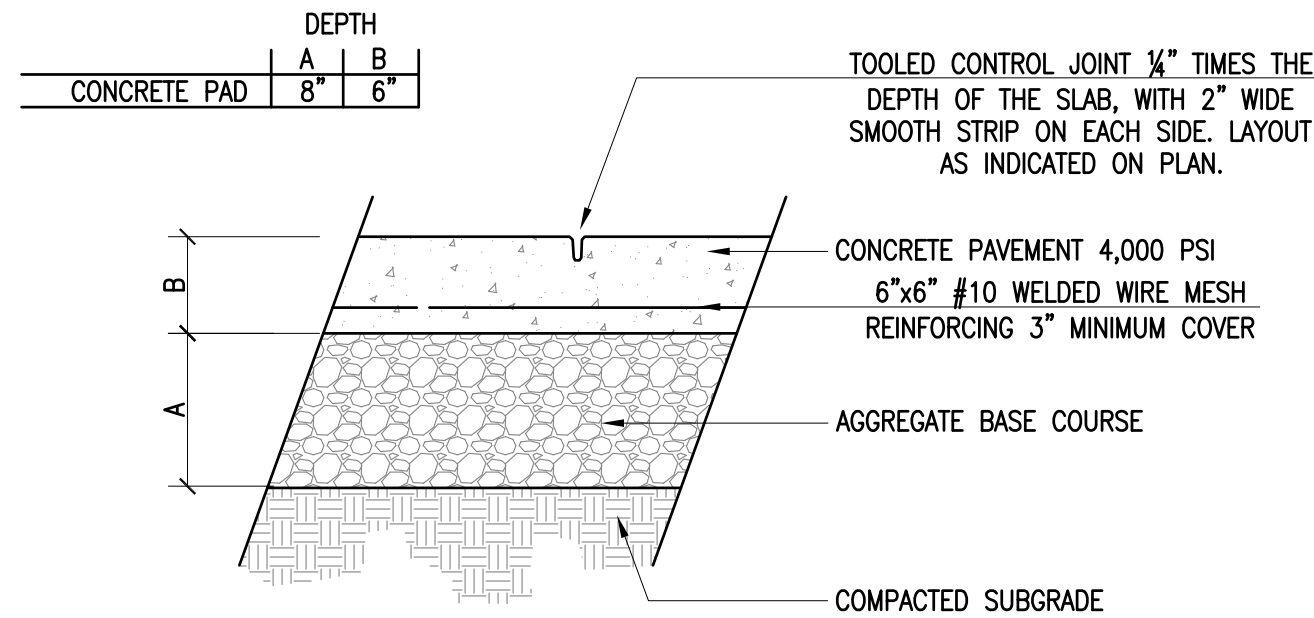
BITUMINOUS CONCRETE CAPE COD BERM

NOT TO SCALE



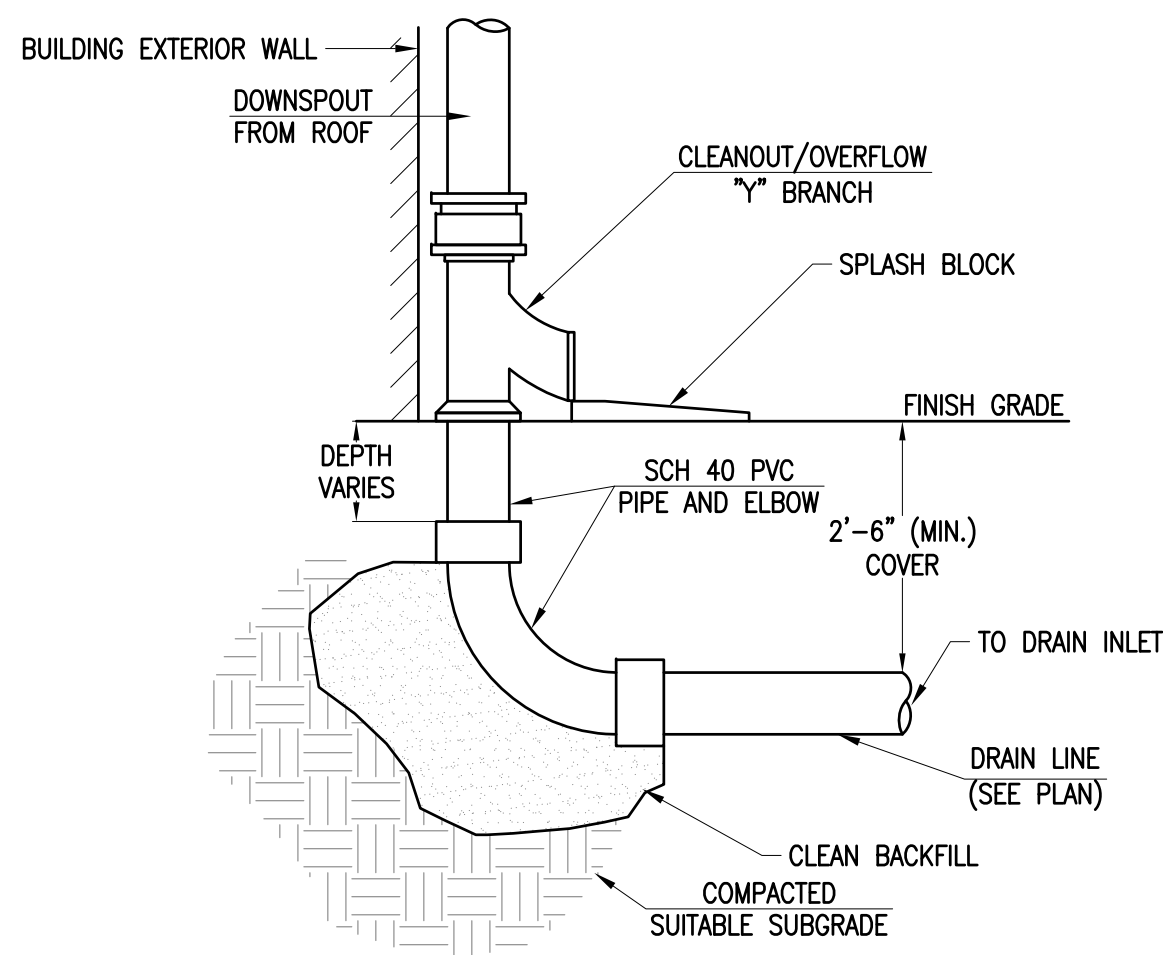
BITUMINOUS CONCRETE PAVEMENT

NOT TO SCALE



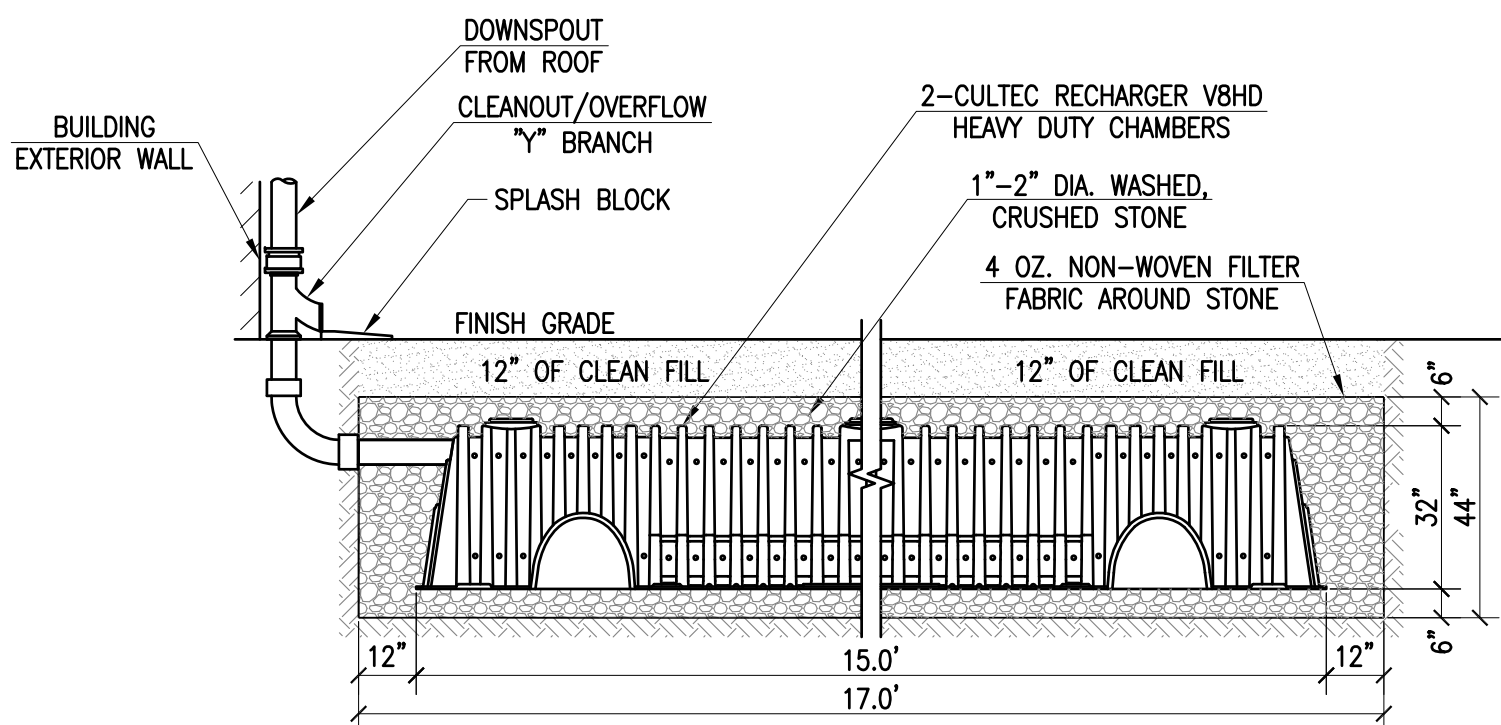
CONCRETE PAVEMENT PAD

NOT TO SCALE



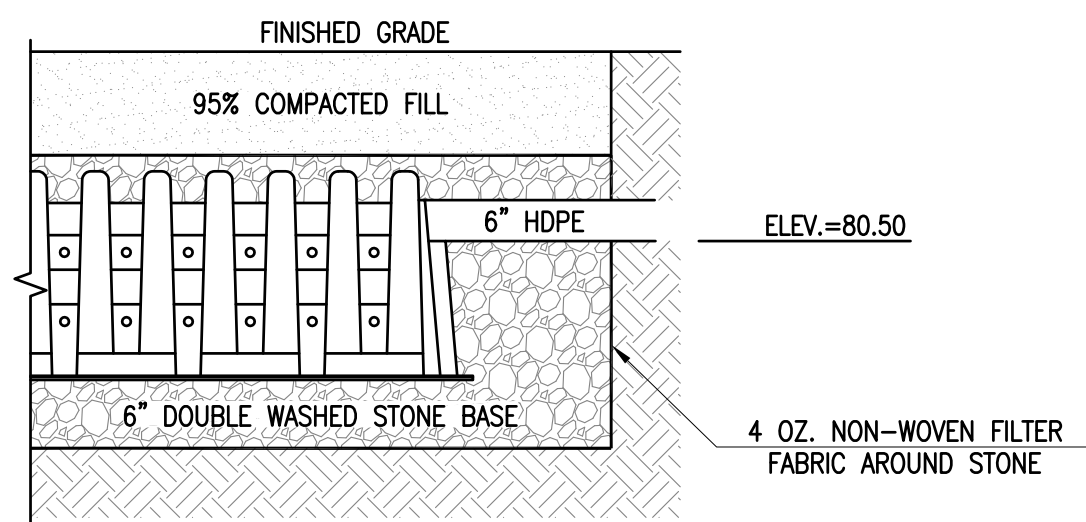
DOWNSPOUT CONNECTION FROM ROOF

NOT TO SCALE



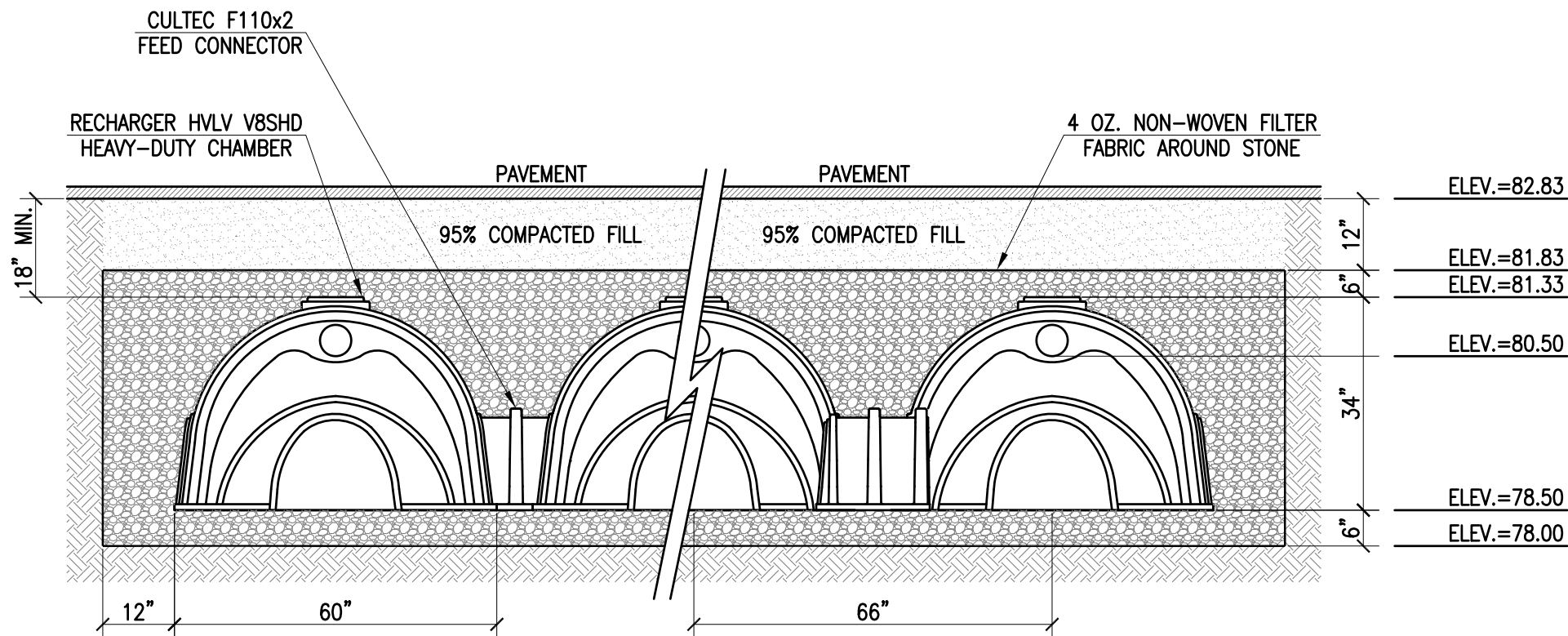
ROOF RECHARGE SYSTEM

NOT TO SCALE



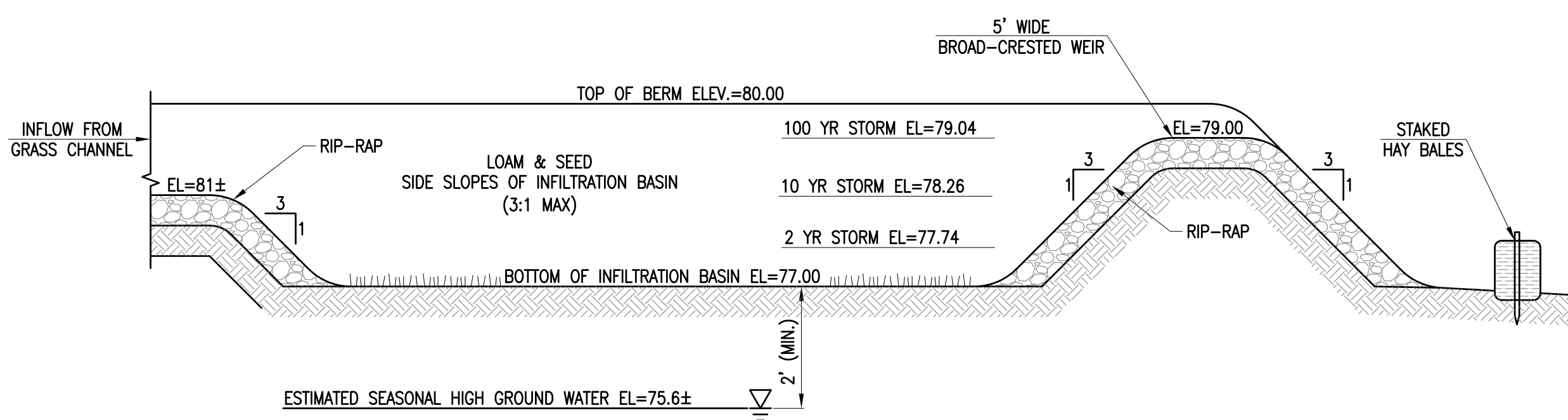
TYPICAL CONNECTION OF OVERFLOW DISCHARGE MANIFOLD

NOT TO SCALE



CULTEC RECHARGER V8HD HEAVY DUTY CROSS SECTION

NOT TO SCALE



INFILTRATION BASIN

NOT TO SCALE

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SITE PLAN

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ASSESSORS MAP 134 LOT 5
NEW BEDFORD, MASSACHUSETTS

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LOUISVILLE, KY 40208

PREPARED
FOR:

AUGUST 10, 2017

SCALE: N.T.S.

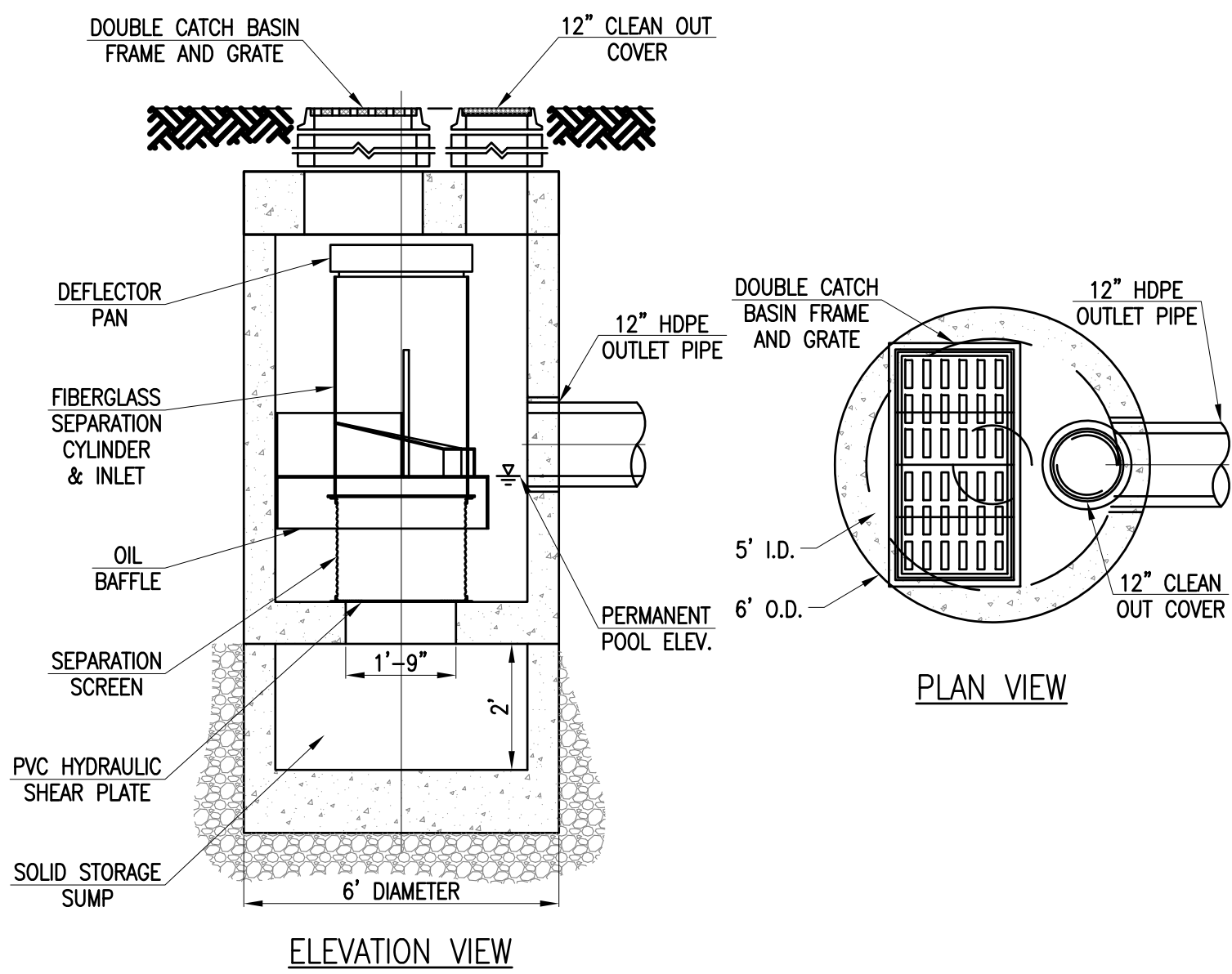
JOB NO. 15-500.2

LATEST REVISION:
OCTOBER 23, 2017

DETAILS

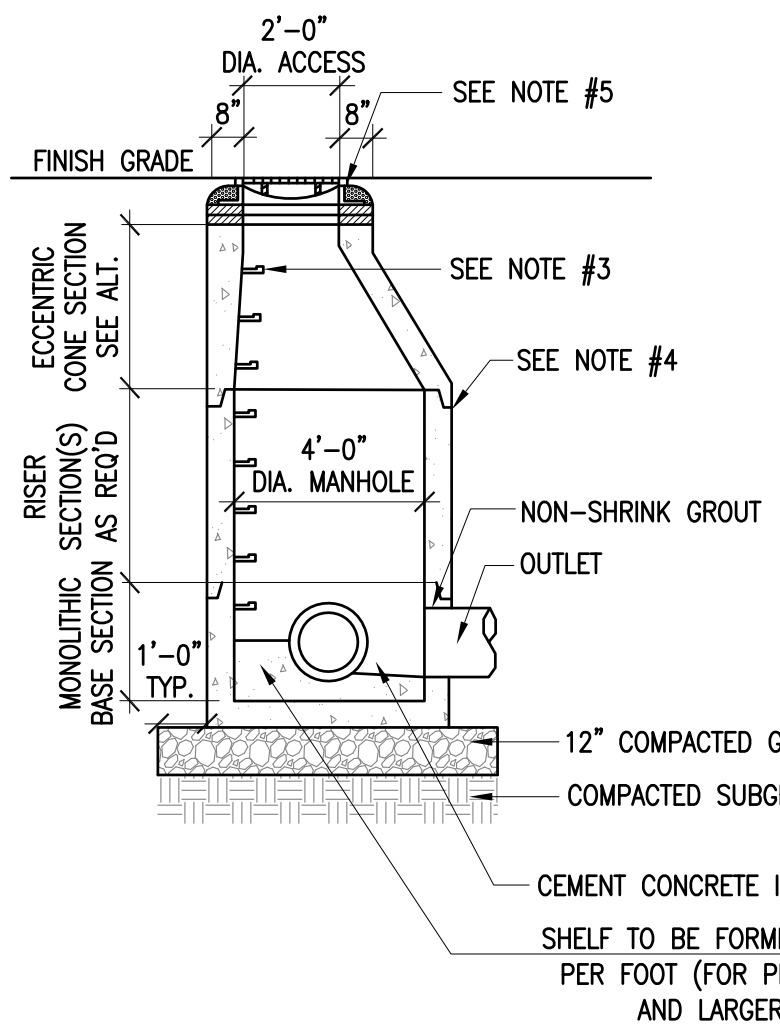
SHEET 7 OF 10

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WATER QUALITY INLET STRUCTURE – STORMCEPTOR STC 450i

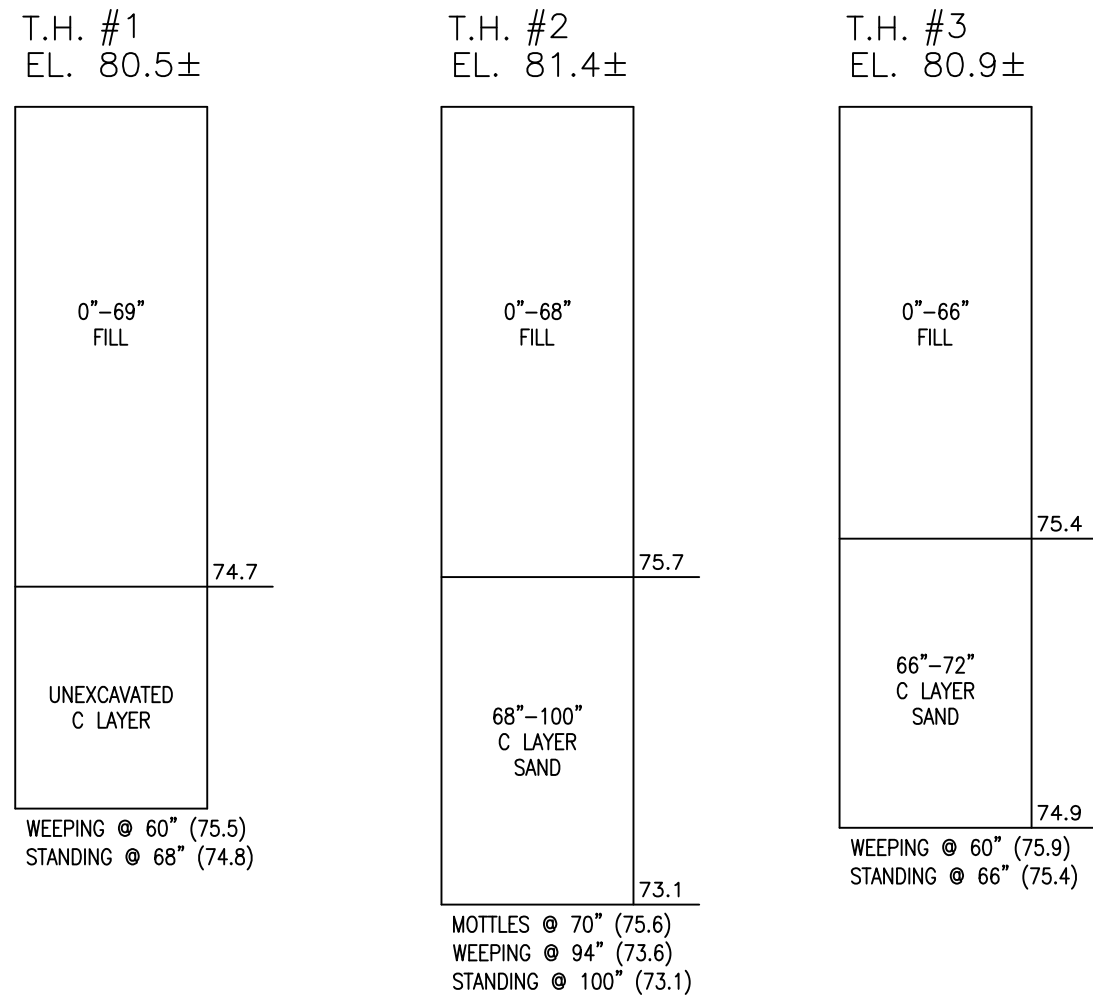
NOT TO SCALE



DRAIN MANHOLE

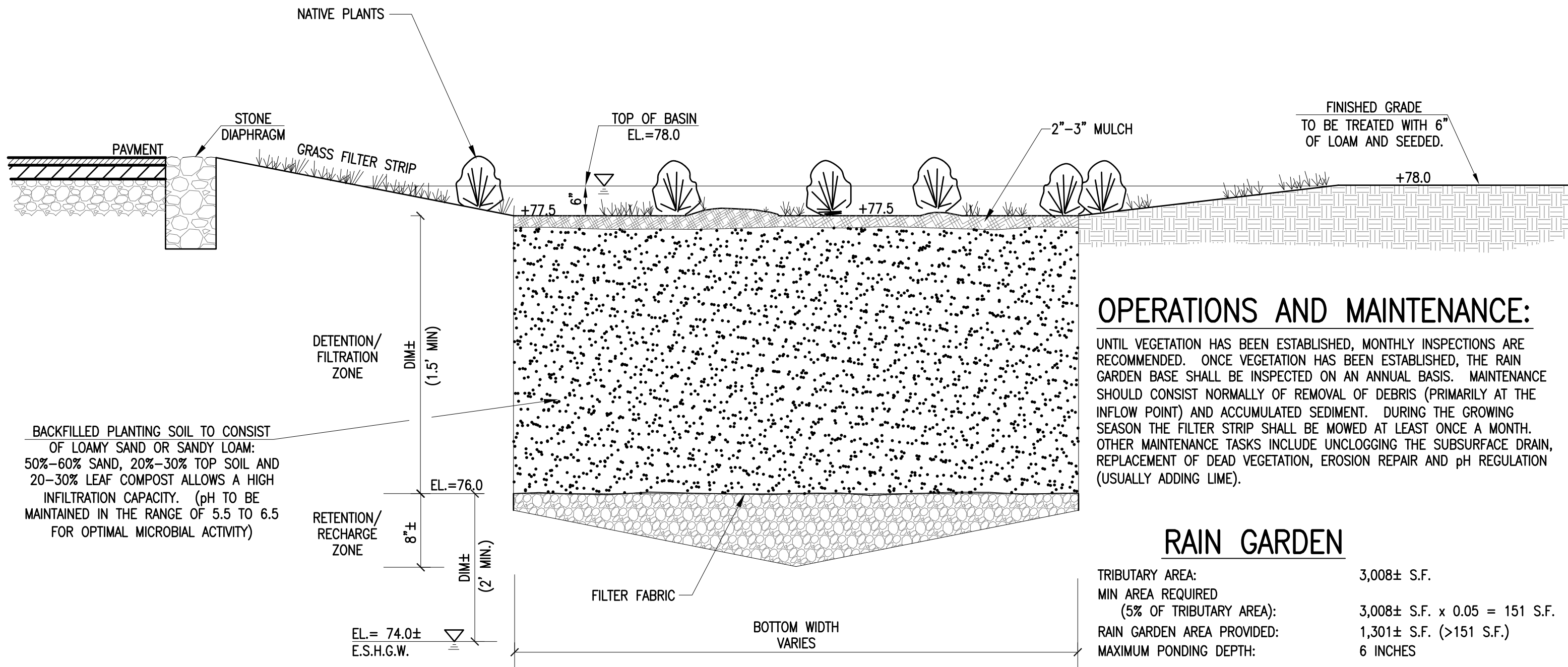
NOT TO SCALE

- NOTES:
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
 2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 1" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
 3. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE
 4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
 5. DRAIN MANHOLE FRAME SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 BRICK COURSES MIN. 5 BRICK COURSES MAX.)
- 2'-0" DIA. ACCESS
8" DIA. MANHOLE
NON-SHRINK GROUT
OUTLET
12" COMPACTED GRAVEL
COMPACTED SUBGRADE
CEMENT CONCRETE INVERT
SHELF TO BE FORMED AT 1" PER FOOT (FOR PIPE 18" AND LARGER)
- 2'-0" DIA. OPENING TYP.
4'-0" DIA. MANHOLE
ALTERNATE TOP SLAB (STEEL REINFORCED FOR HS-20 LOADING)



SOIL PROFILES

NOT TO SCALE



OPERATIONS AND MAINTENANCE:

UNTIL VEGETATION HAS BEEN ESTABLISHED, MONTHLY INSPECTIONS ARE RECOMMENDED. ONCE VEGETATION HAS BEEN ESTABLISHED, THE RAIN GARDEN BASE SHALL BE INSPECTED ON AN ANNUAL BASIS. MAINTENANCE SHOULD CONSIST NORMALLY OF REMOVAL OF DEBRIS (PRIMARYLY AT THE INFLOW POINT) AND ACCUMULATED SEDIMENT. DURING THE GROWING SEASON THE FILTER STRIP SHALL BE MOWED AT LEAST ONCE A MONTH. OTHER MAINTENANCE TASKS INCLUDE UNCLOGGING THE SUBSURFACE DRAIN, REPLACEMENT OF DEAD VEGETATION, EROSION REPAIR AND pH REGULATION (USUALLY ADDING LIME).

RAIN GARDEN

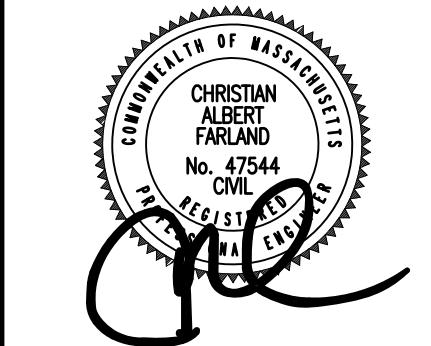
TRIBUTARY AREA: 3,008± S.F.
MIN AREA REQUIRED (5% OF TRIBUTARY AREA): 3,008± S.F. x 0.05 = 151 S.F.
RAIN GARDEN AREA PROVIDED: 1,301± S.F. (>151 S.F.)
MAXIMUM PONDING DEPTH: 6 INCHES

RAIN GARDEN (PROFILE)

NOT TO SCALE

REVISIONS

| | | |
|---|----------|-----------------------|
| 1 | 9/29/17 | CONSERVATION COMMENTS |
| 2 | 10/23/17 | CONSERVATION COMMENTS |



www.FarlandCorp.com

401 COUNTY STREET
NEW BEDFORD, MA 02740
P.508.717.3479
OFFICES IN:
●TAUNTON
●MARLBOROUGH
●WARWICK, RI

DRAWN BY: MJW
DESIGNED BY: JKM
CHECKED BY: CAF

SITE PLAN

100 DUCHAINE BOULEVARD —
ASSESSORS MAP 134 LOT 5
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR:
PARALLEL PRODUCTS OF NEW ENGLAND
401 INDUSTRY ROAD
LOUISVILLE, KY 40208

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