DC ENGINEERING & SURVEY INC.
CHARLTON, MA
508-769-6659
508-341-2127

June 28, 2021

Leicester Planning Board
Town of Leicester
3 Washburn Square
Leicester, MA 01524

Subject: Blueberry Lane
Proposed Self Storage Facility
Special Permit/Site Plan Review

To the Board:

Please find this response letter to Quinn Engineering, Inc. review dated June 1, 2021. For clarity, the original comment is shown and our response is shown in italics.

1. During a site visit conducted on June 3, 2021, the site was found to be cleared, and graded with gravel. If the proposed plan is not constructed, the site runoff characteristics may be affected by having been cleared and graded. *Site preparation has been done, if the site is not constructed the applicant will look at permanent impacts and any mitigation that will be needed.*

2. Parking spaces should be dimensioned, for clarity and to avoid contractor problems. *The proposed parking spaces have been revised and also are now dimensioned.*

3. Sheet L-1 calls for landscape plantings in the same location as handicapped parking spaces in the front of the site. Plans must be revised to eliminate the conflict. *The landscaped area has been revised as to not be in conflict with parking spaces.*

4. Engineer must document that plans comply with provisions of Section 4.4, including

    a. Lot shall not contain more than 2/3 impervious area
    b. Lot shall contain not less than 1/3 greenery
    c. Greenery must extend 20 feet in from the boundary of the lot
    The impervious area and greenery notes have been added to the cover sheet. Also, all development has been pulled back to a minimum of 20 feet from the boundary line, this area is now green space.

5. In the plan set reviewed, elevation plans of the proposed structure were not found. *The applicant will submit an elevation plan.*

6. Plans must show the locations of cuts and fills, and identify volume of materials moved. *The cuts and fills calculation is shown on the site plan.*

7. It is recommended that the site be evaluated for wetland. Wetland vegetation appears to exist in the area of the site. Under the Massachusetts Wetland Protection Act, any work which takes place within 100 feet of a wetland must be approved by Leicester Conservation Commission. *Ecotec, Inc. has been to site and flagged*

an isolated wetland offsite to the southeast. This wetland does not have a 100-foot buffer zone according to the Massachusetts Wetlands Protection but does fall under the local wetland bylaw. The applicant will file an RDA with the Leicester Conservation Commission for this project.

8. On Sheet S-1, the handicapped and van accessible spaces show have spot grades for elevation requirements, for clarity. *The site plan now shows spot grades for handicapped accessible spaces as well as the loading area.*

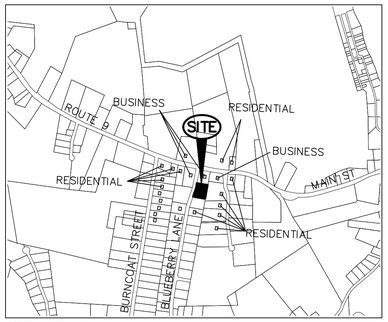
9. Pertaining to stormwater:

    a. Plans show a test pit located in the Infiltration Basin but no record or lot of the test pit is found in the submitted information. *The test pit data is shown on the bottom left side of Sheet S-1.*
    b. A roof runoff collection system is not called for on plan. Stormwater which falls from the roof to the ground surface will erode the gravel/asphalt grindings finish. It is recommended that some means of protection the surface from erosion be called out on the plan. *A roof collection system has been provided on the plan to capture roof downspouts and route to the detention area. Inverts have been shown.*
    c. On Sheet S-1, the outlet culverts are double noted, and likely to create confusion. Some of the information noted does not agree with the HydroCAD analysis. *The double note has been eliminated and the information shown on the plan should agree with the HydroCAD analysis.*
    d. Plans call for a 1:1 side slope on the detention area; the Massachusetts Stormwater Handbook recommends a maximum slope of 3:1. *The side slopes have been revised to a 3:1 slope.*
    e. The detention area/swale is designed without pre-treatment. The traffic surface, gravel/asphalt grindings, will likely contribute more particulate matter to the basin than conventional paved surfaces. Some form of pretreatment is appropriate for this structure. A vegetated strip or other pretreatment would capture a lot of deleterious material from washing into the detention area/swale. *A 12" wide x 12" deep pea stone diaphragm has been added to outer edge of the asphalt milling boundary prior to entering the swale and detention area to capture sediment and deleterious material as a pretreatment device.*

Respectfully submitted,

DC Engineering & Survey, Inc.
Jason Dubois, P.E.

PROPOSED SITE PLAN
FOR
SELF STORAGE
BLUEBERRY LANE
TOWN OF LEICESTER
WORCESTER COUNTY, MASSACHUSETTS



LOT LOCUS
SCALE: 1"=1000'

RECORD OWNERS
JUSTIN ZUFFANTE
DB 57636 PG 338

TAX MAP REFERENCES:
TAX MAP PARCEL ID: 25A-B2

PLAN REFERENCES:
(WORCESTER COUNTY REGISTRY OF DEEDS)

PLAN BOOK 375 PLAN 114

ZONING REGULATIONS

ZONE – BR-1
SINGLE FAMILY
AREA – 50,000 S.F.
FRONTAGE – 200'
FRONT – 40 FT.
SIDE – 40 FT.
REAR – 40 FT.

NO DETERMINATION OF COMPLIANCE WITH ZONING REQUIREMENTS HAS BEEN MADE OR INTENDED

STRUCTURE
AREA – 20,000 S.F.
FRONTAGE – 150'
FRONT – 50 FT.
SIDE – 40 FT.
REAR – 40 FT.

GENERAL NOTES:

1. BOUNDARIES SHOWN ARE THE RESULTS OF AN ACTUAL FIELD SURVEY BASED ON AVAILABLE MAPS, DEEDS OF RECORD AND PHYSICAL EVIDENCE. BUT ARE SUBJECT TO ALL EASEMENTS, RIGHT OF WAYS, AGREEMENTS, AND RIGHTS AND ENCUMBRANCES OF RECORD THAT AN ACCURATE AND THOROUGH TITLE SEARCH MAY DISCLOSE.

2. LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED ON OBVIOUS ABOVE GROUND PHYSICAL UTILITY APPURTENANCES AND ACCESSIBLE MANHOLES. DIG SAFE SHALL BE NOTIFIED PRIOR TO ANY EXCAVATION OR CONSTRUCTION. ADDITIONAL UNDERGROUND UTILITIES MAY EXIST.

3. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES WHICH MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT.

4. HORIZONTAL DATUM BASED ON PLAN BOOK 375 PLAN 114.

5. VERTICAL DATUM BASED ON NAVD 88, GEOID 12A, ESTABLISHED VIA GNSS.

6. BY GEOGRAPHICAL PLOTTING ONLY THE SITE IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD ZONE AS PER THE FLOOD INSURANCE RATE MAP, COMMUNITY-PANEL NO. # 25027C0951E, WITH AN EFFECTIVE DATE OF JULY 4, 2011.

DISTRICT DIMENSIONAL REGULATIONS	
District	BR-1 BUSINESS RESIDENTIAL (STRUCTURE)
Min. Lot Size	50,000 SQ. FT.
Min. Frontage	200 FT.
Min. Front Yard Depth	50 FT.
Min. Side Yard Depth	40 FT.
Min. Rear Yard Depth	40 FT.
Building Coverage	30%

EXISTING LAND USE: VACANT

PROPOSED LAND USE: SELF STORAGE FACILITY

PROPOSED BUILDING COVERAGE/IMPERVIOUS AREA:
6,600 S.F. / 30,580 S.F. = 21.5% < 2/3
PROPOSED GREEN SPACE: 14,968 S.F. / 30,580 S.F. = 48.9% > 1/3

DRAWING LIST	
C	COVER SHEET
X-1	EXISTING CONDITIONS PLAN
S-1	SITE PLAN
L-1	LANDSCAPE/LIGHTING PLAN
D-1	DETAIL

SYMBOL KEY

MONUMENT	⊡	BITUMINOUS	BIT.
IRON PIPE	○	CONCRETE	CONC.
DRAIN MANHOLE	DMH	INVERT	INV.
ELECTRIC MANHOLE	E	REINFORCED CONCRETE PIPE	RCP
CATCH BASIN	CB	POLYVINYL CHLORIDE PIPE	PVC
UTILITY POLE		HIGH DENSITY PLASTIC	HDPE
GUY WIRE	GUY	IRON PIPE	I.P.
BENCH MARK		FOUND	FND.
CHAIN LINK FENCE	x	BOLLARD	BOL.
WOOD / STOCKADE FENCE	▫	SEWER MANHOLE	SMH
DRAIN LINE	D	DRAINAGE MANHOLE	DMH
OVERHEAD WIRES	OHW	WATER GATE	WG
CONTOUR 5' INTERVAL		HYDRANT	HYD.
CONTOUR 1' INTERVAL		UTILITY POLE	UP
X 69.33'	SPOT GRADE	GUY WIRE	GUY

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1" = 20'

NO.	DATE	REVISION	BY
1	6/23/21	REVISED PER COMMENTS	JDD

JASON D. DUBOIS, P.E.
PROFESSIONAL ENGINEER
MA.LIC.NO.: 48724

JEREMY S. CROTEAU, P.L.S.
PROFESSIONAL LAND SURVEYOR
LIC.NO.: 48722

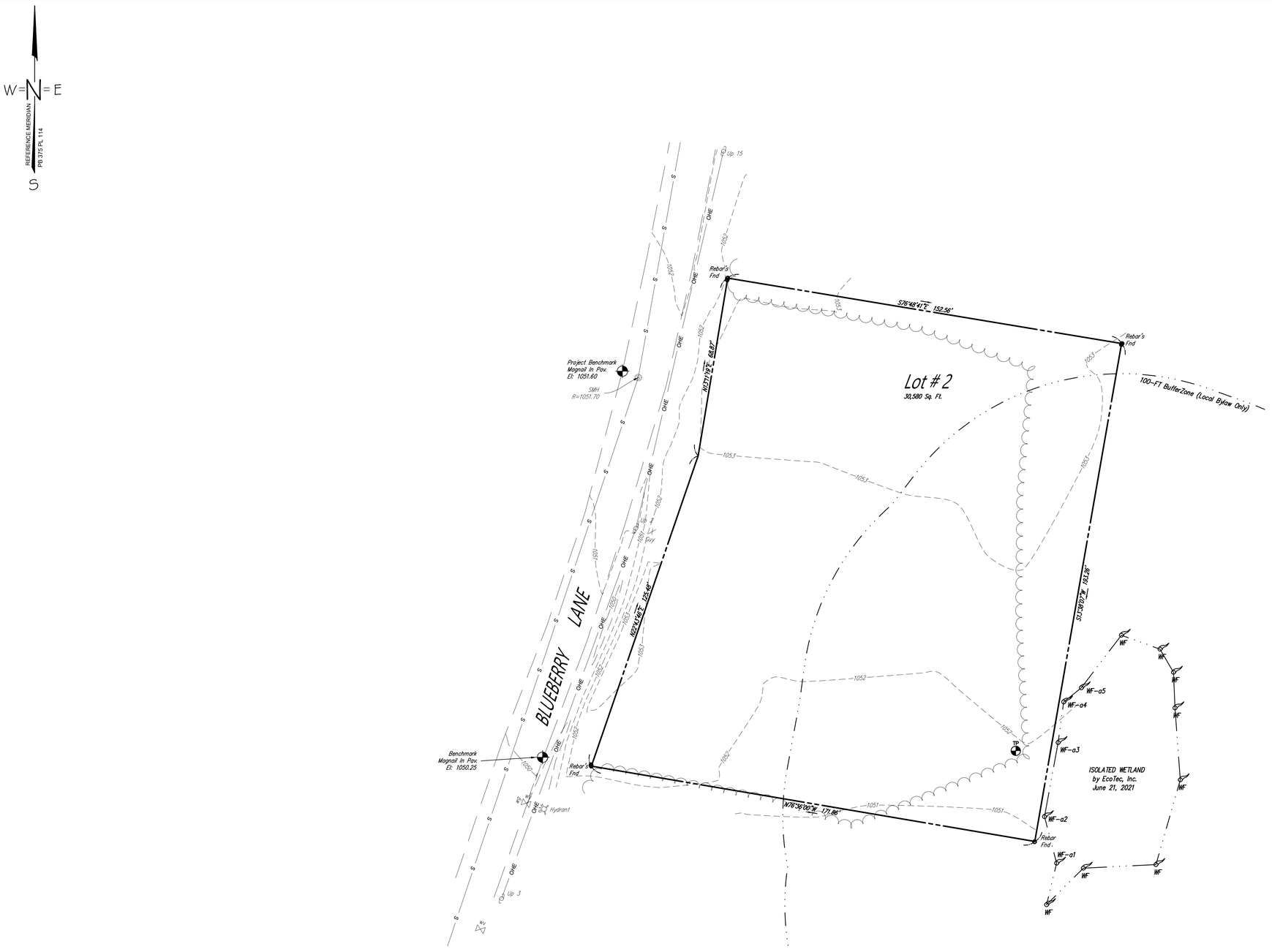
NORTH

COVER SHEET
SITE ADDRESS:
BLUEBERRY LANE
LEICESTER, MA

CLIENT:
JUSTIN ZUFFANTE
140 SPENCER ROAD
OAKHAM, MA 01068

DRAWN BY:	
JSC	
CK'D BY: JDD	REV #: 1
DATE: 4-12-21	SCALE: 1"=20'
PROJECT #: 21-122	DWG. NO.: C-1

DC ENGINEERING & SURVEY INC.
332 CHARLTON-DUDLEY ROAD
CHARLTON, MA
508-769-8669
508-341-2127



GRAPHIC SCALE

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PROFESSIONAL LAND SURVEYOR
LIC.NO.: 48722

NORTH

W N E S

REFERENCE MERIDIAN
PB 375 PL 114

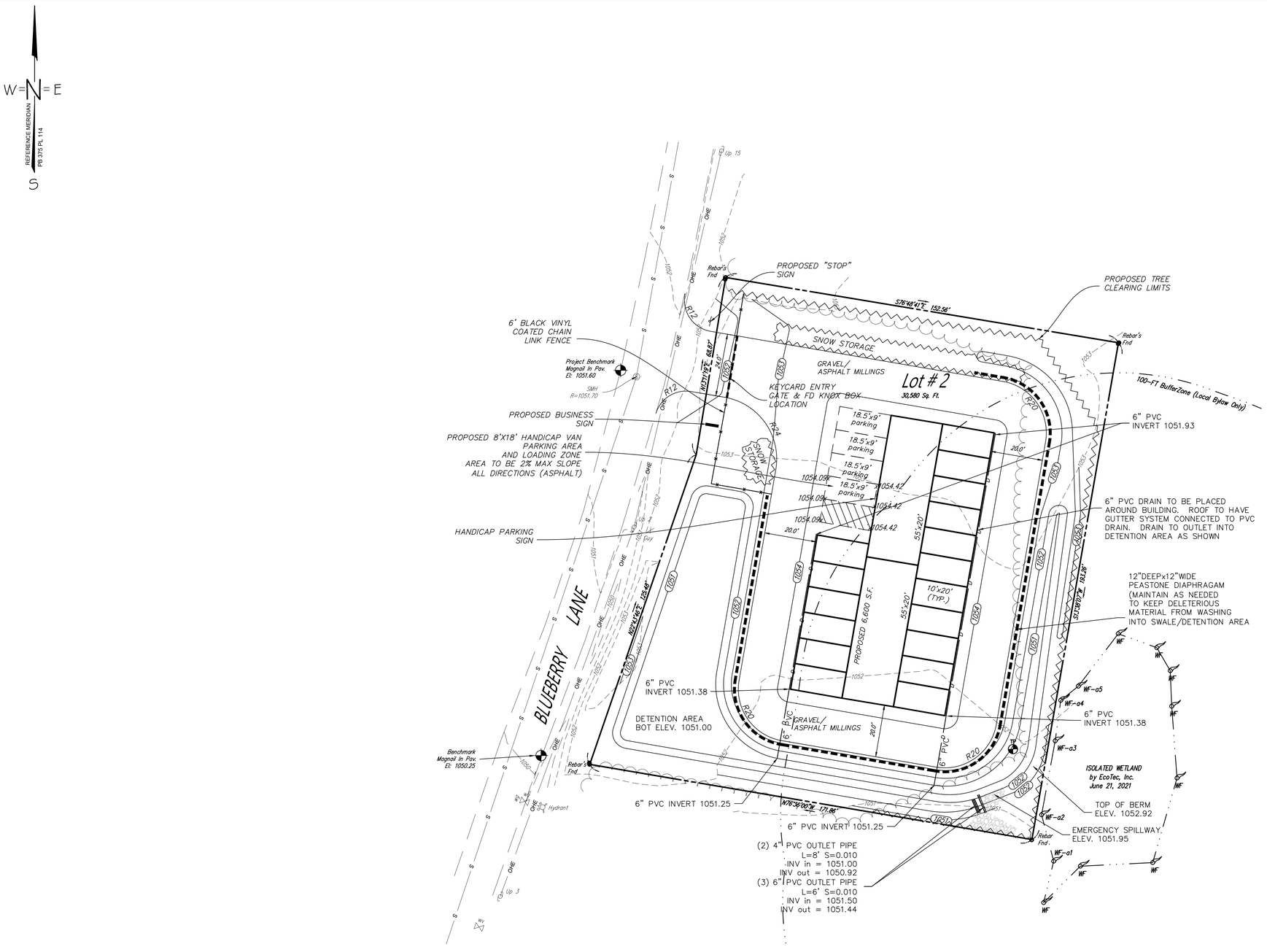
EXISTING CONDITIONS PLAN

SITE ADDRESS:
BLUEBERRY LANE
LEICESTER, MA

CLIENT:
JUSTIN ZUFFANTE
140 SPENCER ROAD
OAKHAM, MA 01068

DRAWN BY:	JSC
CK'D BY	JDD
REV #:	1
DATE:	4-12-21
SCALE:	1"=20'
PROJECT #:	21-122
DWG. NO.:	X-1

DUBOIS & CROTEAU ENGINEERING & SURVEY INC.
52 GRAFTBERRY MEADOW RD
GRAFTON, MA
508-769-6669
508-341-2127



CUT/FILL CALCULATION:
APPROXIMATELY 510 YARDS OF TOPSOIL CUT FROM SITE
APPROXIMATELY 750 YARDS OF STRUCTURAL FILL REQUIRED

PARKING CALCULATION:

3 SPACES + 1 SPACE PER 100 STORAGE UNITS
(3 + 24 UNITS/100 = 4 SPACES)

TOTAL REQUIRED PARKING = 4 SPACES

3 STANDARD SPACES + 1 HANDICAP SPACE PROVIDED

STORAGE UNIT DENSITY:

10'x20' UNITS: 17
20'x50' UNITS: 2

SOIL EVALUATOR: JASON DUBOIS
DATE: 4/5/2021
APPLICANT: JUSTIN ZAFFANTE

TEST PIT # 1

0"-4" A SL 10YR 3/4
4"-20" B SL 10YR 5/6
20"-58" C SL 2.5Y 5/3

REDOX @ 22"
WEEP @ 30"

GROUND WATER ELEV (OBSERVED) 30"
MOTTLING ELEV (OBSERVED) 22"
REFUSAL ELEV N/A

GRAPHIC SCALE
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(IN FEET)
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PROFESSIONAL LAND SURVEYOR
LIC.NO.: 48722

NORTH

W E
REFERENCE MERIDIAN PB 375 PL 114
S

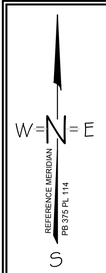
SITE PLAN

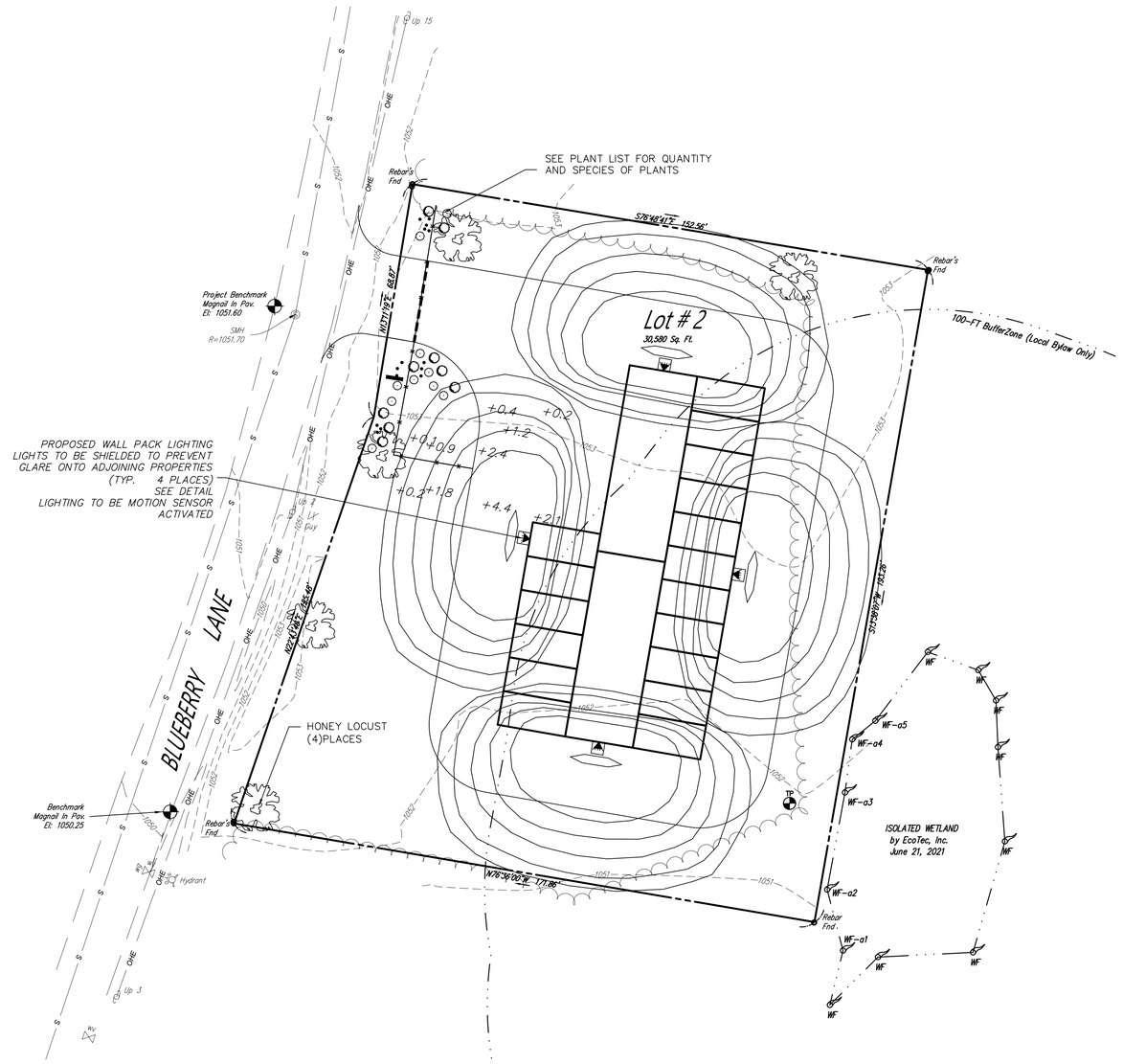
SITE ADDRESS:
BLUEBERRY LANE
LEICESTER, MA

CLIENT:
JUSTIN ZUFFANTE
140 SPENCER ROAD
OAKHAM, MA 01068

DRAWN BY:	JSC
CK'D BY	JDD
REV #:	1
DATE:	4-12-21
SCALE:	1"=20'
PROJECT #:	21-122
DWG. NO.:	S-1

DCC ENGINEERING & SURVEY INC.
52 CHARLTON MEADOW RD
CHARLTON, MA
508-769-6669
508-341-2127





SITE PLANT LIST

KEY		QTY.	BOTANICAL NAME	COMMON NAME	SIZE
•		14	TIGER LILY	LILIUM LANCIFOLIUM	1 QT
○		10	HYDRANGEA	HYDRANGEA MACROPHYLLA	2 GALLON
○		9	RHODODENDRON	RHODODENDRON FERRUGINEUM	2 GALLON
⁂		5	HONEY LOCUST	GLEDITSIA TRIACANTHOS	2.5"–3", B&B
✱		17	ARBORVITAE	THUJA OCCIDENTALIS	3'–4'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1" = 20'

NO.	DATE	REVISION	BY
1	6/23/21	REVISED PER COMMENTS	JDD

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PROFESSIONAL LAND SURVEYOR
LIC.NO.: 48722

NORTH

W N E S
REFERENCE MERIDIAN PB375 PL114

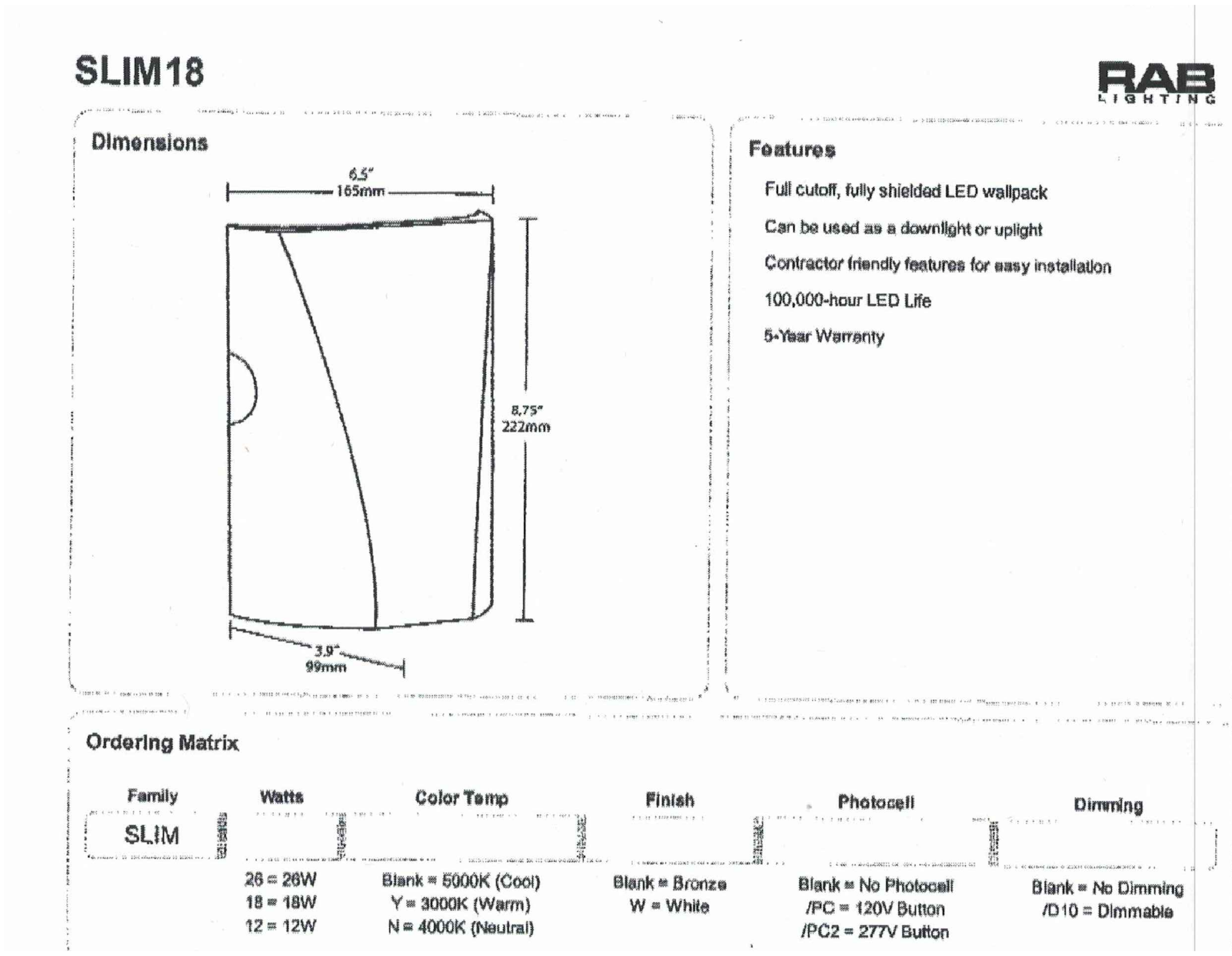
LANDSCAPE/LIGHTING PLAN

SITE ADDRESS:
BLUEBERRY LANE
LEICESTER, MA

CLIENT:
JUSTIN ZUFFANTE
140 SPENCER ROAD
OAKHAM, MA 01068

DRAWN BY:	JSC
CK'D BY	JDD
REV #:	1
DATE:	4–12–21
SCALE:	1"=20'
PROJECT #:	21–122
DWG. NO.:	L–1

DC ENGINEERING & SURVEY INC.
332 CHANDLERSVILLE BREADTOWN RD
GARDNER, MA
508–739–8669
508–341–2127


SLIM18 — RAB LIGHTING

Dimensions

6.5" / 165mm; 8.75" / 222mm; 3.9" / 99mm

Features

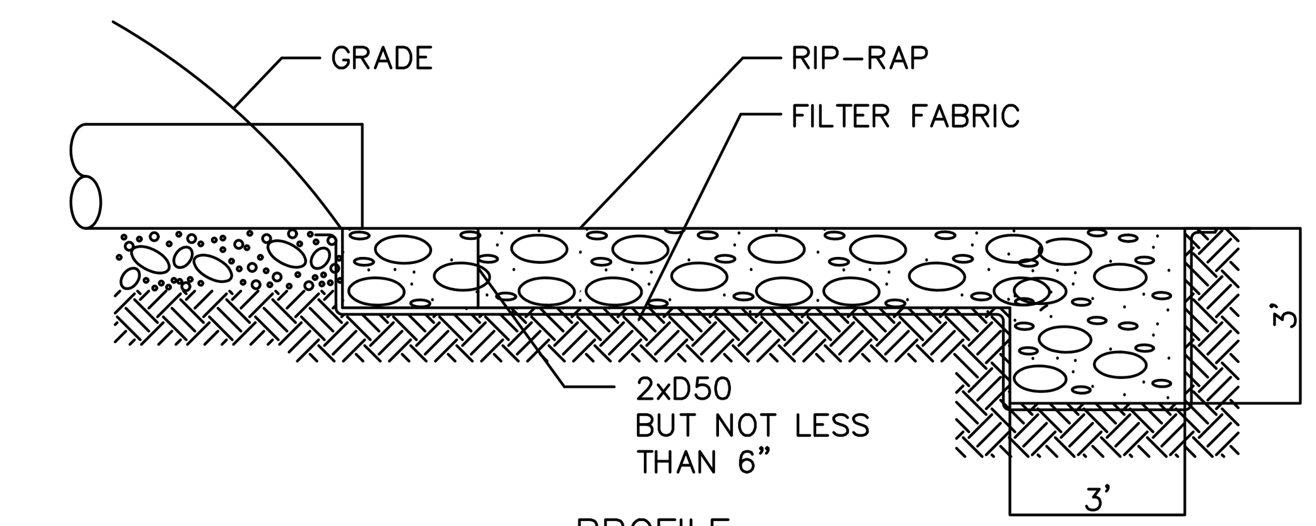
- Full cutoff, fully shielded LED wallpack
- Can be used as a downlight or uplight
- Contractor friendly features for easy installation
- 100,000-hour LED Life
- 5-Year Warranty

Ordering Matrix

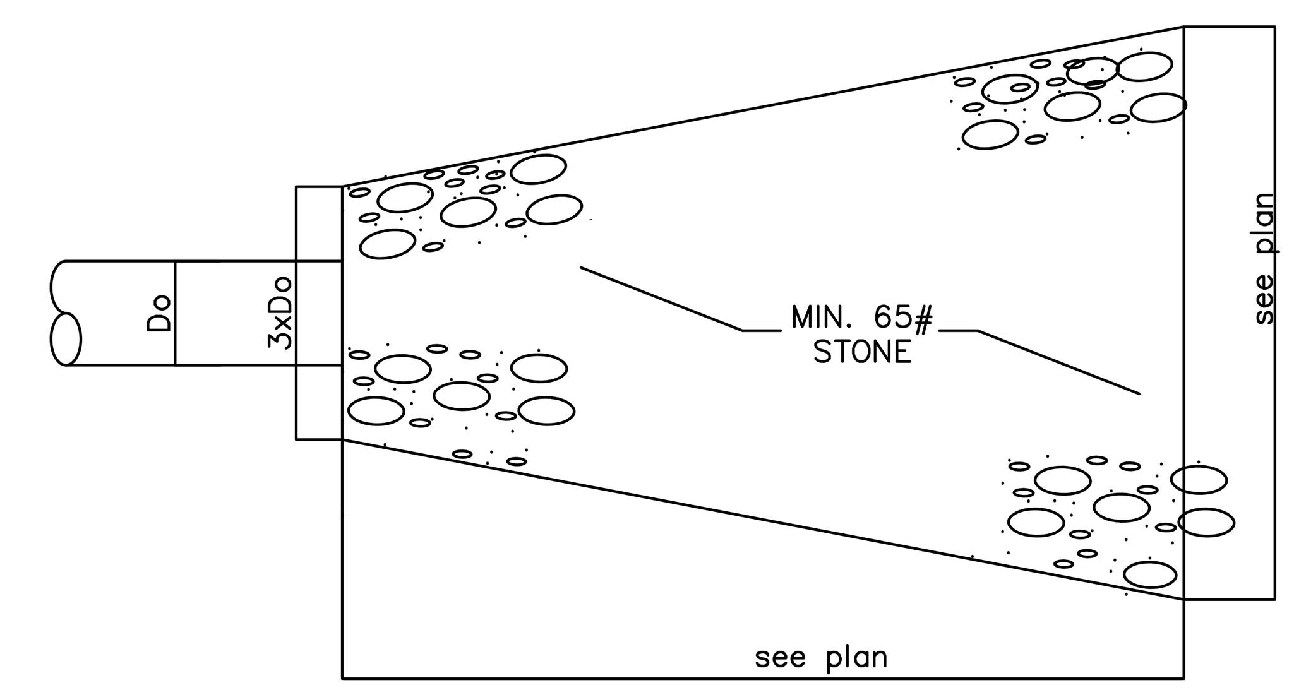
Family	Watts	Color Temp	Finish	Photocell	Dimming
SLIM	26 = 26W 18 = 18W 12 = 12W	Blank = 5000K (Cool) Y = 3000K (Warm) N = 4000K (Neutral)	Blank = Bronze W = White	Blank = No Photocell /PC = 120V Button /PC2 = 277V Button	Blank = No Dimming /D10 = Dimmable

WALL PACK LIGHTING DETAIL

NOT TO SCALE



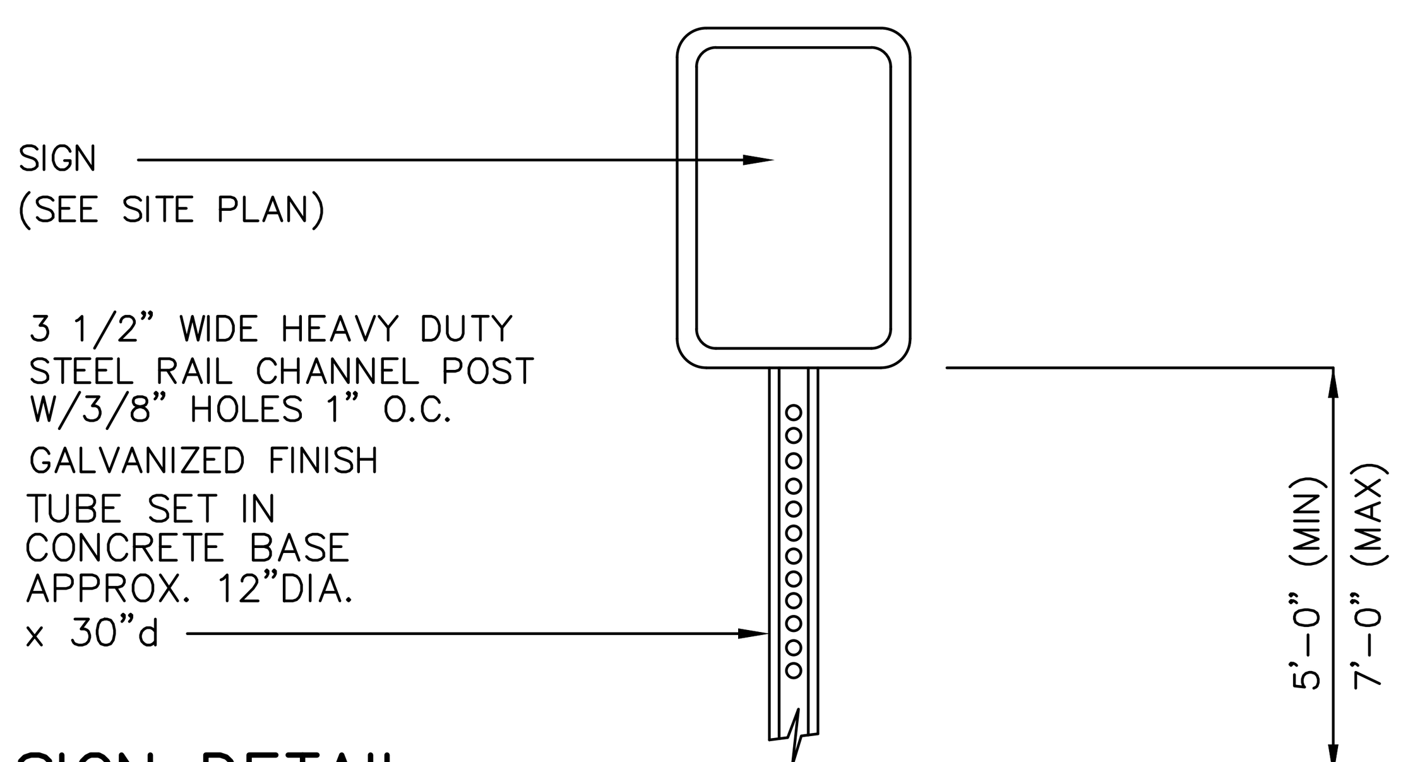
PROFILE



PLAN

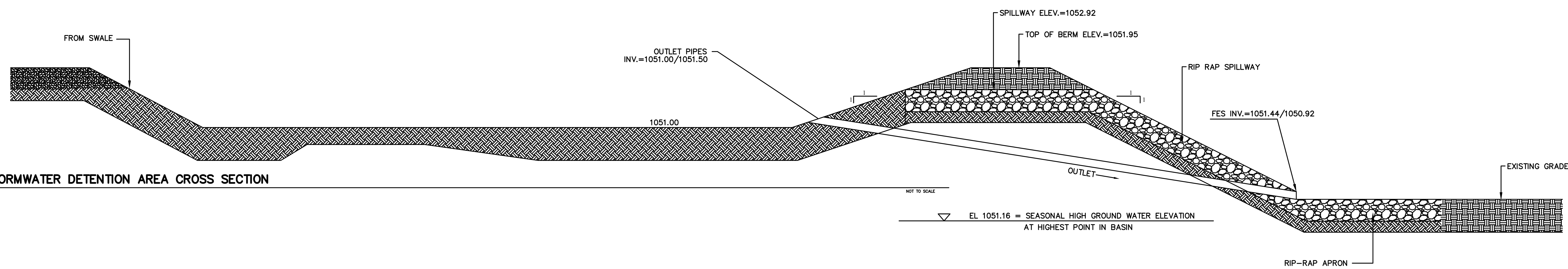
RIP RAP APRON DETAIL

NOT TO SCALE



SIGN DETAIL

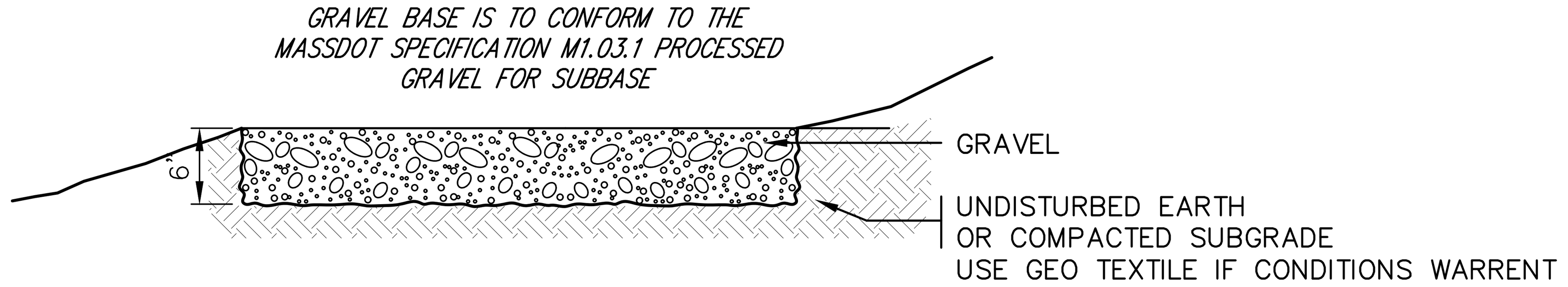
NTS



STORMWATER DETENTION AREA CROSS SECTION

NOT TO SCALE

GRAVEL BASE IS TO CONFORM TO THE MASSDOT SPECIFICATION M1.03.1 PROCESSED GRAVEL FOR SUBBASE



GRAVEL AREA DETAIL

NOT TO SCALE

NO.	DATE	REVISION	BY
1	6/23/21	REVISED PER COMMENTS	JDD

JASON D. DUBOIS, P.E.
PROFESSIONAL ENGINEER
MA.LIC.NO.: 48724

JEREMY S. CROTEAU, P.L.S.
PROFESSIONAL LAND SURVEYOR
LIC.NO.: 48722

NORTH

W = N = E
S
REFERENCE MERIDIAN PB 375 PL 114

DETAILS
SITE ADDRESS:
BLUEBERRY LANE
LEICESTER, MA

CLIENT:
JUSTIN ZUFFANTE
140 SPENCER ROAD
OAKHAM, MA 01068

DRAWN BY: JSC	
CK'D BY: JDD	REV #: 1
DATE: 4-12-21	SCALE: 1'=20'
PROJECT #: 21-122	DWG. NO.: D-1

DC ENGINEERING & SURVEY INC.
32 CRANBERRY MEADOW RD
CHARLTON, MA
508-769-6659
508-341-2127

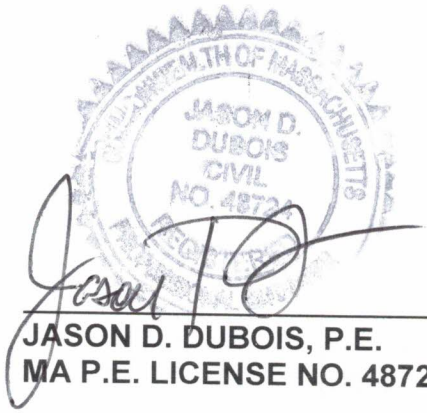
DC ENGINEERING & SURVEY INC.
CHARLTON, MA
508-769-6659
508-341-2127

STORMWATER DRAINAGE ANALYSIS

Justin Zuffante
Blueberry Lane
Leicester, MA
JOB NUMBER 2021-122

DATE : April 13, 2021
Revised: June 24, 2021

Developer:
Justin Zuffante
140 Spencer Road
Oakham, MA 01068

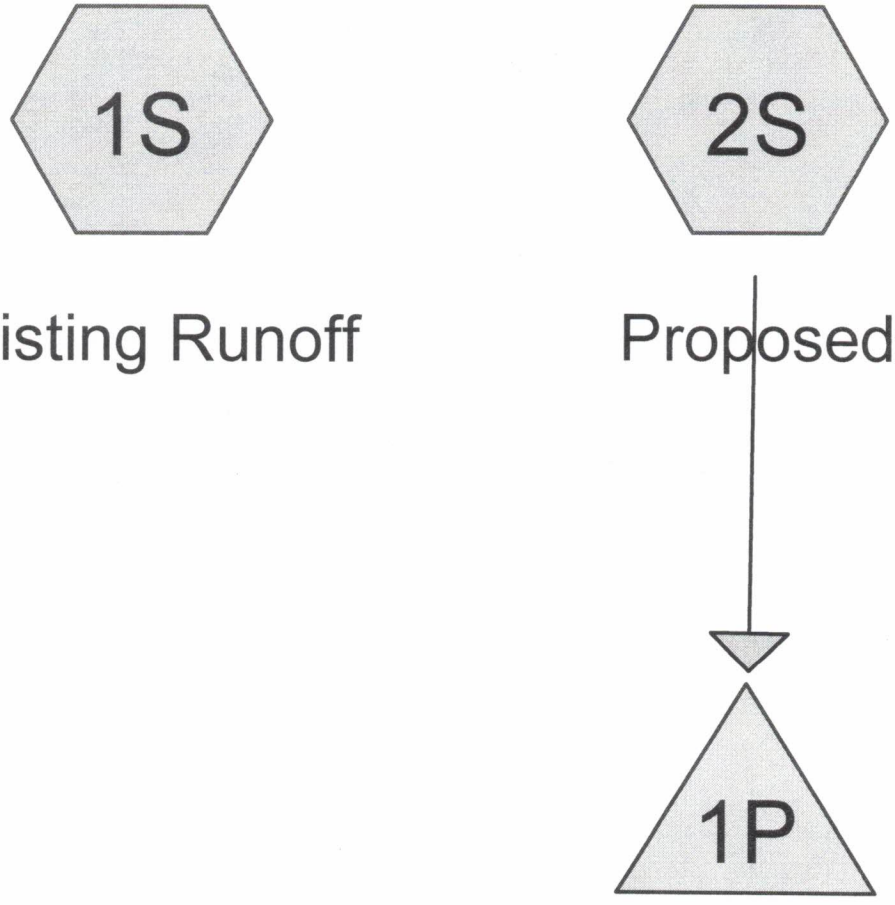


JASON D. DUBOIS, P.E.
MA P.E. LICENSE NO. 48724

SUMMARY

The proposed development will have a decrease in peak rate of runoff for the site. A comparison of the rates of runoff for storms of various return periods are tabulated and presented below.

	Total Runoff to the Eastern Property Line	
Return Period	Exist. (cfs)	Prop. (cfs)
2 yr	0.41	0.37
10 yr	0.94	0.72
25 yr	1.32	1.07
100 yr	2.00	1.68



Subcat Reach Pond Link

Routing Diagram for Existing
Prepared by Microsoft, Printed 6/24/2021

Summary for Subcatchment 1S: Existing Runoff

Runoff = 0.41 cfs @ 12.31 hrs, Volume= 0.043 af, Depth> 0.74"

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 -yr Rainfall=3.20"

Area (sf)	CN	Description
30,582	70	Woods, Good, HSG C
30,582		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.5	148	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.8	198	Total			

Summary for Subcatchment 2S: Proposed

Runoff = 1.15 cfs @ 12.16 hrs, Volume= 0.091 af, Depth> 1.56"

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 -yr Rainfall=3.20"

	Area (sf)	CN	Description
	2,541	70	Woods, Good, HSG C
*	6,600	98	Roof
	7,476	96	Gravel surface, HSG C
	13,965	74	>75% Grass cover, Good, HSG C
	30,582	84	Weighted Average
	23,982		78.42% Pervious Area
	6,600		21.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	27	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.6	143	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.5	170	Total			

Summary for Pond 1P: Swale/Detention

Inflow Area = 0.702 ac, 21.58% Impervious, Inflow Depth > 1.56" for 2 -yr event
Inflow = 1.15 cfs @ 12.16 hrs, Volume= 0.091 af
Outflow = 0.37 cfs @ 12.56 hrs, Volume= 0.084 af, Atten= 67%, Lag= 23.8 min
Primary = 0.37 cfs @ 12.56 hrs, Volume= 0.084 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,051.41' @ 12.56 hrs Surf.Area= 4,140 sf Storage= 1,535 cf

Plug-Flow detention time= 83.9 min calculated for 0.084 af (92% of inflow)
Center-of-Mass det. time= 57.8 min (855.4 - 797.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,051.00'	4,342 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,051.00	3,362	671.0	0	0	3,362
1,052.00	5,403	689.0	4,342	4,342	5,425

Device	Routing	Invert	Outlet Devices
#1	Primary	1,051.00'	**4.0" Round Culvert X 2.00** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 1,051.00' / 1,050.92' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Primary	1,051.50'	**6.0" Round Culvert X 3.00** L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 1,051.50' / 1,051.44' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#3	Secondary	1,051.95'	**10.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.37 cfs @ 12.56 hrs HW=1,051.41' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.37 cfs @ 2.22 fps)
└—**2=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,051.00' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1S: Existing Runoff

Runoff = 0.94 cfs @ 12.29 hrs, Volume= 0.093 af, Depth> 1.59"

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 10-yr Rainfall=4.60"

Area (sf)	CN	Description
30,582	70	Woods, Good, HSG C
30,582		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.5	148	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.8	198	Total			

Summary for Subcatchment 2S: Proposed

Runoff = 1.98 cfs @ 12.16 hrs, Volume= 0.159 af, Depth> 2.72"

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 10-yr Rainfall=4.60"

	Area (sf)	CN	Description
	2,541	70	Woods, Good, HSG C
*	6,600	98	Roof
	7,476	96	Gravel surface, HSG C
	13,965	74	>75% Grass cover, Good, HSG C
	30,582	84	Weighted Average
	23,982		78.42% Pervious Area
	6,600		21.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	27	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.6	143	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.5	170	Total			

Summary for Pond 1P: Swale/Detention

Inflow Area = 0.702 ac, 21.58% Impervious, Inflow Depth > 2.72" for 10-yr event
Inflow = 1.98 cfs @ 12.16 hrs, Volume= 0.159 af
Outflow = 0.72 cfs @ 12.51 hrs, Volume= 0.150 af, Atten= 63%, Lag= 21.2 min
Primary = 0.72 cfs @ 12.51 hrs, Volume= 0.150 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,051.65' @ 12.51 hrs Surf.Area= 4,637 sf Storage= 2,596 cf

Plug-Flow detention time= 76.4 min calculated for 0.150 af (94% of inflow)
Center-of-Mass det. time= 56.8 min (841.6 - 784.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,051.00'	4,342 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,051.00	3,362	671.0	0	0	3,362
1,052.00	5,403	689.0	4,342	4,342	5,425

Device	Routing	Invert	Outlet Devices
#1	Primary	1,051.00'	**4.0" Round Culvert X 2.00** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 1,051.00' / 1,050.92' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Primary	1,051.50'	**6.0" Round Culvert X 3.00** L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 1,051.50' / 1,051.44' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#3	Secondary	1,051.95'	**10.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.72 cfs @ 12.51 hrs HW=1,051.65' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.55 cfs @ 3.15 fps)
└─**2=Culvert** (Barrel Controls 0.17 cfs @ 1.72 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,051.00' (Free Discharge)
└─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1S: Existing Runoff

Runoff = 1.32 cfs @ 12.28 hrs, Volume= 0.130 af, Depth> 2.22"

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-yr Rainfall=5.50"

Area (sf)	CN	Description
30,582	70	Woods, Good, HSG C
30,582		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.5	148	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.8	198	Total			

Summary for Subcatchment 2S: Proposed

Runoff = 2.52 cfs @ 12.16 hrs, Volume= 0.205 af, Depth> 3.50"

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-yr Rainfall=5.50"

	Area (sf)	CN	Description
	2,541	70	Woods, Good, HSG C
*	6,600	98	Roof
	7,476	96	Gravel surface, HSG C
	13,965	74	>75% Grass cover, Good, HSG C
	30,582	84	Weighted Average
	23,982		78.42% Pervious Area
	6,600		21.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	27	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.6	143	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.5	170	Total			

Summary for Pond 1P: Swale/Detention

Inflow Area = 0.702 ac, 21.58% Impervious, Inflow Depth > 3.50" for 25-yr event
Inflow = 2.52 cfs @ 12.16 hrs, Volume= 0.205 af
Outflow = 1.07 cfs @ 12.46 hrs, Volume= 0.195 af, Atten= 57%, Lag= 18.1 min
Primary = 1.07 cfs @ 12.46 hrs, Volume= 0.195 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,051.76' @ 12.46 hrs Surf.Area= 4,875 sf Storage= 3,123 cf

Plug-Flow detention time= 70.8 min calculated for 0.194 af (95% of inflow)
Center-of-Mass det. time= 53.4 min (832.3 - 778.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,051.00'	4,342 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,051.00	3,362	671.0	0	0	3,362
1,052.00	5,403	689.0	4,342	4,342	5,425

Device	Routing	Invert	Outlet Devices
#1	Primary	1,051.00'	**4.0" Round Culvert X 2.00** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 1,051.00' / 1,050.92' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Primary	1,051.50'	**6.0" Round Culvert X 3.00** L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 1,051.50' / 1,051.44' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#3	Secondary	1,051.95'	**10.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=1.07 cfs @ 12.46 hrs HW=1,051.76' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.62 cfs @ 3.56 fps)
└─**2=Culvert** (Barrel Controls 0.45 cfs @ 2.09 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,051.00' (Free Discharge)
└─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1S: Existing Runoff

Runoff = 2.00 cfs @ 12.28 hrs, Volume= 0.196 af, Depth> 3.35"

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 100-yr Rainfall=7.00"

Area (sf)	CN	Description
30,582	70	Woods, Good, HSG C
30,582		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.5	148	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.8	198	Total			

Summary for Subcatchment 2S: Proposed

Runoff = 3.43 cfs @ 12.16 hrs, Volume= 0.283 af, Depth> 4.84"

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 100-yr Rainfall=7.00"

	Area (sf)	CN	Description
	2,541	70	Woods, Good, HSG C
*	6,600	98	Roof
	7,476	96	Gravel surface, HSG C
	13,965	74	>75% Grass cover, Good, HSG C
	30,582	84	Weighted Average
	23,982		78.42% Pervious Area
	6,600		21.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	27	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.6	143	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.5	170	Total			

Summary for Pond 1P: Swale/Detention

Inflow Area = 0.702 ac, 21.58% Impervious, Inflow Depth > 4.84" for 100-yr event
Inflow = 3.43 cfs @ 12.16 hrs, Volume= 0.283 af
Outflow = 1.69 cfs @ 12.41 hrs, Volume= 0.272 af, Atten= 51%, Lag= 14.9 min
Primary = 1.69 cfs @ 12.41 hrs, Volume= 0.272 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,051.92' @ 12.41 hrs Surf.Area= 5,226 sf Storage= 3,927 cf

Plug-Flow detention time= 64.0 min calculated for 0.272 af (96% of inflow)
Center-of-Mass det. time= 48.8 min (820.0 - 771.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,051.00'	4,342 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,051.00	3,362	671.0	0	0	3,362
1,052.00	5,403	689.0	4,342	4,342	5,425

Device	Routing	Invert	Outlet Devices
#1	Primary	1,051.00'	**4.0" Round Culvert X 2.00** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 1,051.00' / 1,050.92' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Primary	1,051.50'	**6.0" Round Culvert X 3.00** L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 1,051.50' / 1,051.44' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#3	Secondary	1,051.95'	**10.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=1.68 cfs @ 12.41 hrs HW=1,051.92' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.71 cfs @ 4.08 fps)
└─**2=Culvert** (Barrel Controls 0.97 cfs @ 2.48 fps)

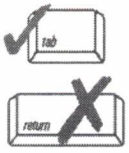
Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,051.00' (Free Discharge)
└─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

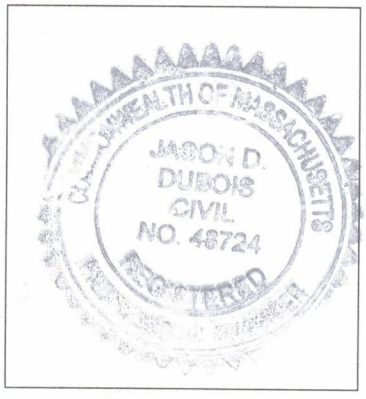
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



4-13-21
Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☒ New development

☐ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

☒ No disturbance to any Wetland Resource Areas

☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)

☐ Reduced Impervious Area (Redevelopment Only)

☐ Minimizing disturbance to existing trees and shrubs

☐ LID Site Design Credit Requested:

- ☐ Credit 1
- ☐ Credit 2
- ☐ Credit 3

☒ Use of "country drainage" versus curb and gutter conveyance and pipe

☐ Bioretention Cells (includes Rain Gardens)

☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)

☐ Treebox Filter

☐ Water Quality Swale

☒ Grass Channel

☐ Green Roof

☐ Other (describe): _____

Standard 1: No New Untreated Discharges

☒ No new untreated discharges

☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth

☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☐ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☒ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☐ The BMP is sized (and calculations provided) based on:

- ☐ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☒ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☐ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☒ Description and delineation of public safety features;
- ☒ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

Illicit Discharge Compliance Statement
April 13, 2021

This statement is to document that there are no and will be no Illicit Discharges for the Proposed Site Plan located at Blueberry Lane, Leicester, MA operated by Justin Zuffante

Justin Zuffante

4-13-21
Date

Stormwater Operation and Maintenance Plan
& Long-term Pollution Prevention Plan
for
Justin Zuffante

Blueberry Lane
Leicester, MA
Job #2021-122

April 13, 2021

Prepared by

DC Engineering & Survey, Inc.
32 Cranberry Meadow Road
Charlton, MA 01507

Stormwater Operation and Maintenance Plan
for
Justin Zuffante
Blueberry Lane
Leicester, MA

This is an Operation and Maintenance Plan for the Definitive Site plan.

Current Operator:

Justin Zuffante
140 Spencer Road
Oakham, MA 01068

Long term Operator of Stormwater System:

Owner of the site

Stormwater Management Systems

The stormwater management system for the site is as follows:

- Detention Basin
- Drainage Channels

Inspection Schedule

The inspection log shall be completed after every inspection of each component listed below. (See attached Inspection Log sheet)

Detention Basin
Check for sediment accumulation quarterly.

Drainage Channels
Check for sediment annually after the first year. The first year, inspect quarterly for signs of erosion as repair as needed.

Maintenance Procedures

Maintenance log shall be completed after any maintenance is performed on any component listed. (See attached Maintenance Log sheet)

Detention Basin

Inspect to ensure proper functioning after every major storm during first three months of operation and twice a year thereafter. Mow the buffer area, side slopes, and basin bottom floor; remove trash and debris; remove grass clippings and accumulated organic matter twice per year.

Drainage Channels

Mow the channels no lower than 3 to 4 inches above the ground. Mow as needed so that the grass does not exceed 6 inches. Remove grass clippings
Bio-Retention Area
Check vegetation until fully established and seasonal landscaping thereafter. Inspect check dams for accumulation after construction is complete and quarterly thereafter.

Plans:

Plans indicating the location and features of the stormwater management system can be found on the site plan for Justin Zuffante.

Description of Public Safety Features:

All features associated with the stormwater controls are located above ground and are designed with a maximum of 3:1 slopes so should not pose any danger to the public.

Operation and Maintenance Budget:

The owner will have to pay for a service to perform the operation and maintenance described above; therefore the budget is mainly for labor and disposal of sediment collected.

The estimated yearly cost is approximately $500.00

Stormwater Operation and Maintenance Plan
for
Justin Zuffante

Log of Operation and Maintenance Activities

INSPECTION LOG

Date	Inspector	Observations	Action Required

Long-term Pollution Prevention Plan
for
Justin Zuffante
Blueberry Lane
Leicester, MA

This is a Long-term Pollution Prevention Plan for the above-mentioned site.

Current Operator:

Justin Zuffante
140 Main Street
Leicester, MA 01524

Long term Operator of Plan:

Owner of the Site

Good Housekeeping:

Good housekeeping practices, outlined below, will be used on site:
An effort will be made to store only enough products that will be needed.
All materials stored on site will be stored neatly, in their appropriate containers, and, if possible, under a roof or other enclosure.
Products will be kept in their original containers with the original manufacturer's label.
Substances will not be mixed with one another unless recommended by the manufacturer.
Whenever possible, all of a product will be used up before disposing of the container.
Manufacturer's recommendations for proper use and disposal will be followed.

Routine Inspections:

Routine inspections and procedures are outlined in the Stormwater Operation & Maintenance Plan.

Waste Materials:

All waste materials will be collected and stored in a metal dumpster. All trash and debris from the site will be deposited in the dumpsters. Dumpsters will be emptied weekly or more often if necessary, and the trash will be hauled off-site to an approved waste facility. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal. Individual(s) managing day-to-day operations will be responsible for seeing that these procedures are followed.

Hazardous Waste:

All hazardous waste materials will be disposed of in the manner specified by local or state regulation or by the manufacturer. Site personnel will be instructed in these practices and the individual managing day-to-day operations will be responsible for implementing these practices.

Hazardous Materials:

These practices will be used to reduce the risks associated with hazardous materials.

Products will be kept in original containers unless they are not re-sealable.
Original labels and material safety data sheets (MSDS) will be retained; they contain important product information.
Manufacturers' and local and/or state recommended methods for proper disposal of excess materials will be followed.

Spill Control Practices:

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be used for spill prevention and cleanup:

Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be familiar with the procedures and location of the information and cleanup supplies.

Materials and equipment necessary for spill cleanup will be kept in the material storage area on site. Equipment and materials will include, but not be limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.

All spills will be cleaned up immediately upon discovery.

Spill areas will be kept well ventilated, and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.

Spills of toxic or hazardous material will be reported to the appropriate state or local government agency, regardless of the size of the spill.

The spill prevention plan will be adjusted to include measures to prevent this type of spill from re-occurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.

Snow and Ice Management:

Any deicing materials will be stored indoors and used per manufacturer's recommendations. Site personnel will be instructed in these practices and the individual managing day-to-day operations will be responsible for implementing these practices.

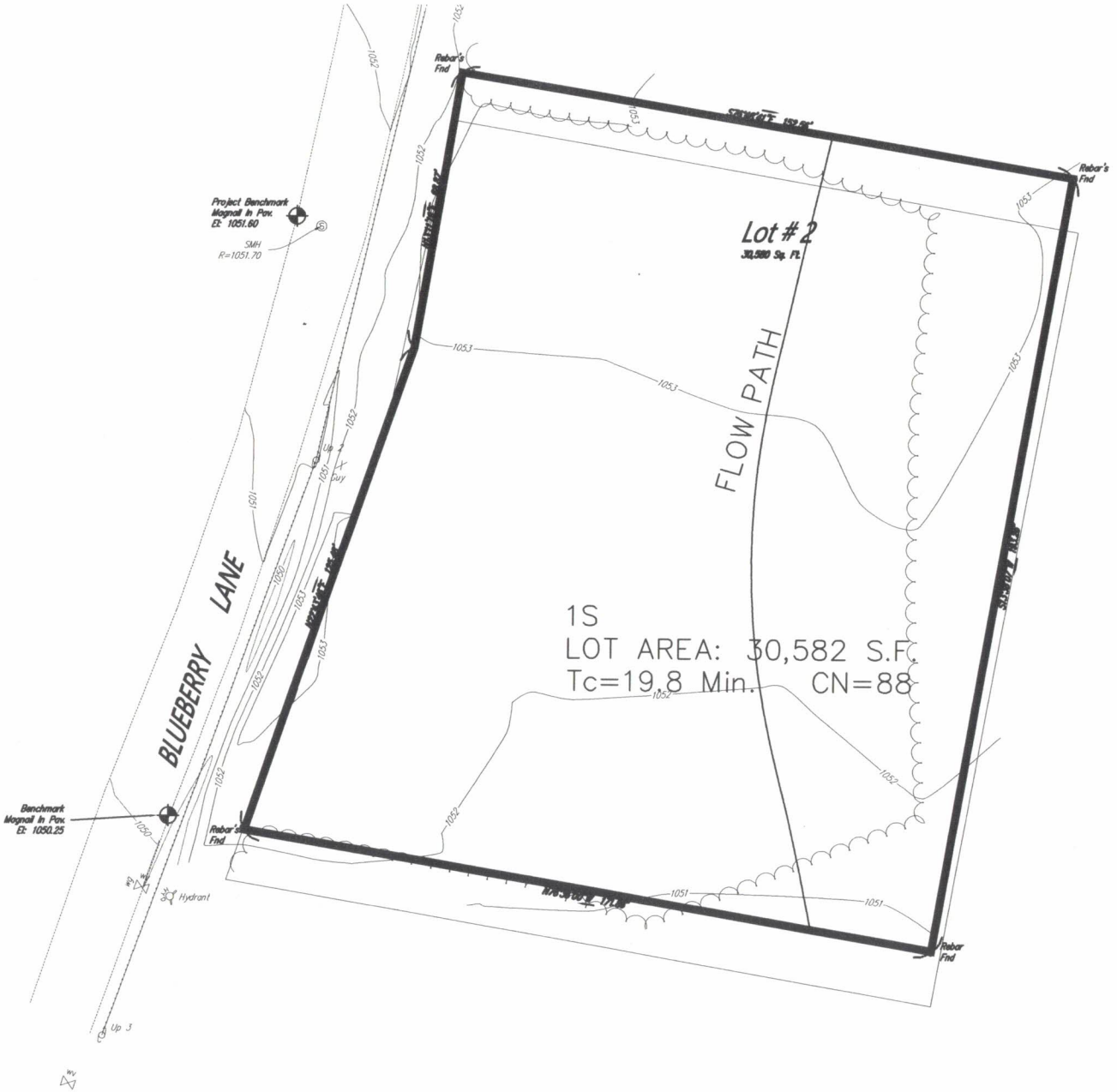
Grass Cutting:

The grass shall be cut to a depth of no less than 3 inches and should be cut as needed during the growing season.

Supporting Plans & Analyses:

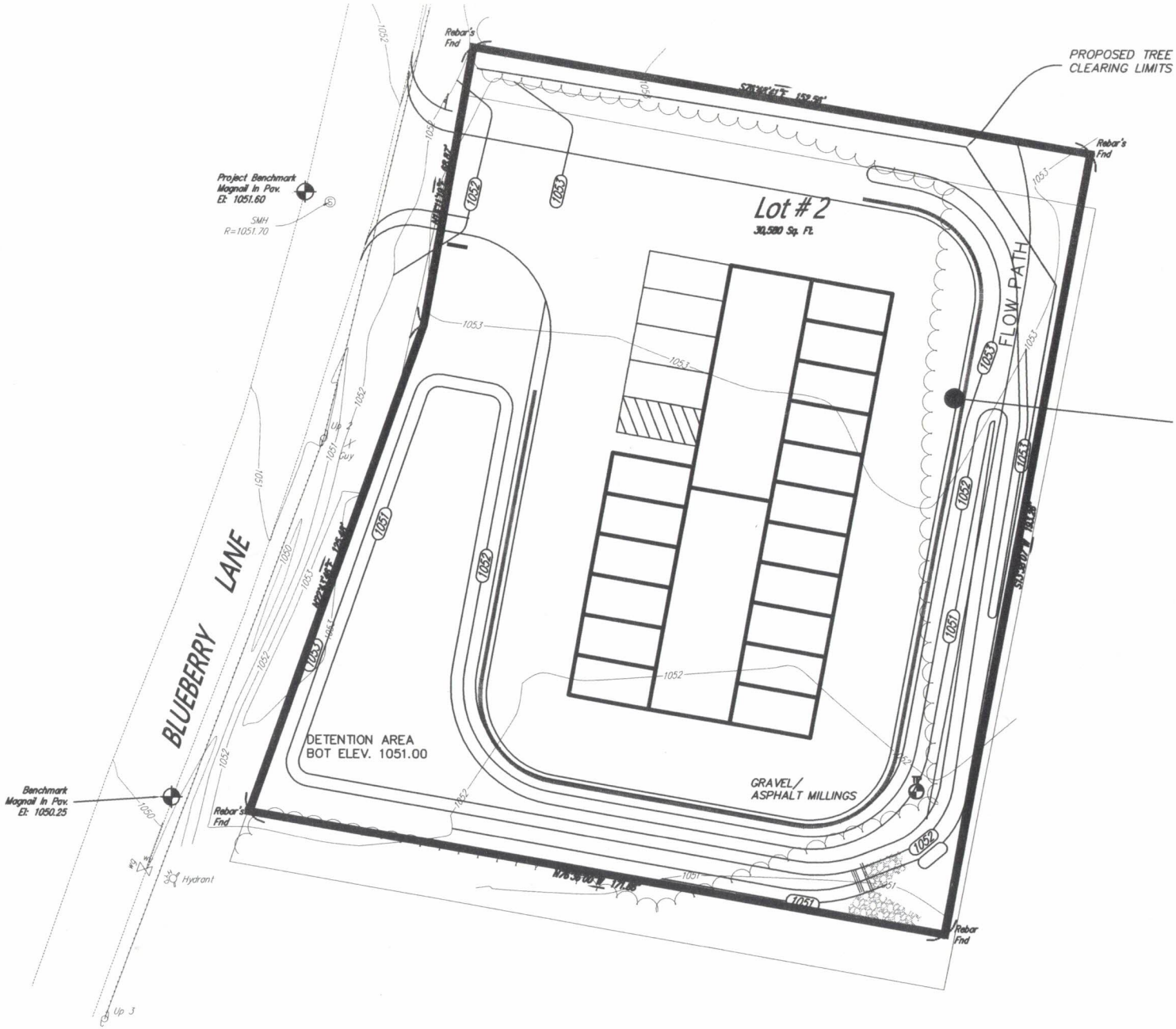
Proposed Site Plan and Detail Drawings

Stormwater Operation and Maintenance Plan, Stormwater Drainage Analysis



EXISTING DRAINAGE PLAN

SCALE: 1"=60'



2S
LOT AREA: 30,582 S.F.
Tc=11.5 Min. CN=84

PROPOSED DRAINAGE PLAN

SCALE: 1"=60'