

April 12, 2017

Ms. Carla Nixon
Town of Cumberland
290 Tuttle Rd
Cumberland, ME 04021

RE: SOLAR WAY SUBDIVISION, RESPONSE TO STAFF COMMENTS

Dear Carla,

Enclosed are revised drawings addressing Dan Diffin's comments. Below is a response to the Conservation Commission questions.

1. Attached is the latest Stormwater Model.
2. The net residential calculations are the same on both plans.
3. The setbacks on each lot have been adjusted.
4. The turnaround dimensions have been revised.

Please note we have revised the culvert crossings to provide a natural stream bed for better passage of wildlife.

Conservation Commission

1. *There are wetland designations for both Lots 4 and 5 in close proximity to the housing envelopes. Are these wetlands being protected or filled in during or after construction?*

No filling of the wetlands beyond the stream crossing will occur.

2. *Given that the drainage is to the Piscataqua watershed, there could be short or long-term impacts to the stream water quality. And if the road is paved in the future, which is allowed, then the run-off would aggravate the potential contamination. Are any special measures other than the 4" loam and seed being required to retain potential contaminants from reaching the stream even though the planned flow leaving the property is less than that generated on the property?*

No additional stormwater treatments or control are planned for the project.

3. *The homeowners association by definition consists of a maximum five interested or invested parties responsible for maintaining and enforcing the final plan elements including maintenance and operation of the association. Failure to adhere to the approved final plan could impact the environmental conditions in the subdivision as well as downstream. The Homeowners Association meeting results should be provided on an annual basis to the Codes Office for compliance to that final plan.*

Currently the homeowners will be required to maintain the road and their own properties. No additional reporting is required, unless the MS4 Regulations require it.

4. *Will the existing yurt be permitted? If so, there are no water, waste treatment or power requirements designated in the final plan.*

The yurt is currently permitted. There are no plans to provide sewer and water service to the yurt.

5. *In section 4, the DEP application for driveway construction, the PBR list, Section 6, Movement of Rocks or Vegetation is not checked. Was this an oversight?*

The Stream Crossing Section covers the installation of the culverts as shown on the plans. Movement of rocks or vegetation is a separate section for work not including a stream crossing.

6. *Section 7, Inspection and Maintenance of Stormwater Management Facilities: Are the inspection reports done on a scheduled basis and filed in the Town offices for review?*

The Homeowners Association will file reports with the Town if required under the MS4 Regulations.

7. *Who are the inspectors? And who has responsibility for clean-up activities? Finally, is the town responsible for maintaining the "Housekeeping Report" including inspection and maintenance?*

The Homeowners Association and the Homeowners are required to comply with the housekeeping requirements and maintaining the road, ditches and culverts in a stable condition.

Please note we have attached the current DEP NRPA Permit.

Ms. Carla Nixon
April 12, 2017
Page 3 of 3
File: 16158



Please let me know if you have any additional comments.

Sincerely,

PINKHAM & GREER,
CIVIL ENGINEERS

A handwritten signature in black ink, which appears to read "Thomas S. Greer". The signature is fluid and cursive.

Thomas S. Greer, P.E.

cc: Patrice Miller, Dan Diffin, File

Enclosures
TSG/rjs

**STORMWATER MANAGEMENT REPORT
SOLAR WAY SUBDIVISION
CUMBERLAND, MAINE**

**November 28, 2016
Revised February 6, 2017
Revised April 12, 2017**

Project Description:

Solar Way Subdivision will provide housing for 3 additional homes. Currently there are two existing homes on the 24.84 acre property. This project creates a five lot clustered subdivision. The site is located on the southerly side of Hillside Avenue near the Yarmouth-Cumberland town line.

The project will have 750 feet of private road servicing the 5 homes. The power and communication systems will be underground.

Existing Conditions:

The existing site has two fully developed homes. The front of the site is fairly open. It was clear cut not long ago. The rear of the site has some additional forested area. There are tote roads that access the full site.

There are wetlands that transect the site. These are stream based with defined channels, and easily seen on the existing conditions plan sheet C1.0.

The soils on site are buxton, scantic, and limerick-saco based on the Cumberland County Soils Medium Intensity Soils Map. These soils are heavily clay based soils.

Developed Conditions:

The developed conditions converts the existing driveway into a private gravel road 18' wide. The front 4 lots will be approximately 60,000 sq. ft. The last lot will be 7.8 acres. The rear of the parcel will be left undeveloped open space of 10.2 acres.

Drainage:

The existing drainage flows generally from east to west. The drainage basin is approximately 64 acres. The area above the site is partially open space with the power lines and a residential subdivision in the Yarmouth section.

Methodology:

This stormwater analysis was performed using HydroCad Software based on TR-55 modeling conditions. This model requires assumptions as to the land cover, slopes and soils. These are enhanced by the topography mapping, soils mapping, and on-site observations. The flows were determined using a Type III coastal storm and rainfall totals for the 24 hour period for a 1 year storm, 2.6", for a 2 year storm, 3.1", for a 10 year storm, 4.6", and for a 25 year storm, 5.8". These data are published in the manual for Stormwater Management for Maine: Best Management Practices, published by the Maine Department of Environmental Protection.

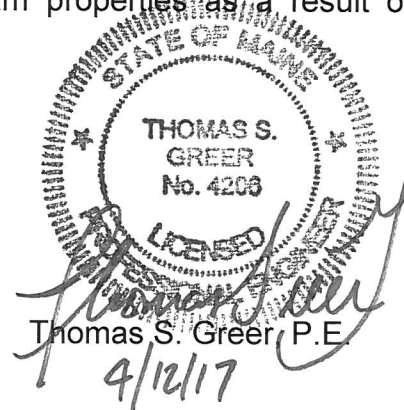
Model:

The hydrocad model was developed using 4 points of analysis corresponding to the swales and streams that cross the site. The peak flows leaving the site are equal to or less than the existing conditions flow. The two steam crossings create a small delay in the peak flows.

TABLE 1 PEAK FLOWS (CFS)								
	Existing				Developed			
POA	2 yr	10 yr	25 yr	100 yr	2 yr	10 yr	25 yr	100 yr
1	2.07	4.54	6.66	11.02	1.82	3.84	5.54	8.98
2	19.55	42.23	61.57	101.33	14.32	39.08	58.16	95.97
3	0.60	1.69	2.70	4.89	0.60	1.69	2.70	4.89
4	2.84	7.47	11.71	20.87	2.84	7.47	11.71	20.87

Conclusions:

This project makes a very light impact on the 24 acre site, with 3 additional homes. There will be a net reduction in peak flows leaving the site. There should be no unreasonable impact on downstream properties as a result of stormwater flows from this site.





NW OF LOT 5, POA #4



LOT 5 AREA, POA #3



MCKEARNEY VILLAGE
& CENTER SITE, POA
#2



ALONG HILLSIDE AVE.
& EX. HOUSE, POA #1



Routing Diagram for 16158-EX. CONDITION 111116
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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: ALONG HILLSIDE AVE. Runoff Area=165,284 sf 1.39% Impervious Runoff Depth>0.90"
Flow Length=878' Tc=39.5 min CN=74 Runoff=2.07 cfs 0.283 af

Subcatchment 2S: MCKEARNEY Runoff Area=2,058,116 sf 3.54% Impervious Runoff Depth>0.93"
Flow Length=2,764' Tc=70.4 min CN=75 Runoff=19.55 cfs 3.676 af

Subcatchment 3S: LOT 5 AREA, POA #3 Runoff Area=87,131 sf 0.00% Impervious Runoff Depth>0.54"
Flow Length=652' Tc=37.1 min CN=66 Runoff=0.60 cfs 0.089 af

Subcatchment 4S: NW OF LOT 5, POA #4 Runoff Area=600,729 sf 0.00% Impervious Runoff Depth>0.60"
Flow Length=2,031' Tc=92.1 min CN=68 Runoff=2.84 cfs 0.686 af

Total Runoff Area = 66.833 ac Runoff Volume = 4.734 af Average Runoff Depth = 0.85"
97.42% Pervious = 65.109 ac 2.58% Impervious = 1.724 ac

16158-EX. CONDITION 111116*Type III 24-hr 10-YEAR Rainfall=4.65"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: ALONG HILLSIDE AVE. Runoff Area=165,284 sf 1.39% Impervious Runoff Depth>1.91"
Flow Length=878' Tc=39.5 min CN=74 Runoff=4.54 cfs 0.603 af

Subcatchment 2S: MCKEARNEY Runoff Area=2,058,116 sf 3.54% Impervious Runoff Depth>1.96"
Flow Length=2,764' Tc=70.4 min CN=75 Runoff=42.23 cfs 7.707 af

Subcatchment 3S: LOT 5 AREA, POA #3 Runoff Area=87,131 sf 0.00% Impervious Runoff Depth>1.34"
Flow Length=652' Tc=37.1 min CN=66 Runoff=1.69 cfs 0.224 af

Subcatchment 4S: NW OF LOT 5, POA #4 Runoff Area=600,729 sf 0.00% Impervious Runoff Depth>1.44"
Flow Length=2,031' Tc=92.1 min CN=68 Runoff=7.47 cfs 1.651 af

Total Runoff Area = 66.833 ac Runoff Volume = 10.184 af Average Runoff Depth = 1.83"
97.42% Pervious = 65.109 ac 2.58% Impervious = 1.724 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: ALONG HILLSIDE AVE. Runoff Area=165,284 sf 1.39% Impervious Runoff Depth>2.79"
Flow Length=878' Tc=39.5 min CN=74 Runoff=6.66 cfs 0.882 af

Subcatchment 2S: MCKEARNEY Runoff Area=2,058,116 sf 3.54% Impervious Runoff Depth>2.85"
Flow Length=2,764' Tc=70.4 min CN=75 Runoff=61.57 cfs 11.207 af

Subcatchment 3S: LOT 5 AREA, POA #3 Runoff Area=87,131 sf 0.00% Impervious Runoff Depth>2.10"
Flow Length=652' Tc=37.1 min CN=66 Runoff=2.70 cfs 0.349 af

Subcatchment 4S: NW OF LOT 5, POA #4 Runoff Area=600,729 sf 0.00% Impervious Runoff Depth>2.21"
Flow Length=2,031' Tc=92.1 min CN=68 Runoff=11.71 cfs 2.537 af

Total Runoff Area = 66.833 ac Runoff Volume = 14.976 af Average Runoff Depth = 2.69"
97.42% Pervious = 65.109 ac 2.58% Impervious = 1.724 ac

16158-EX. CONDITION 111116*Type III 24-hr 100-YEAR Rainfall=8.10"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: ALONG HILLSIDE AVE. Runoff Area=165,284 sf 1.39% Impervious Runoff Depth>4.65"
Flow Length=878' Tc=39.5 min CN=74 Runoff=11.02 cfs 1.469 af

Subcatchment 2S: MCKEARNEY Runoff Area=2,058,116 sf 3.54% Impervious Runoff Depth>4.71"
Flow Length=2,764' Tc=70.4 min CN=75 Runoff=101.33 cfs 18.545 af

Subcatchment 3S: LOT 5 AREA, POA #3 Runoff Area=87,131 sf 0.00% Impervious Runoff Depth>3.76"
Flow Length=652' Tc=37.1 min CN=66 Runoff=4.89 cfs 0.626 af

Subcatchment 4S: NW OF LOT 5, POA #4 Runoff Area=600,729 sf 0.00% Impervious Runoff Depth>3.89"
Flow Length=2,031' Tc=92.1 min CN=68 Runoff=20.87 cfs 4.473 af

Total Runoff Area = 66.833 ac Runoff Volume = 25.113 af Average Runoff Depth = 4.51"
97.42% Pervious = 65.109 ac 2.58% Impervious = 1.724 ac

16158-EX. CONDITION 111116

Type III 24-hr 25-YEAR Rainfall=5.82"

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Summary for Subcatchment 1S: ALONG HILLSIDE AVE. & EX. HOUSE, POA #1

Runoff = 6.66 cfs @ 12.55 hrs, Volume= 0.882 af, Depth> 2.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.82"

Area (sf)	CN	Description
27,632	70	Woods, Good, HSG C
5,743	77	Woods, Good, HSG D
15,040	73	Brush, Good, HSG D
38,556	65	Brush, Good, HSG C
47,688	74	>75% Grass cover, Good, HSG C
16,290	80	>75% Grass cover, Good, HSG D
2,303	98	Roofs, HSG C
* 12,032	96	Gravel surface,
165,284	74	Weighted Average
162,981		98.61% Pervious Area
2,303		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.6	100	0.0400	0.06		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.14"
3.6	248	0.0520	1.14		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.3	530	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
39.5	878	Total			

Summary for Subcatchment 2S: MCKEARNEY VILLAGE & CENTER SITE, POA #2

Runoff = 61.57 cfs @ 12.94 hrs, Volume= 11.207 af, Depth> 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.82"

Area (sf)	CN	Description
783,682	77	Woods, Good, HSG D
274,538	70	Woods, Good, HSG C
* 249,967	74	Woods, Good, HSG C/D
455,273	73	Brush, Good, HSG D
212,756	74	>75% Grass cover, Good, HSG C
18,878	98	Roofs, HSG C
9,099	96	Gravel surface, HSG C
53,923	98	Paved parking, HSG C
2,058,116	75	Weighted Average
1,985,315		96.46% Pervious Area
72,801		3.54% Impervious Area

16158-EX. CONDITION 111116

Type III 24-hr 25-YEAR Rainfall=5.82"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	130	0.0230	0.05		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.14"
22.9	688	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.1	519	0.0150	8.16	359.12	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=4.00' Z= 1.0 '/' Top.W=15.00' n= 0.040 Mountain streams
0.4	294	0.0410	13.49	593.73	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=4.00' Z= 1.0 '/' Top.W=15.00' n= 0.040 Mountain streams
1.4	759	0.0180	8.94	393.40	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=4.00' Z= 1.0 '/' Top.W=15.00' n= 0.040 Mountain streams
0.5	264	0.0150	8.16	359.12	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=4.00' Z= 1.0 '/' Top.W=15.00' n= 0.040 Mountain streams
0.1	110	0.0550	15.63	687.67	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=4.00' Z= 1.0 '/' Top.W=15.00' n= 0.040 Mountain streams
70.4	2,764	Total			

Summary for Subcatchment 3S: LOT 5 AREA, POA #3

Runoff = 2.70 cfs @ 12.54 hrs, Volume= 0.349 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.82"

Area (sf)	CN	Description
79,236	65	Brush, Good, HSG C
1,266	96	Gravel surface, HSG C
6,629	70	Woods, Good, HSG C
87,131	66	Weighted Average
87,131		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0	130	0.0150	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.14"
5.9	415	0.0280	1.17		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	107	0.0900	1.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
37.1	652	Total			

16158-EX. CONDITION 111116

Type III 24-hr 25-YEAR Rainfall=5.82"

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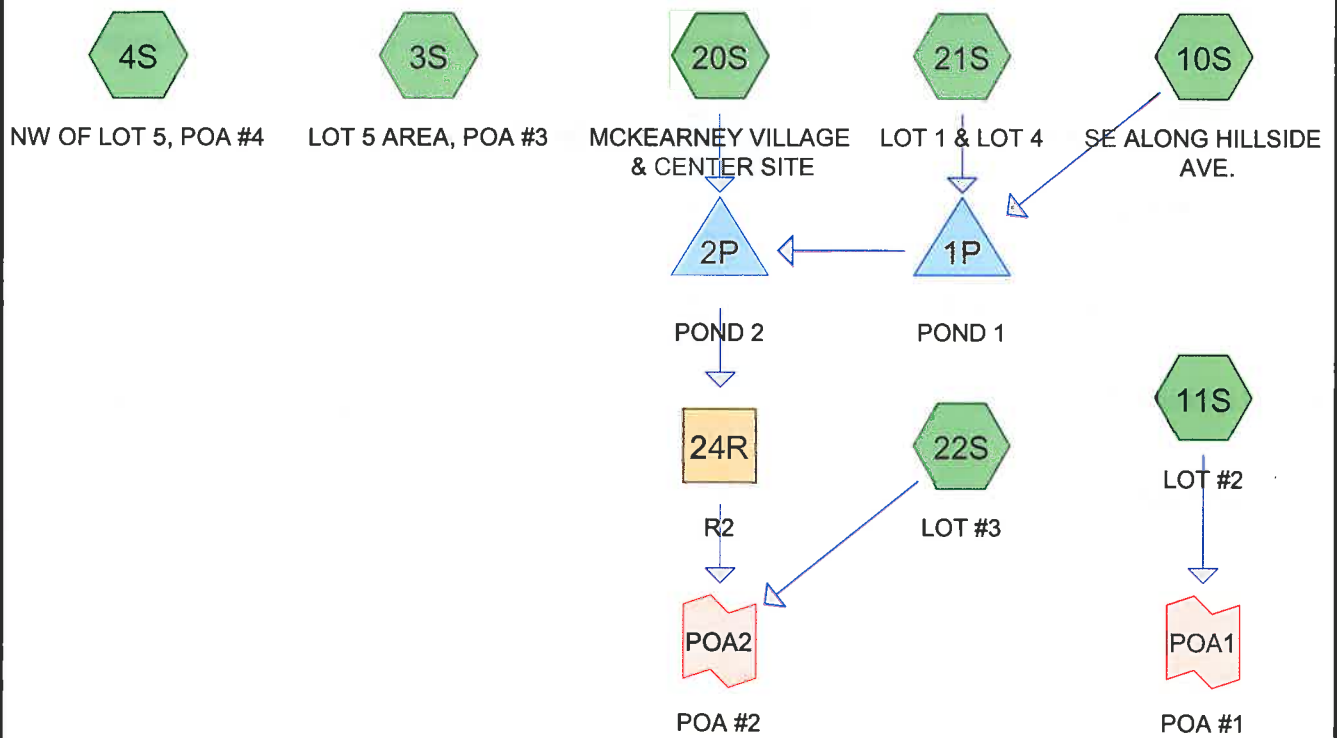
Summary for Subcatchment 4S: NW OF LOT 5, POA #4

Runoff = 11.71 cfs @ 13.25 hrs, Volume= 2.537 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.82"

Area (sf)	CN	Description
64,570	73	Brush, Good, HSG D
94,451	77	Woods, Good, HSG D
249,002	70	Woods, Good, HSG C
101,853	55	Woods, Good, HSG B
77,820	65	Brush, Good, HSG C
11,812	80	>75% Grass cover, Good, HSG D
1,221	96	Gravel surface, HSG D
600,729	68	Weighted Average
600,729		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
56.1	110	0.0090	0.03		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.14"
32.1	1,397	0.0210	0.72		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.9	524	0.0340	2.26	22.63	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=1.00' Z= 3.0 ' Top.W=13.00' n= 0.100 Heavy timber, flow below branches
92.1	2,031	Total			



Routing Diagram for 16158-DEV. CONDITION 111016
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16158-DEV. CONDITION 111016

Type III 24-hr 2-YEAR Rainfall=3.14"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: LOT 5 AREA, POA #3 Runoff Area=87,131 sf 0.00% Impervious Runoff Depth>0.54"
Flow Length=652' Tc=37.1 min CN=66 Runoff=0.60 cfs 0.089 af

Subcatchment 4S: NW OF LOT 5, POA #4 Runoff Area=600,729 sf 0.00% Impervious Runoff Depth>0.60"
Flow Length=2,031' Tc=92.1 min CN=68 Runoff=2.84 cfs 0.686 af

Subcatchment 10S: SE ALONG HILLSIDE Runoff Area=67,013 sf 5.93% Impervious Runoff Depth>1.12"
Flow Length=638' Tc=36.2 min CN=78 Runoff=1.12 cfs 0.143 af

Subcatchment 11S: LOT #2 Runoff Area=98,914 sf 2.38% Impervious Runoff Depth>1.01"
Flow Length=322' Tc=22.1 min CN=76 Runoff=1.82 cfs 0.191 af

Subcatchment 20S: MCKEARNEY Runoff Area=1,557,537 sf 4.49% Impervious Runoff Depth>0.93"
Flow Length=2,478' Tc=70.4 min CN=75 Runoff=14.79 cfs 2.782 af

Subcatchment 21S: LOT 1 & LOT 4 Runoff Area=426,493 sf 1.87% Impervious Runoff Depth>0.93"
Flow Length=1,073' Tc=79.1 min CN=75 Runoff=3.78 cfs 0.758 af

Subcatchment 22S: LOT #3 Runoff Area=73,454 sf 2.73% Impervious Runoff Depth>1.01"
Flow Length=177' Tc=15.1 min CN=76 Runoff=1.58 cfs 0.142 af

Reach 24R: R2 Avg. Flow Depth=0.49' Max Vel=2.49 fps Inflow=14.15 cfs 2.668 af
n=0.070 L=237.0' S=0.0422 ' / Capacity=390.24 cfs Outflow=14.11 cfs 2.657 af

Pond 1P: POND 1 Peak Elev=97.20' Storage=5,482 cf Inflow=4.26 cfs 0.901 af
Outflow=4.25 cfs 0.790 af

Pond 2P: POND 2 Peak Elev=95.14' Storage=48,926 cf Inflow=19.02 cfs 3.572 af
Outflow=14.15 cfs 2.668 af

Link POA1: POA #1 Inflow=1.82 cfs 0.191 af
Primary=1.82 cfs 0.191 af

Link POA2: POA #2 Inflow=14.32 cfs 2.799 af
Primary=14.32 cfs 2.799 af

Total Runoff Area = 66.834 ac Runoff Volume = 4.792 af Average Runoff Depth = 0.86"
97.04% Pervious = 64.853 ac 2.96% Impervious = 1.980 ac

16158-DEV. CONDITION 111016*Type III 24-hr 10-YEAR Rainfall=4.65"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
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Subcatchment 3S: LOT 5 AREA, POA #3 Runoff Area=87,131 sf 0.00% Impervious Runoff Depth>1.34"
 Flow Length=652' Tc=37.1 min CN=66 Runoff=1.69 cfs 0.224 af

Subcatchment 4S: NW OF LOT 5, POA #4 Runoff Area=600,729 sf 0.00% Impervious Runoff Depth>1.44"
 Flow Length=2,031' Tc=92.1 min CN=68 Runoff=7.47 cfs 1.651 af

Subcatchment 10S: SE ALONG HILLSIDE Runoff Area=67,013 sf 5.93% Impervious Runoff Depth>2.22"
 Flow Length=638' Tc=36.2 min CN=78 Runoff=2.25 cfs 0.285 af

Subcatchment 11S: LOT #2 Runoff Area=98,914 sf 2.38% Impervious Runoff Depth>2.07"
 Flow Length=322' Tc=22.1 min CN=76 Runoff=3.84 cfs 0.393 af

Subcatchment 20S: MCKEARNEY Runoff Area=1,557,537 sf 4.49% Impervious Runoff Depth>1.96"
 Flow Length=2,478' Tc=70.4 min CN=75 Runoff=31.96 cfs 5.832 af

Subcatchment 21S: LOT 1 & LOT 4 Runoff Area=426,493 sf 1.87% Impervious Runoff Depth>1.95"
 Flow Length=1,073' Tc=79.1 min CN=75 Runoff=8.17 cfs 1.591 af

Subcatchment 22S: LOT #3 Runoff Area=73,454 sf 2.73% Impervious Runoff Depth>2.08"
 Flow Length=177' Tc=15.1 min CN=76 Runoff=3.33 cfs 0.292 af

Reach 24R: R2 Avg. Flow Depth=0.88' Max Vel=3.48 fps Inflow=38.69 cfs 6.662 af
 n=0.070 L=237.0' S=0.0422 ' Capacity=390.24 cfs Outflow=38.64 cfs 6.647 af

Pond 1P: POND 1 Peak Elev=97.32' Storage=6,097 cf Inflow=9.13 cfs 1.876 af
 Outflow=9.12 cfs 1.764 af

Pond 2P: POND 2 Peak Elev=95.78' Storage=63,039 cf Inflow=41.02 cfs 7.596 af
 Outflow=38.69 cfs 6.662 af

Link POA1: POA #1 Inflow=3.84 cfs 0.393 af
 Primary=3.84 cfs 0.393 af

Link POA2: POA #2 Inflow=39.08 cfs 6.939 af
 Primary=39.08 cfs 6.939 af

Total Runoff Area = 66.834 ac Runoff Volume = 10.268 af Average Runoff Depth = 1.84"
97.04% Pervious = 64.853 ac 2.96% Impervious = 1.980 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: LOT 5 AREA, POA #3 Runoff Area=87,131 sf 0.00% Impervious Runoff Depth>2.10"
 Flow Length=652' Tc=37.1 min CN=66 Runoff=2.70 cfs 0.349 af

Subcatchment 4S: NW OF LOT 5, POA #4 Runoff Area=600,729 sf 0.00% Impervious Runoff Depth>2.21"
 Flow Length=2,031' Tc=92.1 min CN=68 Runoff=11.71 cfs 2.537 af

Subcatchment 10S: SE ALONG HILLSIDE Runoff Area=67,013 sf 5.93% Impervious Runoff Depth>3.17"
 Flow Length=638' Tc=36.2 min CN=78 Runoff=3.19 cfs 0.406 af

Subcatchment 11S: LOT #2 Runoff Area=98,914 sf 2.38% Impervious Runoff Depth>2.99"
 Flow Length=322' Tc=22.1 min CN=76 Runoff=5.54 cfs 0.566 af

Subcatchment 20S: MCKEARNEY Runoff Area=1,557,537 sf 4.49% Impervious Runoff Depth>2.85"
 Flow Length=2,478' Tc=70.4 min CN=75 Runoff=46.59 cfs 8.481 af

Subcatchment 21S: LOT 1 & LOT 4 Runoff Area=426,493 sf 1.87% Impervious Runoff Depth>2.84"
 Flow Length=1,073' Tc=79.1 min CN=75 Runoff=11.90 cfs 2.314 af

Subcatchment 22S: LOT #3 Runoff Area=73,454 sf 2.73% Impervious Runoff Depth>3.00"
 Flow Length=177' Tc=15.1 min CN=76 Runoff=4.79 cfs 0.421 af

Reach 24R: R2 Avg. Flow Depth=1.10' Max Vel=3.95 fps Inflow=57.59 cfs 10.132 af
 n=0.070 L=237.0' S=0.0422 ' /' Capacity=390.24 cfs Outflow=57.52 cfs 10.115 af

Pond 1P: POND 1 Peak Elev=97.41' Storage=6,576 cf Inflow=13.27 cfs 2.720 af
 Outflow=13.26 cfs 2.607 af

Pond 2P: POND 2 Peak Elev=96.17' Storage=72,926 cf Inflow=59.78 cfs 11.088 af
 Outflow=57.59 cfs 10.132 af

Link POA1: POA #1 Inflow=5.54 cfs 0.566 af
 Primary=5.54 cfs 0.566 af

Link POA2: POA #2 Inflow=58.16 cfs 10.536 af
 Primary=58.16 cfs 10.536 af

Total Runoff Area = 66.834 ac Runoff Volume = 15.076 af Average Runoff Depth = 2.71"
97.04% Pervious = 64.853 ac 2.96% Impervious = 1.980 ac

16158-DEV. CONDITION 111016*Type III 24-hr 100-YEAR Rainfall=8.10"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: LOT 5 AREA, POA #3 Runoff Area=87,131 sf 0.00% Impervious Runoff Depth>3.76"
Flow Length=652' Tc=37.1 min CN=66 Runoff=4.89 cfs 0.626 af

Subcatchment 4S: NW OF LOT 5, POA #4 Runoff Area=600,729 sf 0.00% Impervious Runoff Depth>3.89"
Flow Length=2,031' Tc=92.1 min CN=68 Runoff=20.87 cfs 4.473 af

Subcatchment 10S: SE ALONG HILLSIDE Runoff Area=67,013 sf 5.93% Impervious Runoff Depth>5.11"
Flow Length=638' Tc=36.2 min CN=78 Runoff=5.08 cfs 0.655 af

Subcatchment 11S: LOT #2 Runoff Area=98,914 sf 2.38% Impervious Runoff Depth>4.90"
Flow Length=322' Tc=22.1 min CN=76 Runoff=8.98 cfs 0.928 af

Subcatchment 20S: MCKEARNEY Runoff Area=1,557,537 sf 4.49% Impervious Runoff Depth>4.71"
Flow Length=2,478' Tc=70.4 min CN=75 Runoff=76.68 cfs 14.034 af

Subcatchment 21S: LOT 1 & LOT 4 Runoff Area=426,493 sf 1.87% Impervious Runoff Depth>4.69"
Flow Length=1,073' Tc=79.1 min CN=75 Runoff=19.52 cfs 3.831 af

Subcatchment 22S: LOT #3 Runoff Area=73,454 sf 2.73% Impervious Runoff Depth>4.91"
Flow Length=177' Tc=15.1 min CN=76 Runoff=7.77 cfs 0.690 af

Reach 24R: R2 Avg. Flow Depth=1.44' Max Vel=4.59 fps Inflow=95.05 cfs 17.416 af
n=0.070 L=237.0' S=0.0422 ' /' Capacity=390.24 cfs Outflow=94.96 cfs 17.393 af

Pond 1P: POND 1 Peak Elev=97.55' Storage=7,472 cf Inflow=21.75 cfs 4.486 af
Outflow=21.73 cfs 4.370 af

Pond 2P: POND 2 Peak Elev=96.83' Storage=91,748 cf Inflow=98.20 cfs 18.405 af
Outflow=95.05 cfs 17.416 af

Link POA1: POA #1 Inflow=8.98 cfs 0.928 af
Primary=8.98 cfs 0.928 af

Link POA2: POA #2 Inflow=95.97 cfs 18.084 af
Primary=95.97 cfs 18.084 af

Total Runoff Area = 66.834 ac Runoff Volume = 25.236 af Average Runoff Depth = 4.53"
97.04% Pervious = 64.853 ac 2.96% Impervious = 1.980 ac

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
7.775	75	>75% Grass cover, Good, HSG C (10S, 11S, 20S, 21S, 22S)
0.271	80	>75% Grass cover, Good, HSG D (4S)
2.740	75	>75% Grass cover, Good, HSG D (10S, 11S, 20S, 21S, 22S)
3.784	65	Brush, Good, HSG C (3S, 4S, 21S)
8.338	73	Brush, Good, HSG D (4S, 20S, 21S)
0.594	96	Gravel surface, HSG C (3S, 10S, 11S, 20S, 21S, 22S)
0.028	96	Gravel surface, HSG D (4S)
1.329	98	Paved parking, HSG C (10S, 20S)
0.101	98	Paved roads w/curbs & sewers, HSG C (21S)
0.550	98	Roofs, HSG C (11S, 20S, 21S, 22S)
3.004	55	Woods, Good, HSG B (4S, 20S)
12.895	70	Woods, Good, HSG C (3S, 4S, 10S, 11S, 20S, 21S, 22S)
5.504	74	Woods, Good, HSG C/D (20S, 21S)
19.919	77	Woods, Good, HSG D (4S, 11S, 20S, 21S, 22S)

Summary for Subcatchment 3S: LOT 5 AREA, POA #3

Runoff = 0.60 cfs @ 12.62 hrs, Volume= 0.089 af, Depth> 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.14"

Area (sf)	CN	Description
79,236	65	Brush, Good, HSG C
1,266	96	Gravel surface, HSG C
6,629	70	Woods, Good, HSG C
87,131	66	Weighted Average
87,131		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0	130	0.0150	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.14"
5.9	415	0.0280	1.17		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	107	0.0900	1.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
37.1	652	Total			

Summary for Subcatchment 4S: NW OF LOT 5, POA #4

Runoff = 2.84 cfs @ 13.40 hrs, Volume= 0.686 af, Depth> 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.14"

Area (sf)	CN	Description
64,570	73	Brush, Good, HSG D
94,451	77	Woods, Good, HSG D
249,002	70	Woods, Good, HSG C
101,853	55	Woods, Good, HSG B
77,820	65	Brush, Good, HSG C
11,812	80	>75% Grass cover, Good, HSG D
1,221	96	Gravel surface, HSG D
600,729	68	Weighted Average
600,729		100.00% Pervious Area

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Type III 24-hr 2-YEAR Rainfall=3.14"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
56.1	110	0.0090	0.03		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.14"
32.1	1,397	0.0210	0.72		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.9	524	0.0340	2.26	22.63	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=1.00' Z= 3.0 ' Top.W=13.00' n= 0.100 Heavy timber, flow below branches
92.1	2,031	Total			

Summary for Subcatchment 10S: SE ALONG HILLSIDE AVE.

Runoff = 1.12 cfs @ 12.53 hrs, Volume= 0.143 af, Depth> 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.14"

Area (sf)	CN	Description
14,100	70	Woods, Good, HSG C
3,976	98	Paved parking, HSG C
* 34,609	75	>75% Grass cover, Good, HSG C
* 7,045	75	>75% Grass cover, Good, HSG D
7,283	96	Gravel surface, HSG C
67,013	78	Weighted Average
63,037		94.07% Pervious Area
3,976		5.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.6	100	0.0400	0.06		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.14"
5.7	383	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	25	0.0100	5.26	6.46	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
1.8	130	0.0310	1.23		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
36.2	638	Total			

Summary for Subcatchment 11S: LOT #2

Runoff = 1.82 cfs @ 12.33 hrs, Volume= 0.191 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.14"

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Type III 24-hr 2-YEAR Rainfall=3.14"

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Area (sf)	CN	Description
5,743	77	Woods, Good, HSG D
12,538	70	Woods, Good, HSG C
* 50,975	75	>75% Grass cover, Good, HSG C
* 21,996	75	>75% Grass cover, Good, HSG D
2,358	98	Roofs, HSG C
5,304	96	Gravel surface, HSG C
98,914	76	Weighted Average
96,556		97.62% Pervious Area
2,358		2.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.4	100	0.0300	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.14"
3.7	222	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
22.1	322	Total			

Summary for Subcatchment 20S: MCKEARNEY VILLAGE & CENTER SITE

Runoff = 14.79 cfs @ 13.01 hrs, Volume= 2.782 af, Depth> 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.14"

Area (sf)	CN	Description
550,006	77	Woods, Good, HSG D
205,778	70	Woods, Good, HSG C
* 239,400	74	Woods, Good, HSG C/D
216,390	73	Brush, Good, HSG D
* 213,824	75	>75% Grass cover, Good, HSG C
16,012	98	Roofs, HSG C
6,041	96	Gravel surface, HSG C
53,923	98	Paved parking, HSG C
29,004	55	Woods, Good, HSG B
* 27,159	75	>75% Grass cover, Good, HSG D
1,557,537	75	Weighted Average
1,487,602		95.51% Pervious Area
69,935		4.49% Impervious Area

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Type III 24-hr 2-YEAR Rainfall=3.14"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	130	0.0230	0.05		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.14"
22.9	688	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.1	519	0.0150	8.16	359.12	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=4.00' Z= 1.0 '/' Top.W=15.00' n= 0.040 Mountain streams
0.4	294	0.0410	13.49	593.73	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=4.00' Z= 1.0 '/' Top.W=15.00' n= 0.040 Mountain streams
1.8	737	0.0100	6.66	293.22	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=4.00' Z= 1.0 '/' Top.W=15.00' n= 0.040 Mountain streams
0.2	110	0.0150	8.16	359.12	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=4.00' Z= 1.0 '/' Top.W=15.00' n= 0.040 Mountain streams
70.4	2,478	Total			

Summary for Subcatchment 21S: LOT 1 & LOT 4

Runoff = 3.78 cfs @ 13.12 hrs, Volume= 0.758 af, Depth> 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.14"

Area (sf)	CN	Description
209,417	77	Woods, Good, HSG D
58,087	70	Woods, Good, HSG C
* 371	74	Woods, Good, HSG C/D
82,255	73	Brush, Good, HSG D
* 42,096	75	>75% Grass cover, Good, HSG D
* 16,766	75	>75% Grass cover, Good, HSG C
3,601	98	Roofs, HSG C
1,730	96	Gravel surface, HSG C
4,378	98	Paved roads w/curbs & sewers, HSG C
7,792	65	Brush, Good, HSG C
426,493	75	Weighted Average
418,514		98.13% Pervious Area
7,979		1.87% Impervious Area

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Type III 24-hr 2-YEAR Rainfall=3.14"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.8	100	0.0100	0.03		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.14"
4.6	211	0.0230	0.76		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.6	213	0.0380	1.36		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.8	339	0.0180	0.34		Shallow Concentrated Flow, Forest w/Heavy Litter Kv= 2.5 fps
5.3	210	0.0090	0.66		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
79.1	1,073	Total			

Summary for Subcatchment 22S: LOT #3

Runoff = 1.58 cfs @ 12.22 hrs, Volume= 0.142 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.14"

Area (sf)	CN	Description
8,051	77	Woods, Good, HSG D
15,580	70	Woods, Good, HSG C
* 22,510	75	>75% Grass cover, Good, HSG C
2,008	98	Roofs, HSG C
4,239	96	Gravel surface, HSG C
* 21,066	75	>75% Grass cover, Good, HSG D
73,454	76	Weighted Average
71,446		97.27% Pervious Area
2,008		2.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0200	0.12		Sheet Flow, Grass: Dense n= 0.240 P2= 3.14"
0.2	41	0.3400	2.92		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.5	36	0.0550	1.17		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
15.1	177	Total			

Summary for Reach 24R: R2

Inflow Area = 47.085 ac, 3.99% Impervious, Inflow Depth > 0.68" for 2-YEAR event
 Inflow = 14.15 cfs @ 13.51 hrs, Volume= 2.668 af
 Outflow = 14.11 cfs @ 13.56 hrs, Volume= 2.657 af, Atten= 0%, Lag= 2.8 min

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Type III 24-hr 2-YEAR Rainfall=3.14"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.49 fps, Min. Travel Time= 1.6 min

Avg. Velocity = 1.23 fps, Avg. Travel Time= 3.2 min

Peak Storage= 1,344 cf @ 13.53 hrs

Average Depth at Peak Storage= 0.49'

Bank-Full Depth= 3.00' Flow Area= 57.0 sf, Capacity= 390.24 cfs

10.00' x 3.00' deep channel, n= 0.070 Sluggish weedy reaches w/pools

Side Slope Z-value= 3.0 '/' Top Width= 28.00'

Length= 237.0' Slope= 0.0422 '/'

Inlet Invert= 90.00', Outlet Invert= 80.00'

**Summary for Pond 1P: POND 1**

Inflow Area = 11.329 ac, 2.42% Impervious, Inflow Depth > 0.95" for 2-YEAR event
 Inflow = 4.26 cfs @ 13.08 hrs, Volume= 0.901 af
 Outflow = 4.25 cfs @ 13.10 hrs, Volume= 0.790 af, Atten= 0%, Lag= 1.4 min
 Primary = 4.25 cfs @ 13.10 hrs, Volume= 0.790 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 97.20' @ 13.10 hrs Surf.Area= 4,439 sf Storage= 5,482 cf

Plug-Flow detention time= 52.9 min calculated for 0.790 af (88% of inflow)

Center-of-Mass det. time= 19.3 min (885.0 - 865.7)

Volume	Invert	Avail.Storage	Storage Description
#1	92.00'	11,268 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
92.00	32	0	0
94.00	485	517	517
96.00	1,470	1,955	2,472
97.00	3,061	2,266	4,738
98.00	10,000	6,531	11,268

Device	Routing	Invert	Outlet Devices
#1	Primary	91.00'	2.0" W x 2.0" H Box Culvert L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 91.00' / 91.00' S= 0.0000 '/' Cc= 0.900 n= 0.035, Flow Area= 0.03 sf
#2	Primary	97.00'	20.0' 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

Primary OutFlow Max=4.20 cfs @ 13.10 hrs HW=97.20' (Free Discharge)

1=Culvert (Barrel Controls 0.06 cfs @ 2.01 fps)

2=Broad-Crested Rectangular Weir (Weir Controls 4.14 cfs @ 1.04 fps)

Summary for Pond 2P: POND 2

Inflow Area = 47.085 ac, 3.99% Impervious, Inflow Depth > 0.91" for 2-YEAR event
 Inflow = 19.02 cfs @ 13.03 hrs, Volume= 3.572 af
 Outflow = 14.15 cfs @ 13.51 hrs, Volume= 2.668 af, Atten= 26%, Lag= 28.8 min
 Primary = 14.15 cfs @ 13.51 hrs, Volume= 2.668 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 95.14' @ 13.51 hrs Surf.Area= 20,417 sf Storage= 48,926 cf

Plug-Flow detention time= 102.4 min calculated for 2.659 af (74% of inflow)
 Center-of-Mass det. time= 45.8 min (915.4 - 869.7)

Volume	Invert	Avail.Storage	Storage Description
#1	87.60'	132,284 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
87.60	64	0	0
90.00	1,200	1,517	1,517
92.00	6,281	7,481	8,998
94.00	13,968	20,249	29,247
96.00	25,236	39,204	68,451
98.00	38,597	63,833	132,284

Device	Routing	Invert	Outlet Devices
#1	Primary	87.00'	3.0" W x 3.0" H Box Culvert L= 36.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 87.00' / 87.00' S= 0.0000 ' S= 0.0000 ' Cc= 0.900 n= 0.035, Flow Area= 0.06 sf
#2	Primary	94.50'	10.0' 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

Primary OutFlow Max=14.13 cfs @ 13.51 hrs HW=95.14' (Free Discharge)

1=Culvert (Barrel Controls 0.19 cfs @ 3.08 fps)

2=Broad-Crested Rectangular Weir (Weir Controls 13.94 cfs @ 2.16 fps)

Summary for Link POA1: POA #1

Inflow Area = 2.271 ac, 2.38% Impervious, Inflow Depth > 1.01" for 2-YEAR event
Inflow = 1.82 cfs @ 12.33 hrs, Volume= 0.191 af
Primary = 1.82 cfs @ 12.33 hrs, Volume= 0.191 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link POA2: POA #2

Inflow Area = 48.772 ac, 3.95% Impervious, Inflow Depth > 0.69" for 2-YEAR event
Inflow = 14.32 cfs @ 13.55 hrs, Volume= 2.799 af
Primary = 14.32 cfs @ 13.55 hrs, Volume= 2.799 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Solar Way Subdivision
CUMBERLAND, MAINE**

**November 28, 2016
Revised February 6, 2017**

**INSPECTION AND MAINTENANCE
OF STORMWATER MANAGEMENT FACILITIES**

Cumberland Foreside Village Owner of Lot 9 will be responsible for the inspection and maintenance of all stormwater management facilities, the establishment of any contract services required to implement the program, and the keeping of records and maintenance log book as described herein. At a minimum, the appropriate and relevant activities for each of the stormwater management facilities should be performed on the prescribed schedule. Periodic inspection and maintenance of these site features and devices is necessary to prevent erosion and remove pollutants from stormwater runoff.

Inspections and Reports:

This project is located in the MS4 section of Town. The Homeowners are required to file an annual report noting the conditions of the site, including erosion issues and drainage related items.

SWALES, DITCHES, CURBS AND PAVED AREAS:

Swales, ditches, curbs and paved areas are easily inspected during a site walk or even a ride-by. Since visual inspection is easy, their condition should be assessed during and/or after significant rainfall events such as thunder showers and periods of heavy or extended rainfall and during periods of significant snowmelt. Any damage or unusual condition such as sedimentation of a ditch, erosion, damaged curb or dying vegetation should be recorded, dated and initialed by the inspector when observed. Even if there is no damage, the inspector should make record of these inspections at least twice annually.

Paved areas should be visually inspected monthly during the winter. The inspector should pay particular attention to the build up of sand around catch basin grates and remove accumulations that block the free flow of surface runoff to the catch basins. The date and initials of the inspector should be recorded on the forms provided as well as a notation of any cleanup effort that was made and the approximate volume of sand that was removed.

**SOLAR WAY SUBDIVISION
CUMBERLAND, MAINE**

INSPECTION / MAINTENANCE LOG

SWALES, DITCHES, CURBS AND PAVED AREAS

I: INSPECTED - C: CLEANED - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
5/14/15	ABC	I, C	EXAMPLE: Remove sand deposits and debris as necessary.

**STORMWATER MANAGEMENT SYSTEM
MAINTENANCE PROGRAM
SUMMARY CHECKLIST**

Item	Commentary	Frequency			
		Month	Semi-Annual	Annual	Long-Term
Open Swale, Ditches & Inlet Structures	Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and revegetate any area of erosion	X Mow		X	
Pavement	Review for damage and buildup of debris and sand.	X	X Sweep		

HOUSEKEEPNG REPORT

SOLAR WAY SUBDIVISION CUMBERLAND, MAINE

November 28, 2016

Housekeeping:

This project is located in a stream watershed. Protection of the groundwater quality is ensured by having good housekeeping practices and maintenance of the stormwater systems. Spill prevention must be incorporated into the plan. The project should follow the following steps:

1. Building Owners should be made aware of possible groundwater and surface water contamination based on their actions. The spilling of products such as small engine fuel, cleaning products and paints need to be cleaned up. The use of fertilizers and pesticides should be done cautiously and in accordance with manufacturers recommendations.

The maintenance of the landscaping and parking lots should include the sweeping of the parking lots and removal of the materials that may cause dust.

During construction follow the erosion control measures outlined on the plans.

During construction, develop a waste handling program that identified potential contaminates that could be introduced to the aquifer. Follow hazardous waste rules if any items used are considered a hazardous waste. It is critical to the site that uncontrolled releases be prevented.

Oil absorbent pads should be used while refueling equipment.

This site may require dewatering of trenches. During construction, monitor stormwater runoff from the equipment and ground areas to minimize contamination of groundwater.

NRPA PERMIT BY RULE NOTIFICATION FORM

(For use with DEP Regulation, Natural Resources Protection Act-Permit by Rule Standards, Chapter 305)

PLEASE TYPE OR PRINT IN BLACK INK ONLY

Name of Applicant: (owner)	Live Solar Maine, LLC	Name of Agent:	Thomas S. Greer, P.E.	
Applicant Mailing Address:	1 Solar Way	Agent Phone # (include area code):	207-781-5242	
Town/City:	Cumberland	PROJECT Information Name of Town/City:	Cumberland	
State and Zip code:	ME 04021	Name of Wetland or Waterbody:	Unnamed Stream	
Daytime Phone # (include area code):	207-749-8117	Map #:	R04	Lot #: 24
Detailed Directions to Site:	I-295N, Exit 10, left onto Bucknam Rd, left on US-1N, exit Tuttle Rd, right on to Tuttle Rd, 1st right onto Middle Rd. 2nd left onto Greely rd, right on Hillside Ave. .24 miles on right.			
		UTM Northing: (if known)		UTM Easting: (if known)
Description of Project:	Construction of two driveways over the stream with utilities.			
Part of a larger project? (check one)→	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	After the Fact? (check one)→	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Check one→ This project <input type="checkbox"/> does (or) <input checked="" type="checkbox"/> does not involve work below mean low water (average low water).

NRPA PERMIT BY RULE (PBR) SECTIONS: (Check at least one)

I am filing notice of my intent to carry out work which meets the requirements for Permit By Rule (PBR) under DEP Rules, Chapter 305. I and my agents, if any, **have read** and will comply with all of the standards in the Sections checked below.

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Sec. (2) Act. Adj. to Protected Natural Res. | <input checked="" type="checkbox"/> Sec. (10) Stream Crossing | <input type="checkbox"/> Sec. (17) Transfers/Permit Extension |
| <input type="checkbox"/> Sec. (3) Intake Pipes | <input type="checkbox"/> Sec. (11) State Transportation Facil. | <input type="checkbox"/> Sec. (18) Maintenance Dredging |
| <input type="checkbox"/> Sec. (4) Replacement of Structures | <input type="checkbox"/> Sec. (12) Restoration of Natural Areas | <input type="checkbox"/> Sec. (19) Activities in/on/over significant vernal pool habitat |
| <input type="checkbox"/> Sec. (5) REPEALED | <input type="checkbox"/> Sec. (13) F&W Creation/Enhance/Water Quality Improvement | <input type="checkbox"/> Sec. (20) Activities located in/on/over high or moderate value inland water-fowl & wading bird habitat or shore-bird feeding & roosting areas |
| <input type="checkbox"/> Sec. (6) Movement of Rocks or Vegetation | <input type="checkbox"/> Sec. (14) REPEALED | |
| <input type="checkbox"/> Sec. (7) Outfall Pipes | <input type="checkbox"/> Sec. (15) Public Boat Ramps | |
| <input type="checkbox"/> Sec. (8) Shoreline stabilization | <input type="checkbox"/> Sec. (16) Coastal Sand Dune Projects | |
| <input type="checkbox"/> Sec. (9) Utility Crossing | | |

NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS:

- ☒ **Attach** a check for the correct fee, payable to: "Treasurer, State of Maine". The current fee for NRPA PBR Notifications can be found at the Department's website: <http://www.maine.gov/dep/feesched.pdf>
- ☒ **Attach** a U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.
- ☒ **Attach** Proof of Legal Name if applicant is a corporation, LLC, or other legal entity. Provide a copy of Secretary of State's registration information (available at <http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x>). Individuals and municipalities are **not** required to provide any proof of identity.
- ☒ **Attach** photos of the proposed site where activity will take place as required in PBR Sections checked above.
- ☐ **Attach** all other required submissions as outlined in the PBR Sections checked above.

I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules. I also understand that **this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.**

By signing this Notification Form, I represent that the project meets all applicability requirements and standards in the rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.

Signature of Agent or Applicant:		Date:	3/27/17
----------------------------------	---	-------	---------

Keep a copy as a record of permit. Send the form with attachments via certified mail or hand deliver to the Maine Dept. of Environmental Protection at the appropriate regional office listed below. The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. Permits are valid for two years. **Work carried out in violation of any standard is subject to enforcement action.**

AUGUSTA DEP
17 STATE HOUSE STATION
AUGUSTA, ME 04333-0017
(207)287-3901

PORTLAND DEP
312 CANCO ROAD
PORTLAND, ME 04103
(207)822-6300

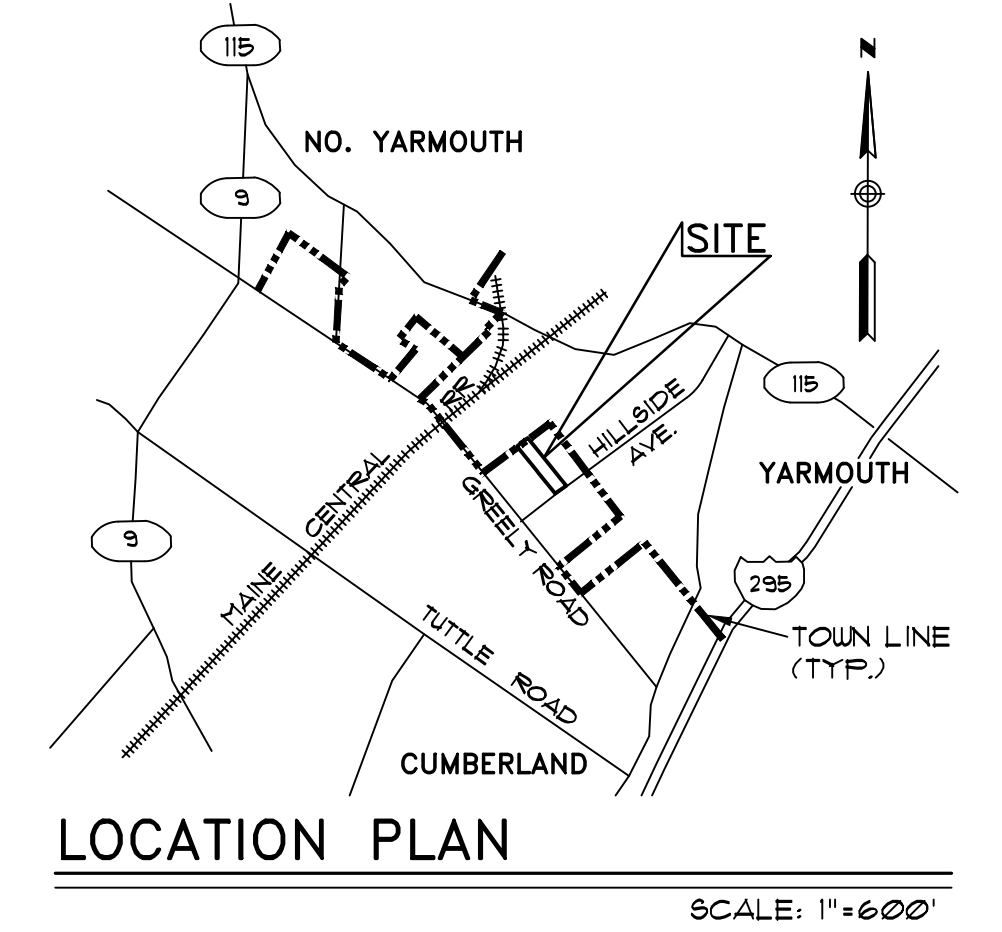
BANGOR DEP
106 HOGAN ROAD
BANGOR, ME 04401
(207)941-4570

PRESQUE ISLE DEP
1235 CENTRAL DRIVE
PRESQUE ISLE, ME 04769
(207)764-0477

OFFICE USE ONLY	Ck.# 2479	Date 3/27/2017	Staff A. ADDO	Staff	
PBR # 603478	FP 75.00		Acc. Date 4/7/17	Def. Date	After Photos

SOLAR WAY SUBDIVISION

Hillside Ave, Cumberland, Maine

Owner/Applicant

LIVE LIFE MAINE, LLC
1 SOLAR WAY
CUMBERLAND, ME 04021

Developer

LIVE LIFE MAINE, LLC
1 SOLAR WAY
CUMBERLAND, ME 04021

Civil Engineer

PINKHAM & GREER CIVIL ENGINEERS
28 YANNAH AVENUE
PORTLAND, MAINE 04103
207-781-5242

Surveyor

MAINE SURVEY CONSULTANTS, INC.
P.O. BOX 485
HARRISON, ME 04040
207-583-6159

Wetlands Mapping & Soils Scientist

MARK HAMPTON & ASSOCIATES, INC.
P.O. BOX 1931
PORTLAND, MAINE 04104-1931
207-773-8650

Hydrogeologist

DICK SWEET, SWEET ASSOCIATES
135 GRAY ROAD
FALMOUTH, ME 04105
207-797-2110

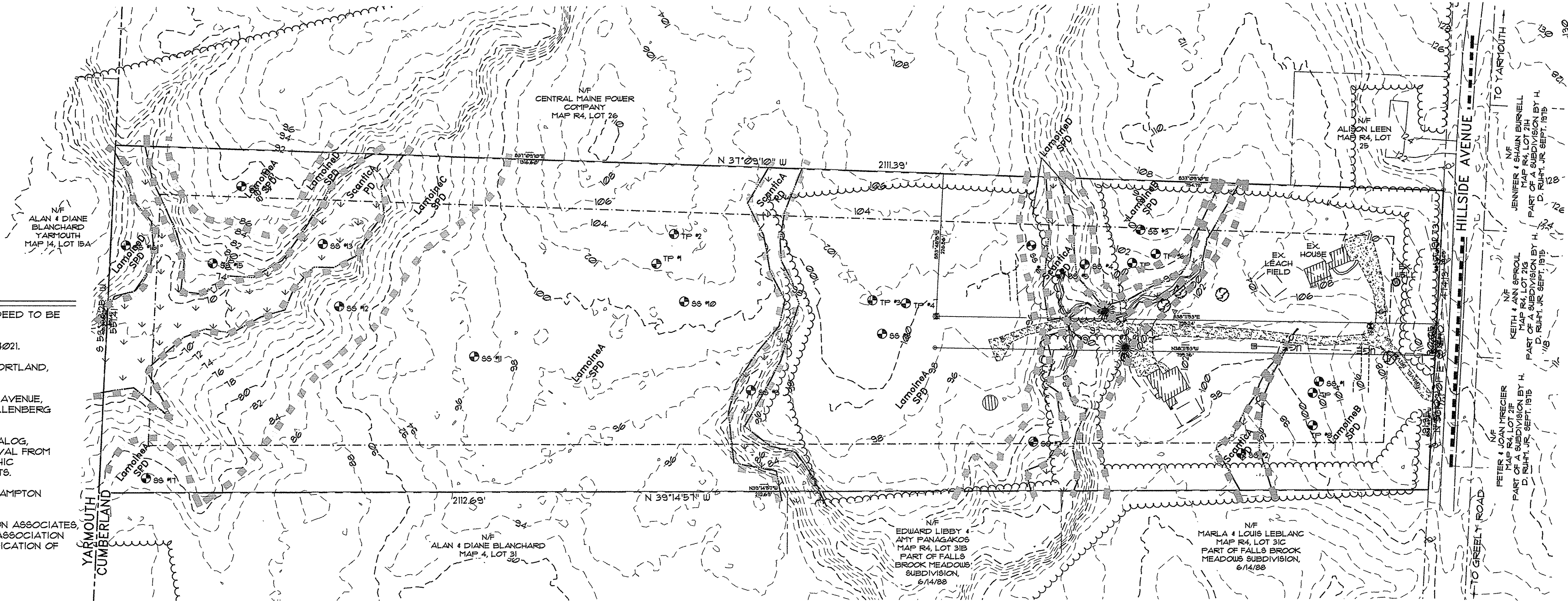
DRAWING LIST

<u>SHEET</u>	<u>TITLE</u>
COVER	COVER
C1.0	EXISTING CONDITION PLAN
C1.1	SUBDIVISION PLAN
C1.2	SITE PLAN
C1.3	NET RESIDENTIAL ACREAGE PLAN
C1.4	CONVENTIONAL LOT LAYOUT
C2.0	PLAN & PROFILE W/ EROSION CONTROL - SOLAR WAY
C3.0	EROSION CONTROL NOTES & DETAILS
C4.0	SITE DETAILS
D1.0	DRAINAGE ANALYSIS, EXISTING CONDITION
D2.0	DRAINAGE ANALYSIS, DEVELOPED CONDITION

CURRENT SUBMITTAL: APRIL 11, 2017
SUBMITTED TO TOWN OF CUMBERLAND

GENERAL NOTES

- OWNER: LIVE LIFE MAINE, LLC, 1 SOLAR WAY, CUMBERLAND, ME 04021. DEED TO BE RECORDED.
- DEVELOPER: LIVE LIFE MAINE, LLC, 1 SOLAR WAY, CUMBERLAND, ME 04021.
- ENGINEER: PINKHAM & GREER CIVIL ENGINEERS, 28 YANNAH AVENUE, PORTLAND, MAINE.
- BOUNDARY INFORMATION TAKEN FROM "PLAN OF PROPERTY HILLSIDE AVENUE, CUMBERLAND, MAINE MADE FOR PATRICE MILLER" JUNE 8, 2014 BY CULLENBERG LAND SURVEYING, 892 OLD DANVILLE ROAD, AUBURN, MAINE.
- TOPOGRAPHY TAKEN FROM STATE OF MAINE OFFICE OF GIS DATA CATALOG, ELEVATION AND DERIVED PRODUCTS, ELEVATION CONTOURS (2' INTERVAL FROM LIDAR), TOWN OF CUMBERLAND. IN THE DEVELOPED AREA TOPOGRAPHIC INFORMATION AND SURVEY LINES DONE BY MAINE SURVEY CONSULTANTS.
- WETLAND MAPPING AND SEPTIC SYSTEM SOILS PROVIDED BY MARK HAMPTON ASSOCIATES, INC., PORTLAND MAINE.
- HIGH INTENSITY SOIL SURVEY HAS BEEN PREPARED BY MARK HAMPTON ASSOCIATES, INC. IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS, AND THE MAINE BOARD OF CERTIFICATION OF GEOLOGISTS AND SOIL SCIENTISTS.
- ZONE: RURAL RESIDENTIAL 1 (RRI)
PROPOSED USE: SINGLE FAMILY DETACHED HOUSES
- TAX MAP REFERENCE: MAP R04 /LOT 24.
- TOTAL PARCEL = 24.84 acres
- WAIVERS: NONE.
- CALL DIG-SAFE PRIOR TO COMMENCING WORK, 811 OR 1-888-DIG-SAFE.
- HOUSE LOCATIONS TO BE WITHIN THE SETBACK LINES SHOWN ON THIS PLAN.
- ALL HOUSES SHALL HAVE A NUMBER CLEARLY VISIBLE FROM THE ROAD.
- ALL NEW DWELLINGS IN THIS SUBDIVISION SHALL INCLUDE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM CONFORMING TO APPLICABLE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARDS AND APPROVED BY THE CUMBERLAND FIRE CHIEF.
- COMMON OPEN SPACE FOR THE HOMEOWNERS IS INCLUDED IN THIS SUBDIVISION AND IS TO BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
- AN EASEMENT FOR PRIVATE PEDESTRIAN ACCESS TO THE COMMON OPEN SPACE IS TO BE MAINTAINED OVER LOT 5.
- CONSTRUCTION WILL COMMENCE WITH FINAL APPROVAL AND AS LOTS ARE SOLD.
- LOTS TO BE SERVICED BY INDIVIDUAL SEPTIC SYSTEMS AND WELLS. SEPTIC SYSTEMS MUST BE LOCATED AS SHOWN ON THIS PLAN OR AN ALTERNATE LOCATION APPROVED BY THE TOWN STAFF.
- POWER, TELEPHONE AND CABLE SERVICES ARE TO BE UNDERGROUND FROM AN EXISTING POLE ON HILLSIDE AVENUE.
- THE DEVELOPER WILL BE RESPONSIBLE FOR MAINTAINING THE ROAD, INCLUDING FLOWING, UNTIL SUCH TIME AS THE ROAD IS TAKEN OVER BY THE HOMEOWNERS ASSOCIATION.
- ALL CONSTRUCTION AND SITE ALTERATIONS SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPs" PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION, MAY 2016.
- IRON RODS TO BE SET AT ALL CORNERS OF LOTS BY THE DEVELOPER.
- STREET NAME: SOLAR WAY
- NO CONSTRUCTION OR FILLING OF WETLANDS OTHER THAN THAT SHOWN ON THE PLAN ARE ALLOWED. A NRPA PERMIT IS REQUIRED BY DEP.
- ALL DRIVEWAY ACCESS WILL BE FROM WITHIN THE SUBDIVISION.
- WELLS MUST BE LOCATED OUTSIDE OF THE "WELL EXCLUSION" ZONE SHOWN. WELL CASING MUST EXTEND A MINIMUM OF 15' BELOW THE BEDROCK SURFACE.
- HIGH GROUNDWATER TABLES ARE A CONSIDERATION FOR MAINE SOILS. HOUSES WITH BASEMENTS ARE RECOMMENDED TO HAVE PROPER FOUNDATION DRAINAGE TO ACCOMMODATE THESE CONDITIONS.



LEGEND

- EXISTING**
- PROPERTY LINE
 - BUILDING SETBACK
 - ABUTTERS PROPERTY
 - BUILDING
 - WETLAND LIMIT
 - WETLAND
 - WATERCOURSE
 - ZONING DISTRICT
 - TOWN LINE
 - BENCHMARK
 - BOUND FOUND
 - IRON PIPE FOUND
 - IRON PIPE SET
 - WELL
 - SEPTIC SYSTEM
 - SOILS BOUNDARY
 - TEST PIT
 - TREE

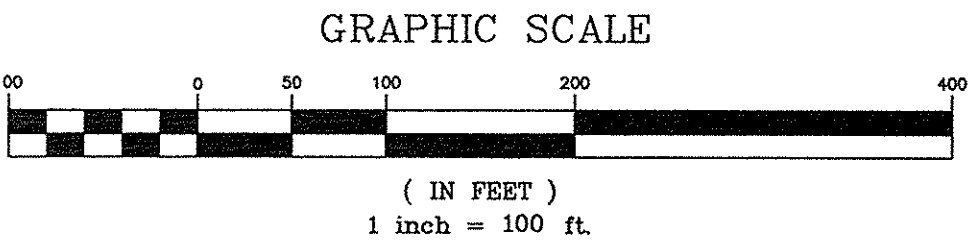
SOILS LEGEND

- DRAINAGE CLASS**
- | | |
|--------------------------|-----|
| EXCESSIVELY WELL DRAINED | EWD |
| WELL DRAINED | WD |
| MODERATELY WELL DRAINED | MWD |
| SOMEWHAT POORLY DRAINED | SPD |
| POORLY DRAINED | PD |
| VERY POORLY DRAINED | VPD |

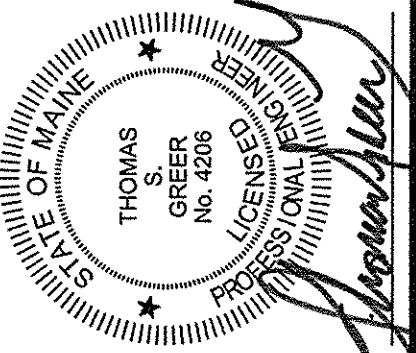
SLOPE DESIGNATION

- | | |
|--------|---|
| 0-3% | A |
| 3-8% | B |
| 8-15% | C |
| 15-25% | D |
| 25% | E |

NOTE: HIGH INTENSITY SOIL SURVEY HAS BEEN PREPARED BY MARK HAMPTON ASSOCIATES, INC. IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS, AND THE MAINE BOARD OF CERTIFICATION OF GEOLOGISTS AND SOIL SCIENTISTS.



PINKHAM & GREER
CIVIL ENGINEERS
28 YANNAH AVE. PORTLAND, ME 04103
TEL: 207.761.543 FAX: 207.761.4395



REV.	DATE	DESCRIPTION
2	2/7/17	UPDATED DRAWINGS.
1	12/1/16	UPDATED DRAWINGS.

LIVE LIFE MAINE, LLC
1 SOLAR WAY
CUMBERLAND, ME 04021

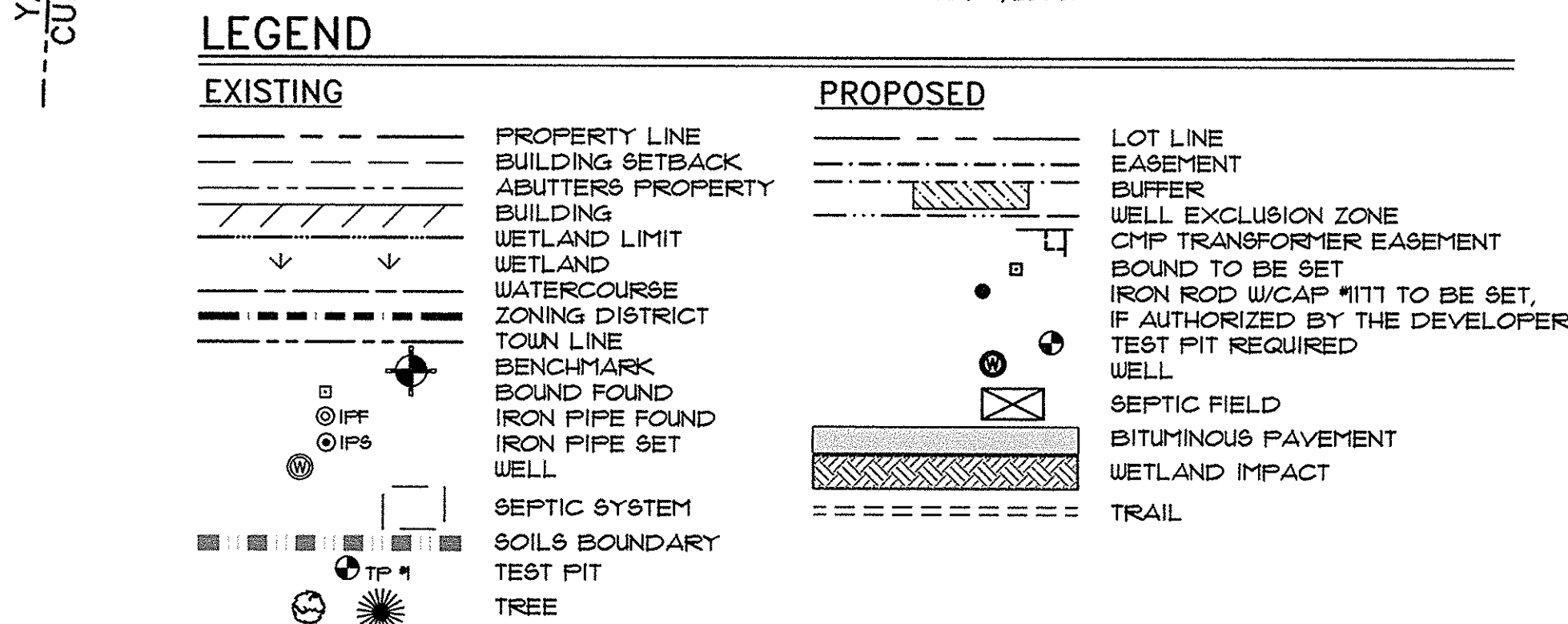
SOLAR WAY SUBDIVISION
HILLSIDE AVENUE, CUMBERLAND, MAINE

C1.0

EXISTING CONDITION PLAN



1. OWNER: LIVE LIFE MAINE, LLC, 1 SOLAR WAY, CUMBERLAND, ME 04021. DEED TO BE RECORDED.
2. DEVELOPER: LIVE LIFE MAINE, LLC, 1 SOLAR WAY, CUMBERLAND, ME 04021.
3. ENGINEER: PINKHAM & GREER CIVIL ENGINEERS, 28 VANNAH AVENUE, PORTLAND, MAINE.
4. BOUNDARY INFORMATION TAKEN FROM "PLAN OF PROPERTY HILLSIDE AVENUE, CUMBERLAND, MAINE MADE FOR PATRICE MILLER" JUNE 8, 2014 BY CULLENBERG LAND SURVEYING, 292 OLD DANVILLE ROAD, AUBURN, MAINE.
5. TOPOGRAPHY TAKEN FROM STATE OF MAINE OFFICE OF GIS DATA CATALOG, ELEVATION AND DERIVED PRODUCTS, ELEVATION CONTOURS (2' INTERVAL FROM LIDAR), TOWN OF CUMBERLAND. IN THE DEVELOPED AREA TOPOGRAPHIC INFORMATION AND SURVEY LINES DONE BY MAINE SURVEY CONSULTANTS.
6. WETLAND MAPPING AND SEPTIC SYSTEM SOILS PROVIDED BY MARK HAMPTON ASSOCIATES, INC., PORTLAND MAINE.
7. HIGH INTENSITY SOIL SURVEY HAS BEEN PREPARED BY MARK HAMPTON ASSOCIATES INC. IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS, AND THE MAINE BOARD OF CERTIFICATION OF GEOLOGISTS AND SOIL SCIENTISTS.
8. ZONE: RURAL RESIDENTIAL 1 (RR1)
PROPOSED USE: SINGLE FAMILY DETACHED HOUSES
9. TAX MAP REFERENCE: MAP R04 /LOT 24.
10. TOTAL PARCEL = 24.84 acres
11. WAIVERS: NONE.
12. CALL DIG-SAFE PRIOR TO COMMENCING WORK, 811 OR 1-888-DIG-SAFE.
13. HOUSE LOCATIONS TO BE WITHIN THE SETBACK LINES SHOWN ON THIS PLAN.
14. ALL HOUSES SHALL HAVE A NUMBER CLEARLY VISIBLE FROM THE ROAD.
15. ALL NEW DWELLINGS IN THIS SUBDIVISION SHALL INCLUDE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM CONFORMING TO APPLICABLE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARDS AND APPROVED BY THE CUMBERLAND FIRE CHIEF.
16. COMMON OPEN SPACE FOR THE HOMEOWNERS IS INCLUDED IN THIS SUBDIVISION AND IS TO BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
17. AN EASEMENT FOR PRIVATE PEDESTRIAN ACCESS TO THE COMMON OPEN SPACE IS TO BE MAINTAINED OVER LOT 5.
18. CONSTRUCTION WILL COMMENCE WITH FINAL APPROVAL AND AS LOTS ARE SOLD.
19. LOTS TO BE SERVICED BY INDIVIDUAL SEPTIC SYSTEMS AND WELLS. SEPTIC SYSTEMS MUST BE LOCATED AS SHOWN ON THIS PLAN OR AN ALTERNATE LOCATION APPROVED BY THE TOWN STAFF.
20. POWER, TELEPHONE AND CABLE SERVICES ARE TO BE UNDERGROUND FROM AN EXISTING POLE ON HILLSIDE AVENUE.
21. THE DEVELOPER WILL BE RESPONSIBLE FOR MAINTAINING THE ROAD, INCLUDING FLOODING, UNTIL SUCH TIME AS THE ROAD IS TAKEN OVER BY THE HOMEOWNERS ASSOCIATION.
22. ALL CONSTRUCTION AND SITE ALTERATIONS SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPs" PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION, MAY 2016.
23. IRON RODS TO BE SET AT ALL CORNERS OF LOTS BY THE DEVELOPER.
24. STREET NAME: SOLAR WAY
25. NO CONSTRUCTION OR FILLING OF WETLANDS OTHER THAN THAT SHOWN ON THE PLAN ARE ALLOWED. A NRPA PERMIT IS REQUIRED BY DEP.
26. ALL DRIVEWAY ACCESS WILL BE FROM WITHIN THE SUBDIVISION.
27. WELLS MUST BE LOCATED OUTSIDE OF THE "WELL EXCLUSION" ZONE SHOWN. WELL CASING MUST EXTEND A MINIMUM OF 15' BELOW THE BEDROCK SURFACE.
28. HIGH GROUNDWATER TABLES ARE A CONSIDERATION FOR MAINE SOILS. HOUSES WITH BASEMENTS ARE RECOMMENDED TO HAVE PROPER FOUNDATION DRAINAGE TO ACCOMMODATE THESE CONDITIONS.
29. THE OWNER OF LOT 5 RESERVES THE RIGHT TO SUBDIVIDE LOT 5 TO CREATE TWO SINGLE FAMILY HOME LOTS IF THE ZONING CHANGES IN THE FUTURE. THE DIVISION WOULD HAVE TO MEET THE FUTURE ZONING ORDINANCE REQUIREMENTS. NO FURTHER SUBDIVISION OF LOTS 1 TO 4 IS ALLOWED.



TOTAL PARCEL:	108,215 SQ. FT.
DEDUCTIONS:	
A. PERCENTAGE OF PARCEL FOR ROADS & PARKING, ACTUAL *NOT INCLUDED IN C.	16,043
B. LACK OF ACCESS, ISOLATED OR UNAVAILABLE AREAS	0
C. AREAS DIFFICULT TO DEVELOP	
1. SLOPES IN EXCESS OF 20% SUSTAINED FOR 30,000 SF. OR MORE	0
2. WETLANDS NOT INCLUDED IN I.	114,251
3. 100 YEAR FLOODPLAIN	0
D. RIGHT-OF-WAYS OR EASEMENT *NOT INCLUDED IN A. OR C.	23,392
E. RESOURCE PROTECTION DISTRICT	0
TOTAL:	928,523 + 174,240 533 LOTS

NOTES:

1. UTILITY EASEMENT TO BE REESTABLISHED TO THE NEW RIGHT-OF-WAY.
2. ACCESS TO THE EXISTING HOUSES TO BE REESTABLISHED TO THE NEW RIGHT-OF-WAY.

ZONE: RURAL RESIDENTIAL I PERMITTED USE: SINGLE FAMILY DETACHED		
SPACE STANDARDS	RRI	CLUSTER
MINIMUM LOT SIZE	4 ACRES	60,000 S.F.
MINIMUM STREET FRONTAGE	200 FEET	100 FEET
MINIMUM FRONT YARD	50 FEET	50 FEET
MINIMUM REAR YARD	75 FEET	75 FEET
MINIMUM SIDE YARD	30 FEET *	30 FEET *
* COMBINED WIDTH AT LEAST 75 FEET		

LINE	BEARING	DISTANCE
L1	S 44°48'47" W	30'
L2	S 45°11'13" E	50'
L3	N 44°48'47" E	30'
L4	S 45°11'13" E	30'
L5	N 42°6'39" E	50.03'

EXISTING IMPERVIOUS:	22,232 SF
PROPOSED IMPERVIOUS:	<u>+35,938 SF</u>
INCREASE OF:	13,706 SF

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	20'	30.72'	27.79'	N 82°12'26" W	88°01'06"
C2	500'	65.45'	65.41'	N 34°26'52" W	7°30'02"
C3	500'	126.44'	126.11'	N 37°56'32" W	14°29'21"
C4	450'	113.8'	113.5'	N 37°56'32" W	14°29'21"
C5	550'	72'	71.95'	N 34°26'52" W	7°30'02"
C6	20'	32.11'	28.77'	N 07°47'34" F	91°58'54"

EXCEPTIONS:
NO DETAILED SURVEY REPORT

NOTES

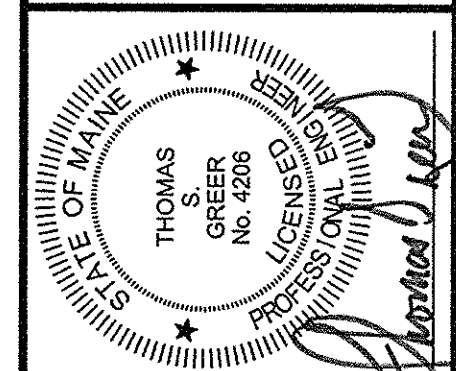
THE SEAL AND SIGNATURE OF DELMORE A. MAXFIELD, JR. PLS. ON THIS PLAN IS FOR THE DIMENSIONAL ACCURACY OF THE INTERIOR LOT LINES ONLY. CONFORMANCE OF THE ACTUAL STAKE OUT OF THE PROPOSED LOTS TO THIS PLAN WILL ONLY BE ENCOMPASSED BY SAID SEAL AND SIGNATURE IF PERFORMED UNDER THE DIRECTION OF SAID DELMORE A. MAXFIELD, JR. PLS.

2) THIS SURVEY CONFORMS TO THE CURRENT STANDARDS ADOPTED BY THE MAINE BOARD OF LICENSEURE FOR PROFESSIONAL LAND SURVEYORS. EXCEPTIONS AS NOTED ABOVE.

3. NOT VALID OR TRUE COPY OF ORIGINAL UNLESS SIGNED AND EMBOSSED BY SURVEYOR.

DATE: _____

DAT

[illegible]

LIVE LIFE MAINE, LLC
1 SOLAR WAY
CUMBERLAND, ME 04021

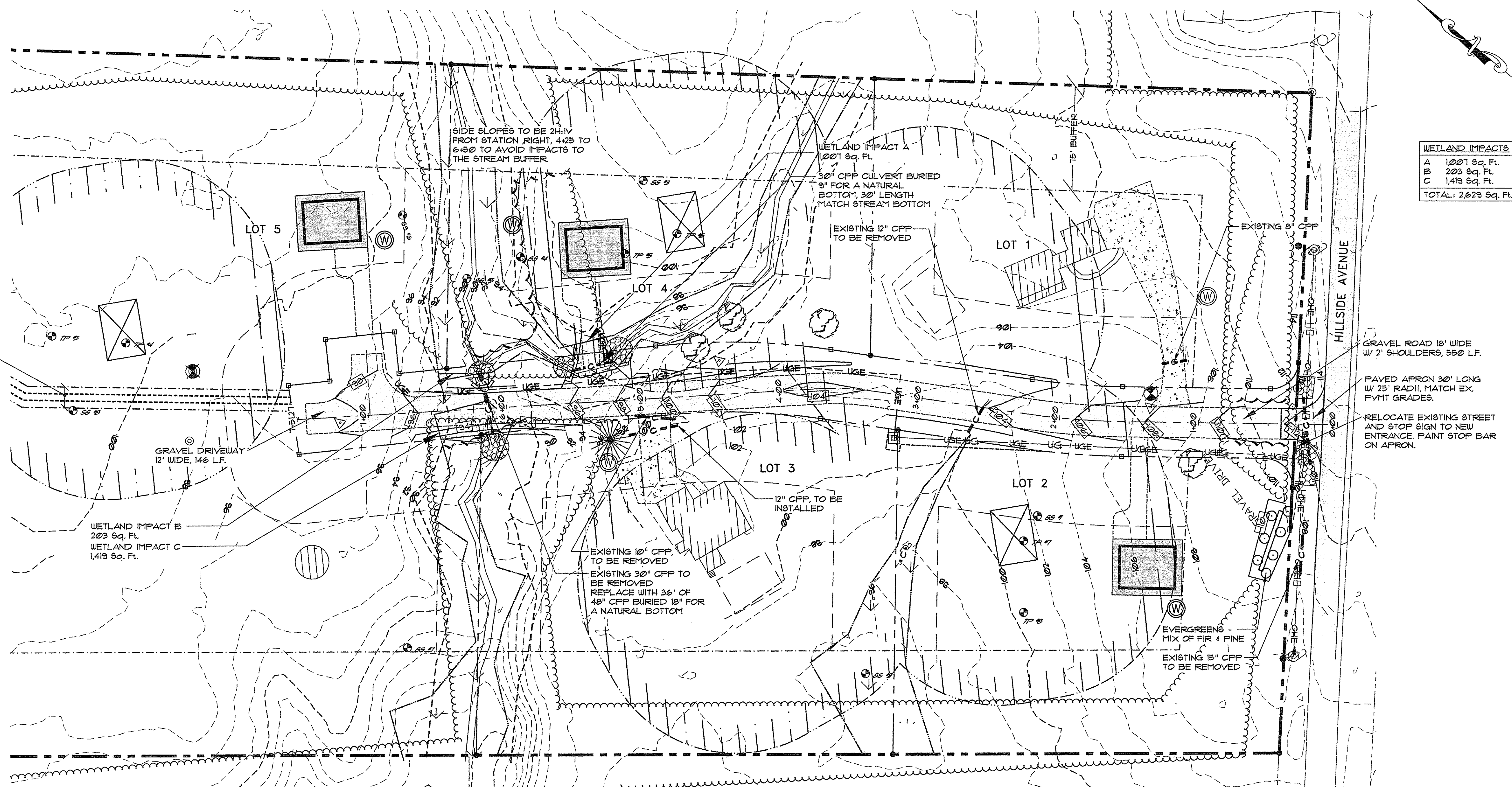
SOLAR WAY SUBDIVISION
HILLSIDE AVENUE, CUMBERLAND, MAINE

SUBDIVISION PLAT

C1.1

MAP/LOT R04 / 2.

PRIVATE 15' WIDE PEDESTRIAN
EASEMENT TO OPEN SPACE FOR
LOT OWNERS



LEGEND

EXISTING

---	PROPERTY LINE
---	BUILDING SETBACK
---	ADJUTERS PROPERTY
---	EDGE OF PAVEMENT
---	CONTOURS
---	BUILDING
---	EDGE OF GRAVEL
---	WETLAND LIMIT
---	WETLAND
---	WATERCOURSE
---	ZONING DISTRICT
---	TOWN LINE
---	STORMDRAIN
---	CULVERT
---	FOUNDATION DRAIN
---	OVERHEAD UTILITY
---	UNDERGROUND UTILITY
---	SPOT GRADE
---	UTILITY POLE
---	UTILITY POLE W/ GUY WIRE
---	TREELINE
---	BENCHMARK
---	BOUND FOUND
---	IRON PIPE FOUND
---	IRON PIPE SET
---	WELL
---	SLOPES OVER 20%
---	TEST PIT
---	TREE

PROPOSED

---	LOT LINE
---	EASEMENT
---	BUFFER
---	WELL EXCLUSION ZONE
---	C/P TRANSFORMER EASEMENT
---	EDGE OF PAVEMENT
---	CONTOURS
---	EDGE OF GRAVEL
---	CLEARING LIMIT
---	STORMDRAIN
---	CULVERT
---	OVERHEAD UTILITY
---	UNDERGROUND UTILITY
---	CENTERLINE
---	HOUSE SERVICE, SEWER
---	HOUSE SERVICE, WATER
---	SPOT GRADE
---	TRANSFORMER
---	BOUND TO BE SET
---	IRON PIPE TO BE SET
---	TEST PIT REQUIRED
---	WELL
---	SIGN
---	RIFRAP
---	SEPTIC FIELD
---	BITUMINOUS PAVEMENT
---	WETLAND IMPACT

LIVE LIFE MAINE, LLC
1 SOLAR WAY
CUMBERLAND, ME 04021

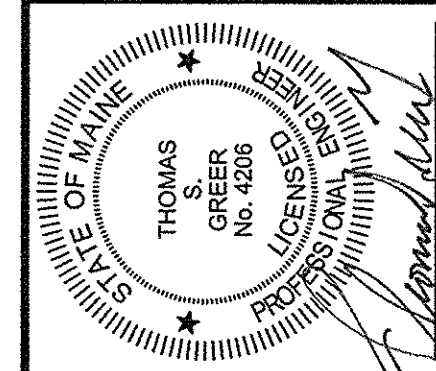
SOLAR WAY SUBDIVISION
HILLSIDE AVENUE, CUMBERLAND, MAINE

C1.2

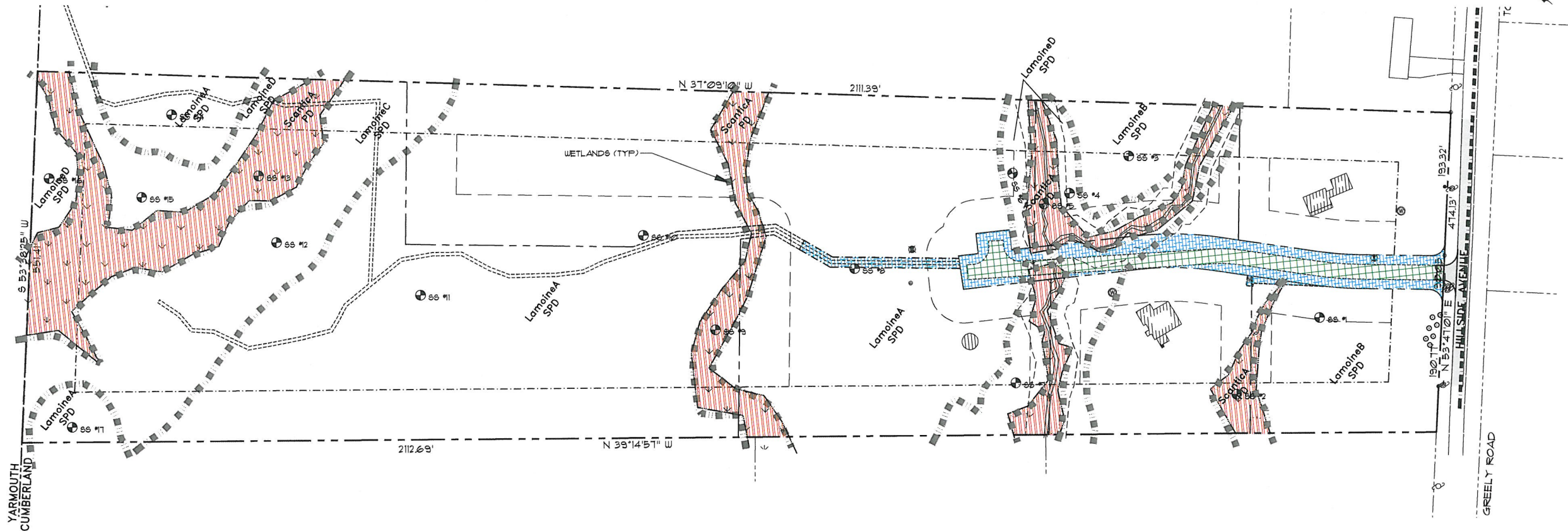
SCALE: AS SHOWN
DATE: NOVEMBER 23, 2016
PROJECT: 16158

DRN BY: JWG/JDC
DESIGN BY: TSG
CHK BY: [Signature]

REV.	DATE	DESCRIPTION
5	4/11/17	UPDATED STREAM CROSSINGS. REV'D PER PEER REVIEW.
4	3/28/17	SHIFTED ROAD & ROW TO REDUCE STREAM BUFFER IMPACT.
3	2/17/17	UPDATED DRAWINGS.
2	2/17/17	UPDATED DRAWINGS.
1	12/1/16	UPDATED DRAWINGS.



PINKHAM & GREER
CIVIL ENGINEERS
28 WILLOW AVE. PORTLAND, ME 04103
TEL: 207.761.3342 FAX: 207.761.4245



LEGEND

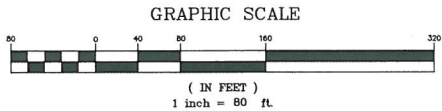
EXISTING	PROPOSED

- NOTES:
- UTILITY EASEMENT TO BE REESTABLISHED TO THE NEW RIGHT-OF-WAY.
 - ACCESS TO THE EXISTING HOUSES TO BE REESTABLISHED TO THE NEW RIGHT-OF-WAY.

NET RESIDENTIAL ACREAGE

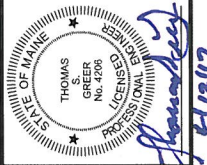
TOTAL PARCEL:	1,082,215 SQ. FT.
DEDUCTIONS:	
A. PERCENTAGE OF PARCEL FOR ROADS & PARKING, ACTUAL *NOT INCLUDED IN C.	16,043
B. LACK OF ACCESS, ISOLATED OR UNAVAILABLE AREAS	0
C. AREAS DIFFICULT TO DEVELOP	
1. SLOPES IN EXCESS OF 20% SUSTAINED FOR 30,000 S.F. OR MORE	0
2. WETLANDS NOT INCLUDED IN I.	114,251
3. 100 YEAR FLOODPLAIN	0
D. RIGHT-OF-WAYS OR EASEMENT *NOT INCLUDED IN A. OR C.	23,392
E. RESOURCE PROTECTION DISTRICT	0
TOTAL:	920,523 + 174,240 = 1,094,763 SQ. FT. 5.33 LOTS

WETLANDS NOT INCLUDED IN STEEP SLOPES	
SLOPE *	AREA(SF)
W1	1,806.9
W2	8,420.5
W3	3,951.1
W4	2,083.3
W5	8,143.3
W6	494.1
W7	212
W8	5,893.5
W9	1,583.3
W10	4,016
W11	8,251.6
W12	30.4
W13	15.8
W14	25.4
W15	90.6
W16	3,113
W17	3,968.8
W18	24.8
W19	3,171
W20	18.2
W21	1,183
W22	2,198
W23	46,818.2
W24	1,651.7
TOTAL	86,556 SQ. FT.



PINKHAM & GREER
CIVIL ENGINEERS

28 HANNAH AVE. PORTLAND, ME 04103
TEL. 207.261.5242 FAX. 207.261.4230



Handwritten signature and date: 2/16/17

REV.	DATE	DESCRIPTION
3	4/11/17	REVISED PER PEER REVIEW
2	3/28/17	SHIFTED ROAD & ROW TO REDUCE STREAM BUFFER IMPACT
1	2/17/17	UPDATED DRAWINGS.

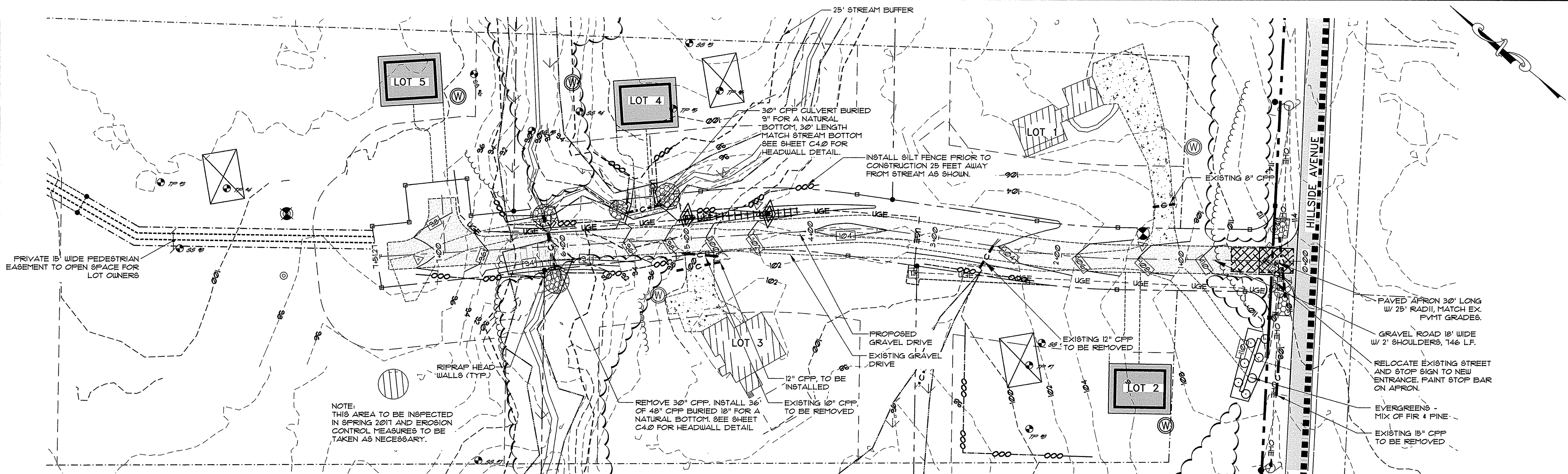
LIVE LIFE MAINE, LLC
1 SOLAR WAY
CUMBERLAND, ME 04021

SCALE:	AS SHOWN	DRN BY: JWG/JDC
DATE:	FEBRUARY 7, 2017	DESIGN BY: TSG
PROJECT:	16158	CHK BY: [Signature]

SOLAR WAY SUBDIVISION
HILLSIDE AVENUE, CUMBERLAND, MAINE

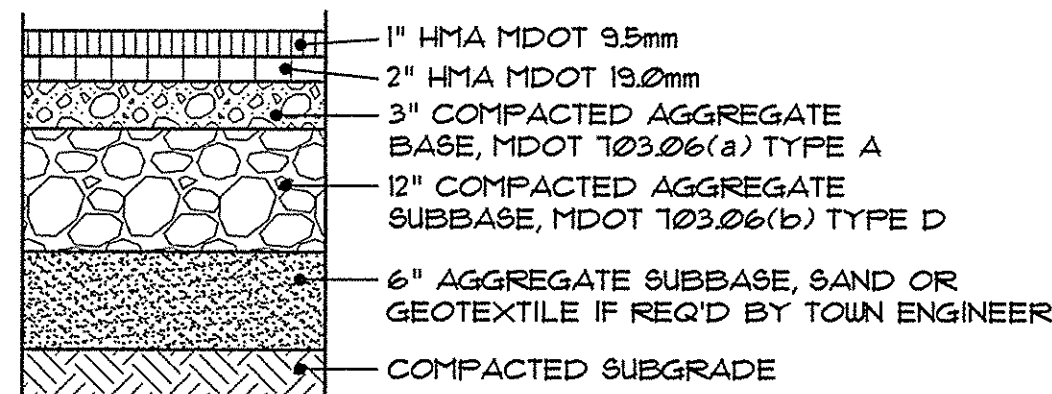
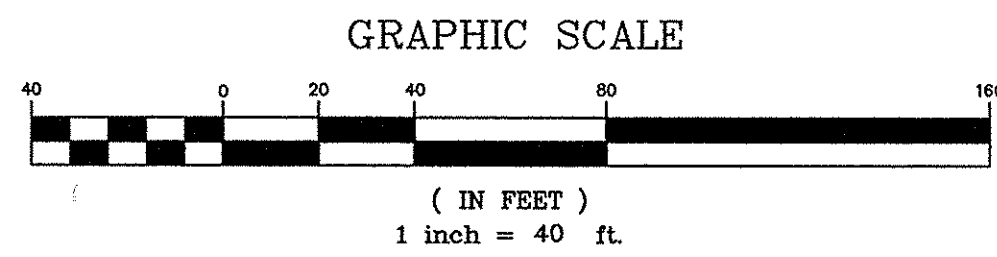
NET RESIDENTIAL ACREAGE PLAN

C1.3

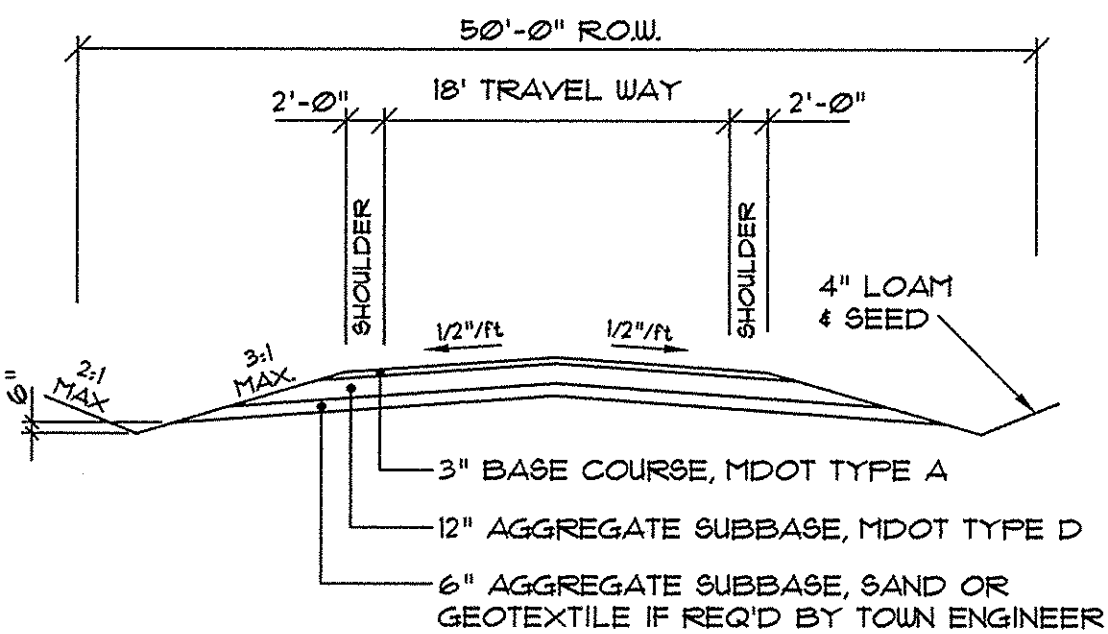


PLAN

SCALE: 1"=40'

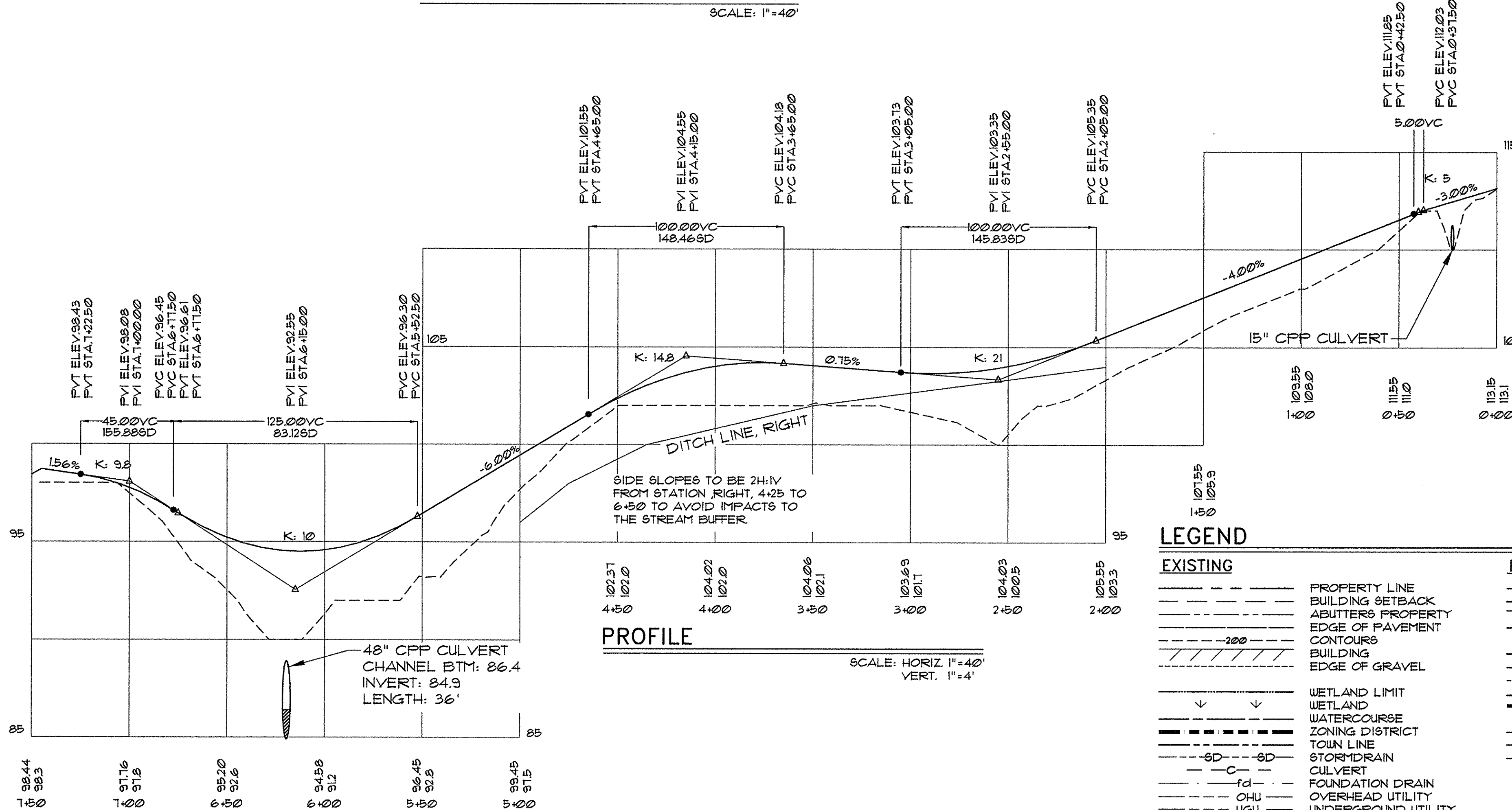


PAVED APRON SECTION



NOTES: CROSS SECTION

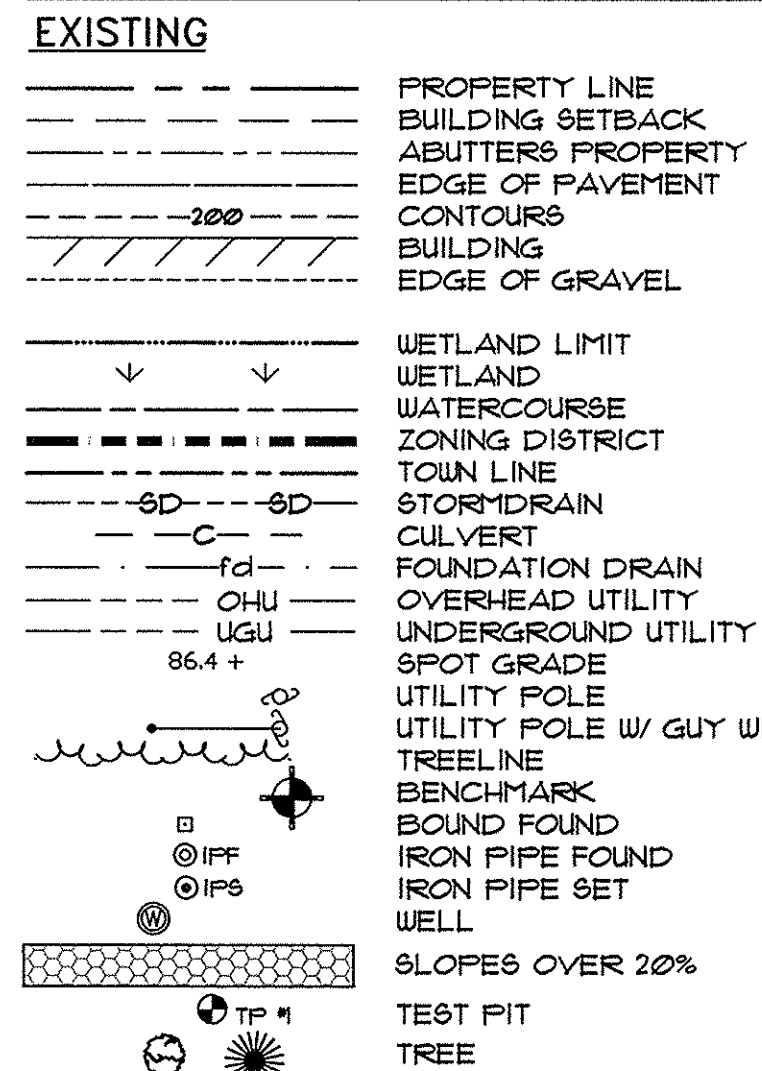
- DESIGN SPEED = 25 MPH.
- NO CENTERLINE OR EDGE STRIPING REQUIRED.
- GRAVEL TO BE MECHANICALLY COMPACTED USING A VIBRATORY STEEL DRUM ROLLER.
- ADJACENT ROAD PAVEMENT TO BE CUT BACK A MINIMUM OF 12". CLEAN AND TACK COAT THE EXPOSED EDGE PRIOR TO PLACEMENT OF THE PAVED APRON.



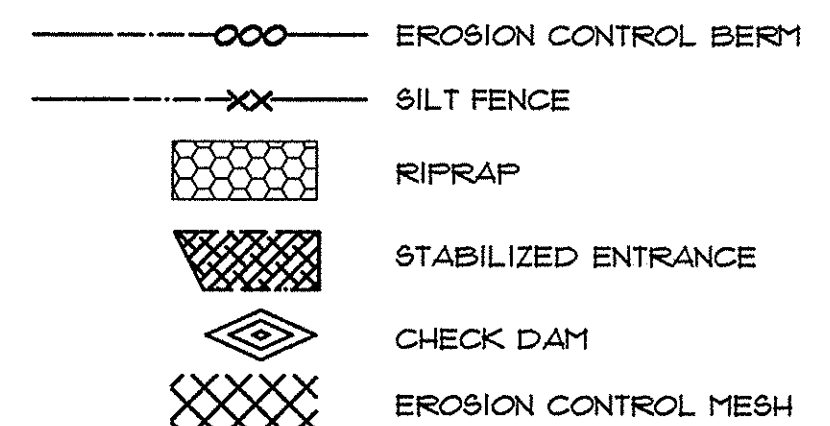
PROFILE

SCALE: HORIZ. 1"=40' VERT. 1"=4'

LEGEND



EROSION CONTROL LEGEND



NOTE: LOAM AND SEED ALL DISTURBED AREAS.

PINKHAM & GREER
CIVIL ENGINEERS
28 WAMPA AVE. PORTLAND, ME 04103
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6	4/11/17	UPDATED STREAM CROSSINGS, REV'D PER PEER REVIEW	REV.	DATE	DESCRIPTION
5	3/29/17	SHIFTED ROAD & ROW TO REDUCE STREAM BUFFER IMPACT	REV.	DATE	DESCRIPTION
4	2/22/17	UPDATED ROAD PROFILE	REV.	DATE	DESCRIPTION
3	2/17/17	UPDATED DRAWINGS	REV.	DATE	DESCRIPTION
2	2/17/17	UPDATED DRAWINGS	REV.	DATE	DESCRIPTION
1	12/1/16	UPDATED DRAWINGS	REV.	DATE	DESCRIPTION

LIVE LIFE MAINE, LLC
1 SOLAR WAY
CUMBERLAND, ME 04021

SCALE: AS SHOWN
DATE: NOVEMBER 23, 2016
PROJECT: 16158

DRN BY: JWG/JDC
DESIGN BY: TSG
CHK BY: 154

SOLAR WAY SUBDIVISION
HILLSIDE AVENUE, CUMBERLAND, MAINE

PLAN & PROFILE W/ EROSION CONTROL - SOLAR WAY

C2.0
MAPLOT R04/24

EROSION CONTROL NOTES

GENERAL:

THE DRAWINGS DEPICT THE REQUIRED SOIL EROSION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE CONSTRUCTION SITE IN SUCH A MANNER THAT:

- SOIL EROSION IS KEPT TO A MINIMUM.
- NO SEDIMENT LEAVES THE CONSTRUCTION SITE PROPER.
- ALL POSSIBLE MEASURES ARE EMPLOYED TO PREVENT SEDIMENT FROM ENTERING DRAINAGE COURSES AND WETLANDS EVEN BEYOND THE DETAILS SHOWN ON THIS PLAN IF NECESSARY.
- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPs PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MAY 2016.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL FINES RESULTING FROM EROSION OR SEDIMENTATION FROM THE SITE TO SURROUNDING PROPERTIES, WATERBODIES, OR WETLAND AS A RESULT OF THIS PROJECT.
- LOAM AND SEED ALL DISTURBED AREAS AS SOON AS POSSIBLE AFTER DISTURBANCE, BUT NO LONGER THAN 1 DAYS. LOAM AND SEED ANY DISTURBED AREA WITHIN 15' OF WETLANDS OR WATERBODIES WITHIN 48 HOURS OR PRIOR TO AND STORM EVENT. USE WINTER SEED RATES AND SPECIFICATIONS IF APPROPRIATE.
- INSPECT SOIL EROSION MEASURES WEEKLY AND AFTER SIGNIFICANT STORM EVENTS. MAKE ALL NECESSARY REPAIRS TO FACILITIES AS SOON AS POSSIBLE, BUT NO LONGER THAN 2 DAYS. CLEAN AND RESET SILT FENCES AND STONE CHECK DAMS WHICH ACCUMULATE SEDIMENT AND DEBRIS.
- PROTECT AND STABILIZE ALL AREAS NOT SCHEDULED FOR EROSION PREVENTION OR STABILIZATION BUT THAT SHOW SIGNS OF EROSION. NOTIFY OWNER OF ANY SIGNIFICANT EROSION PROBLEM.
- APPLY MULCH TO BARE SOILS WITHIN 1 DAYS OF INITIAL DISTURBANCE OF SOILS, WITHIN 48 HOURS IF WITHIN 15' OF WETLAND OR WATERBODY, PRIOR TO ANY RAIN EVENT, OR PRIOR TO ANY WORK SHUTDOWN LASTING MORE THAN ONE DAY.
- TEMPORARILY SEED WITHIN 1 DAYS ANY AREA WHICH WILL BE LEFT DISTURBED AND UNWORKED FOR MORE THAN 14 DAYS WITH THE TEMPORARY SEED MIX LISTED BELOW. IF AREA IS WITHIN 15' OF A WETLAND OR WATERBODY, SEED WITHIN 48 HOURS. PERMANENTLY SEED ANY AREA WHICH CAN BE LOANED AS SOON AS POSSIBLE WITH THE PERMANENT SEED MIX LISTED BELOW. DO NOT USE PERMANENT SEED MIX AFTER SEPTEMBER 15.
- MULCH ALL AREAS SEEDED SO THAT SOIL IS NOT VISIBLE THROUGH THE MULCH REGARDLESS OF THE APPLICATION RATE. DURING THE GROWING SEASON (APRIL 15 - SEPT. 30) USE EROSION CONTROL MESH (OR MULCH AND NETTING) ON:
 - THE BASE OF GRASSED WATERWAYS
 - SLOPES STEEPER THAN 15%
 - WITHIN 100 FT. OF STREAMS AND WETLANDSBETWEEN OCT. 1 AND APRIL 14 USE EROSION CONTROL MESH (OR MULCH AND NETTING) ON:
 - SIDE SLOPES OF GRASSED WATERWAYS
 - SLOPES STEEPER THAN 8%
- INSTALL EROSION CONTROL MESH IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. MESH TO BE EQUAL TO NORTH AMERICAN GREEN PRODUCT C125BN.
- FOLLOW SILT FENCE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS FOR INSTALLATION OF SILT FENCE. SECURE ENTIRE BOTTOM OF FENCE EITHER BY BURYING BOTTOM OF FENCE IN A TRENCH OR BERING WITH SOIL OR CHIPPED GRUBBINGS. REFER TO SILT FENCE DETAILS.
- PLACE AND GRADE LOAM IN A REASONABLY UNIFORM MANNER. WORK LIME AND FERTILIZER INTO THE SOIL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM SEED BED IS PREPARED. REMOVE FROM SURFACE ALL STONES LARGER THAN 2" AND ALL OTHER UNSUITABLE MATERIAL. LIME AND FERTILIZER SHOULD BE MIXED INTO SOIL PRIOR TO ROLLING EXCEPT IF INCLUDED IN HYDROSEED MIXTURE. PERMANENT STABILIZATION OF REVEGETATED AREAS IS CONSIDERED AS 90% CATCH.
- ALL CULVERT OR PIPE OUTFALL PROTECTION MUST BE INSTALLED WITHIN 48 HOURS OF INSTALLING NEW PIPE OR CULVERT.
- DITCHES AND CHANNELS DESIGNATED TO BE LINED WITH RIPRAP AND/OR EROSION CONTROL MESH MUST BE INSTALLED WITHIN 48 HOURS OF COMPLETING THE GRADING OF THAT SECTION OF DITCH OR CHANNEL.
- ALL CATCH BASINS, NEW OR EXISTING, THAT MAY RECEIVE RUNOFF FROM DISTURBED AREAS MUST BE PROTECTED BY INSTALLING AND MAINTAINING SILT BAGS DURING CONSTRUCTION.
- WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION WILL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE OR EROSION CONTROL MIX LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE.

TOPSOIL:

- SUITABLE TOPSOIL SALVAGED FROM SITE OR SCREENED, LOOSE AND FRIABLE SANDY LOAM OR LOAM AS DEFINED BY THE USDA SOIL CONSERVATION SERVICE CLASSIFICATION SYSTEM, FREE FROM ADMIXTURE OF SUBSOIL, REFUSE, LARGE STONES, CLODS, ROOTS, WEEDS, RHIZOMES OR OTHER UNDESIRABLE FOREIGN MATTER AS DETERMINED BY THE INSPECTING AUTHORITY. CONTRACTOR SHALL SUBMIT REPORTS OF LOAM TEST RESULTS PERFORMED BY AN INDEPENDENT TESTING LABORATORY FOR TOPSOIL FROM DIFFERENT SOURCES PRIOR TO PLACING. THE COST OF TESTING SHALL BE INCIDENTAL TO THE COST OF TOPSOIL. TOPSOIL SHALL MEET THE FOLLOWING SPECIFICATIONS:
 - SAND - 0.08 IN. TO 0.002 IN. DIAMETER (% BY VOLUME)..... 45 - 75
 - SILT - 0.002 IN. TO 0.00008 IN. DIAMETER (% BY VOLUME).... 20 - 40
 - CLAY - LESS THAN 0.00008 IN. DIAMETER (% BY VOLUME).... 5 - 15
- MATERIAL
 - ORGANICS (SHALL MEET THE REQUIREMENTS OF MDOT STANDARD SPECIFICATION 711.03 FEAT. HUMUS) (% BY VOLUME) . 10 - 20
 - NUTRIENTS:
 - CALCIUM (CA) (% SATURATION)..... 60 - 80
 - MAGNESIUM (MG) (% SATURATION)..... 10 - 25
 - POTASSIUM (K) (% SATURATION)..... 21 - 30
 - PHOSPHORUS (P) (POUNDS/ACRE)..... 10 - 40
 - PH..... 6.0 - 6.5
 - PERMEABILITY (INCHES PER HOUR)..... 3 - 10
 - MAXIMUM STONE SIZE (INCHES)..... 3/4

SEEDING:

USE PERMANENT SEED MIXES AND RATES BETWEEN 5/15 AND 9/30. USE TEMPORARY SEED MIXES FOR PERIODS LESS THAN 12 MONTHS. IF USING TEMPORARY SEED MIXES AND RATES BETWEEN 10/1 AND 5/14, RE-SEED WITH PERMANENT SEED MIX AFTER 5/15.

PERMANENT SEED:

MDOT 711.03(a) METHOD NUMBER 3

TEMPORARY SEED:

OATS	80.00 LBS/ACRE	4/01 - 5/14
ANNUAL RYEGRASS	40.00 LBS/ACRE	
SUDANGRASS	40.00 LBS/ACRE	5/15 - 8/14
ANNUAL RYEGRASS	80.00 LBS/ACRE	5/15 - 9/14
WINTER RYE	112.00 LBS/ACRE	9/15 - 9/30
WINTER RYE (W/ MULCH COVER)	112.00 LBS/ACRE	10/01 - 3/31

LIME AND FERTILIZER:

APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 POUNDS PER 1000 SQUARE FEET). APPLY FERTILIZER (10-20-20) AT A RATE OF 800 POUNDS PER ACRE (18.4 POUNDS PER 1000 SQUARE FEET).

MULCH:

STRAW OR HAY (ANCHORED)	10 - 30 LBS	PROTECTED AREAS
STRAW OR HAY (ANCHORED)	105 - 215 LBS	WINDY AREAS
SHREDDED OR CHOPPED	185 - 215 LBS	
JUTE MESH	AS REQUIRED	MODERATE TO HIGH VELOCITY AREAS & STEEP SLOPES

EXCELSDIOR MAT

MULCH ANCHORING

PEG AND TWINE	LIQUID ASPHALT
MULCH NETTING	WOOD CELLULOSE FIBER
ASPHALT EMULSION	CHEMICAL TACK

HOUSEKEEPING

THIS PROJECT IS LOCATED IN A STREAM WATERSHED. PROTECTION OF THE GROUNDWATER QUALITY IS ENSURED BY HAVING GOOD HOUSEKEEPING PRACTICES AND MAINTENANCE OF THE STORMWATER SYSTEMS. SPILL PREVENTION MUST BE INCORPORATED INTO THE PLAN. THE PROJECT SHOULD FOLLOW THE FOLLOWING STEPS:

- HOMEOWNERS SHOULD BE MADE AWARE OF POSSIBLE GROUNDWATER AND SURFACE WATER CONTAMINATION BASED ON THEIR ACTIONS. THE SPILLING OF PRODUCTS SUCH AS SMALL ENGINE FUEL, CLEANING PRODUCTS AND PAINTS NEED TO BE CLEANED UP. THE USE OF FERTILIZERS AND PESTICIDES SHOULD BE DONE CAUTIOUSLY AND IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

THE MAINTENANCE OF THE LANDSCAPING AND PARKING AREAS SHOULD INCLUDE THE SUEEPING OF THE PARKING AREAS AND REMOVAL OF THE MATERIALS THAT MAY CAUSE DUST.

DURING CONSTRUCTION FOLLOW THE EROSION CONTROL MEASURES OUTLINED IN THE DESIGN DRAWINGS.

DURING CONSTRUCTION, DEVELOP A WASTE HANDLING PROGRAM THAT IDENTIFIES POTENTIAL CONTAMINANTS THAT COULD BE INTRODUCED TO THE AQUIFER. FOLLOW HAZARDOUS WASTE RULES IF ANY ITEMS USED ARE CONSIDERED A HAZARDOUS WASTE. IT IS CRITICAL TO THE SITE THAT UNCONTROLLED RELEASES BE PREVENTED.

OIL ABSORBENT PADS SHOULD BE USED WHILE REFUELING EQUIPMENT.

THIS SITE MAY REQUIRE DEWATERING OF TRENCHES. DURING CONSTRUCTION, MONITOR STORMWATER RUNOFF FROM THE EQUIPMENT AND GROUND AREAS TO MINIMIZE CONTAMINATION OF GROUNDWATER

STABILIZING SITE FOR THE WINTER:

1. STANDARD CONDITIONS REQUIRING THE TIMELY STABILIZATION OF DITCHES AND CHANNELS - THE CONTRACTOR WILL CONSTRUCT AND STABILIZE ALL STONE-LINED DITCHES AND CHANNELS ON THE SITE BY NOVEMBER 1. THE CONTRACTOR WILL CONSTRUCT AND STABILIZE ALL GRASS-LINED DITCHES AND CHANNELS ON THE SITE BY SEPTEMBER 15. IF THE CONTRACTOR FAILS TO STABILIZE A DITCH OR CHANNEL TO BE GRASS-LINED BY SEPTEMBER 15, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE DITCH FOR LATE FALL AND WINTER:

- INSTALL A SOD LINING IN THE DITCH - THE CONTRACTOR WILL LINE THE DITCH WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING THE SOD WITH JUTE OR PLASTIC MESH TO PREVENT THE SOD STRIPS FROM SLOUGHING DURING FLOW CONDITIONS.

- INSTALL A STONE LINING IN THE DITCH - THE CONTRACTOR WILL LINE THE DITCH WITH STONE RIPRAP BY NOVEMBER 1. THE CONTRACTOR WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE CONTRACTOR WILL REGRADE THE DITCH PRIOR TO PLACING THE STONE LINING SO TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.

2. STANDARD CONDITIONS REQUIRING THE TIMELY STABILIZATION OF DISTURBED SLOPES - THE CONTRACTOR WILL CONSTRUCT AND STABILIZE STONE COVERED SLOPES BY NOVEMBER 1. THE CONTRACTOR WILL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15. ANY AREA HAVING A GRADE GREATER THAN 15% (10H:1V) IS A SLOPE. IF THE CONTRACTOR FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER:

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS - BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE CONTRACTOR WILL MONITOR THE GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 15% OF THE DISTURBED SLOPE BEFORE NOVEMBER 1, THEN THE CONTRACTOR WILL COVER THE SLOPE WITH A LAYER OF WOODWASTE COMPOST AS DESCRIBED IN ITEM C OF THIS CONDITION OR WITH STONE RIPRAP AS DESCRIBED IN ITEM D OF THIS CONDITION.

- STABILIZE THE SLOPE WITH SOD - THE CONTRACTOR WILL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE CONTRACTOR WILL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V).

- STABILIZE THE SLOPE WITH WOODWASTE COMPOST - THE CONTRACTOR WILL PLACE A SIX-INCH LAYER OF WOODWASTE COMPOST ON THE SLOPE BY NOVEMBER 1. PRIOR TO PLACING THE WOODWASTE COMPOST, THE CONTRACTOR WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE CONTRACTOR WILL NOT USE WOODWASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

- STABILIZE THE SLOPE WITH STONE RIPRAP - THE CONTRACTOR WILL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 1. THE CONTRACTOR WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR DRAINAGE AND SOIL SEPARATION.

3. STANDARD CONDITIONS REQUIRING THE TIMELY STABILIZATION OF DISTURBED SOILS - BY SEPTEMBER 15 THE CONTRACTOR WILL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15%. IF THE CONTRACTOR FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER:

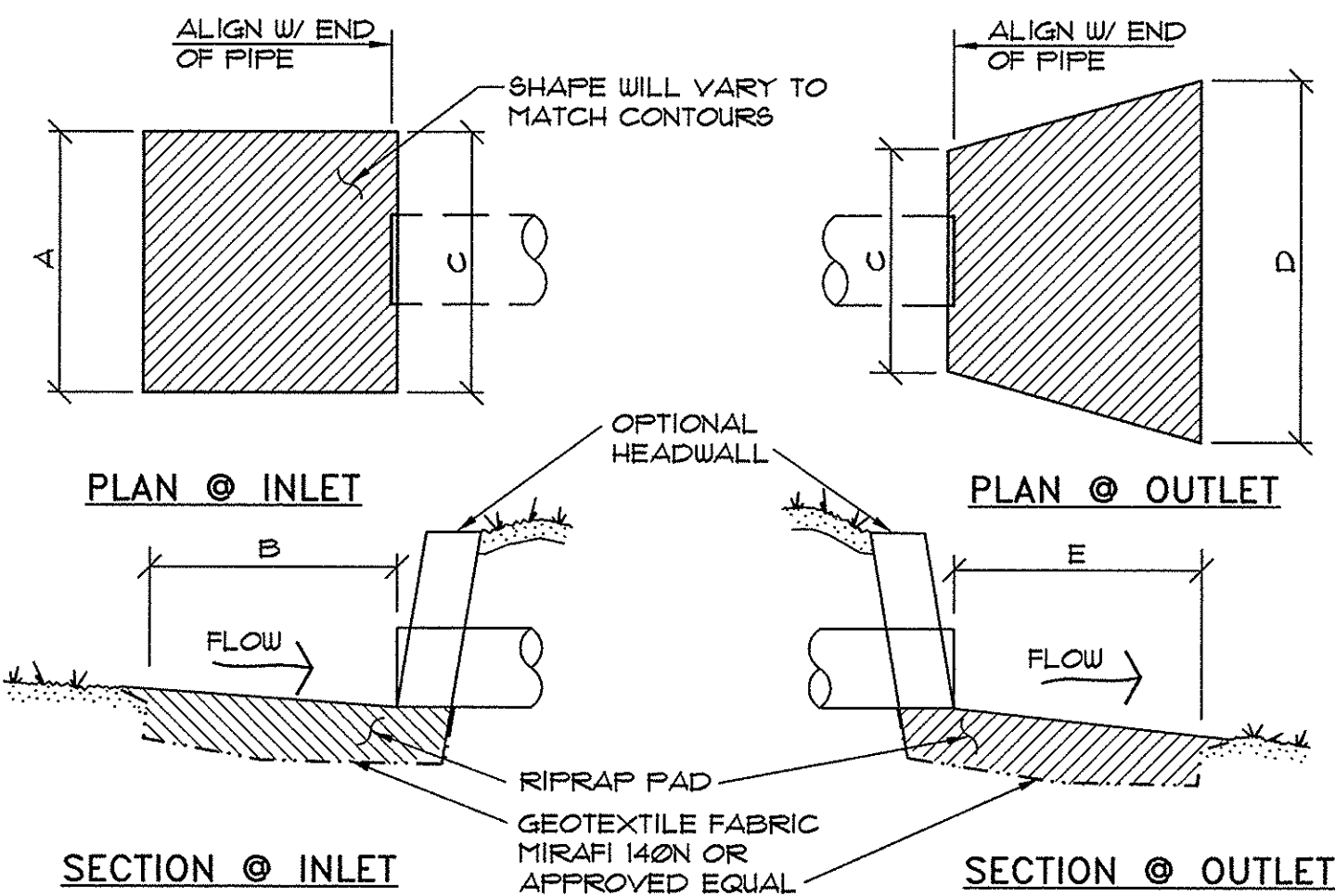
- STABILIZING THE SOIL WITH TEMPORARY VEGETATION - BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 15% OF THE DISTURBED SOIL BEFORE NOVEMBER 1, THEN THE CONTRACTOR WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM C OF THIS STANDARD CONDITION.

- STABILIZE THE SOIL WITH SOD - THE CONTRACTOR WILL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.

- STABILIZE THE SOIL WITH MULCH - BY NOVEMBER 1 THE CONTRACTOR WILL MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. PRIOR TO APPLYING THE MULCH, THE CONTRACTOR WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED AREA. IMMEDIATELY AFTER APPLYING THE MULCH, THE CONTRACTOR WILL ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

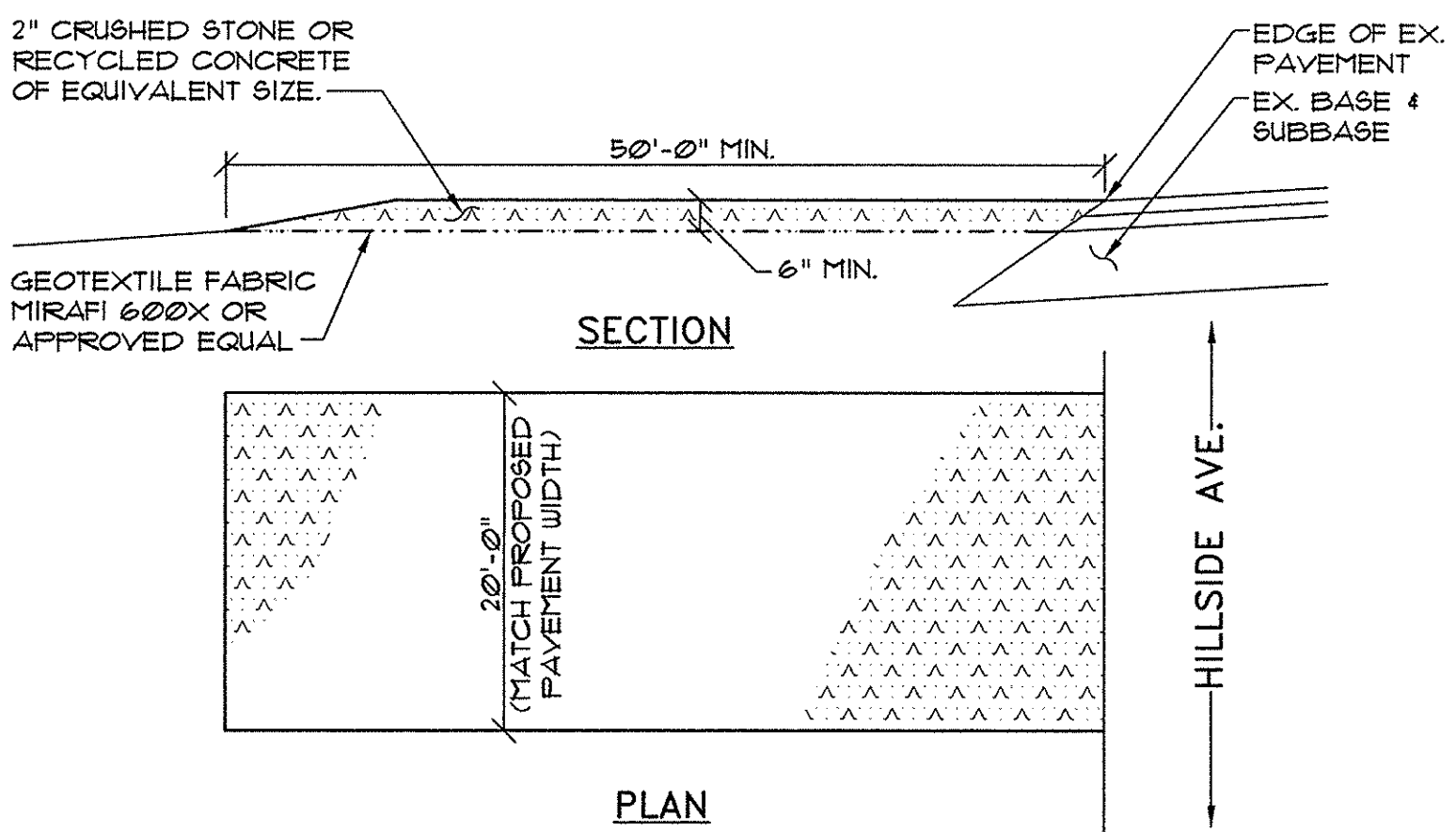
RIPRAP PAD MUST BE INSTALLED WITHIN 48 HOURS OF INSTALLING NEW PIPE OR CULVERT.

PIPE	A	B	C	D	E	PAD DEPTH	D ₅₀
UDSF OUTLETS	--	--	3 FT.	3 FT.	3 FT.	10"	4"
12"ø	3 FT.	2 FT.	3 FT.	9 FT.	8 FT.	15"	6"
15"ø	3.15 FT.	2.5 FT.	3.15 FT.	11.5 FT.	10 FT.	15"	6"
24"ø	4 FT.	3 FT.	4 FT.	14.5 FT.	12 FT.	24"	8"



3 RIPRAP PADS & HEADWALLS DETAILS

NOT TO SCALE

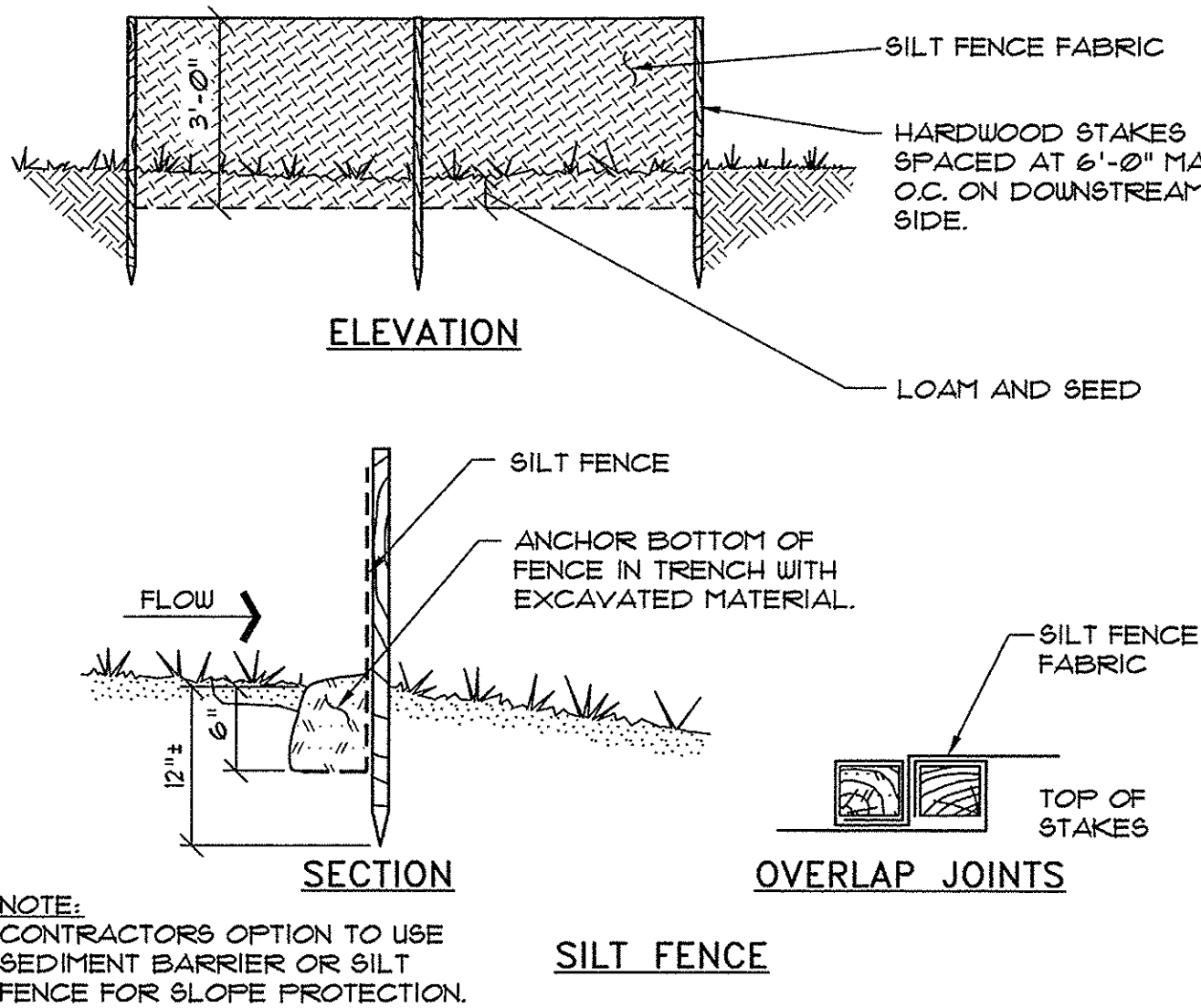


NOTES:

- MAINTAIN ENTRANCE IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. IF WASHING IS REQUIRED PREVENT SEDIMENT FROM ENTERING WATERWAYS, DITCHES OR STORM DRAINS.
- REMOVE STABILIZED CONSTRUCTION ENTRANCE TO FINISH ROAD CONSTRUCTION & PAVEMENT.

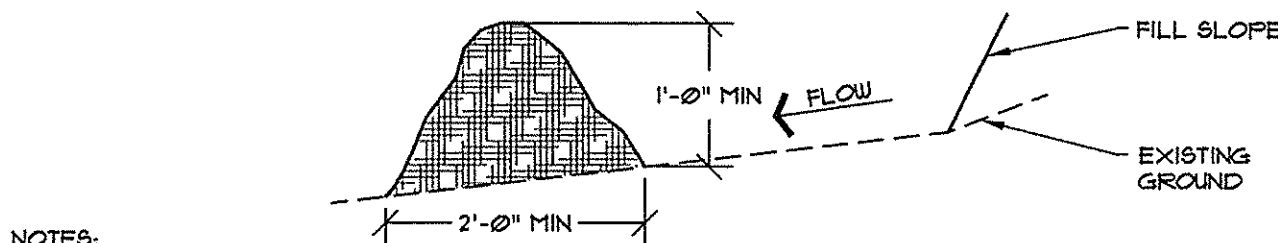
1 STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



NOTE:

CONTRACTORS OPTION TO USE SEDIMENT BARRIER OR SILT FENCE FOR SLOPE PROTECTION.



NOTES:

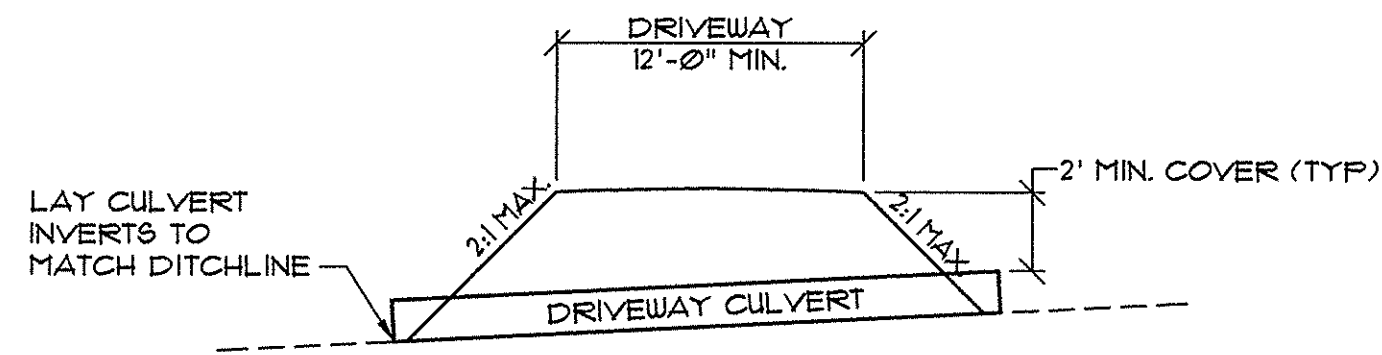
- EROSION CONTROL MIX CAN BE MANUFACTURED ON OR OFF THE SITE. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK OR FLUME GRIT AND FRAGMENTED WOOD GENERATED FROM WATER-FLUME LOG HANDLING SYSTEMS. WOOD CHIPS, GROUND CONSTRUCTION DEBRIS, REPROCESSSED WOOD PRODUCTS OR BARK CHIPS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX. EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH. THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS:
 - A. ORGANIC MATERIAL: BETWEEN 20% - 100% (DRY WEIGHT BASIS)
 - B. PARTICLE SIZE: BY WEIGHT, 100% PASSING 6" SCREEN, 10-85% PASSING 0.75" SCREEN
 - C. THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
 - D. LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
 - E. SOLUBLE SALTS CONTENT SHALL BE LESS THAN 40 M%HS/CM.
 - F. PH: 5.0 - 8.0
- ON SLOPES LESS THAN 5% OR AT THE BOTTOM OF SLOPES 2:1 OR LESS UP TO 20 FEET LONG, THE BARRIER MUST CONFORM TO THE ABOVE DIMENSIONS. ON THE LONGER OR STEEPER SLOPES, THE BARRIER SHOULD BE WIDER TO ACCOMMODATE THE ADDITIONAL FLOW.
- THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL ELEVATION. IT MAY BE NECESSARY TO CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES THAT WOULD ENABLE FINES TO WASH UNDER THE BARRIER THROUGH THE GRASS BLADES OR PLANT STEMS.
- LOCATIONS WHERE OTHER BMP'S SHOULD BE USED:
 - A. AT LOW POINTS OF CONCENTRATED FLOW
 - B. BELOW CULVERT OUTLET APRONS
 - C. WHERE A PREVIOUS STAND-ALONE EROSION CONTROL MIX APPLICATION HAS FAILED
 - D. AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM (LARGE UPGRADE WATERSHED)
 - E. AROUND CATCH BASINS AND CLOSED STORM DRAIN SYSTEMS.
- THE EROSION CONTROL MIX BARRIERS SHOULD BE INSPECTED REGULARLY AND AFTER EACH LARGE RAINFALL. REPAIR ALL DAMAGED SECTIONS OF BERM IMMEDIATELY BY REPLACING OR ADDING ADDITIONAL MATERIAL PLACED ON THE BERM TO THE DESIRED HEIGHT AND WIDTH.
- IT MAY BE NECESSARY TO REINFORCE THE BARRIER WITH SILT FENCE OR STONE CHECK DAMS IF THERE ARE SIGNS OF UNDERCUTTING OR THE INFUNDPOINT OF LARGE VOLUMES OF WATER.
- SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
- REPLACE SECTIONS OF BERM THAT DECOMPOSE, BECOME CLOGGED WITH SEDIMENT OR OTHERWISE BECOME INEFFECTIVE. THE BARRIER SHOULD BE RESHAPED AS NEEDED.
- EROSION CONTROL MIX BARRIERS CAN BE LEFT IN PLACE AFTER CONSTRUCTION. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER BARRIER IS NO LONGER REQUIRED SHOULD BE SPREAD TO CONFORM TO THE EXISTING GRADE AND BE SEEDED AND MULCHED. WOODY VEGETATION CAN BE PLANTED INTO THE BARRIERS, OR THEY CAN BE OVER-SEEDED WITH LEGUMES. IF THE BARRIER NEEDS TO BE REMOVED, IT CAN BE SPREAD OUT INTO THE LANDSCAPE.

2 EROSION CONTROL MIX SEDIMENT BARRIER SURFACE DRAINAGE SEDIMENT CONTROL

NOT TO SCALE

4 TYPICAL DRIVEWAY CULVERT DETAIL

NOT TO SCALE



PINKHAM & GREER
CIVIL ENGINEERS

28 WANNAM AVE. PORTLAND, ME 04103
TEL: 207.761.5242 FAX: 207.761.4245

THOMAS GREER
REGISTERED PROFESSIONAL ENGINEER
NO. 12305
MAINE

Approved: [Signature]
2/1/17

ADD'D WINTER STABILIZATION NOTES	UPDATED DRAWINGS	DESCRIPTION
2	2/1/17	1
1	12/1/16	REV.

LIVE LIFE MAINE, LLC
1 SOLAR WAY
CUMBERLAND, ME 04021

SOLAR WAY SUBDIVISION
HILLSIDE AVENUE, CUMBERLAND, MAINE

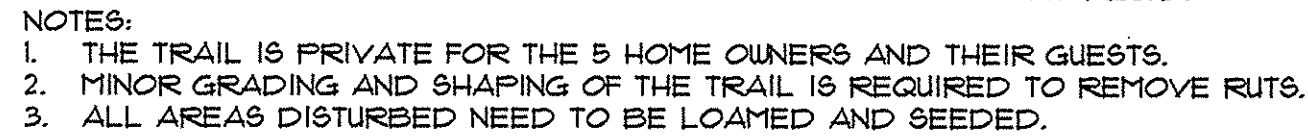
EROSION CONTROL
NOTES & DETAILS

C3.0

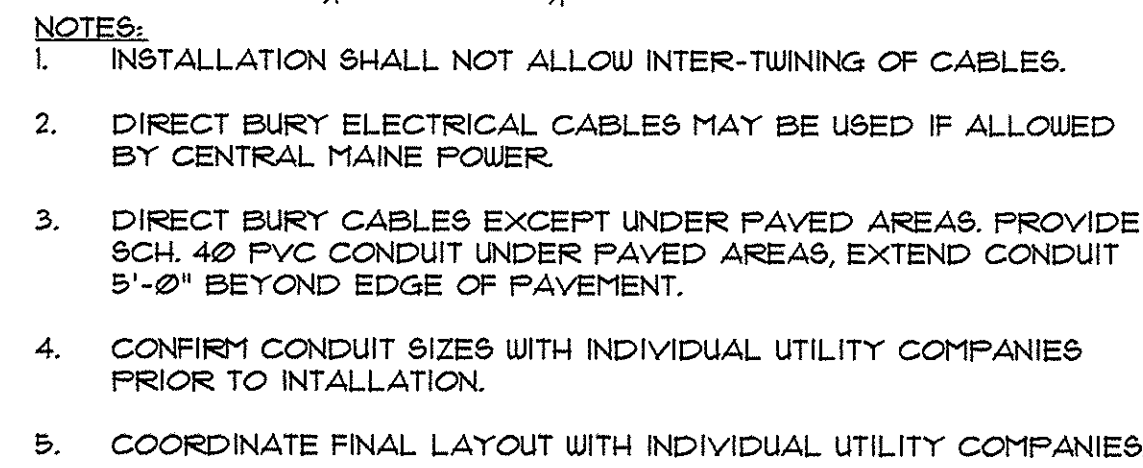
MAP/LOT R04/24

PROPOSED TRAILS SHALL CONFORM TO THE FOLLOWING STANDARDS:

- A. TRAIL IMPROVEMENTS SHALL DEMONSTRATE ADHERENCE TO PRINCIPLES OF QUALITY TRAIL DESIGN.
- B. TRAILS SHALL HAVE A VERTICAL CLEARANCE OF NOT LESS THAN TEN (10) FEET.
- C. THE WIDTH OF THE TRAIL SURFACE MAY VARY DEPENDING UPON TYPE OF USE TO ACCOMMODATE MOTORIZED VEHICLES. IF THE TRAIL WIDTH IS LESS THAN THREE (3) FEET OR GREATER THAN SIX (6) FEET.
- D. NO TRAIL SHALL BE DESIGNED WITH THE INTENT TO ACCOMMODATE MOTORIZED VEHICLES.



NOT TO SCALE



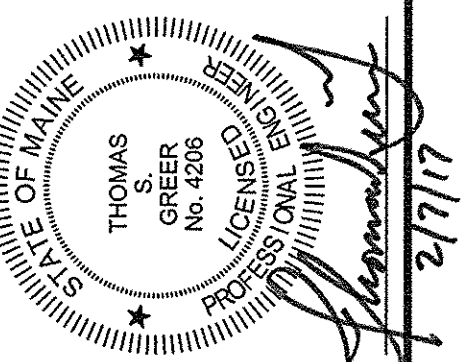
NOT TO SCALE



(TYP. WITH OR WITHOUT SIDEWALLS)



NOT TO SCALE

[illegible]

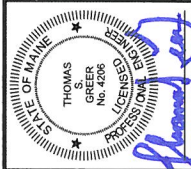
LIVE LIFE MAINE, LLC
1 SOLAR WAY
CUMBERLAND, ME 04021

DATE:	NOVEMBER 29, 2016	DESIGNED BY:	TSG
PROJECT:	16158	CHECKED BY:	PSU

SOLAR WAY SUBDIVISION
HILLSIDE AVENUE, CUMBERLAND, MAINE

SITE DETAILS

C4.0



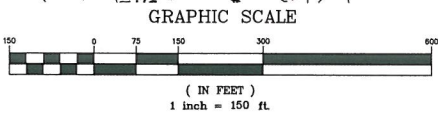
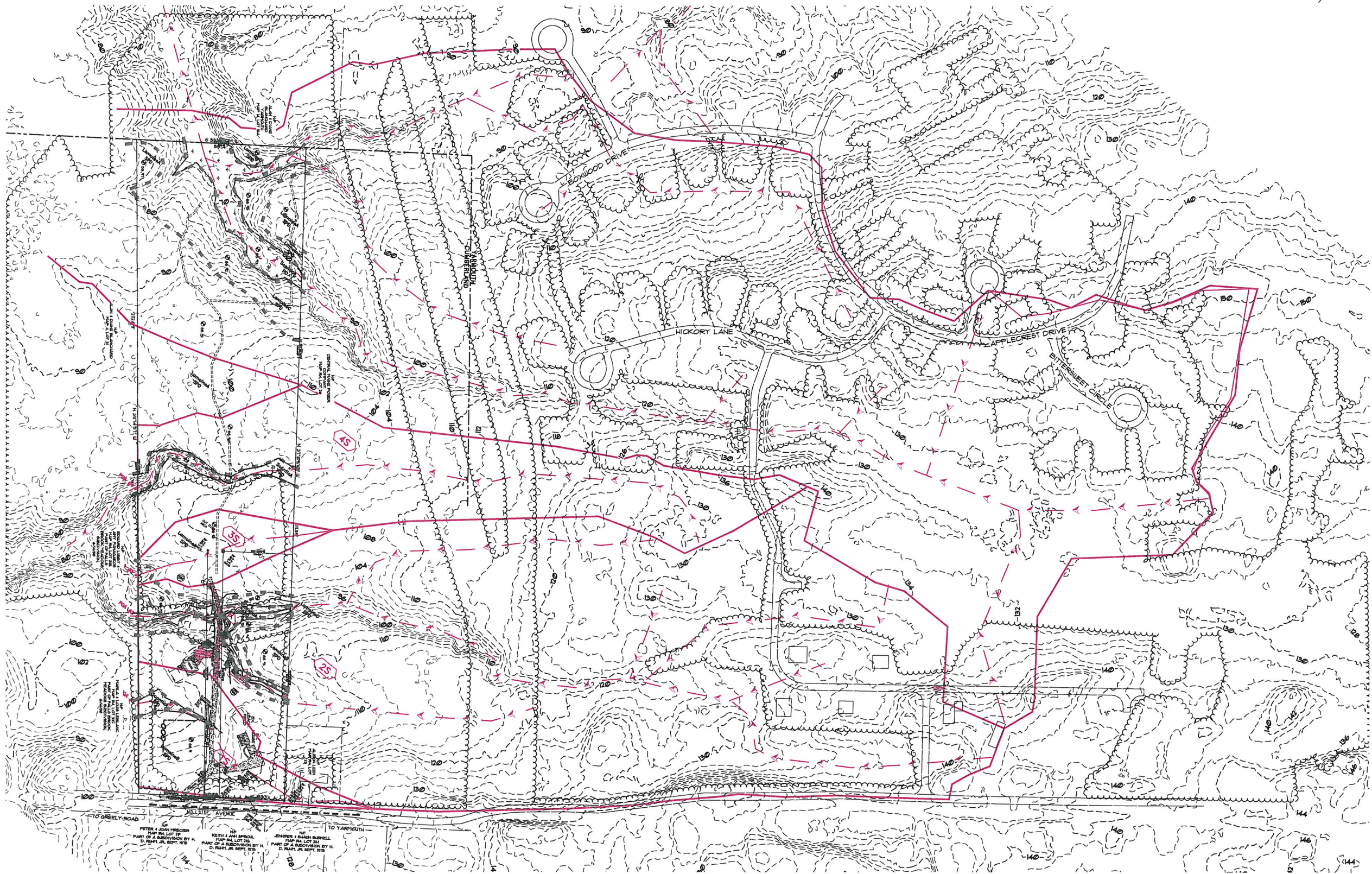
REV.	DATE	DESCRIPTION
3	2/17/17	UPDATED DRAWINGS.
2	2/17/17	UPDATED DRAWINGS.
1	12/1/16	UPDATED DRAWINGS.

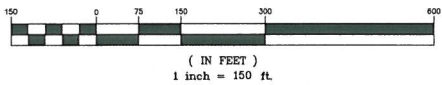
LIVE LIFE MAINE, LLC 1 SOLAR WAY CUMBERLAND, ME 04021	SCALE: AS SHOWN DATE: NOVEMBER 28, 2016 PROJECT: 16158	DRN BY: JWG/JDC DESIGN BY: TSG CHK BY: [Signature]
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SOLAR WAY SUBDIVISION
HILLSIDE AVENUE, CUMBERLAND, MAINE

DRAINAGE ANALYSIS
EXISTING CONDITION

D1.0





SOLAR WAY SUBDIVISION
HILLSIDE AVENUE, CUMBERLAND, MAINE

LIVE LIFE MAINE, LLC
1 SOLAR WAY
CUMBERLAND, ME 04021

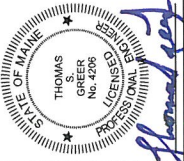
DRAINAGE ANALYSIS
DEVELOPED CONDITION

D2.0

SCALE: AS SHOWN
DATE: NOVEMBER 23, 2016
PROJECT: 16158

DRN BY: JWG/JDC
DES BY: TSG
CHK BY: *TC*

REV.	DATE	DESCRIPTION
1	12/1/16	UPDATED DRAWINGS
2	2/7/17	UPDATED DRAWINGS
3	2/7/17	UPDATED DRAWINGS
4	3/28/17	SHIFTED ROAD & ROW TO REDUCE STREAM BUFFER IMPACT
5	4/11/17	REV'D PER PEER REVIEW



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