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Drainage Report 4-6 Barrows Road, Worcester, MA Prepared for CLEB, LLC

July 3, 2024

OBJECTIVE: To infiltrate one inch of runoff from the new impervious surfaces.

METHODOLOGY: The new roof areas include the house and paved driveway. We determined that the gross increase in impervious cover, considering the existing home and garage to be demolished, will be: 5,374-1,710=3,664 sq. ft. We propose to mitigate the increase in impervious cover by constructing one infiltration BMP on each of the two lots, 4 and 6 Barrows Road, to provide recharge of the runoff from these impervious surfaces. By directing all of the roof runoff to infiltration BMPs, the resulting net impervious area represents a reduction from the present condtions: existing: 1,710 s.f., net proposed impervious area: 1,502 s.f.

We propose an infiltration system consisting of eight prefabricated high density polyethylene chambers (C-100 as manufactured by Cultec) set in a bed, or envelope of crushed stone on each lot. The dimensions of the crushed stone bed and chambers are shown on the plans.

The contributing areas and structures are modeled in the accompanying summary report printout from the HydroCADtm Stormwater Modeling software. As this system is designed, it is "online" meaning the infiltration BMPs will continue to function throughout the storms and will not be bypassed. If it becomes full however, from larger rainfall, an overflow is provided at the lowest downspout.

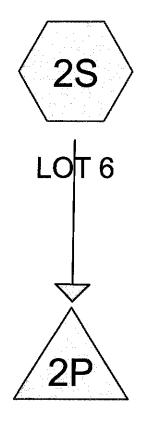
SUMMARY: Our calculations show that the infiltration measures are suitably sized for the volume of runoff that will reach them from a minimum of 1" of rainfall, and in fact, will contain up to approximately 4.6 inches of rainfall, the statistical 10-year storm.

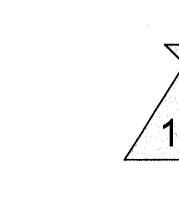
Respectfully submitted,

THOMPSON-LISTON ASSOCIATES, INC.

Patrick J. Healy, P.E.

Principal





LOT 4

INFILTRATION INFILTRATION









Routing Diagram for BARROWS ROAD
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Summary for Subcatchment 1S: LOT 4

Runoff

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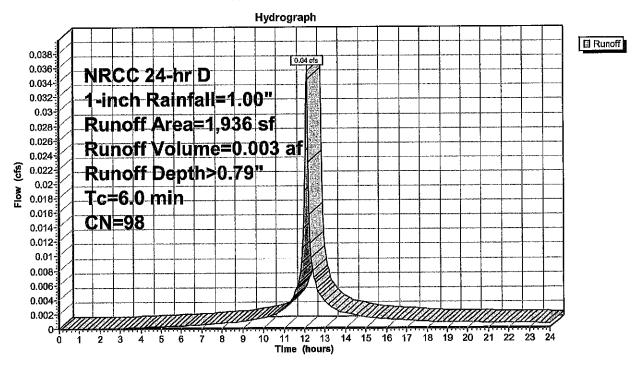
0.04 cfs @ 12.13 hrs, Volume=

0.003 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs NRCC 24-hr D 1-inch Rainfall=1.00"

	Area (sf)	CN I	<u>Description</u>		*	
*	1,936	98 F	ROOF			
	1,936	•	100.00% In	pervious A	Area	
Т	c Length	Slope	Velocity	Capacity	Description	
(mir) (feet)	(ft/ft)	(ft/sec)	(cfs)		
6.	Ö.				Direct Entry,	

Subcatchment 1S: LOT 4



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Summary for Subcatchment 2S: LOT 6

Runoff

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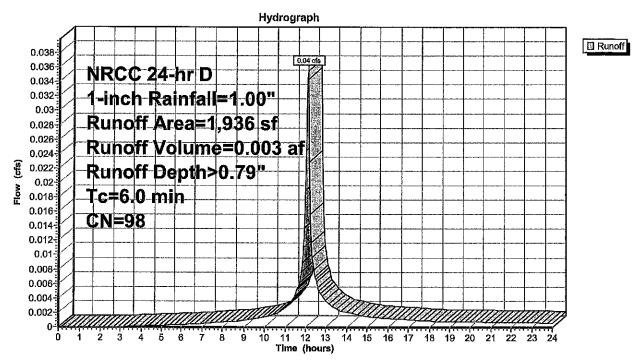
0.04 cfs @ 12.13 hrs, Volume=

0.003 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs NRCC 24-hr D 1-inch Rainfall=1.00"

	A	rea (sf)	CN	Description		
*		1,936	98	ROOF		
		1,936		100.00% lm	pervious A	Area
(Tc min)	Length (feet)	Slope (ft/ft)	-	Capacity (cfs)	Description
	6.0	(ICCL)	(IUIL)	(10560)	(018)	Direct Entry.

Subcatchment 2S: LOT 6



BARROWS ROAD

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Summary for Pond 1P: INFILTRATION

Test pit INFIL-1 used

Inflow Area = Inflow = Outflow = Discarded =	0.044 ac,100.00% Impervious, Inflow Depth > 0.79" for 1-inch event 0.04 cfs @ 12.13 hrs, Volume= 0.003 af 0.02 cfs @ 12.05 hrs, Volume= 0.003 af, Atten= 58%, Lag= 0.0 min 0.02 cfs @ 12.05 hrs, Volume= 0.003 af	
Primary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs Peak Elev= 814.13' @ 12.26 hrs Surf.Area= 271 sf Storage= 14 cf

Plug-Flow detention time= 5.9 min calculated for 0.003 af (100% of inflow) Center-of-Mass det. time= 5.1 min (804.0 - 798.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	814.00'	176 cf	8.33'W x 32.50'L x 2.04'H Field A
			553 cf Overall - 114 cf Embedded = 439 cf x 40.0% Voids
#2A	814.50'	114 cf	
			Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
			Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
			Row Length Adjustment= +0.50' x 1.86 sf x 2 rows
#3	815.00'	1 cf	4.0" Round Pipe Storage -Impervious
			L= 10.0' S= 0.0100 '/'
#4	815.10'	0 cf	0.33'D x 2.33'H Vertical Cone/Cylinder -Impervious
			

290 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	814.00'	2.410 in/hr Exfiltration over Horizontal area
#2	Primary	816.50'	2.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.02 cfs @ 12.05 hrs HW=814.04' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=814.00' (Free Discharge) 2=Orifice/Grate (Controls 0.00 cfs)

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Pond 1P: INFILTRATION - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)

Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 2 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

4 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 30.50' Row Length +12.0" End Stone x 2 = 32.50' Base Length

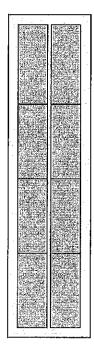
2 Rows x 36.0" Wide + 4.0" Spacing x 1 + 12.0" Side Stone x 2 = 8.33' Base Width 6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

8 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 2 Rows = 113.6 cf Chamber Storage

553.0 cf Field - 113.6 cf Chambers = 439.4 cf Stone x 40.0% Voids = 175.8 cf Stone Storage

Chamber Storage + Stone Storage = 289.3 cf = 0.007 af Overall Storage Efficiency = 52.3% Overall System Size = 32.50' x 8.33' x 2.04'

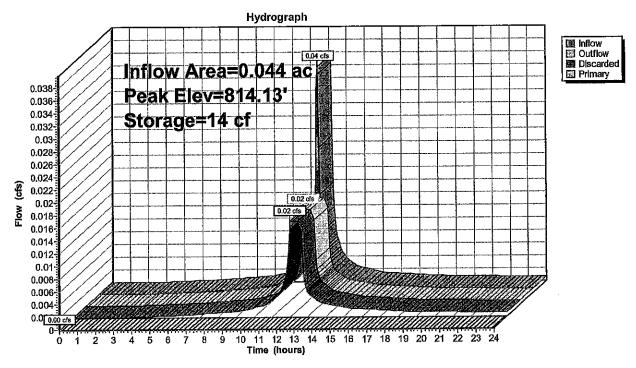
8 Chambers 20.5 cv Field 16.3 cy Stone





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Pond 1P: INFILTRATION



BARROWS ROAD

NRCC 24-hr D 1-inch Rainfall=1.00"

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Summary for Pond 2P: INFILTRATION

Test pit INFIL-6 used

Inflow Area =	0.044 ac,100.00% Impervious, Inflow Depth > 0.79" for 1-inch event
Inflow =	0.04 cfs @ 12.13 hrs, Volume= 0.003 af
Outflow =	0.02 cfs @ 12.05 hrs, Volume= 0.003 af, Atten= 58%, Lag= 0.0 min
Discarded =	0.02 cfs @ 12.05 hrs, Volume= 0.003 af
Primary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs Peak Elev= 820.63' @ 12.26 hrs Surf.Area= 0.006 ac Storage= 0.000 af

Plug-Flow detention time= 6.5 min calculated for 0.003 af (100% of inflow) Center-of-Mass det. time= 5.6 min (804.5 - 798.9)

<u>Volume</u>	Invert	Avail.Storage	Storage Description
#1A	820.50'	0.004 af	8.33'W x 32.50'L x 2.04'H Field A
			0.013 af Overall - 0.003 af Embedded = 0.010 af \times 40.0% Voids
#2A	821.00'	0.003 af	Cultec C-100HD x 8 Inside #1
			Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
			Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
			Row Length Adjustment= +0.50' x 1.86 sf x 2 rows
#3	821.50'	0.000 af	4.0" Round Pipe Storage
			L= 10.0' S= 0.0100 '/'
		0.007 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	820.50'	2.410 in/hr Exfiltration over Horizontal area
#2	Primary	824.30'	2.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.02 cfs @ 12.05 hrs HW=820.55' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=820.50' (Free Discharge) 2=Orifice/Grate (Controls 0.00 cfs)

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Pond 2P: INFILTRATION - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)

Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 2 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

4 Chambers/Row x 7.50' Long \pm 0.50' Row Adjustment = 30.50' Row Length \pm 12.0" End Stone x 2 = 32.50' Base Length

2 Rows x 36.0" Wide + 4.0" Spacing x 1 + 12.0" Side Stone x 2 = 8.33' Base Width

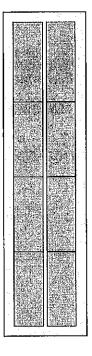
6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

8 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 2 Rows = 113.6 cf Chamber Storage

553.0 cf Field - 113.6 cf Chambers = 439.4 cf Stone x 40.0% Voids = 175.8 cf Stone Storage

Chamber Storage + Stone Storage = 289.3 cf = 0.007 af Overall Storage Efficiency = 52.3% Overall System Size = 32.50' x 8.33' x 2.04'

8 Chambers 20.5 cy Field 16.3 cy Stone

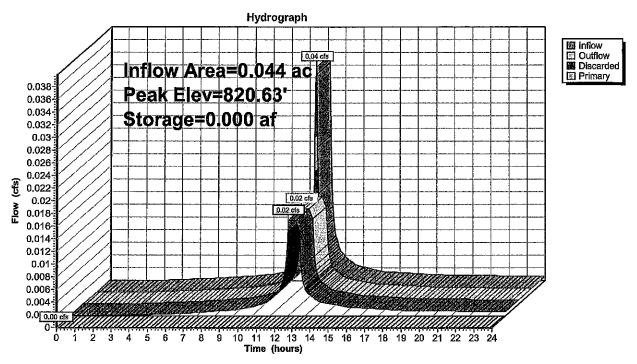




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Pond 2P: INFILTRATION



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Summary for Subcatchment 1S: LOT 4

Runoff

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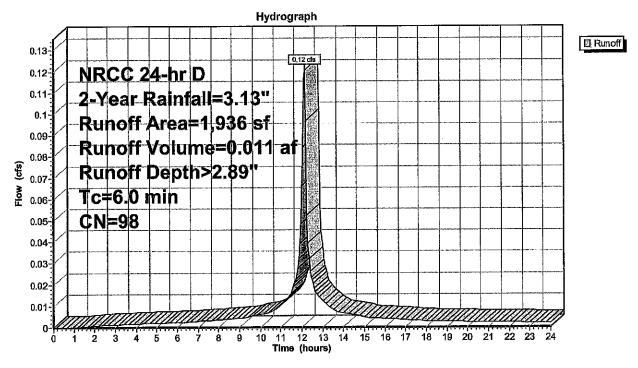
0.12 cfs @ 12.13 hrs, Volume=

0.011 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs NRCC 24-hr D 2-Year Rainfall=3.13"

	Α	rea (sf)	CN [Description			
*		1,936	98 F	ROOF			
		1,936	•	i00.00% Im	pervious A	rea	
	Тс	Length	Slope	Velocity	Capacity	Description	¥
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)		
	60					Direct Entry.	

Subcatchment 1S: LOT 4



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Summary for Subcatchment 2S: LOT 6

Runoff

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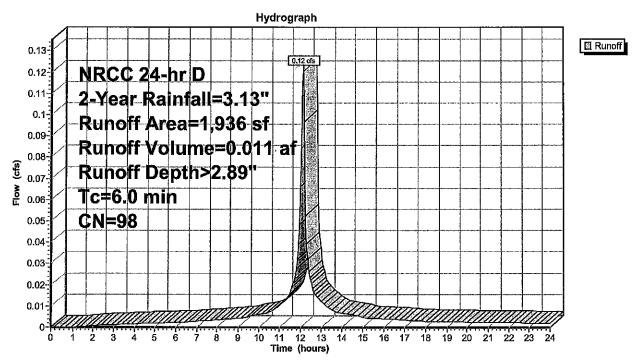
0.12 cfs @ 12.13 hrs, Volume=

0.011 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs NRCC 24-hr D 2-Year Rainfall=3.13"

	Α	rea (sf)	CN [Description		
*	ı	1,936	98 F	ROOF		
		1,936	1	00.00% Im	pervious A	Area
	Tc	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	6.0				•	Direct Entry.

Subcatchment 2S: LOT 6



BARROWS ROAD

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Summary for Pond 1P: INFILTRATION

Test pit INFIL-1 used

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth > 2.89" for 2-Year event
Inflow = 0.12 cfs @ 12.13 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 11.55 hrs, Volume= 0.011 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.00 cfs @ 11.55 hrs, Volume= 0.011 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs Peak Elev= 814.80' @ 12.76 hrs Surf.Area= 271 sf Storage= 114 cf

Plug-Flow detention time= 43.4 min calculated for 0.011 af (100% of inflow) Center-of-Mass det. time= 42.7 min (803.0 - 760.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	814.00'	176 cf	8.33'W x 32.50'L x 2.04'H Field A
			553 cf Overall - 114 cf Embedded = 439 cf x 40.0% Voids
#2A	814.50'	114 cf	Cultec C-100HD x 8 Inside #1
			Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
			Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
			Row Length Adjustment= +0.50' x 1.86 sf x 2 rows
#3	815.00'	1 cf	4.0" Round Pipe Storage -Impervious
			L= 10.0' S= 0.0100 '/'
#4	815.10'	0 cf	0.33'D x 2.33'H Vertical Cone/Cylinder -Impervious
		290 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 #2	Discarded Primary		2.410 in/hr Exfiltration over Horizontal area 2.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.02 cfs @ 11.55 hrs HW=814.04' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=814.00' (Free Discharge)

2=Orifice/Grate (Controls 0.00 cfs)

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Pond 1P: INFILTRATION - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)

Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 2 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

4 Chambers/Row x 7.50' Long \pm 0.50' Row Adjustment \pm 30.50' Row Length \pm 12.0" End Stone x 2 \pm 32.50' Base Length

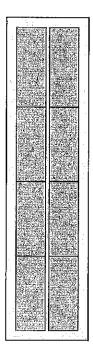
2 Rows x 36.0" Wide + 4.0" Spacing x 1 + 12.0" Side Stone x 2 = 8.33' Base Width 6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

8 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 2 Rows = 113.6 cf Chamber Storage

553.0 cf Field - 113.6 cf Chambers = 439.4 cf Stone x 40.0% Voids = 175.8 cf Stone Storage

Chamber Storage + Stone Storage = 289.3 cf = 0.007 af Overall Storage Efficiency = 52.3% Overall System Size = 32.50' x 8.33' x 2.04'

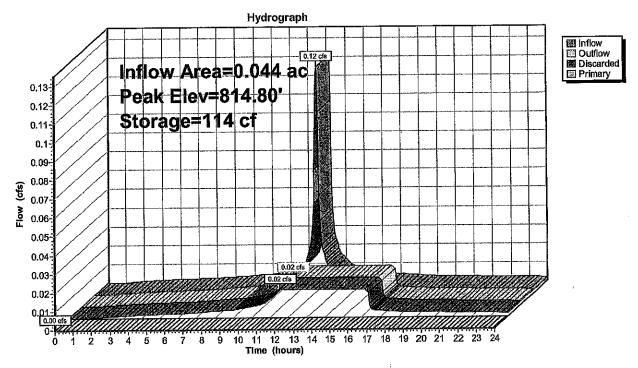
8 Chambers 20.5 cy Field 16.3 cy Stone





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Pond 1P: INFILTRATION



BARROWS ROAD

NRCC 24-hr D 2-Year Rainfall=3.13"

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Summary for Pond 2P: INFILTRATION

Test pit INFIL-6 used

Inflow Area =	0.044 ac,100.00% Impervious, Inflow Depth > 2.89" for 2-Year event
Inflow =	0.12 cfs @ 12.13 hrs, Volume= 0.011 af
Outflow =	0.02 cfs @ 11.55 hrs, Volume= 0.011 af, Atten= 87%, Lag= 0.0 min
Discarded =	0.02 cfs @ 11.55 hrs, Volume= 0.011 af
Primary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs Peak Elev= 821.30' @ 12.76 hrs Surf.Area= 0.006 ac Storage= 0.003 af

Plug-Flow detention time= 44.1 min calculated for 0.011 af (100% of inflow) Center-of-Mass det. time= 43.2 min (803.5 - 760.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	820.50'	0.004 af	8.33'W x 32.50'L x 2.04'H Field A
			0.013 af Overall - 0.003 af Embedded = 0.010 af x 40.0% Voids
#2A	821.00'	0.003 af	Cultec C-100HD x 8 Inside #1
			Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
			Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
			Row Length Adjustment= +0.50' x 1.86 sf x 2 rows
#3	821.50'	0.000 af	4.0" Round Pipe Storage
			L= 10.0' S= 0.0100 '/'
		0.007 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	820.50'	2.410 in/hr Exfiltration over Horizontal area
#2	Primary	824.30'	2.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.02 cfs @ 11.55 hrs HW=820.54' (Free Discharge)

1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=820.50' (Free Discharge) —2=Orifice/Grate (Controls 0.00 cfs)

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Pond 2P: INFILTRATION - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)

Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 2 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

4 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 30.50' Row Length +12.0" End Stone x 2 = 32.50' Base Length

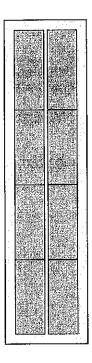
2 Rows x 36.0" Wide \pm 4.0" Spacing x 1 \pm 12.0" Side Stone x 2 \pm 8.33' Base Width 6.0" Base \pm 12.5" Chamber Height \pm 6.0" Cover \pm 2.04' Field Height

8 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 2 Rows = 113.6 cf Chamber Storage

553.0 cf Field - 113.6 cf Chambers = 439.4 cf Stone x 40.0% Voids = 175.8 cf Stone Storage

Chamber Storage + Stone Storage = 289.3 cf = 0.007 af Overall Storage Efficiency = 52.3% Overall System Size = 32.50' x 8.33' x 2.04'

8 Chambers 20.5 cy Field 16.3 cy Stone

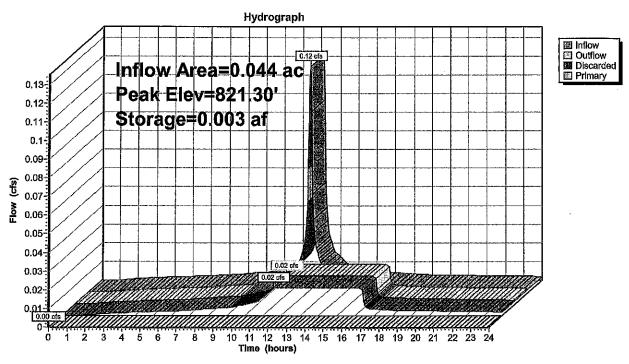




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Pond 2P: INFILTRATION



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Summary for Subcatchment 1S: LOT 4

Runoff

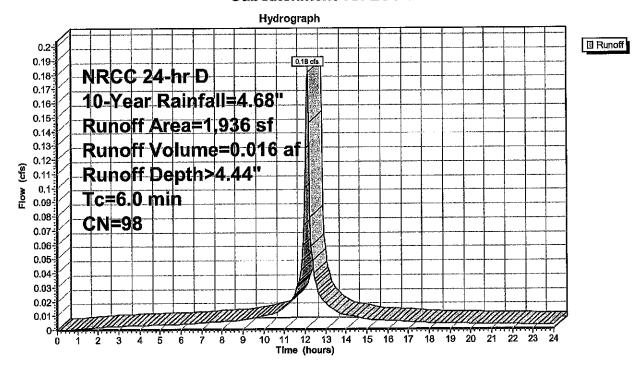
0.18 cfs @ 12.13 hrs, Volume=

0.016 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs NRCC 24-hr D 10-Year Rainfall=4.68"

	Α	rea (sf)	CN [Description		
*		1,936	98 F	ROOF		
		1,936	1	100.00% lm	pervious A	Area
	Tc	•	Slope	-		Description
	(min)_	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	6.0					Direct Entry,

Subcatchment 1S: LOT 4



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Summary for Subcatchment 2S: LOT 6

Runoff

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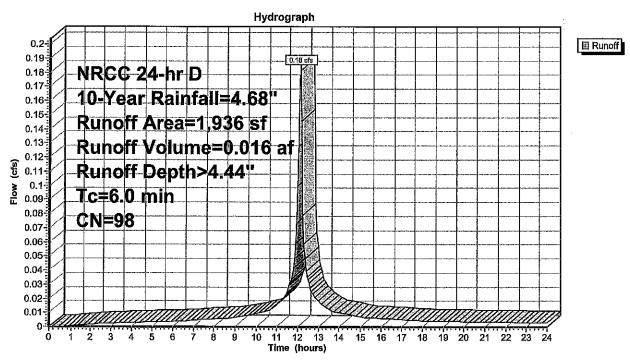
0.18 cfs @ 12.13 hrs, Volume=

0.016 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs NRCC 24-hr D 10-Year Rainfall=4.68"

<i>F</i>	rea (sf)	CN I	Description		
*	1,936	98 F	ROOF		-
	1,936	1	100.00% In	npervious A	ırea
Тс	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	·
6.0					Direct Entry.

Subcatchment 2S: LOT 6



BARROWS ROAD

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Summary for Pond 1P: INFILTRATION

Test pit INFIL-1 used

Inflow Area = Inflow = Outflow = Discarded =	0.044 ac,100.00% Impervious, Inflow Depth > 4.44" for 10-Year event 0.18 cfs @ 12.13 hrs, Volume= 0.016 af 0.02 cfs @ 11.05 hrs, Volume= 0.016 af, Atten= 92%, Lag= 0.0 min 0.02 cfs @ 11.05 hrs, Volume= 0.016 af	
Primary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs Peak Elev= 815.40' @ 13.27 hrs Surf.Area= 271 sf Storage= 219 cf

Plug-Flow detention time= 96.4 min calculated for 0.016 af (100% of inflow)

Center-of-Mass det. time= 95.5 min (846.6 - 751.1)

Volume	Invert	Avail.Storage	Storage Description
#1A 814.00'		176 cf	8.33'W x 32.50'L x 2.04'H Field A
			553 cf Overall - 114 cf Embedded = 439 cf x 40.0% Voids
#2A	814.50'	114 cf	
			Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
			Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
			Row Length Adjustment= +0.50' x 1.86 sf x 2 rows
#3	815.00'	1 cf	4.0" Round Pipe Storage -Impervious
			L= 10.0' S= 0.0100 '/'
#4	815.10'	0 cf	0.33'D x 2.33'H Vertical Cone/Cylinder -Impervious
		200	T (6 2 1 0 (

290 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	814.00'	2.410 in/hr Exfiltration over Horizontal area
#2	Primary	816.50	2.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.02 cfs @ 11.05 hrs HW=814.04' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=814.00' (Free Discharge) —2=Orifice/Grate (Controls 0.00 cfs)

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Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)

Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 2 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

4 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 30.50' Row Length +12.0" End Stone x 2 = 32.50' Base Length

Pond 1P: INFILTRATION - Chamber Wizard Field A

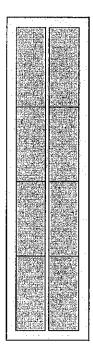
2 Rows x 36.0" Wide + 4.0" Spacing x 1 + 12.0" Side Stone x 2 = 8.33' Base Width 6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

8 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 2 Rows = 113.6 cf Chamber Storage

553.0 cf Field - 113.6 cf Chambers = 439.4 cf Stone x 40.0% Voids = 175.8 cf Stone Storage

Chamber Storage + Stone Storage = 289.3 cf = 0.007 af Overall Storage Efficiency = 52.3% Overall System Size = 32.50' x 8.33' x 2.04'

8 Chambers 20.5 cy Field 16.3 cy Stone

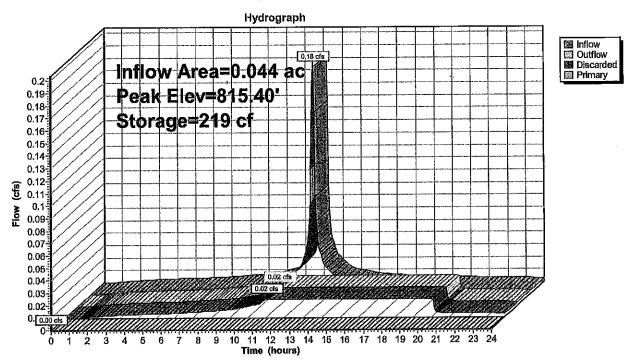




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Pond 1P: INFILTRATION



NRCC 24-hr D 10-Year Rainfall=4.68"

BARROWS ROAD

Test pit INFIL-6 used

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Summary for Pond 2P: INFILTRATION

Inflow Area =	0.044 ac,100.00% Impervious, Inflow Depth > 4.44" for 10-Year event	
Inflow =	0.18 cfs @ 12.13 hrs, Volume= 0.016 af	
Outflow =	0.02 cfs @ 12.50 hrs, Volume= 0.016 af, Atten= 92%, Lag= 22.4 min	
Discarded =	0.02 cfs @ 12.50 hrs, Volume= 0.016 af	
Primary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs Peak Elev= 821.90' @ 13.25 hrs Surf.Area= 0.006 ac Storage= 0.005 af

Plug-Flow detention time= 95.7 min calculated for 0.016 af (100% of inflow) Center-of-Mass det. time= 94.9 min (845.9 - 751.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	820.50'	0.004 af	8.33'W x 32.50'L x 2.04'H Field A
			0.013 af Overall - 0.003 af Embedded = 0.010 af x 40.0% Voids
#2A	821.00'	0.003 af	Cultec C-100HD x 8 Inside #1
			Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
			Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
			Row Length Adjustment= +0.50' x 1.86 sf x 2 rows
#3	821.50'	0.000 af	4.0" Round Pipe Storage
			L= 10.0' S= 0.0100 '/'
		0.007 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	820.50'	2.410 in/hr Exfiltration over Horizontal area
#2	Primary	824.30'	2.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.02 cfs @ 12.50 hrs HW=821.78' (Free Discharge)

1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=820.50' (Free Discharge) —2=Orifice/Grate (Controls 0.00 cfs)

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Pond 2P: INFILTRATION - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)

Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 2 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

4 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 30.50' Row Length +12.0" End Stone x 2 = 32.50' Base Length

2 Rows x 36.0" Wide + 4.0" Spacing x 1 + 12.0" Side Stone x 2 = 8.33' Base Width

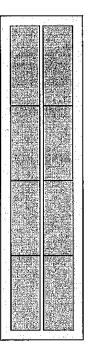
6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

8 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 2 Rows = 113.6 cf Chamber Storage

553.0 cf Field - 113.6 cf Chambers = 439.4 cf Stone x 40.0% Voids = 175.8 cf Stone Storage

Chamber Storage + Stone Storage = 289.3 cf = 0.007 af Overall Storage Efficiency = 52.3% Overall System Size = 32.50' x 8.33' x 2.04'

8 Chambers 20.5 cy Field 16.3 cy Stone



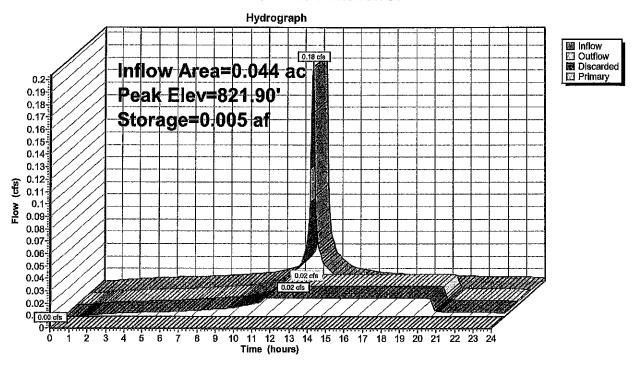


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Pond 2P: INFILTRATION





Commonwealth of Massachusetts City/Town of Worcester

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

A	. Facility Information			
, v.				
	Cleb, LLC			
	Owner Name			
	4 Barrows Rd			
	Street Address		Map/Lot #	
	Worcester	MA	01609	
	City	State	Zip Code	
_				
В.	. Site Information			
4	(Charles) M N Careton (in)			
1.	(Check one) New Construction Up	grade		
2	Soil Survey USDA WSS	307C	Payton Fin	ne Sandy Loam
	Source	Soil Map Unit	Soil Series	le Salidy Loaili
	Ground Moraines, Hills, Drumlines	None	30ii 3eries	
	Landform	Soil Limitations		
	Coarse-Loamy Lodgment till Derived From Gneiss,	Granite, and/or Schist		
	Soil Parent material			
3.	Surficial Geological Report 2018/MassGIS		Thin Till	
	Year Published/Sour	rce	Map Unit	
	Non sort, Non Strat matrix of sand, some silt, little c	lay and scattered pebbles, cobble	s and boulders. Predominatly till	from last Glaciation
	Description of Geologic Map Unit:			
4	Flood Data Ingurance Man Within a resulting		_	
4.	Flood Rate Insurance Map Within a regulator	ry floodway? 🔲 Yes 🛛 N	0	
_	Within a velocity zone? ☐ Yes ☐ No			
Э.	Within a velocity zone? Yes No			
e	Within a Manned Wetland Area?	If yes, Mass	sGIS Wetland Data Layer:	
о.	Within a Mapped Wetland Area?	No ii yes, was		Wetland Type
7.	Current Water Resource Conditions (USGS):	06/13/2024	Range: Above Normal	
		Month/Day/ Year		
8.	Other references reviewed:			
	(Zone II, IWPA, Zone A, EEA Data Portal, etc.)			



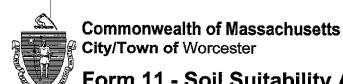
4 Barrows Rd Worcester Soil Logs 1+2.doc

Commonwealth of Massachusetts City/Town of Worcester

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

Deep	Observation	ı Hole Numb		06/13/	<u>/2024 8:</u>	00am		Sunny		42.30380	<u>-71.84550</u>	
			Hole #	Date		me		Weather		Latitude	Longitude 0-5%	
. Land	Use <u>Lawn</u>							None Surface Stones (e.g., cobbles, stones, boulders, etc.)				
	, -	_	ural field, vacant lot, e	•	Vegetation		Surfa	ce Stones (e.g.,	cobbles, sto	ines, boulders, etc	c.) Slope (%)	
escriptio	n of Location	: Ab	andoned Lawn next t	o building								
Sail D	oront Motoric	de Coorne I	aamul adamant i	-: [[Hill			Flat portio	n on elon	o of Hill		
. 3011 F	areni Malena	ıı. <u>Coarse-L</u>	oamy Lodgment	LIII	Landform			Position on I	Landscape (SU, SH, BS, FS,	TS. Plain)	
		0	- Motor Body A	00 ++		Drainage	o Most I				ds <u>800</u> feet	
. Distan	ices from:	Oper	n Water Body <u>4</u>	euu reet		Dramay	e way <u>y</u>	ooo teet		vveuaiii	15 <u>000</u> leet	
		ı	Property Line <u>5</u>	in feet	Dri	nking Wate	er Well I	N/A feet		Othe	er feet	
ļ						•	-					
. Unsui	table Materia	als Present:	🛛 Yes 🗌 No	If Yes:		Fill Material		☐ Weathered/	Fractured I	Rock 🔲 Bed	Irock	
. Grour	idwater Obse	erved: 🗌 Yes	⊠ No		If yes:	Depth t	to Weepin	g in Hole		Depth to Star	nding Water in Hole	
					Soi	Log						
					,,		Coare	a Erzamente	Τ			
	Soil Horizon	Soil Texture	Soil Matrix: Color-		Redoximorphic Featu			e Fragments by Volume	Soîl	Soil	Other	
Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color- Moist (Munsell)		Redoximorphic Featu	res	% b	y Volume Cobbles &	Soil Structure	Soil Consistence (Moist)	Other	
Depth (in)				Depth	Redoximorphic Featu			y Volume		Consistence	Other	
	/Layer				Redoximorphic Featu Color Cnc :	res	% b	y Volume Cobbles &		Consistence	Other	
Depth (in)					Color Cnc: Dpl:	res	% b	y Volume Cobbles &		Consistence	Other	
0"-12"	/Layer	(USDA	Moist (Munsell)		Color Cnc: Dpl: Cnc:	res	% b	y Volume Cobbles &		Consistence	Other	
	/Layer				Color Cnc: Dpl: Cnc: Dpl:	res	% b	y Volume Cobbles &	Structure	Consistence (Moist)	Other	
0"-12"	/Layer Fill Ab	(USDA FSL	Moist (Munsell)		Color Cnc: Dpl: Cnc: Dpl: Cnc: Cnc:	res	% b	y Volume Cobbles &	Gran	Consistence (Moist)	Other	
	/Layer	(USDA	Moist (Munsell)		Color Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc:	res	% b	y Volume Cobbles &	Structure	Consistence (Moist)	Other	
0"-12" 12"-24" 24"-36	/Layer Fill Ab Bb	FSL FSL	Moist (Munsell) 10YR 2/2 10YR 3/6	Depth	Color Cnc: Dpl: Cnc: Dpl: Cnc: Cnc:	res	% b	Cobbles & Stones	Gran Gran	Consistence (Moist) Fri	Other	
0"-12"	/Layer Fill Ab	(USDA FSL	Moist (Munsell)		Color Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc:	res	% b	y Volume Cobbles &	Gran	Consistence (Moist)	Other	
0"-12" 12"-24" 24"-36	/Layer Fill Ab Bb	FSL FSL	Moist (Munsell) 10YR 2/2 10YR 3/6	Depth	Color Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Cnc:	res	% b	Cobbles & Stones	Gran Gran	Consistence (Moist) Fri	Other	
0"-12" 12"-24" 24"-36	/Layer Fill Ab Bb	FSL FSL	Moist (Munsell) 10YR 2/2 10YR 3/6	Depth	Color Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Dpl: Dpl:	res	% b	Cobbles & Stones	Gran Gran	Consistence (Moist) Fri	Other	
0"-12" 12"-24" 24"-36	/Layer Fill Ab Bb	FSL FSL	Moist (Munsell) 10YR 2/2 10YR 3/6	Depth	Color Cnc: Dpl: Cnc:	res	% b	Cobbles & Stones	Gran Gran	Consistence (Moist) Fri	Other	

Form 11 – Soil Suitability Assessment for On-Site Sewage Disposal • Page 2 of 5



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

Dee	p Observ	ation	Hole Numb			3/2024	<u>8:30</u> e	ım	<u>s</u>	unny		42.30385	<u>-71.8455</u> 2
_		_		Hole #	Date		Time			/eather		Latitude	Longitude
. Land	d∙Use:	Lawn			-4 -4- \		s Deco Plant	ts	None				0-5%
			=	ultural field, vacant le	•	-	tation		Surface	e Stones (e.g.,	cobbles, sto	nes, boulders, etc.	Slope (%)
Des	cription of	Locat	ion:	Abandoned Lawn r	next to buil	aing	*					<u> </u>	
Soil	Parent Ma	terial	· Coarse-l	oamy Lodgmen	t till		Hill			Elat porti	on on slop	o of Hil	
. 001	i areni ivi	iteriai.	. <u>Odarse-i</u>	Loamy Eougmen	L till		Landform					(SU, SH, BS, FS,	TS, Plain)
i Diets	ances fror	-	Oper	Water Body 4	INN foot)rainage	May 6				is <u>800</u> feet
. Disk	ances noi	1-	Oper	i Water Dody	roo leel		_	namay e	way <u>o</u>	<u>ov</u> leet		vvetiani	12 <u>000</u> leef
			F	Property Line 5	0 feet		Drinkin	ig Water	Well N	I/A feet		Othe	r feet
					_			_					
. Unsui	table Mate	rials I	Present: 🛛	Yes No	lf Yes:	☑ Disturb	ed Soil/Fill Ma	iterial	□ V	Veathered/Fr	actured Ro	ck 🗌 Bedroo	k
			_						~				
. Gro	undwater (Obser	ved: Yes	⊠ No			If yes	:	Depth to	Weeping in Ho	le _	Depth Stan	ding Water in Hole
. Gro	undwater (Obser	ved:□ Yes	⊠ No			_		Depth to	Weeping in Ho	le _	Depth Stan	ding Water in Hole
. Gro	undwater (Obser	ved: Yes	⊠ No		D. d. arian	Soil Lo	og			le _		ding Water in Hole
	Soil Ho	izon	Soil Texture	Soil Matrix: Color-		Redoximo	_	og	Coarse	Fragments y Volume	Soil	Soil	
Depth (i	Soil Ho	izon			Depth		Soil Lo	og	Coarse	Fragments	<u> </u>		ding Water in Hole Other
Depth (i	Soil Ho	izon	Soil Texture	Soil Matrix: Color-		Cnc :	Soil Lo	og	Coarse % by	Fragments y Volume Cobbles &	Soil	Soil Consistence	
	Soil Ho	izon	Soil Texture	Soil Matrix: Color-		Cnc : Dpl:	Soil Lo	og	Coarse % by	Fragments y Volume Cobbles &	Soil	Soil Consistence	
Depth (i	n) Soil Ho	izon er	Soil Texture	Soil Matrix: Color-		Cnc: Dpl: Cnc:	Soil Lo	og	Coarse % by	Fragments y Volume Cobbles &	Soil	Soil Consistence	
Depth (i	n) Soil Ho	izon er	Soil Texture (USDA)	Soil Matrix: Color- Moist (Munsell)		Cnc: Dpl: Cnc: Dpl:	Soil Lo	og	Coarse % by	Fragments y Volume Cobbles &	Soil Structure	Soil Consistence (Moist)	
Depth (i	Soil Hor/Lay	izon	Soil Texture (USDA)	Soil Matrix: Color- Moist (Munsell)		Cnc: Dpl: Cnc: Dpl: Cnc:	Soil Lo	og	Coarse % by	Fragments y Volume Cobbles &	Soil Structure	Soil Consistence (Moist)	
Depth (ii 0"-8" 8"-13"	Soil Hor/Lay	izon	Soil Texture (USDA) FSL FSL	Soil Matrix: Color- Moist (Munsell) 10YR 2/2 10YR 3/6	Depth	Cre : Dpl: Cne : Dpl: Cne : Dpl: Cne : Dpl:	Soil Lo	og	Coarse % by Gravel	Fragments y Volume Cobbles & Stones	Soil Structure Gran Gran	Soil Consistence (Moist) Fri	
Depth (ii 0"-8"	Soil Hor/Lay	izon	Soil Texture (USDA) FSL	Soil Matrix: Color- Moist (Munsell) 10YR 2/2		Cnc: Dpl: Cnc: Dpl: Cnc:	Soil Lo	og	Coarse % by	Fragments y Volume Cobbles &	Soil Structure Gran	Soil Consistence (Moist)	
Depth (ii 0"-8" 8"-13"	Soil Hor/Lay	izon	Soil Texture (USDA) FSL FSL	Soil Matrix: Color- Moist (Munsell) 10YR 2/2 10YR 3/6	Depth	Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc:	Soil Lo	og	Coarse % by Gravel	Fragments y Volume Cobbles & Stones	Soil Structure Gran Gran	Soil Consistence (Moist) Fri	
Depth (ii 0"-8" 8"-13"	Soil Hor/Lay	izon	Soil Texture (USDA) FSL FSL	Soil Matrix: Color- Moist (Munsell) 10YR 2/2 10YR 3/6	Depth	Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl:	Soil Lo	og	Coarse % by Gravel	Fragments y Volume Cobbles & Stones	Soil Structure Gran Gran	Soil Consistence (Moist) Fri	
Depth (ii 0"-8" 8"-13"	Soil Hor/Lay	izon	Soil Texture (USDA) FSL FSL	Soil Matrix: Color- Moist (Munsell) 10YR 2/2 10YR 3/6	Depth	Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Cnc:	Soil Lo	og	Coarse % by Gravel	Fragments y Volume Cobbles & Stones	Soil Structure Gran Gran	Soil Consistence (Moist) Fri	



Commonwealth of Massachusetts City/Town of Worcester

D. Determination of High Groundwater Elevation

If yes, at what depth was it observed (exclude O, A, and E Horizons)?

If no, at what depth was impervious material observed?

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

		9						
1.	Me	thod Used (Choose one):		Obs. Hole # <u>Infl-1</u>		Obs. Hole #Infl-2		
	\boxtimes	Depth to soil redoximorphic features		<u>72</u> inches		<u>72</u> inches		
		Depth to observed standing water in observation	ion hole	inches		inches		
		Depth to adjusted seasonal high groundwater (USGS methodology)	· (S _h)	inches		inches		
		Index Well Number	Reading Date					
		$S_h = S_c - [S_r \times (OW_c - OW_{max})/OW_r]$						
		Obs. Hole/Well# Sc	Sr	OW _c	OW _{max} _	OWr	S _h	
E.	De	epth of Pervious Material						
1.	Der	oth of Naturally Occurring Pervious Material						
	a.	Does at least four feet of naturally occurring p	ervious material ex	ist in all areas observe	ed througho	out the area proposed for t	he soil absorption sys	stem?
		✓ Ves ☐ No						

Upper boundary:

Upper boundary:

inches

Lower boundary:

Lower boundary:

61

inches



4 Barrows Rd Worcester Soil Logs 3+4.doc.docx

Commonwealth of Massachusetts City/Town of Worcester

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

Deel	Observation	ı Hole Numb		06/13		9:00am		Sunny		42.30393	<u>-71.84557</u>
			Hole#	Date		Time	V	Veather		Latitude	Longitude
. Land	Use <u>Lawn</u>				Grass, Decro P	ants	None				0-5%
	•	-	ural field, vacant lot, e	=	Vegetation		Surfac	e Stones (e.g.,	cobbles, sto	ones, boulders, etc	c.) Slope (%)
escripti	on of Location	: <u>At</u>	pandoned Lawn next	to building							<u></u>
. Soil	Parent Materia	il: <u>Coarse-L</u>	oamy Lodgment	till	Hill Hill			Flat portion			
					Landfo	m		Position on I	Landscape (SU, SH, BS, FS,	rs, Plain)
. Dista	inces from:	Ope	n Water Body 4	100 feet		Drainag	e Way <u>6</u>	600 feet		Wetland	ds <u>800</u> feet
			Property Line 5	00 feet	D	rinking Wate	erWell <u>N</u>	<u>√A</u> feet		Othe	er feet
Upo	iitabla Matari	ola Broopst:	⊠ Yes □ No	If Voo:	⊠ Diaturbad Sa	II/EIII Matarial	_] Weathered/	/Eracturad i	Book D Bod	iraal
. Uns	illable Maleri	als Present.	☑ res ☐ No	ii res:	☑ Disturbed 50	n/rin iviateriai	L	1 wearnered	Fractured .	Rock 🔲 Bed	IFOCK
_			K								
. Grou	ndwater Obse	erved: Yes	s 🖾 No		It yes:	Depth	to Weeping	j in Hole		Depth to Star	nding Water in Hole
					Sc	il Log					
							Coarse	Fragments			
	Soil Horizon	Soil Texture	Soil Matrix: Color-					y Volume	Soil	Soil Consistence	Other
Depth (in	/Layer	(USDA	Moist (Munsell)	Depth	Color	Percent	Gravel	Cobbles &	Structure	(Moist)	Other
				Depail		Percent	Graver	Stones		, ,	
						II					
∩"_/\"	Fill				Cnc:						
0"-4"	Fill				Dpl:						
<u> </u>		Fel	10VP 2/2						Gran	Eri	
0"-4" 4"-7"	Fill Ab	FSL	10YR 2/2		Dpl:				Gran	Fri	
4"-7"	Ab				Dpl: Cnc :						
		FSL FSL	10YR 2/2 10YR 3/6		Dpl: Cnc : Dpl:				Gran	Fri Fri	
4"-7" 7"-32	Ab Bb	FSL	10YR 3/6		Dpl: Cnc : Dpl: Cnc : Dpl:				Gran	Fri	
4"-7" 7"-32	Ab Bb			72"	Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl:		15%	15%			
4"-7" 7"-32	Ab Bb	FSL	10YR 3/6	72"	Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc:		15%	15%	Gran	Fri	
4"-7" 7"-32	Ab Bb	FSL	10YR 3/6	72"	Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Cnc:		15%	15%	Gran	Fri	
4"-7" 7"-32	Ab Bb	FSL	10YR 3/6	72"	Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Dpl:		15%	15%	Gran	Fri	
4"-7"	Ab Bb	FSL	10YR 3/6	72"	Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Dpl: Cnc: Cnc:		15%	15%	Gran	Fri	

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal • Page 2 of 5



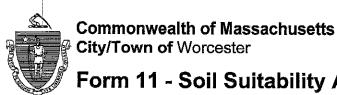
4 Barrows Rd Worcester Soil Logs 3+4.doc.docx

Commonwealth of Massachusetts City/Town of Worcester

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

Hole # Date Time Weather Latitude Longit (e.g., woodland, agricultural field, vacant lot, etc.) Description of Location: Cleared Lot next to building Cleared Lot next to building Description of Location: Cleared Lot next to building Cleared Lot next to building Description of Location: Cleared Lot next to building Hill Flat portion on slope of Hil Position on Landscape (SU, SH, BS, FS, TS, Plain) Destinances from: Open Water Body 400 feet Property Line 50 feet Drinking Water Well N/A feet Other Unsuitable Materials Present: Yes No If Yes: Disturbed Soil/Fill Material Weathered/Fractured Rock Bedrock Few cobbles Surface Stones (e.g., cobbles, stones, boulders, etc.) Flat portion on slope of Hil Position on Landscape (SU, SH, BS, FS, TS, Plain) Drainage Way 600 feet Wetlands 800 feet Other 4. Unsuitable Materials Present: Yes No If Yes: Disturbed Soil/Fill Material Weathered/Fractured Rock Bedrock Soil Log Redoximorphic Features Soil Hortzon Soil Tayture Soil Material Soil	U. C)'n-	Site Re	evie	W (minimu	um of two hol	es requ	uired a	at every	proposed p	orimary a	and reserv	re dispo	sal area)	
Land Use: Cleared Lot (e.g., woodland, agricultural field, vacant lot, etc.) Vegetation	D	eep	Observa	tion H	lole Numbe	er: <u>INFL-4</u>		3/2024		9:30am	s	Sunny			<u>-71.84608</u>
Ceg., woodland, agricultural field, vacant lot, etc.) Vegetation Surface Stones (e.g., cobbles, stones, boulders, etc.) Stope						Hole#	Date			Time		Veather		Latitude	Longitude
Description of Location: Cleared Lot next to building Flat portion on slope of Hill Landform Position on Landscape (SU, SH, BS, FS, TS, Plain)	1. La	and								weeds					0-5%
2. Soil Parent Material: Coarse-Loamy Lodgment till Hill Flat portion on slope of Hil Position on Landscape (SU, SH, BS, FS, TS, Plain) 3. Distances from: Open Water Body 400 feet Drainage Way 600 feet Wetlands 800 feet Wetlands 800 feet Wetlands 800 feet Other Property Line 50 feet Drinking Water Well M/A feet Other 4. Unsuitable Materials Present: Yes No If Yes: Disturbed Soil/Fill Material Weathered/Fractured Rock Bedrock 5. Groundwater Observed: Yes No If Yes: Depth to Weeping in Hole Depth Standing Water in Soil Log Soil Log Soil Horizon / Layer Soil Texture (USDA) Soil Matrix: Color Moist (Munsell) Depth Color Percent Gravel Cobbles & Structure (Moist) O"-10" A FSL 10YR 2/2 Onc: Spl: Gran Fri 10"-34" B FSL 10YR 3/6 Onc: Depth: SubAng Comp 70"-100" C2 LS 2.5Y 7/3 72" Onc: Depth: Onc: De			((e.g., wo	=		-	Ve	getation		Surface	e Stones (e.g.,	cobbles, sto	nes, boulders, etc.) Slope (%)
Landform	D	esc	ription of L	ocatic.	on:	Cleared Lot next to	building								
A. Unsuitable Materials Present: Open Water Body 400 feet Drainage Way 600 feet Wetlands 800 feet	2. S	oil F	Parent Mat	erial:	Coarse-L	oamy Lodgmen	nt till								
Property Line 50 feet Drinking Water Well N/A feet Other									Landfo	orm		Position on	Landscape	(SU, SH, BS, FS,	TS, Plain)
4. Unsuitable Materials Present:	3. D	ista	nces from	:	Open	Water Body 4	<u>100</u> feet			Drainag	e Way <u>6</u>	00 feet		Wetland	ls <u>800</u> feet
Soil Horizon Custon Soil Horizon Custon Soil Matrix: Color (USDA) Soil Mat					F	Property Line 5	5 <u>0</u> feet			Prinking Wate	er Well <u>N</u>	I/A feet		Othe	er feet
Depth (in) Soil Horizon /(Layer CusDA) Soil Matrix: Color Moist (Munsell) Depth Color Percent Gravel Cobbles & Stones Stones Stones Stones Consistence (Moist) Color Col	4. Uns	suita	able Mater	ials Pi	resent: 🛚	Yes 🗌 No	If Yes:	⊠ Dist	urbed Soil/	Fill Material	□ v	Weathered/Fr	actured Ro	ck 🔲 Bedroo	k
Depth In Depth In Depth In Depth Soil Harrix: Color Depth Color	5. G	rou!	ndwater O	bserve	ed: 🗌 Yes	⊠ No				If yes:	_ Depth to	Weeping in Ho	le _	Depth Stan	ding Water in Hole
Depth (in) Soil Horizon //Layer Soil Texture (USDA) Soil Matrix: Color Moist (Munsell) Depth Color Percent Gravel Cobbles & Stones Structure (Moist) Consistence (Moist)									S	oil Log					
Color Percent Gravel Cobbles & Stones Structure (Moist)	Denti) (in'					-	Redoxi	morphic Fe	atures		y Volume			Other
0"-10" A FSL 10YR 2/2 Dpl: Gran Fri 10"-34" B FSL 10YR 3/6 Cnc : Dpl: SubAng Comp 34"-70" C1 SL 2.5Y 7/3 72" Cnc : Dpl: 15% SubAng Comp 70"-100" C2 LS 2.5Y 7/3 72" Cnc : Dpl: 15% SubAng Comp Cnc : Dpl: Dpl: Cnc : Dpl: Dpl	Бори		' /Layeı		(USDA)	Moist (Munsell)	Depth		Color	Percent	Gravel		Structure		
10"-34" B	0"-1	 0"	А		FSL	10YR 2/2							Gran	Fri	
Total St	10"-	34"	В		FSL	10YR 3/6		-					Gran	Fri	
70"-100" C2 LS 2.5Y 7/3 72" Dpl: 15% 15% SubAng Comp Cnc : Dpl: Cnc : Dpl: Cnc : Dpl: Cnc : Dpl: Dpl: Cnc : Dpl: Cnc : Dpl: Dpl: Cnc : Dpl: Dpl:	34"-	70"	C1		SL	2.5Y 7/3							SubAng	Comp	
Dpl: Cnc : Dpl: Dpl:	70"-1	00'	" C2		LS	2.5Y 7/3	72"				15%	15%	SubAng	Comp	
Dpl:	ı														
Additional Notes:															
Augilional Notes.	A	ddit	ional Note	 s:		<u> </u>	<u> </u>			1		1			

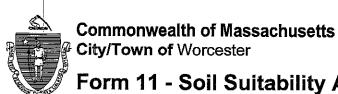
Form 11 – Soil Suitability Assessment for On-Site Sewage Disposal • Page 3 of 5



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

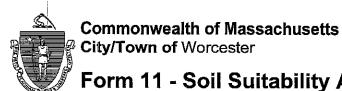
D. Determination of High Groundwater Elevation

1.	Me	thod Used (Choose one):		Obs. Hole # <u>Infl-3</u>	0	bs. Hole# <u>Infl-4</u>			
		Depth to soil redoximorphic features		72 inches	<u>72</u>	72 inches			
		Depth to observed standing water in observati	on hole	inches	_	inches			
		Depth to adjusted seasonal high groundwater (USGS methodology)	(Sh)	inches	_	inches			
		Index Well Number	Reading Date						
		$S_h = S_c - [S_r \times (OW_c - OW_{max})/OW_r]$							
		Obs. Hole/Weli# S _c	OW _c	OW _{max}	OW _r	Sh _			
E.	De	pth of Pervious Material						<u>.</u>	
1.	Dep	oth of Naturally Occurring Pervious Material							
	a.	Does at least four feet of naturally occurring po	ervious material exi	ist in all areas observed	throughout	t the area proposed for t	he soil abso	rption svstem	?
					3			,	
		_							
	b.	If yes, at what depth was it observed (exclude C	Upper boundary:		Lower bour	ıdary:	58 inches		
	ļ				inches			maies	
	C.	If no, at what depth was impervious material o	bserved?	Upper boundary:		Lower bour	ıdary:	 	
					inches			inches	



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

Observation	า Hole Numb		06/13		10:00am		Sunny		42.30356	<u>-71.84596</u>
OI-		Hole #	Date					·	Latitude	Longitude
		ural field vegent let	nto \		<u>ds</u>					0-5%
			-	vegetation		Surra	ice Stones (e.g.,	coddies, sto	nes, boulders, et	c.) Slope (%)
Parent Materia	al: <u>Coarse-L</u>	oamy Lodgment	till	Hill						
				Landfor	m		Position on I	_andscape (SU, SH, BS, FS,	TS, Plain)
nces from:	Oper	n Water Body	400 feet		Drainag	e Way	600 feet		Wetland	ds <u>800</u> feet
]	Property Line	50 feet	Di	rinking Wate	er Well	N/A feet		Othe	er feet
itable Materi	als Present:	⊠ Yes □ No	If Yes:	□ Disturbed Soil □ Disturbed Soil	I/Fill Material] Weathered/	Fractured I	Rock Bed	lrock
	. —									
ndwater Obse	erved: L_ Yes	; ⊠ No		If yes: _	Depth t	to Weepin	ıg in Hole		Depth to Star	nding Water in Hole
				So	il Log					
Soil Horizon	Soil Texture	Soil Matrix: Color-	1	Redoximorphic Feat	ures			Soil	Soil	Other
/Layer	(USDA	Moist (Munsell)	Depth	Color	Percent	Gravel	Cobbles & Stones	Structure	(Moist)	Other
A	FSI	10YR 2/2		Cnc:				Gran	Fri	
				•						
В	FSL	10YR 3/6		Cnc: Dpl:	-			Gran	Fri	
				-						
_				Cnc:			4-54		_	
С	LS	2.5Y 7/3	72"	One : Opi:	-	15%	10%	SubAng	Comp	
С	LS	2.5Y 7/3	72"			15%	10%	SubAng	Comp	
С	LS	2.5Y 7/3	72"	Dpl:	_	15%	10%	SubAng	Comp	
С	LS	2.5Y 7/3	72"	Opl: Cnc :		15%	10%	SubAng	Comp	
С	LS	2.5Y 7/3	72"	Dpl: Cnc : Dpl:		15%	10%	SubAng	Comp	
С	LS	2.5Y 7/3	72"	Dpl: Cnc : Dpl: Cnc :	_	15%	10%	SubAng	Comp	
	(e.g., won of Location of Loca	(e.g., woodland, agricult on of Location: Clarent Material: Coarse-Larces from: Operation of Location: Clarent Material: Coarse-Larces from: Operation of Layer Soil Texture (USDA A FSI	(e.g., woodland, agricultural field, vacant lot, en of Location: Cleared Lot next to built on of Location: Property Line Property Line Yes No No Soil Horizon Cleared Lot next to built on of Location: Property Line Yes No Soil Horizon Cleared Lot next to built on of Location: Property Line Yes No Soil Horizon Cleared Lot next to built on of Location: Property Line Yes No Soil Horizon Cleared Lot next to built on of Location: Property Line Yes No Soil Horizon Cleared Lot next to built on of Location: Property Line Yes No Soil Horizon Cleared Lot next to built on of Location: Property Line Yes No Soil Horizon Cleared Lot next to built on of Location: Property Line Yes No Soil Horizon Cleared Lot next to built on of Location: Property Line Yes No Soil Horizon Cleared Lot next to built on of Location: Property Line Yes No Soil Horizon Cleared Lot next to built on of Location: Property Line Yes No Soil Horizon Cleared Lot next to built on of Location: Property Line Yes No	Use Cleared Lot (e.g., woodland, agricultural field, vacant lot, etc.) on of Location: Cleared Lot next to building Parent Material: Coarse-Loamy Lodgment till nces from: Open Water Body 400 feet Property Line 50 feet itable Materials Present: Yes No If Yes: ndwater Observed: Yes No Soil Horizon / Layer (USDA Soil Matrix: Color-Moist (Munsell) A FSI 10YR 2/2	Use Cleared Lot (e.g., woodland, agricultural field, vacant lot, etc.) On of Location: Cleared Lot next to building Parent Material: Coarse-Loamy Lodgment till Landfor nees from: Open Water Body 400 feet Property Line 50 feet Property Line 50 feet Disturbed Soin dwater Observed: Yes No If Yes: Soil Horizon / Layer Soil Texture (USDA A FSI 10YR 2/2 B FSI 10YR 3/6 Soil Texture (USDA Plyr trees, wee Vegetation Property Lot, etc.) Property Line 50 feet Disturbed Soin Redoximorphic Feat Depth Color Cnc: Dpl: Cnc:	Use Cleared Lot (e.g., woodland, agricultural field, vacant lot, etc.) on of Location: Cleared Lot next to building Parent Material: Coarse-Loamy Lodgment till Drainage Property Line 50 feet Drinking Water Body Advanter Observed: Property Line 50 feet Drinking Water Body Advanter Observed: Property Line 50 feet Drinking Water Body Advanter Observed: Property Line 50 feet Drinking Water Body Advantage Feet Drinking Water Body Feet Drinking Water Body Advantage Feet Drinking Water Body Feet Drinkin	Use Cleared Lot (e.g., woodland, agricultural field, vacant lot, etc.) Parent Material: Coarse-Loamy Lodgment till Property Line 50 feet The modern of Depth to Weeping Mater Observed: Soil Horizon / Layer Soil Texture (USDA) Property Line Soil Matrix: Color-Moist (Munsell) Soil Horizon / Layer A FSI 10YR 2/2 B FSI 10YR 2/2 Property to hack if etc.) Soly rees, weeds Yeg Surface Few Yegetation Few Yegetation Few Yegetation Few Surface Few Surface Few Yegetation Few Surface Few Yegetation Few Surface Fe	Use Cleared Lot (e.g., woodland, agricultural field, vacant lot, etc.) (e.g., on of Location: Cleared Lot next to building Parent Material: Coarse-Loamy Lodgment till Hill Flat portion Position on I Landform Property Line 50 feet Property Line 50 feet Property Line 50 feet Drinking Water Well N/A feet itable Materials Present: Yes No If Yes: Disturbed Soil/Fill Material Weathered/ Indwater Observed: Yes No If Yes: Depth to Weeping in Hole Soil Log Soil Horizon /Layer Soil Texture (USDA Moist (Munsell)) Pepth Color Percent Gravel Cobbles & Stones Conc: Depth Color Percent Gravel Cobbles & Stones	Use Cleared Lot (e.g., woodland, agricultural field, vacant lot, etc.) on of Location: Cleared Lot next to building Parent Material: Coarse-Loamy Lodgment till Hill Landform Flat portion on slope Position on Landscape (Drainage Way 600 feet Property Line 50 feet Drinking Water Well N/A feet Property Line 50 feet Drinking Water Well N/A feet Weathered/Fractured I Weathered/Fractured I Weathered/Fractured I Soil Horizon (USDA Soil Texture (USDA Moist (Munsell)) A FSI 10YR 2/2 Cnc: Depth Color Percent Gravel Cobbles Surface Stones (e.g., cobbles, store) Surface Stones (e.g., cobbles, store) Vegetation Surface Stones (e.g., cobbles, store) Few Cobbles Surface Stones (e.g., cobbles, store) Surface Stones (e.g., cobbles, store) Few Cobbles Surface Stones (e.g., cobbles, store) Few Cobbles Surface Stones (e.g., cobbles, store) Few Cobbles Surface Stones (e.g., cobbles, store) Few Cobbles, store) Few Cobbles Surface Stones (e.g., cobbles, store) Few Co	Use Cleared Lot (e.g., woodland, agricultural field, vacant lot, etc.) on of Location: Cleared Lot next to building Parent Material: Coarse-Loamy Lodgment till Coarse-Loamy Lodgment till Flat portion on slope of Hill Landform Position on Landscape (SU, SH, BS, FS, Inces from: Open Water Body Property Line Froperty Line Fr

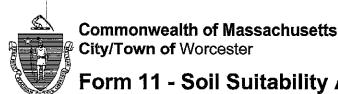


4 Barrows Rd Worcester Soil Logs 5+6.doc.docx

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

Land Use: Cleared Lot Cleared Lot next to building Surface Stones (e.g., cobbles, stones, boulders, etc.) Description of Location: Cleared Lot next to building Position on Location: Cleared Lot next to building Position on Location: Cleared Lot next to building Position on Location: Position on Location: Position on Location: Position on Landscape (SU, SH, BS, FS, TS, Plain)	Land Use: Cleared Lot Cleared Lot next to building Cleared Lot next to building	Hole # Date Time Weather Latitude Longitude O-5%			-Oilo iv	CVIC	•• (111111111111	וטוז טשו וט וווג	es requ	iirea a	it every	proposed p	orimary	and reserv	∕e dispo	sal area)	
Land Use: Cleared Lot Cleared Lot next to building	Land Use: Cleared Lot Cleared Lot next to building Clea	Land Use: Cleared Lot (e.g., woodland, agricultural field, vacant lot, etc.) Vegetation	[)ee	p Observa	ation H	lole Numbe			/2024				Sunny			<u>-71.846</u> 00
Ceg., woodland, agricultural field, vacant lot, etc.) Vegetation Surface Stones (e.g., cobbles, stones, boulders, etc.) Slope (% Description of Location: Cleared Lot next to building Cleared Lot next to bu	(e.g., woodland, agricultural field, vacant lot, etc.) Description of Location: Cleared Lot next to building Cleared Lot next to building Description of Location: Cleared Lot next to building Cleared Lot next to building Landform Position on Landscape (SU, SH, BS, FS, TS, Plain) To perform on Slope of Hill Flat portion on slope of Hill Position on Landscape (SU, SH, BS, FS, TS, Plain) Drainage Way 600 feet Property Line 50 feet Drinking Water Well N/A feet Other	(e.g., woodland, agricultural flied, vacant lot, etc.) Description of Location: Cleared Lot next to building Cleared Lot next to building Description of Location: Cleared Lot next to building Cleared Lot next to building Description of Location: Cleared Lot next to building Cleared Lot next to building Hill Elat portion on slope of Hill Position on Landscape (SU, SH, BS, FS, TS, Plain) Position on Landscape (SU, SH, BS, FS, TS, Plain) Depth of the standard of						Hole#	Date				V	Veather		Latitude	Longitude
Description of Location: Cleared Lot next to building 2. Soit Parent Material: Coarse-Loamy Lodgment till Hill Landform Position on slope of Hill Position on Landscape (SU, SH, BS, FS, TS, Plain) 3. Distances from: Open Water Body 400 feet Drainage Way 600 feet Wetlands 800 feet Wetlands 800 feet Property Line 50 feet Draining Water Well N/A feet Other feet Unsuitable Materials Present: Yes No If Yes: Disturbed Soil/Fill Material Weathered/Fractured Rock Bedrock 5. Groundwater Observed: Yes No If Yes: Depth to Weeping in Hole Depth Standing Water in House Soil Log Depth (in) Soil Horizon (USDA) Soil Texture (USDA) Soil Matrix: Color Moist (Munsell) Depth Color Percent Gravel Stones O"-10" A FSL 10YR 2/2 Cnc: Depth Color Soil Gravel Stones Fig. 10YR 3/6 Cnc: Depth SubAng Comp O"-10" C1 SL 2.5Y 7/3 72" Cnc: Depth SubAng Comp O"-10" C2 LS 2.5Y 7/3 72" Cnc: Depth SubAng Comp On: On: Depth Conc: Depth SubAng Comp Cnc: Depth SubAng Comp Cnc: Depth SubAng Comp	Description of Location: Cleared Lot next to building Flat portion on slope of Hill Landform Position on Landscape (SU, SH, BS, FS, TS, Plain)	Description of Location: Cleared Lot next to building Coarse-Loamy Lodgment till Hill Landform Position on slope of Hill Position on Landscape (SU, SH, BS, FS, TS, Plain)	1. L	.αἡα	d Use:			<u>.</u> .				weeds					
2. Soil Parent Material: Coarse-Loamy Lodgment till Hill Landform Position on Landscape (SU, SH, BS, FS, TS, Plain) 3. Distances from: Open Water Body 400 feet Property Line 50 feet Drainage Way 600 feet Wetlands 800 feet	Parent Material: Coarse-Loamy Lodgment till Hill Landform Position on slope of Hil Landform Position on Landscape (SU, SH, B3, FS, TS, Plain)	2. Soil Parent Material: Coarse-Loamy Lodgment till Hill Flat portion on slope of Hill Position on Landscape (SU, SH, BS, FS, TS, Plain) 3. Distances from: Open Water Body 400 feet Drainage Way 600 feet Wetlands 800 feet Property Line 50 feet Drinking Water Well N/A feet Other fee 4. Unsuitable Materials Present: Yes No If Yes: Disturbed Soil/Fill Material Weathered/Fractured Rock Bedrock 5. Groundwater Observed: Yes No If Yes: Depth to Weeping in Hole Depth Standing Water in Hole Soil Log Soil Log Redoximorphic Features Coarse Fragments Stones Structure (USDA) Percent One Soil Texture (USDA) Percent One Soil Texture (USDA) Percent One Soil Matrix: Color Percent Gravel Cobbles & Structure (Moist) Percent One Soil Cone: Depth Standing Water in Hole Stones One Soil Cone: Depth Standing Water in Hole Stones One Soil Cone: Depth Standing Water in Hole Soil Cone: Depth Standing Water in Hole Soil Cone: Depth Standing Water in Hole Soil Cone: Stones One Soil Cone: Depth One Soil Cone: Depth Standing Water in Hole Stones One Soil Cone: Depth One Soil Cone Soil Cone Soil Cone: Depth One Soil Cone Soil Cone: Depth One Soil Cone So				(e.g., wo			-	Ve	getation		Surfac	e Stones (e.g.,	cobbles, sto	nes, boulders, etc	.) Slope (%)
Landform Position on Landscape (SU, SH, BS, FS, TS, Plain)	Landform Position on Landscape (SU, SH, BS, FS, TS, Plain)	Landform)es	cription of	Locatio	on:	Cleared Lot next to	building							· · · · ·	
Distances from: Open Water Body 400 feet Drainage Way 600 feet Wetlands 800 feet	Distances from: Open Water Body 400 feet Drainage Way 600 feet Wetlands 800 feet	Depth Color Parcent Soil Horizon CusDA) Soil Texture CusDA) Soil Matrix: Color CusDA) Color CusDA) Color CusDA) Color CusDA CusDA Color CusDA CusDA Color CusDA Cu	2. 8	Soil	Parent Ma	terial:	Coarse-L	oamy Lodgmer	t till								
Property Line 50 feet	Property Line 50 feet Drinking Water Well N/A feet Other feet	Property Line 50 feet Drinking Water Well N/A feet Other feet									Landfo	orm		Position on	Landscape	(SU, SH, BS, FS,	TS, Plain)
A. Unsuitable Materials Present: Yes No If Yes: Disturbed Soil/Fill Material Weathered/Fractured Rock Bedrock	4. Unsuitable Materials Present:	4. Unsuitable Materials Present:	3. С	Dista	ances fron	1:	Open	Water Body	100 feet			Drainag _t	e Way <u>6</u>	600 feet		Wetlan	ds <u>800</u> feet
Depth Fri Soil Horizon Cusph Soil Matrix: Color- Color Percent Grave Gran Fri Soil Soil Fri Soil Soil	Depth Color Depth Dept	Depth Soil Horizon Consistence Yes No If yes: Depth to Weeping in Hole Depth Standing Water in Hole Depth					F	Property Line	50 feet			Orinking Wate	er Well <u>N</u>	<u>√A</u> feet		Othe	erfeet
Soil Horizon Soil Texture (USDA) Soil Matrix: Color Depth (in) Soil Horizon /Layer Soil Matrix: Color Depth (Munsell) Depth Color Percent Gravel Cobbles & Stones Structure Consistence (Moist) Othe	Soil Horizon Fri Color Percent Grave Cobbles & Structure (Moist) Comp	Soil Horizon Class Soil Matrix: Color Class Color	I. Ur	sui	table Mate	rials P	resent: 🛛	Yes 🗌 No	If Yes:	⊠ Dist	urbed Soil/	Fill Material	<u> </u>	Neathered/Fra	actured Ro	ck 🔲 Bedroo	c k
Soil Horizon Soil Texture (USDA) Soil Texture (USDA) Soil Matrix: Color-Moist (Munsell) Depth Color Percent Gravel Cobbles & Stones Structure Consistence (Moist) Other	Soil Horizon Fri Color Percent Gravel Color Structure Composition Composition Composition Color Color	Depth (in) Soil Horizon /Layer Soil Texture (USDA) Soil Matrix: Color-Moist (Munsell) Depth Color Percent Gravel Cobbles & Stones Structure (Moist) Other					_	_	_	<u> </u>			_			_	
Depth In Depth In Depth Soil Horizon Layer Soil Matrix: Color-Moist (Munsell) Depth Color Percent Gravel Cobbles & Structure Soil Structure Consistence (Moist) Other	Depth In Popth In Pop	Depth In Popth In Pop	5. (∋rou	ındwater (Observ	ed:∐ Yes	⊠ No				If yes:	_ Depth to	Weeping in Ho	le _	Depth Star	nding Water in Hole
Depth (in) Soil Horizon Holy Horizon Horizon	Depth (in Soil Horizon /Layer Soil Texture (USDA) Soil Matrix: Color Moist (Munsell) Depth Color Percent Gravel Cobbles & Structure (Moist) Consistence (M	Depth (in) Soil Horizon /Layer Soil Texture (USDA) Soil Matrix: Color Moist (Munsell) Depth Color Percent Gravel Cobbles & Stones Soil Structure (Moist) Consistence (Moist)									S	oil Log					
O"-10" A FSL 10YR 2/2 Cnc : Dpl: Dpl:	Color Percent Gravel Cobbles & Structure Color Color Percent Gravel Cobbles & Structure Color Co	Color Percent Gravel Cobbles & Structure Color Color Percent Gravel Cobbles & Structure Color Co	Deni	h (ir	31					Redoxi	morphic Fe	eatures	Coarse % b	y Volume			Other
10"-34" B FSL 10YR 3/6 Cnc :	10"-34" B FSL 10YR 3/6	10"-34" B FSL 10YR 3/6 Cnc :	Бері		" /Laye	er	(USDA)	Moist (Munsell)	Depth		Color	Percent	Gravel		Structure		Other
10"-34" B FSL 10YR 3/6	10"-34" B FSL 10YR 3/6 Cnc :	10"-34" B FSL 10YR 3/6 Cnc :	0"-	·10"	А		FSL	10YR 2/2							Gran	Fri	
34"-70" C1 SL 2.5Y 7/3	34"-70" C1 SL 2.5Y 7/3	34"-70" C1 SL 2.5Y 7/3	10"	2/1	" D		EGI	10VP 2/6		_			<u> </u>		Gran	Fri Fri	
To C1 SL 2.5Y 7/3 Dpl: SubAng Comp To C1 C2 LS 2.5Y 7/3 To C2 C3 To C4 C5 C5 C5 C5 C6 C6 C6 C6	To C1 SL 2.5Y 7/3 Dpl: SubAng Comp Comp C1 C2 LS 2.5Y 7/3 T2" Cnc : Dpl: T5% T5% SubAng Comp Comp Cnc : Dpl: Dpl: Cnc : Dpl: Cnc : Dpl: Dpl: Cnc : Dpl:	34"-70"	10	-34	Р		rol.	10113/0		Dpl:					Gian	111	
70"-100" C2 LS 2.5Y 7/3 72" Cnc:	70"-100" C2 LS 2.5Y 7/3 72" Cnc : Dpl: 15% SubAng Comp Cnc : Dpl: 5	70"-100" C2 LS 2.5Y 7/3 72" Cnc: Dpl: 15% 15% SubAng Comp Cnc: Dpl:	34"	-70	" C1		SL	2.5Y 7/3				_			SubAng	Comp	
Dpl: Cnc :	Dpl: Cnc : Dpl: Cnc : Dpl: Dpl:	Dpi: Cnc :		400				0.574.740	70"	· · · · · · · · · · · · · · · · · · ·			450/	450/	C	0	
Dpl: Cnc :	Dpl: Cnc : Dpl:	Dpl:	70"-	100)" C2		LS 	2.5Y 7/3	72"	Dpl:			15%	15%	SubAng	Comp	
Cnc:	Cnc :	Cnc : Dpl:												1			
	Dpl:	Dpl:							_	+							
	Additional Notes:	Additional Notes:								Dpl:						<u> </u>	

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D. Determination of High Groundwater Elevation 1. Method Used (Choose one): Obs. Hole #Infl-5 Obs. Hole #Infl-6 Depth to soil redoximorphic features 72 inches 72 inches Depth to observed standing water in observation hole inches inches Depth to adjusted seasonal high groundwater (S_h) inches inches (USGS methodology) Reading Date Index Well Number $S_h = S_c - [S_r \times (OW_c - OW_{max})/OW_r]$ OW_{max} _____ OW_c OW_r Obs. Hole/Well# Sr E. Depth of Pervious Material 1. Depth of Naturally Occurring Pervious Material Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? ⊠ Yes ☐ No If yes, at what depth was it observed (exclude O, A, and E Horizons)? Lower boundary: Upper boundary: inches If no, at what depth was impervious material observed? Upper boundary: Lower boundary: inches

inches



Commonwealth of Massachusetts City/Town of Worcester

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F. Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated in the attached Soil Evaluation Form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Signature of Soil Evaluator	Date
Typed or Printed Name of Soil Evaluator / License #	Expiration Date of License
Name of Approving Authority Witness	Approving Authority

Note: In accordance with 310 CMR 15.018(2) this form must be submitted to the approving authority within 60 days of the date of field testing, and to the designer and the property owner with Percolation Test Form 12.

Field Diagrams: Use this area for field diagrams: