

**Preliminary Subdivision
Supplemental Submittal Data**

RECEIVED

MAR 22 2012

LITTLETON
PLANNING BOARD

"The Orchards"

A

Residential Subdivision of land

IN

Littleton, Mass.

PREPARED FOR:

Fifteen Great Road LLC



Places Associates, Inc.

510 King Street, Suite 9, Littleton, Massachusetts 01460

Voice: (978) 486-0334 Fax: (978) 486-0447 E-mail: Places.littleton@verizon.net

**Fifteen Great Road
Preliminary Subdivision
Supplemental Submittal Data**

Table of Contents

1. Copy of Preliminary Subdivision cover letter addressed to the Littleton Planning Board and Board of Health
2. Copy of Original Form B, Application for Approval of a Preliminary Plan;
3. Authorization signed by John H. Keilty, Trustee of Nashoba Place Realty Trust and Trustee of Littleton Holding Realty Trust.
4. Check in the amount of \$2626.00 (\$1000.00, plus \$1.00 x 1626' of roadway)
5. Abutter's list
6. Waivers
7. Project Narrative
8. Preliminary Environmental Analysis
9. Subsurface Testing Records (from previously proposed projects)

Places Associates, Inc.

510 King Street, Suite 9, Littleton, Massachusetts 01460

Voice: (978) 486-0334 Fax: (978) 486-0447 E-mail: Places.littleton@verizon.net

Cover Letter



Places Associates, Inc.

Planning, Landscape Architecture, Civil Engineering and Surveying
Certified WBE

March 20, 2012

Littleton Planning Board
P.O. Box 1305
Littleton, Massachusetts 01460

Via CERTIFIED MAIL, Return Receipt Requested
7011 1571 0000 4878 7051 (documents)
7011 1571 0000 4878 7044 (prints)

Littleton Board of Health
P.O. Box 1305
Littleton, Massachusetts 01460

Via CERTIFIED MAIL, Return Receipt Requested
7011 1571 0000 4878 7068

Re: Application of Fifteen Great Road LLC for Approval of A Preliminary Subdivision Plan entitled "Preliminary Subdivision, The Orchards" Littleton, Massachusetts prepared for Fifteen Great Road LLC, dated March 20, 2012, Project No. 11-6303, Plan No's: 6303 PS-1 to PS- 14 ;

Dear Board Members:

In accordance with G. L. c. 41, §81S, on behalf of our client, Fifteen Great Road LLC ("Applicant"), this office herewith submits materials in application for Approval of a Preliminary Subdivision, in accordance with Section §249-25 of the Town of Littleton's Subdivision Rules and Regulations. The subject site is land situated north of Great Road and to the east of Grist Mill Road, as depicted on the enclosed plans and as Assessor's Map/Parcel U01-2-0, U01-1-27, U01-1-28, U01-1-56 and U01-6-0.

This application is submitted in accordance with Massachusetts General Laws Chapter 40-A and Chapter 41 and purposefully obtains the protection afforded by those chapters.

The following contents are included in this submission:

- Original Form B, Application for Approval of a Preliminary Plan (Planning);
- Check in the amount of \$2626.00 (\$1000.00, plus \$1.00 x 1626' of roadway) (Planning);
- Eight (8) full size sets of prints and two (2) reduced sets (Planning) and two (2) full size sets (BOH) of plans entitled "Preliminary Subdivision, The Orchards" in Littleton, Massachusetts prepared for Fifteen Great Road LLC, Dated March 16, 2012, Project No. 11-6303, Plan No's: 6303 PS-1 to PS-9 (nine sheets);

- Ten copies (Planning) two copies (BOH) of a booklet containing the following:
 1. Copy of this cover letter
 2. Copy of Original Form B, Application for Approval of a Preliminary Plan;
 3. Authorization signed by John R. Keilty, Trustee of Nashoba Place Realty Trust; John R. Keilty, Trustee of Littleton Holdings Realty Trust; and Leslie J. French, Trustee of the JFM Realty Trust;
 4. Copy of check;
 5. Abutter's list;
 6. Waivers;
 7. Project Narrative;
 8. Preliminary Environmental Analysis;
 9. Subsurface Testing Records (from previously proposed projects).

The inclusion in this submittal of a preliminary "Open Space Development" ("OSD") plan is without prejudice to: (a) the Applicant's position that the provisions of Chapter 173, Zoning, of the Code of the Town of Littleton ("Zoning Bylaws"), Sections 173-93, *et seq.* including, without limitation, Section 173-95, are invalid in so far as they purport to require the Applicant to submit an OSD plan and/or apply for a special permit for an OSD; and (b) without prejudice to the Applicant's right to construct a 'conventional' subdivision in accordance with the Zoning Bylaws and the Rules and Regulations of the Planning Board. See *Wall Street Development Corporation v. Planning Board of Westwood*, 72 Mass. App. Ct. 844 (2008), invalidating a bylaw which required application for a special permit for a non-conventional subdivision and holding that a board has no power to reject a compliant conventional plan.

While the Applicant may be willing to voluntarily consider an OSD under certain circumstances, it reserves all of its rights to approval of a 'conventional plan' and to construct the proposed subdivision in accordance therewith without submitting a definitive OSD plan or applying for a special permit.

This office looks forward to cooperating with the Planning Board, Board of Health, their consultants/agents, and other town agencies throughout this project. If either of the boards should have any questions or concerns, or if you should require additional information regarding this matter, please contact the undersigned.

Places Associates, Inc.

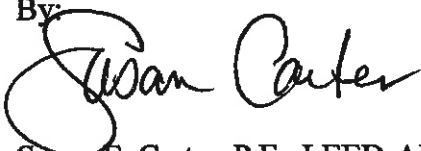
510 King Street, Suite 9, Littleton, Massachusetts 01460

Voice: (978) 486-0334 Fax: (978) 486-0447 E-mail: Places.littleton@verizon.net

We request an opportunity to discuss the preliminary plan with the Planning Board and Board of Health. Please advise when this matter will be on the Planning Board's and Board of Health's agenda for review.

Thank you.

Very truly yours,
FIFTEEN GREAT ROAD LLC
By: Places Associates, Inc.
By:

A handwritten signature in black ink, appearing to read "Susan Carter". The signature is fluid and cursive, with the first name "Susan" being more prominent than the last name "Carter".

Susan E. Carter, P.E., LEED-AP
President

cc: Littleton Town Clerk with one full set of enclosures, VIA CERTIFIED MAIL, RETURN
RECEIPT REQUESTED 7011 1571 0000 4878 7082

Fifteen Great Road LLC

Louis N. Levine, Esq.

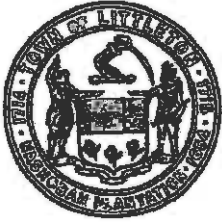
Places Associates, Inc.

510 King Street, Suite 9, Littleton, Massachusetts 01460

Voice: (978) 486-0334 Fax: (978) 486-0447 E-mail: Places.littleton@verizon.net

Form B and Owner's Authorization

TOWN OF LITTLETON, MA



FORM B:

APPLICATION FOR APPROVAL OF PRELIMINARY PLAN OF A SUBDIVISION

Date: _____, 20__

File completed form with the Planning Board with 6 copies of the plans, plus original Mylar. File a copy of form and plan with the Town Clerk; and 1 copy with the Board of Health in accordance with the requirements of Chapter 249.

To the Planning Board:

The undersigned Applicant herewith submits the accompanying Preliminary Plan of property located in the Town of Littleton for approval as a Preliminary Subdivision as allowed under the Subdivision Control Law and the Rules and Regulations governing the Subdivision of Land of the Planning Board of the Town of Littleton.

1. Location of Property:

70, 82 & 84 Grist Mill Road and property at the rear of 15
Great Road. Property is bounded on the east by the Acton
Townline, west by Grist Mill Road properties and north by Westford
townline.

2. Name(s) and Address(es) of Applicant:

Fifteen Great Road, LLC

200 Baker Ave, Suite 303

Concord, MA 01742

3. Name(s) and Address(es) of Record Owner(s):

See Attached

4. Name and Address of Engineer or Surveyor:

Places Associates, Inc.

510 King Street, Suite 9

Littleton, MA 01460

5. Title of Plan: Preliminary Subdivision "The Orchards"

6. Date of Plan: March 20, 2012

7. Owner's Title Reference: Deed of See Attached dated _____,
[recorded at Middlesex South Registry of Deeds in Book _____, Page _____], [filed
at the Middlesex South Registry District of the Land Court as Document No. N/A]
and noted on Certificate of Title no. _____, in Registration Book _____,
Page _____.

TOWN OF LITTLETON, MA

8. Zoning District: Residential

9. Assessor's Map and Parcel Number: U01-2; U01-1-56; U01-1-27; U01-1-28
U01-6

10. Number of Lots on the Plan: 20

D. J. Hall
Signature of Applicant

March 19, 2012
Date

Signature of Applicant

Date

Signature of Record Owner
(if other than Applicant)

Date

Signature of Record Owner
(if other than Applicant)

Date

Filing Fee: (\$1,000 plus \$1.00 per linear foot of road.) \$ 2,626.16 26 lf/roadway

Received by Town Clerk:

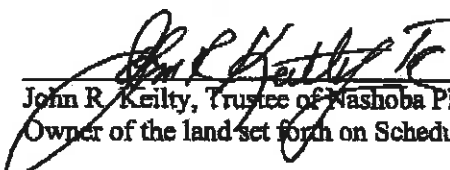
Date/Time: _____

Form Updated October 2011

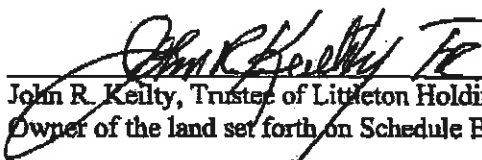
AUTHORIZATION

The undersigned, being the owner of the properties set forth on the attached Schedules A, B and C, ("Properties"), hereby authorize Fifteen Great Road, LLC, to execute any and all applications for local, state or federal governmental and quasi-governmental, permits, licenses and/or approvals including but not limited to Preliminary Subdivision Approval and Definitive Subdivision Approval, which involve the Properties, set forth on Schedules A, B and C attached hereto and made a part hereof, on our behalf, and hereby consent to the filing of said applications with the Town of Littleton or other governmental entities.

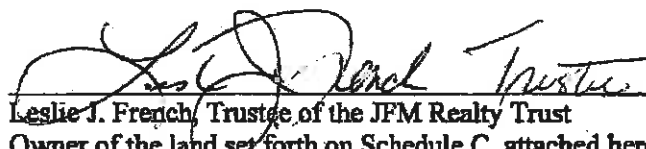
Executed under seal this 17th day of March, 2012



John R. Keilty, Trustee of Nashoba Place Realty Trust
Owner of the land set forth on Schedule A, attached hereto



John R. Keilty, Trustee of Littleton Holdings Realty Trust
Owner of the land set forth on Schedule B, attached hereto



Leslie J. French, Trustee of the JFM Realty Trust
Owner of the land set forth on Schedule C, attached hereto

"SCHEDULE A"

Parcel 1: One parcel of unimproved land in Littleton and Westford, Middlesex County, Massachusetts being shown as shown as Lot 56A as shown on a Plan of Land entitled, "Plan of Land in Littleton/Westford Massachusetts" prepared for F.J. DiCarlo, Scale: 1"=40', dated September 13, 2000, prepared by J.D. Marquedant & Associates Inc. Land Surveying & Engineering" and recorded with the Middlesex South District Registry of Deeds on December 1, 2000. as Plan 1330 of 2000 in Book 32088, Plan 106, containing approximately 51,408 square feet more or less.

Parcel 2: One parcel of unimproved land in the Town of Acton and Littleton, Massachusetts, shown on a plan entitled, "Plan of Land" prepared by Hayes Engineering, Inc., dated December 29, 2003 which Plan is filed with the Middlesex South Registry of Deeds as Plan #1349 of 2003. Being the premises described in a Deed to the Grantor recorded at the Middlesex South District Registry of Deeds in Book 41709, Page 502, containing an area of 1,519,142 Square Feet, or 34.875 Acres, more or less.

Being the premises described in a Deed to the Grantor recorded at the Middlesex South District Registry of Deeds in Book 58154, Page 123 and in the Middlesex North District Registry of Deeds at Book 25579, Page 280.

Handwritten signature and initials, possibly "JCK" or "JCKK", with a circled "105" below it.

"SCHEDULE B"

Lots 28B and 28B as shown on the plan of land entitled "Plan of Land in Littleton, Massachusetts Prepared for EJ DiCarlo" Scale 1" = 40' dated September 8, 1999, prepared by J.D. Marquedant & Associates, Inc. recorded in the Middlesex South District Registry of Deeds as Plan Number 1419 of 1999

For Title, see deed dated April 10, 2010 and recorded in the Middlesex North District Registry of Deeds at Book 54533, Page 583.



"SCHEDULE C"

A certain parcel of land in Acton and Littleton, Middlesex County, Massachusetts, being shown on a plan entitled, "Plan in Acton & Littleton, MA." dated September 6, 2004, by Hayes Engineering, Inc., recorded with the Middlesex South District Registry of Deeds as Plan No. 1086 of 2004.

A portion of said parcel is also shown as "Parcel 2A" on a plan entitled, "Plan of Land in Acton & Littleton, MA (Middlesex County), For: Nagog Development Co.", Scale: 1"=80', Aug. 5, 1988, Rev. Sept. 7, 1988, Stanski and McNary, Inc., 80 Harris Street, Acton, Mass., recorded with the Middlesex South District Registry of Deeds in Book 19655, Page 88.

For title, see deed dated February 28, 2005, recorded with said Deeds in Book 44725, Page 484.

JKL
(18)

Fifteen Great Road LLC

200 Baker Ave Suite 303
Concord, MA 01742



53-7122-2113



3/19/2012

PAY TO THE
ORDER OF

Town of Littleton

\$ **2,626.00

Two Thousand Six Hundred Twenty-Six and 00/100*****

DOLLARS

Town of Littleton

Mark D Brooks
AUTHORIZED SIGNATURE

MEMO

Preliminary Subdivision Application Fee 15 Great Rd

⑈001021⑈ ⑆211371227⑆ 163667937⑈

Fifteen Great Road LLC

1021

Town of Littleton

3/19/2012

2,626.00

MSB - Checking

Preliminary Subdivision Application Fee 15 Great

2,626.00

Abutter's List



**TOWN OF LITTLETON
BOARD OF ASSESSORS**

P.O. BOX 1305
LITTLETON, MA 01460
(978) 540-2410
FAX: (978) 952-2321

Date: January 23, 2012

Re: **Certified List of Abutters for Board of Appeals (300 feet - public hearings, special permits
And/or for Variances)**

Applicant: Susan Carter Name of Firm: Places Associates Inc.
Mailing Address: 510 King St., Suite 9, Littleton, MA 01460

Subject Parcel Location: Great Rd and Grist Mill Rd.

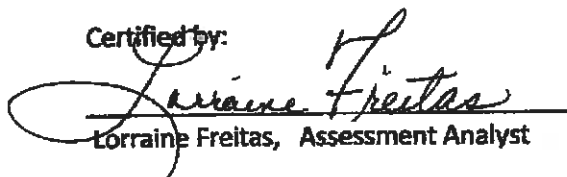
Subject Parcel Map & Parcel No.: U01-2, U01-6, U01-32-17, U01-32-18, U01-32-19,
U01-32-20, U01-1-27, U01-1-28

M.G.L. Chapter 40A, Section 11. "In all cases where notice of a public hearing is required notice shall be given by publication in a newspaper of general circulation in the city or town once in each of two successive weeks, the first publication to be not less than fourteen days before the day of the hearing and by posting such notice in a conspicuous place in the city or town hall for a period of not less than fourteen days before the day of such hearing. In all cases where notice to individuals or specific boards or other agencies is required, notice shall be sent by mail, postage prepaid. "Parties in interest" as used in this chapter shall mean the petitioner, abutters, owners of land directly opposite on any public or private street or way, and abutters to the abutters within three hundred feet of the property line of the petitioner as they appear on the most recent applicable tax list, notwithstanding that the land of any such owner is located in another city or town, the planning board of the city or town, and the planning board of every abutting city or town. The assessors maintaining any applicable tax list shall certify to the permit granting authority or special permit granting authority the names and addresses of parties in interest and such certification shall be conclusive for all purposes. The permit granting authority or special permit granting authority may accept a waiver of notice from or an affidavit of actual notice to any party in interest or, in his stead, any successor owner of record who may not have received a notice by mail, and may order special notice to any such person, giving not less than five nor more than ten additional days to reply."

I hereby certify the attached list of abutter(s) as stated in the M.G.L. Chapter 40A, Section 11.

Number of Abutter(s) 52 including the applicant and subject parcels.

Certified by:


Lorraine Freitas, Assessment Analyst

Loc: 8 MANNION PL Parcel ID #: R01 2 14
LUC: 101

GAPOSCHKIN DANIEL P
FREIDEL IRENE C
8 MANNION PL

LITTLETON MA 01460

Loc: 10 MANNION PL Parcel ID #: R01 2 4
LUC: 101

WARCHOL NICHOLAS A
WARCHOL DENISE A
10 MANNION PL

LITTLETON MA 01460

Loc: 19 NASHOBA RD Parcel ID #: R01 2 8
LUC: 101

MISKIN MICHAEL J + ELIZABETH A
TRUSTEES OF MISKIN FAMILY TR
19 NASHOBA ROAD

LITTLETON MA 01460

Loc: 15 MANNION PL Parcel ID #: R01 3 0
LUC: 101

FEEHAN JAMES E
FEEHAN BONNIE J
15 MANNION PL

LITTLETON MA 01460

Loc: MANNION PL Parcel ID #: R01 4 0
LUC: 106

ALLEN HOWARD E JR
ALLEN PATRICIA J
2 MANNION PL

LITTLETON MA 01460

Loc: 7 MANNION PL Parcel ID #: R01 4 A
LUC: 101

LESSA DIANNE M

7 MANNION PL

LITTLETON MA 01460

Loc: 2 MANNION PL Parcel ID #: R01 5 0
LUC: 013

ALLEN HOWARD E JR
ALLEN PATRICIA J
2 MANNION PL

LITTLETON MA 01460

Loc: 8 GREAT RD Parcel ID #: R01 6 0
LUC: 101

WILEY TIMOTHY M
WILEY HEIDI J
8 GREAT RD

LITTLETON MA 01460

Loc: 3 NASHOBA RD Parcel ID #: R01 6 A
LUC: 101

ANCTIL ROBERT E
ANCTIL SALLY ANN
3 NASHOBA RD

LITTLETON MA 01460

Loc: 90 GRIST MILL RD Parcel ID #: U01 1 24
LUC: 101

FURLONG THOMAS C
FURLONG DARA E
90 GRIST MILL RD

LITTLETON MA 01460

Loc: 88 GRIST MILL RD Parcel ID #: U01 1 25
LUC: 130

KEILTY JOHN R TRUSTEE OF
LITTLETON HOLDING REALTY TRUST
40 LOWELL RD

PEABODY MA 01960

Loc: 86 GRIST MILL RD Parcel ID #: U01 1 26
LUC: 101

WOJTASZEK STEVEN
WOJTASZEK PATRICIA
86 GRIST MILL RD

LITTLETON MA 01460

Loc: 84 GRIST MILL RD Parcel ID #: U01 1 27
LUC: 130

KEILTY JOHN R TRUSTEE OF
LITTLETON HOLDING REALTY TRUST
40 LOWELL AVE

PEABODY MA 01960

Loc: 82 GRIST MILL RD Parcel ID #: U01 1 28
LUC: 130

KEILTY JOHN R TRUSTEE OF
LITTLETON HOLDING REALTY TRUST
40 LOWELL AVE

PEABODY MA 01960

Loc: 75 GRIST MILL RD Parcel ID #: U01 1 44
LUC: 101

MAIMONE ROBERT J
MAIMONE MARY A
75 GRIST MILL RD

LITTLETON MA 01460
Loc: 70 GRIST MILL RD Parcel ID #: U01 1 56
LUC: 130

MAYEL DEVELOPMENT INC

ONE INTERCONTINENTAL WY, 3RD F

PEABODY MA 01960
Loc: 68 GRIST MILL RD Parcel ID #: U01 1 57
LUC: 101

SUPPLIES SVEN
SUPPLIES MARGARET FIGUEROA
68 GRIST MILL ROAD

LITTLETON MA 01460
Loc: 66 GRIST MILL RD Parcel ID #: U01 1 58
LUC: 101

KING PETER L
KING JEAN M
66 GRIST MILL ROAD

LITTLETON MA 01460
Loc: 15 GREAT RD Parcel ID #: U01 2 0
LUC: 130

MAYEL DEVELOPMENT INC

ONE INTERCONTINENTAL WY 3RDF

PEABODY MA 01960
Loc: 79 GRIST MILL RD Parcel ID #: U01 32 103
LUC: 101

MEHTA VIVEK S
MEHTA PRATIKSHA B
79 GRIST MILL RD

LITTLETON MA 01460
Loc: 81 GRIST MILL RD Parcel ID #: U01 32 104
LUC: 101

CARUSO KIMBERLEY A

81 GRIST MILL RD

LITTLETON MA 01460

Loc: 83 GRIST MILL RD Parcel ID #: U01 32 105
LUC: 101

SLAVINSKY ANTHONY J
SLAVINSKY JERILYNN G
83 GRIST MILL ROAD

LITTLETON MA 01460
Loc: GREAT RD Parcel ID #: U01 32 14
LUC: 132

LITTLETON LAND CORPORATION

94 W ELM ST

PEMBROKE MA 02359-2112
Loc: GREAT RD Parcel ID #: U01 32 15
LUC: 132

LITTLETON LAND CORPORATION

94 W ELM ST

PEMBROKE MA 02359-2112
Loc: 85 GRIST MILL RD Parcel ID #: U01 32 16
LUC: 101

VASH JAMES R
MUNOZ-AVILA ANGELA
85 GRIST MILL RD

LITTLETON MA 01460
Loc: 1 CARRIAGE WY Parcel ID #: U01 32 17
LUC: 130

KEILTY JOHN R, TRUSTEE OF
LITTLETON HOLDING REALTY TRUST
40 LOWELL AVE

PEABODY MA 01960
Loc: 3 CARRIAGE WY Parcel ID #: U01 32 18
LUC: 130

KEILTY JOHN R TRUSTEE OF
LITTLETON HOLDING REALTY TRUST
40 LOWELL AVE

PEABODY MA 01960
Loc: 5 CARRIAGE WY Parcel ID #: U01 32 19
LUC: 130

KEILTY JOHN R TRUSTEE OF
MD REALTY TRUST
40 LOWELL AVE

PEABODY MA 01960

Loc: 80 GRIST MILL RD Parcel ID #: U01 1 29
LUC: 101

BALFOUR JAMES
BALFOUR MARIANNE C
80 GRIST MILL RD

LITTLETON MA 01460

Loc: 78 GRIST MILL RD Parcel ID #: U01 1 30
LUC: 101

STEVENS KATHERINE A
GETCHELL GREG J
78 GRIST MILL RD

LITTLETON MA 01460

Loc: 76 GRIST MILL RD Parcel ID #: U01 1 31
LUC: 101

MILLER BRUCE L
MILLER DAWN P
76 GRIST MILL RD

LITTLETON MA 01460

Loc: 74 GRIST MILL RD Parcel ID #: U01 1 32
LUC: 101

TETO JR
GENZALE EMMA
74 GRIST MILL RD

LITTLETON MA 01460

Loc: 72 GRIST MILL RD Parcel ID #: U01 1 33
LUC: 101

FLINT JOHN D

72 GRIST MILL RD

LITTLETON MA 01460

Loc: 57 GRIST MILL RD Parcel ID #: U01 1 35
LUC: 101

AGARWAL KUMAR NAVEEN
MOHANKA RACHNA
57 GRIST MILL RD

LITTLETON MA 01460

Loc: 59 GRIST MILL RD Parcel ID #: U01 1 36
LUC: 101

BALAJI PADMINI
BALAJI BHAGAWAN
59 GRIST MILL RD

LITTLETON MA 01460

Loc: 61 GRIST MILL RD Parcel ID #: U01 1 37
LUC: 101

CHOW CHING-KUO

61 GRIST MILL RD

LITTLETON MA 01460

Loc: 63 GRIST MILL RD Parcel ID #: U01 1 38
LUC: 101

CHRENC ROBERT J
CHRENC AIMEE L
63 GRIST MILL RD

LITTLETON MA 01460

Loc: 65 GRIST MILL RD Parcel ID #: U01 1 39
LUC: 101

BARRY GLENN
BARRY MICHELLE
65 GRIST MILL ROAD

LITTLETON MA 01460

Loc: 67 GRIST MILL RD Parcel ID #: U01 1 40
LUC: 101

SORABELLA STEPHEN J
SORABELLA JANE M
67 GRIST MILL RD

LITTLETON MA 01460

Loc: 69 GRIST MILL RD Parcel ID #: U01 1 41
LUC: 130

LITTLETON LAND CORPORATION

94 W ELM ST

PEMBROKE MA 02359-2112

Loc: 71 GRIST MILL RD Parcel ID #: U01 1 42
LUC: 101

BAKER DARYL K
BAKER ELAINE M
71 GRIST MILL RD

LITTLETON MA 01460

Loc: 73 GRIST MILL RD Parcel ID #: U01 1 43
LUC: 101

BUCKELLEW PHILLIP L
BUCKELLEW LISA F
73 GRIST MILL RD

LITTLETON MA 01460

Loc: 96 GRIST MILL RD Parcel ID #: U01 32 20
LUC: 130

KEILTY JOHN R TRUSTEE OF
LITTLETON HOLDING REALTY TRUST
40 LOWELL AVE

PEABODY MA 01960

Loc: 96 GRIST MILL RD Parcel ID #: U01 32 21
LUC: 101

SUNDQUIST JEFFREY A
SUNDQUIST LANETTE M
96 GRIST MILL ROAD

LITTLETON MA 01460

Loc: 94 GRIST MILL RD Parcel ID #: U01 32 22
LUC: 101

AVELLA PAUL J
AVELLA CYNTHIA M
94 GRIST MILL RD

LITTLETON MA 01460

Loc: 92 GRIST MILL RD Parcel ID #: U01 32 23
LUC: 101

BERGERON JOHN P
BERGERON CARRIE A
92 GRIST MILL ROAD

LITTLETON MA 01460

Loc: 77 GRIST MILL RD Parcel ID #: U01 32 45
LUC: 101

SLURZBERG MICHAEL D
SLURZBERG JO ELLEN
77 GRIST MILL ROAD

LITTLETON MA 01460

Loc: OFF GREAT RD Parcel ID #: U01 6 0
LUC: 132

MASSAPICA JF TRU JFM REALTY TR
C/O OMNI PROPERTIES LLC
200 BAKER AVE UNIT 303

CONCORD MA 01742

Loc: 32 UNIT A NAGOG PARK Parcel ID #: U01 8 0
LUC: 376

ATHLETIC BALANCE LLC

108 CLINTON RD

STERLING MA 01584

Loc: 32 UNIT B NAGOG PARK Parcel ID #: U01 8 1
LUC: 947

ACTON BARN COOPERATIVE INC

32 NAGOG PARK UNIT #B

ACTON MA 01720

Loc: 3 GREAT RD Parcel ID #: U01 9 0
LUC: 101

LINDGREN ELAINE M +JOHN TRS OF
LINDGREN GREAT ROAD REALTY TR
3 GREAT RD

LITTLETON MA 01460

TOWN OF ACTON TOWN LINE

TOWN OF WESTFORD TOWN LINE

Applicant Requesting Abutter's List

SUSAN CARTER
PLACES ASSOCIATES, INC.
510 KING STREET, SUITE 9
LITTLETON, MA 01460

Waivers Request

"The Orchards"
Preliminary Subdivision
March 20, 2011
Waivers

In conjunction with the filing of the Preliminary Subdivision "The Orchards", this office anticipates requesting the following waivers with the Definitive Subdivision filing. It should be noted that if the Board denies any or all of the following waivers, the subdivision will comply with the current regulations.

1. From Section 249-32.B. to allow modern drafting techniques for the preparation of the plans. Mylars will be produced for all plan sheets being recorded at the Registry of Deeds for the Board's signatures upon final approvals.
2. From Section 249-32.C(15) to waive the plan requirements of showing of major trees within 50' of the proposed centerline for greater plan clarity as the site is wooded.
3. From Section 249-51 – Stormwater Management, as needed to allow the use of Low Impact Development Techniques as outlined in the "Town of Littleton, Low Impact Design/Best Management Practices Manual" dated May 2007 by the Littleton Water Department.
4. From Section 249-66.E to allow the use of a tackifier coat prior to the installation of the wearing surface as it provides a superior roadway by preventing water from seeping between the pavement layers.
5. From Section 249-85B.(1) to allow the use of HDPE pipe where appropriate in lieu of reinforced concrete pipe. The HDPE is more resistant to corrosion from road salt and the naturally occurring acidic soils. If granted, the design would utilize HDPE pipes with concrete flared end sections (to avoid damage from UV light or mowers).
6. From Section 249-89 D. to allow the street trees to be clustered rather than at 40' intervals to achieve a more aesthetically pleasing layout and to allow existing trees, if saved, to be considered street trees to avoid disturbing the roots of existing trees to plant new ones.

Project Narrative

"The Orchards"
Preliminary Subdivision
Project Narrative

The project site consists of approximately 32.6 acres located off of Grist Mill Road. The site consists of portion of five parcels: Assessor's Map/Parcel U01-2-0, U01-1-56, U01-1-27, U01-1-28 and U01-6-0. The site is located in the R-Residential zoning district. The site is currently undeveloped and supports forested uplands, meadows and vegetated wetlands. The site could be characterized as having rolling terrain with the upland woods having slopes of approximately 10-15% and the meadow and wetland areas having slopes approximately 1-3%.

The site is bounded by the Grist Mill Road single-family house residential development to the west, the proposed "Village Green Apartments" 40B project to the South, Nagog Park Drive and the Acton town line to the east and the Westford town line to the north.

There are public water supply, telephone, cable, gas and electric services located within Grist Mill Road. The project site does not have sewer service immediately available in Grist Mill Road.

The project proposes the construction of an approximately 1,627 foot roadway (as measured from the sidelines of the intersecting streets), connecting to Grist Mill Road in two locations: between existing lots 27B and 28B and at existing Lot 56-A. This will result in the creation 17 new lots in addition to modifying 3 existing lots under the conventional, by-right subdivision process. The roadway is proposed to be 24-feet wide, made of bituminous concrete with bituminous curbing and centered on a 42-foot wide right-of-way. A 4-foot bituminous sidewalk is proposed on the eastern side of the roadway. The roadway layout has been designed to the minor road standards.

The project proposes looping water, telephone, cable, gas and electric services from Grist Mill Road and will leave connections to the proposed "Village Green Apartments" project and ultimately to Great Road. The lots are proposed to be serviced by either a common subsurface sewage disposal system or a connection to the "Village Green Apartments" wastewater treatment facility.

A stormwater management system has been shown schematically on the Plans to illustrate there is sufficient area and elevations to mitigate stormwater impacts. The stormwater management system will be developed in accordance with Best Management Practices and in accordance with the Town of Littleton requirements. These practices include Low Impact Development standards.

See also the Environmental Analysis, submitted as part of this Preliminary Subdivision which addresses the existing and proposed environmental impacts of the subdivision.

Preliminary Environmental Analysis



Places Associates, Inc.

Planning, Landscape Architecture, Civil Engineering and Surveying
Certified WBE

Planning Board
Town of Littleton
Room 303, 37 Shattuck Street
Shattuck Street Municipal Building
PO Box 1305
Littleton, MA 01460

RE: The Orchard
Preliminary Subdivision
Environmental Analysis

March 20, 2012

Dear Members of the Board,

Places Associates, Inc., on behalf of Fifteen Great Road LLC, submits the following Environmental Analysis pursuant to the Code of the Town of Littleton, Massachusetts, Chapter 249 Subdivision of Land Regulations. This Environmental Analysis is intended to satisfy the requirements for the filing of a Preliminary Subdivision and the findings in this analysis should be considered preliminary. The plan set titled "Preliminary Subdivision, The Orchards, Preliminary Subdivision in, Littleton, Massachusetts" (Plans), dated March 20, 2012 and prepared by Places Associates, Inc. is hereby incorporated as part of this Environmental Analysis.

PROJECT OVERVIEW

Existing Conditions

The project site consists of approximately 32.6 acres located off of Grist Mill Road. The site consists of portion of five parcels: Assessor's Map/Parcel U01-2-0, U01-1-56, U01-1-27, U01-1-28 and U01-6-0. The site is located in the R-Residential zoning district. The site is currently undeveloped and supports forested uplands, meadows and vegetated wetlands. The site could be characterized as having rolling terrain with the upland woods having slopes of approximately 10-15% and the meadow and wetland areas having slopes approximately 1-3%.

There are public water supply, telephone, cable, gas and electric services located within Grist Mill Road. The project site does not have sewer service immediately available in Grist Mill Road.

The site is bounded by the Grist Mill Road single-family house residential development to the west, the proposed "Village Green Apartments" 40B project to the South, Nagog Park Drive and the Acton town line to the east and the Westford town line to the north.

The site is comprised of a variety of natural conditions: Portions of the site contain bordering vegetated wetlands, as identified on the site plans. The wetlands lines and areas are as field delineated by Oxbow Associates, Inc. of Acton, MA. They are the result of a field delineation conducted in

March and April of 2011 and were reviewed by the Littleton Conservation Commission who issued a Order of Resource Area Delineation (ORAD) July 11, 2011, DEP File No. 204-690.

Wetlands: These areas act to collect the runoff from the existing site areas and ultimately discharge to the periphery of the site. The larger wetlands system discharges to the north of the site, into Westford. The wetlands are comprised of shrub-swamp species.

Vegetation: The site has a variety of vegetative communities as is typical of former farm fields and open spaces adjacent to residential and commercial developments. The western side of the site is a mature (40' to 60+'), second growth forest of mixed hard and softwoods (Maples, Oaks and White Pine), which grow along the property line adjacent to Grist Mill Road. The Central areas (as oriented north to south) exist meadow areas which feature low, pioneering shrub species and grasslands.

Proposed Conditions

The project proposes the construction of an approximately 1,627 foot roadway (as measured from the sidelines of the intersecting streets), connecting to Grist Mill Road in two locations: between existing lots 27B and 28B and at existing Lot 56-A. This will result in the creation 17 new lots in addition to modifying 3 existing lots under the conventional, by-right subdivision process. The roadway is proposed to be 24-feet wide, made of bituminous concrete with bituminous curbing and centered on a 42-foot wide right-of-way. A 4-foot bituminous sidewalk is proposed on the eastern side of the roadway. The roadway layout has been designed to the minor road standards.

The project proposes looping water, telephone, cable, gas and electric services from Grist Mill Road and will leave connections to the proposed "Village Green Apartments" project and ultimately to Great Road. The lots are proposed to be serviced by either a common subsurface sewage disposal system or a connection to the "Village Green Apartments" wastewater treatment facility.

A stormwater management system has been shown schematically on the Plans to illustrate there is sufficient area and elevations to mitigate stormwater impacts. The stormwater management system will be developed in accordance with Best Management Practices and in accordance with the Town of Littleton requirements. These practices include Low Impact Development standards.

Open Space Development Plan

Under the Littleton Zoning By-law, the Open Space Development Plan is required for subdivisions of greater than 10 acres. This development option is included in this filing and will result in the creation of 19 lots plus the inclusion of the existing Lots 27-B and 28-B. This plan does not include Lot 56-A except for an easement to loop utilities. The design will include a 1100' $\pm$ cul-de-sac with a very similar design as the conventional subdivision.

The inclusion in this submittal of a preliminary "Open Space Development" ("OSD") plan is without prejudice to: (a) the Applicant's position that the provisions of Chapter 173, Zoning, of the Code of the Town of Littleton ("Zoning Bylaws"), Sections 173-93, *et seq.* including, without limitation, Section 173-95, are invalid in so far as they purport to require the Applicant to submit an OSD plan and/or apply for a special permit for an OSD; and (b) without prejudice to the Applicant's right to construct

Places Associates, Inc.

510 King Street, Suite 9, Littleton, Massachusetts 01460

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a 'conventional' subdivision in accordance with the Zoning Bylaws and the Rules and Regulations of the Planning Board. See *Wall Street Development Corporation v. Planning Board of Westwood*, 72 Mass. App. Ct. 844 (2008), a copy of which is enclosed, invalidating a bylaw which required application for a special permit for a non-conventional subdivision and holding that a board has no power to reject a compliant conventional plan.

While the Applicant may be willing to voluntarily consider an OSD under certain circumstances, it reserves all of its rights to approval of a 'conventional plan' and to construct the proposed subdivision in accordance therewith without submitting a definitive OSD plan or applying for a special permit.

Impact Upon Surface Water Quality and Level

The project proposes to mitigate impacts on surface water quality through the implementation of stormwater Best Management Practices. A schematic stormwater management system has been illustrated on the plans and generally consists of collecting stormwater runoff in deep sump hooded catch basins, transmitting stormwater via an underground pipe network to a water quality structure and detaining stormwater runoff in an above ground detention basin. Groundwater recharge will be provided within the detention basins as the soil conditions allow. Additional soil testing will be performed within the footprint of the areas proposed for groundwater recharge. All components of the stormwater management system will be designed in accordance with applicable local, state and federal requirements and guidance.

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Impact Upon Groundwater Quality and Level

The project proposes either a common subsurface sewage disposal system or connection to the "Village Green Apartments" waste water treatment facility and will be compliant with State DEP Title V regulations and Littleton Board of Health regulations. The nature of the project as a residential development does not present any expected higher pollutant loads than is typical for this type of development. It is the presumption that compliance with state and local health regulations is sufficient to ensure there are not negative impacts on groundwater quality.

The project proposes to recharge groundwater collected in the stormwater management system according to state standards and good engineering practice; thereby maintaining the groundwater levels at their current conditions. The stormwater management system will be designed in accordance with state and local requirements to ensure that stormwater runoff receives treatment for water quality prior to being recharged to the groundwater.

Material Effects Upon Important Wildlife Habitats, Outstanding Botanical Features and Scenic or Historic Environs

A portion of the site is mapped by the Natural Heritage and Endangered Species Program as being Priority Habitat for Rare and Endangered Species. In 2008, Oxbow Associates, Inc. performed an assessment of the site and conducted a habitat study. A detailed assessment was performed to identify potential impacts to the Blue-spotted Salamander (*Ambystoma laterale*). The Blue-spotted Salamander is protected pursuant to the Massachusetts Endangered Species Act (MESA) (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). A pre-filing consultation was made with the Program pursuant to 321 CMR 10.02. As a result of that process, the Program issued an opinion that the project would qualify for a Conservation and Management Permit and has reaffirmed this opinion in March of 2011 for the currently proposed project.

The site is not located in a Historic District and does not contain any structures listed on the State Register of Historic Structures. In addition, a recent intensive archeological survey of the site was recently completed by PAL and submitted to the Massachusetts Historical Commission with no further action required. The site has been used in the past as pasture, and is characterized as previously disturbed meadow areas and other uses common to New England second growth forests adjacent to commercial and residential development.

As indicated by the site plans, the site slopes principally from the west to the east with a ridge line being coincident with the residential development of the Grist Mill Subdivision. This ridge line contains mature (40 – 60'+) height trees of oak, maple and white pine, which form a visual screen from the subdivision into the site. The associated down-slopes of this ridge line is also screened by existing tree and shrub growth along the perimeter of the site. As such, there are no extensive or prominent visual characteristics into the site from its perimeter.

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Capability of Soils, Vegetative Cover and Proposed Erosion-Control Efforts to Support Proposed Development Without Danger of Erosion, Silting or Other Instability

The predominant soils found on site are well drained loamy sands of the Hinckley and Deerfield series, which are typically formed in glacial outwash terraces. Other soils present to a lesser degree include Scarboro mucky soils found in wetlands areas and Charlton-Hollis-Rock outcrops complexes in the areas nearest to Great Road.

The site is currently vegetated and during construction activities the area of disturbance will be minimized to the extent practicable. Disturbed areas will be stabilized by means of hardscape, structures, or pavement or will be re-vegetated as soon as is practicable. Sedimentation and erosion control measures will be prepared in accordance with local, state and federal guidelines. A Stormwater Pollution Prevention Plan will be prepared in preparation for filing for coverage under the EPA NPDES Construction General Permit. Design and implementation of proper erosion and sedimentation controls will ensure the project does not result in negative impacts to the site or its surrounding during and post construction.

Relationship to the Requirements of the Wetlands Protection Act (MGL C. 131, §§ 40 and 40A)

The project site supports bordering vegetated wetlands. The Applicant anticipates filing a Notice of Intent (NOI) with the Littleton Conservation Commission in conjunction with a Definitive Subdivision filing with the Planning Board. The project will be designed in accordance with the provisions of the Wetlands Protection Act and, as applicable, to the requirements of the Town of Littleton's Wetlands Bylaws.

List of Attachments

- On-site Soil Analysis

Places Associates, Inc.

510 King Street, Suite 9, Littleton, Massachusetts 01460

Voice: (978) 486-0334 Fax: (978) 486-0447 E-mail: Places.littleton@verizon.net

Soils Data

Deep Hole Number 701-A Date: 7/24/01 Time 11:00 am Weather: Sunny 70's

Location (Identify on site plan) Littleton

Land Use None Slope (%) < 2% Surface Stones Few

Vegetation Meadow

Landform Outwash Plain

Position on landscape see sketch

Distances from:

Open Water Body _____ feet Drainageway _____ feet
Possible Wet Area _____ feet Property Line >25 feet
Drinking Water Well _____ feet Other _____

[illegible]

Parent Material (geologic): Glacial Outwash Depth to Bedrock: NA
 Depth to Groundwater: Standing Water in the Hole: NA Weeping from Pit Face: NA
 Estimated Seasonal Ground Water: Not Determined

Deep Hole Number 701-b Date: 7/24/01 Time 11:00am Weather: sunny

Land Use None Slope (s) 5% Surface Flow

Vegetation Meadow

Landform Outwash Plain

Position on landscape _____

Distances from:

Open Water Body _____ Feet

Drainageway _____ feet

Possible Wet Area _____ feet

Property Line	feet
---------------	------

Drinking Water Well _____ feet

Other _____

[illegible]Parent Material (geologic) Glacial Outwash Depth to Bedrock: NA

Depth to Groundwater: Standing Water in the Hole: **NA** Weeping from Pit Face: **NA**

Estimated Seasonal Ground Water: Not Determined

Deep Hole Number 701-C Date: 7/24/01 Time 11:00am Weather: Sunny

Location (Identify on site plan) Nagog Park

Land Use None Slope (%) 2% Surface Stones Few

Vegetation Meadow

Landform Outwash Plain

Position on landscape _____

Distances from:

Open Water Body _____ feet	Drainageway _____ feet
Possible Wet Area _____ feet	Property Line _____ feet
Drinking Water Well _____ feet	Other _____

[illegible]

Parent Material (geologic) Glacial Outwash Depth to Bedrock: NA
 Depth to Groundwater: Standing Water in the Hole: NA Weeping from Pit Face: NA
 Estimated Seasonal Ground Water: Not Determined

Deep Hole Number 701-D Date: 7/24/01 Time 11:00am Weather: Sunny

Location (identify on site plan) Nagog Park

Land Use None Slope (%) 2% Surface Stones Few

Vegetation Meadow

Landform Outwash Plain

Position on landscape _____

Distances from:

Open Water Body _____ feet

Drainageway _____ feet

Possible Wet Area _____ feet

Property Line _____ **feet**

Drinking Water Well _____ feet

Other _____

[illegible]Parent Material (geologic) Glacial Outwash Depth to Bedrock: NA

Depth to Groundwater: Standing Water in the Hole: NA Weeping from Pit Face: NA

Estimated Seasonal Ground Water: Not Determined

Deep Hole Number 701-E Date: 7/24/01 Time 11:00am Weather: Sunny

Land Use None Slope (%) 2% Surface Stones Few

Landform Outwash Plain

Position on landscape

Distances from:

Open Water Body _____ feet

Drainageway _____ feet

Possible Wet Area _____ feet

Property Line _____ feet

Drinking Water Well _____ feet

Other

[illegible]

Parent Material (geologic) Glacial Outwash Depth to Bedrock: Not Determined

Depth to Groundwater:

Standing Water in the Hole: None

Weeping from Pit Face: None

Estimated Seasonal Ground Water: Not Determined

Deep Hole Number 701-F Date: 7/24/01 Time 11:00am Weather: Sunny

Land Use None Slope (%) 2% Surface Stones Few

Landform Outwash

Other _____

[illegible]

Estimated Seasonal Ground Water: 49"

Deep Hole Number 701-G Date: 7/24/01 Time 11:00am Weather: Sunny

Land Use None Slope (%) <2% Surface Stones Few

Position on landscape _____

Drinking Water Well _____ feet Other _____

[illegible]

Estimated Seasonal Ground Water: Not Determined

COMMONWEALTH OF MASSACHUSETTS

Percolation Test

Observation Hole #	701-01	701-02
Depth of Perc	52"	42"
Start Pre-soak	3:00	3:00
End Pre-soak	Applied	Applied
Time at 12"	24 Gal.	24 Gal.
Time at 9"	<15 min.	<15 min.
Time at 6"		
Time (9"-6")		
Rate Min./Inch	< 2 mpi	< 2 mpi

Comments: _____

COMMONWEALTH OF MASSACHUSETTS

Littleton, Massachusetts

Percolation Test		
Date: <u>7/24/01</u> Time: <u>10:00</u>		
Observation Hole #	<u>701-03</u>	<u>701-04</u>
Depth of Perc	<u>46"</u>	<u>40"</u>
Start Pre-soak	<u>3:00</u>	<u>3:00</u>
End Pre-soak	<u>Applied</u>	<u>Applied</u>
Time at 12"	<u>24 gal.</u>	<u>24 gal.</u>
Time at 9"	<u><15 min.</u>	<u><15 min.</u>
Time at 6"	<u> </u>	<u> </u>
Time (9"-6")	<u> </u>	<u> </u>
Rate Min./Inch	<u><2 mpi</u>	<u><2 mpi</u>

Site Passed ☐ Site Failed: ☐

Performed By: _____

Witnessed By: _____

Comments: _____

COMMONWEALTH OF MASSACHUSETTS

Littleton, Massachusetts

Percolation Test		
Date: <u>7/24/01</u>		Time: <u>10:00</u>
Observation Hole #	<u>701-05</u>	<u>701-06</u>
Depth of Perc	<u>56"</u>	<u>42"</u>
Start Pre-soak	<u>3:00</u>	<u>3:00</u>
End Pre-soak	<u>Applied</u>	<u>Applied</u>
Time at 12"	<u>24 gal.</u>	<u>24 gal.</u>
Time at 9"	<u><15 min.</u>	<u><15 min.</u>
Time at 6"	<u> </u>	<u> </u>
Time (9"-6")	<u> </u>	<u> </u>
Rate Min./Inch	<u><2 mpi</u>	<u><2 mpi</u>

Site Passed ☒ Site Failed ☐Performed By: Scott Hayes, P.E.Witnessed By: Ira Grossman

Comments: _____

COMMONWEALTH OF MASSACHUSETTS

Littleton, Massachusetts

Percolation Test		
Date: <u>7/24/01</u>		Time: <u>10:00</u>
Observation Hole #	<u>701-07</u>	<u>701-08</u>
Depth of Perc	<u>40"</u>	<u>39"</u>
Start Pre-soak	<u>3:00</u>	<u>3:00</u>
End Pre-soak	<u>Applied</u>	<u>Applied</u>
Time at 12"	<u>24 gal</u>	<u>24 gal</u>
Time at 9"	<u><15 min.</u>	<u><15 min.</u>
Time at 6"	<u> </u>	<u> </u>
Time (9"-6")	<u> </u>	<u> </u>
Rate Min./Inch	<u><2 mpi</u>	<u><2 mpi</u>

Site Passed ☒ **Site Failed** ☐

Performed By: Scott Hayes, P.E.

Witnessed By: Ira Grossman

Comments: _____

FORM 12 - PERCOLATION TEST

COMMONWEALTH OF MASSACHUSETTS

Littleton , Massachusetts

Percolation Test		
Date: <u>7/24/01</u>		Time: <u>10:00</u>
Observation Hole #	<u>701-09</u>	<u>701-10</u>
Depth of Perc	<u>36"</u>	<u>72"</u>
Start Pre-soak	<u>3:00</u>	<u>3:00</u>
End Pre-soak	<u>Applied</u>	<u>Applied</u>
Time at 12"	<u>24 gal.</u>	<u>24 gal.</u>
Time at 9"	<u><15 min.</u>	<u><15 min.</u>
Time at 6"	<u> </u>	<u> </u>
Time (9"-6")	<u> </u>	<u> </u>
Rate Min./Inch	<u><2 mpi</u>	<u><2 mpi</u>

Site Passed ☒ **Site Failed** ☐

Performed By: Scott Hayes, P.E.

Witnessed By: Ira Grossman

Comments: _____

COMMONWEALTH OF MASSACHUSETTS

Littleton, Massachusetts

Percolation Test		
Date: <u>7/24/01</u> Time: <u>10:00</u>		
Observation Hole #	<u>701-11</u>	<u>701-12</u>
Depth of Perc	<u>57"</u>	<u>53"</u>
Start Pre-soak	<u>3:00</u>	<u>3:00</u>
End Pre-soak	<u>Applied</u>	<u>Applied</u>
Time at 12"	<u>24 gal.</u>	<u>24 gal.</u>
Time at 9"	<u><15 min.</u>	<u><15 min.</u>
Time at 6"	<u> </u>	<u> </u>
Time (9"-6")	<u> </u>	<u> </u>
Rate Min./Inch	<u><2 mpi</u>	<u><2 mpi</u>

Site Passed ☒ **Site Failed** ☐

Performed By: Scott Hayes, P.E.

Witnessed By: Ira Grossman

Comments: _____

Percolation Test

Time: 10:00

Observation Hole #	701-13	701-14
Depth of Perc	56"	63"
Start Pre-soak	3:00	3:00
End Pre-soak	Applied	Applied
Time at 12"	24 gal.	24 gal.
Time at 9"	<15 min.	<15 min.
Time at 6"		
Time (9"-6")		
Rate Min./Inch	<2 mpi	<2 mpi

Comments: _____

COMMONWEALTH OF MASSACHUSETTS

Littleton, Massachusetts

Percolation Test		
Date: <u>7/24/01</u> Time: <u>10:00</u>		
Observation Hole #	<u>701-15</u>	<u>701-16</u>
Depth of Perc	<u>52"</u>	<u>49"</u>
Start Pre-soak	<u>3:00</u>	<u>3:00</u>
End Pre-soak	<u>Applied</u>	<u>Applied</u>
Time at 12"	<u>24 gal.</u>	<u>24 gal.</u>
Time at 9"	<u><15 min.</u>	<u><15 min.</u>
Time at 6"	<u> </u>	<u> </u>
Time (9"-6")	<u> </u>	<u> </u>
Rate Min./Inch	<u><2 mpi</u>	<u><2 mpi</u>

Site Passed ☒ Site Failed ☐Performed By: Scott Hayes, P.E.Witnessed By: Ira Grossman

Comments: _____

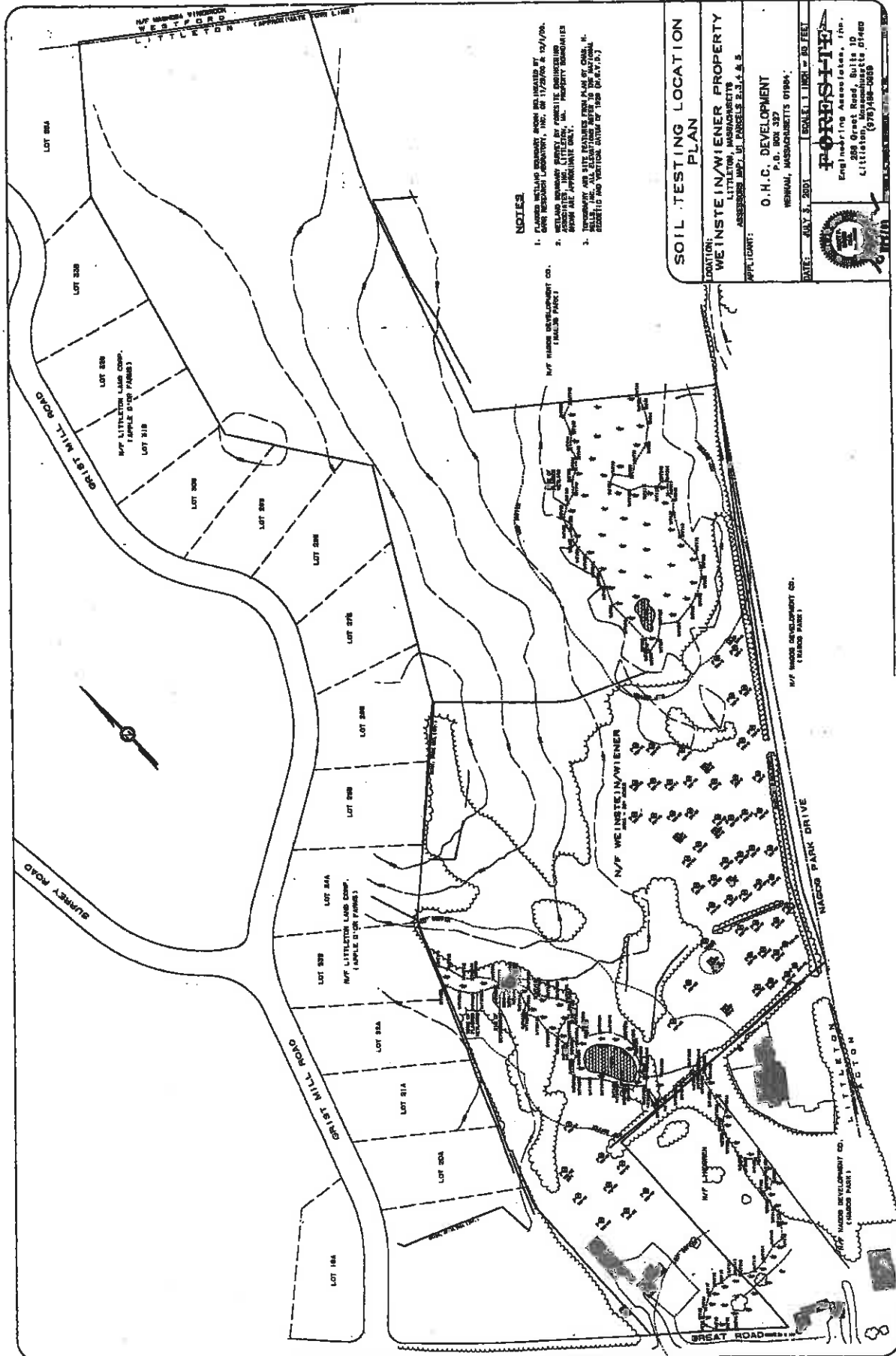
COMMONWEALTH OF MASSACHUSETTS

Littleton, Massachusetts

Percolation Test		
Date: <u>7/24/01</u>		Time: <u>10:00</u>
Observation Hole #	<u>701-17</u>	<u>701-18</u>
Depth of Perc	<u>44"</u>	<u>59"</u>
Start Pre-soak	<u>3:00</u>	<u>3:00</u>
End Pre-soak	<u>Applied</u>	<u>Applied</u>
Time at 12"	<u>24 gal.</u>	<u>24 gal.</u>
Time at 9"	<u><15 min.</u>	<u><15 min.</u>
Time at 6"	<u> </u>	<u> </u>
Time (9"-6")	<u> </u>	<u> </u>
Rate Min./Inch	<u><2 mpi</u>	<u><2 mpi</u>

Site Passed ☒ Site Failed ☐Performed By: Scott Hayes, P.E.Witnessed By: Ira Grossman

Comments: _____



15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
On-Site Stormwater Management



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Deep Observation Hole Number: 312-1

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-4"	A	2.5YR3/3				Sandy Loam					
4-22"	B	10YR5/8				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA
Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for On-Site Stormwater Management



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Deep Observation Hole Number: 312-2

Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-4"	A	2.5YR3/3				Sandy Loam					
4-20"	B	10YR5/6				Loamy Sand					
20-54"	C	10YR5/3				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
On-Site Stormwater Management



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Deep Observation Hole Number: 312-3

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-4"	A	2.5YR3/3				Sandy Loam					
4-22"	B	10YR5/6				Loamy Sand					
22-60"	C	10YR5/3				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA
Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
On-Site Stormwater Management



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Deep Observation Hole Number: 312-4

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-4"	A	2.5YR3/3				Sandy Loam					
4-26"	B	10YR5/8				Loamy Sand					
26-48"	C	10YR5/3				Loamy Sand		5% Boulders			
REF											

Additional Notes:

Refusal due to ledge.

Deep Observation Hole Number: 312-5

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-4"	A	2.5YR3/3				Sandy Loam					
4-20"	B	10YR5/8				Loamy Sand					
20-36"	C	10YR5/2				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA
Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

**Soil Suitability Assessment for
On-Site Stormwater Management**



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Deep Observation Hole Number: 312-6

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)		Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent			Gravel	Cobbles & Stones			
0-4"	A	2.5YR3/3				Sandy Loam						
4-26"	B	10YR5/6				Loamy Sand						
26-60"	C	10YR5/3				Loamy Sand						
REF												

Additional Notes:

5' downslope of 18" refusal.

Refusal due to ledge.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

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Deep Observation Hole Number:

312-7

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-26"	B	10YR5/8				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.



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On-Site Stormwater Management**

15 Great Road
Littleton, MA
Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Deep Observation Hole Number: 312-8

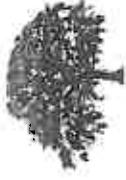
Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-26"	B	10YR5/8				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA
Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
On-Site Stormwater Management



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Deep Observation Hole Number: 312-9

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-20"	B	10YR5/8				Loamy Sand					
20-74"	C	10YR6/1				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge. Small amount of mixing (disturbance) 20-40".

15 Great Road
Littleton, MA
Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for On-Site Stormwater Management



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Deep Observation Hole Number: 312-10

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-20"	B					Well Formed					
20-82"	C					Disturbed and mixed		10-15% Boulders			
REF											

Additional Notes:

Refusal due to ledge. Previously disturbed parent material, while top and subsoil are well formed.

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15 Great Road
Littleton, MA
Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Deep Observation Hole Number: 312-11

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-20"	B	10YR5/6				Loamy Sand					
20-42"	C	10YR6/2				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA
Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

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Deep Observation Hole Number: 312-12

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-26"	B	10YR5/8				Loamy Sand					
26-76/98"	C	10YR6/1				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge between 76 and 98" depth.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
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Deep Observation Hole Number: 312-13

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-10"	Ap	2.5YR3/3				Sandy Loam					
10-52"	B & C					Loamy Sand		5%			
REF											

Additional Notes:

Refusal due to ledge. Previous disturbance caused mixing of B and C.

15 Great Road
Littleton, MA
Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for On-Site Stormwater Management



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Deep Observation Hole Number: 312-14

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-22"	B	10YR5/8				Loamy Sand					
22-78"	C	10YR6/1				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

**Soil Suitability Assessment for
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Deep Observation Hole Number: 312-15

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-24"	B	10YR5/6				Loamy Sand					
24-66"	C1	10YR6/1				Loamy Sand					
66-86"	C2	10YR3/1				Fine Sand					Weep @ 84"
REF											

Additional Notes:

Refusal due to ledge. Also vein of coarse sand 26-48" with 5% cobbles.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
On-Site Stormwater Management



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Deep Observation Hole Number: 312-16

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-24"	B	10YR5/8				Loamy Sand					
24-42"	C	10YR6/1				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
On-Site Stormwater Management



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Deep Observation Hole Number:

312-17

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-26"	B	10YR5/8				Loamy Sand		20%			
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
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Deep Observation Hole Number: 312-18

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-22"	B	10YR5/8				Loamy Sand					
22-52"	C	10YR6/1				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
On-Site Stormwater Management



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Deep Observation Hole Number: 312-19

Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-4"	A	2.5YR3/3				Sandy Loam					
4-26"	B	10YR5/8				Loamy Sand					
26-50"	C	10YR6/1				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

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On-Site Stormwater Management**



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Deep Observation Hole Number: 312-20

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	Ap	2.5YR3/3				Sandy Loam					
6-26"	B	10YR5/6				Loamy Sand					
26-90"	C	10YR6/1				Loamy Sand		10% Boulders			
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road

Littleton, MA

Testing Performed: 3-06 & 07-12

Soil Evaluator: Matthew Allison

Soil Suitability Assessment for

On-Site Stormwater Management



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Deep Observation Hole Number:

312-21

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Consistence (Moist)	Soil Structure	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-26"	B	10YR5/8				Loamy Sand					
26-76"	C	10YR5/6				Coarse Sand	15-20%				
REF											

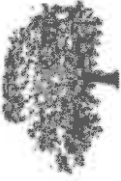
Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
On-Site Stormwater Management



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Deep Observation Hole Number: 312-22

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-20"	Fill										
20-32"	A	2.5YR3/3				Sandy Loam					
32-56"	B	10YR5/8				Loamy Sand					
56-156"	C	10YR6/1				Loamy Sand					

Additional Notes:

No weeping or mottles observed.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
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Deep Observation Hole Number: 312-23

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-12"	Ap	2.5YR3/3				Sandy Loam					
12-28"	B	10YR5/8				Loamy Sand					
28-128"	C	10YR4/4				Medium Sand	5-10%				Weep @90"

Additional Notes:

Depth limited by hole collapse, no refusal.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
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Deep Observation Hole Number: 312-24

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-10"	Ap	2.5YR3/3				Sandy Loam					
10-24"	B	10YR5/8				Loamy Sand					
24-108"	C	10YR6/2				Fine Sand					Weep @98"
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
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Deep Observation Hole Number: 312-25

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-12"	A	2.5YR3/3				Sandy Loam					
12-32"	B	10YR5/8				Loamy Sand					
32-82"	C	10YR6/1				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

Deep Observation Hole Number: 312-26

Depth (in)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Consistence (Moist)	Soil Structure	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
6-18"	B	10YR5/8				Loamy Sand					
18-56"	C	10YR5/6				Loamy Sand					
REF											

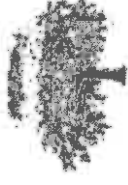
Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
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Deep Observation Hole Number: 312-27

Depth (ft)	Soil Horizon/ Layer	Soil Matrix: Color- (moist)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6"	A	2.5YR3/3				Sandy Loam					
REF											

Additional Notes:

Refusal due to ledge.

Deep Observation Hole Number:

312-28

Depth (ft)	Soil Horizon/ Layer	Soil Matrix: Color- (moist (munsell))	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Consistence (Moist)	Soil Structure	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-8"	A	2.5YR3/3				Sandy Loam					
8-14"	B	10YR5/8				Loamy Sand					
REF											

Additional Notes:

Refusal due to ledge.

15 Great Road
Littleton, MA

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

Soil Suitability Assessment for
On-Site Stormwater Management



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Deep Observation Hole Number: 312-29

Depth	Soil Horizon/ Layer	Soil Matrix: Color- moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-12"	Ap	2.5YR3/3				Sandy Loam					
12-26"	B	10YR5/8				Loamy Sand					
26-112"	C	10YR6/1				Fine Sand					
REF											

Additional Notes:

Refusal due to ledge.

Testing Performed: 3-06 & 07-12

Soil Evaluator: Matthew Allison

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Civil Engineering and Surveying

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Deep Observation Hole Number:

312-30

	Soil Horizon/Soil Matrix Color	Redoximorphic Features (mottles)			Soil Texture	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
		Depth	Color	Percent		Gravel	Cobbles & Stones			
0-12"	Ap				Sandy Loam					
12-24"	B				Loamy Sand					
24-74"	C				Medium Sand					
REF										

Additional Notes:

Refusal due to ledge.

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

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Littleton, MA 01460
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Deep Observation Hole Number: 312-31

	Soil Horizon/Soil Moisture Color	Redoximorphic Features (mottles)			Soil Texture	Coarse Fragments % by Volume			Soil Structure	Soil Consistence (Moist)	Other
		Depth	Color	Percent		Gravel	Clay	Stones			
0-12"	Ap	2.5YR3/3			Sandy Loam						
12-26"	B	10YR5/8			Loamy Sand						
26-82"	C1	10YR5/6			Coarse Sand	5-10%					
82-118"	C2	10YR5/2			Fine Sand						
REF											

Additional Notes:

Refusal due to ledge.

Testing Performed: 3-06 & 07-12
Soil Evaluator: Matthew Allison

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Deep Observation Hole Number: 312-32

	Horizon/Soil Name	Redoximorphic Features (mottles)	Soil Texture		Coarse Fragments % by Volume		Soil Moisture (Moist)	
			Coarse	Fine	Gravel	Stones		
0-12"	Ap							
12-26"	B							
26-78"	C1							Weep @78"
78-126"	C2							

Additional Notes:

Testing Performed: 3-06 & 07-12

Soil Evaluator: Matthew Allison

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Places: littleton@verizon.net

Deep Observation Hole Number: 312-33

			RedoxImorphic Features (mottling)		Coarse Fragments % by Volume	Soil	
					Gravel	Stones	
0-12"	Ap	2.5YR3/3			Sandy Loam		
12-24"	B	10YR5/8			Loamy Sand		
24-74"	C1	10YR5/2			Medium Sand		
74-124"	C2	10YR6/2			Fine Sand		

Additional Notes:
