CAMP WALLULA

Little Sunapee Rd & Wallula Rd New London, NH

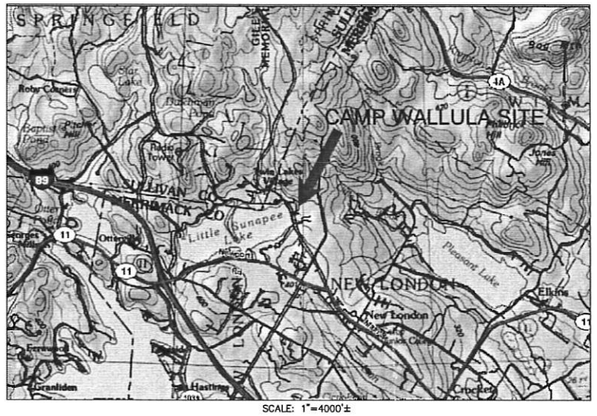
Camp Wallula 17-Lot / 17 Unit Subdivision

Planning Board Approval - May 2009

ABUTTERS LIST

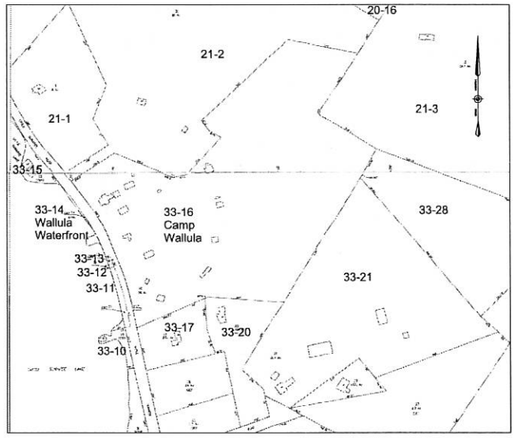
Map	Lot	Owner & Address	Property Location
33	10	Amelia Bucklin 10 Greenbriar Lane Amherst, NH 03031	617 LSR
33	11	MJ Harris + CS Bucklin Trust PO Box 2144 New London, NH 03257	L/O LSR
33 21	12, 13 2	Richard Dodds 97 Anderer Lane Unit 207 W. Roxbury, MA 02132	651 LSR L/O LSR
33 21	15 1	Peter V.+ Susan E. Moore 719 Little Sunapee Road New London, NH 03257	719 LSR
33	17	Laurie Diclerico 614 Little Sunapee Road New London, NH 03257	614 LSR
33	20	Arthur M. + Louise Hildreth 912 Rolanvue Road Baltimore, MD 21204	616 LSR
33	21	STATE of NH DOT 8 Eastman Hill Road Enfield, NH 03748	63 Old Dump Road
33	28	Ann Delefield Boyle Trust 10 Shawn Road Pembroke, BURMUDA 01	L/O OCR
21	3	James + Judy Arnold 489 Morgan Hill Road New London, NH 03257	489 MHR
20	16	Twin Lake Villa 164 Twin Lake Villa Road New London, NH 03257	74 TLVR

LOCATION MAP



SCALE: 1"=4000'±

TAX MAP



SCALE: 1"=400'±

LEGEND

- PROPERTY LINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- OVERHEAD WIRES
- DRAINAGE LINE
- SEWER LINE
- GAS LINE
- WATER LINE
- SHORE LINE
- IRON PIPE OR REBAR
- GRANITE OR CONCRETE BOUND
- UTILITY POLE
- HYDRANT
- WATER SHUT-OFF
- SOIL TEST HOLE
- SOIL PERCOLATION TEST
- STONEWALL
- EDGE OF WOODS
- CONCRETE
- WOODS ROAD
- UNDISTURBED WOODLAND BUFFER

PLAN TITLE	SHEET I.D.
Cover Sheet	C – 1
Existing Condition Plan	C – 2
Recordable Plat	C – 3
State Subdivision Plan	C – 4
Topographic Support Plan	C – 5
Test Hole Logs	C – 6
Grading & Improvements Plan	C – 7
Road Plan & Profile	C – 8
Details & Specifications	C – 9
Utilities & Fire Protection Plan	C – 10
Drainage & Erosion Control Plan	C – 11
Specifications	C – 12

Stoney Ridge Environmental LLC
229 Prospect Mountain Road
Alton, NH 03809
(p) 603-776-5825
(f) 603-776-5826
ttenv@worldpath.net

RICHARD D. BARTLETT & ASSOCIATES, LLC
214 North State Street
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Fax.: (603) 224-6261
E-mail: info@richarddbartlett.com
World Wide Web Page:
www.richarddbartlett.com
LICENSED LAND SURVEYORS

OWNER OF RECORD

Camp Wallula Inc.
684 Little Sunapee Road
New London, NH 03257

JESSEMAN ASSOCIATES, P.C.
CONSULTING ENGINEERS
176 Newport Road, New London, NH 03257
phone: 603-526-2055, email: info@jesseman.com

PROJECT NAME:
CAMP WALLULA 17-LOT / 17 UNIT SUBDIVISION

STATUS:
Approved May 2009

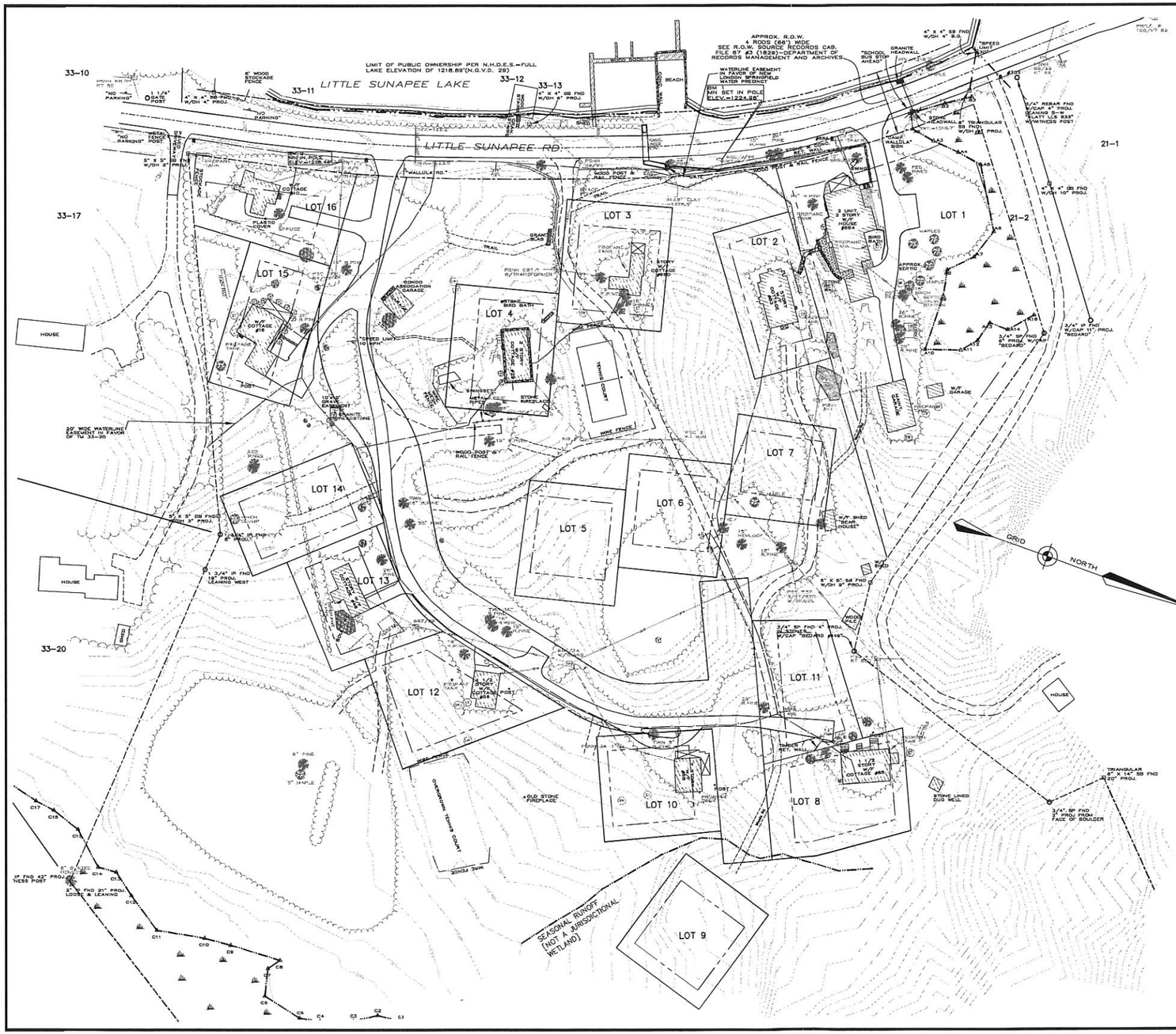
PREPARED FOR:
Camp Wallula Inc.
684 Little Sunapee Road
New London, NH 03257

NO.	DATE	DESCRIPTION	BY
3	6/3/09	Add notes per conditions of approval to sheet C-4	NRF
2	5/8/09	Address Dept Head & PB Comments	NRF
1	4/10/09	Address Dept Head & PB Comments	NRF

DATE OF ISSUE:	8 May 2009
PROJECT NUMBER:	08007
DRAWING SCALE:	AS NOTED

TITLE:
COVER SHEET

SHEET:
C-1



NOTES

1. Boundary and topographic survey was performed by Richard D Bartlett Assoc. Survey by total station between the dates of Aug 7 and Aug. 28, 2008. Primary control traverse error of closure, 1' in 207,289'.
2. Horizontal datum based on N.H. State Plane Coordinate System, N.A.D. 83.
3. Vertical datum based on N.G.V.D. 29.
4. Property lies within the "R-2" Zoning District as revised in March 2009.
5. Original site layout shown on this sheet, based upon "Proposed Planned Unit Redevelopment, Camp Wallula Inc, dated November 1971, by Robert S Bristol."
6. Setback lines shown on the plan represent the setback lines from 1971 to determine maximum allowable building area for each site.
7. Undisturbed woodland buffer area is shown as it exists as of March 2009.
8. Setbacks shown are as of 1971 to determine buildable area of the proposed lots.

WETLAND NOTES

1. Wetlands were delineated by Stoney Ridge Environmental, Inc. on June 2008.
2. Wetland delineation was performed to the standards of the Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, (January, 1987).
3. Dominant hydric soil conditions within the wetlands were identified by Gove Environmental Services, Inc. utilizing the criteria of "Field Indicators For Identifying Hydric Soils In New England", version 2, July,1998.
4. Dominance of wetland vegetation was assessed by Gove Environmental Services, Inc. utilizing the National List Of Plant Species That Occur In Wetlands: 1988 Northeast (Region 1) (Porter B. Reed, Jr.)
5. Wetlands were classified by Gove Environmental Services, Inc. utilizing the criteria of the U.S. Fish and Wildlife Service Manual FWS/OBS-79/31 Classification Of Wetlands and Deepwater Habitats Of The United States (Cowardin et al, 1979).

LEGEND

- PROPERTY LINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- OVERHEAD WIRES
- DRAINAGE LINE
- SEWER LINE
- GAS LINE
- WATER LINE
- SHORE LINE
- IRON PIPE OR REBAR
- GRANITE OR CONCRETE BOUND
- UTILITY POLE
- HYDRANT
- WATER SHUT-OFF
- SOIL TEST HOLE
- SOIL PERCOLATION TEST
- STONEWALL
- EDGE OF WOODS
- CONCRETE
- WOODS ROAD
- UNDISTURBED WOODLAND BUFFER

JESSEMAN ASSOCIATES, P.C.
CONSULTING ENGINEERS
176 Newport Road, New London, NH 03257
phone: 603-526-2055, email: info@jesseman.com

PROJECT NAME:

CAMP WALLULA 17-LOT / 17 UNIT SUBDIVISION

STATUS:
Approved May 2009

PREPARED FOR:

Camp Wallula Inc.
684 Little Sunapee Road
New London, NH 03257

NO.	DATE	DESCRIPTION	BY
3	6/5/09	Add notes per conditions of approval to sheet C-4	NRF
2	5/8/09	Address Dept Head & PB Comments	NRF
1	4/10/09	Address Dept Head & PB Comments	NRF

DATE OF ISSUE:	8 May 2009
PROJECT NUMBER:	08007
DRAWING SCALE:	1" =50'

TITLE:

EXISTING CONDITIONS PLAN

SHEET:

C-2

Stoney Ridge Environmental LLC
229 Prospect Mountain Road
Alton, NH 03809
(p) 603-776-5825
(f) 603-776-5826
ttenv@worldpath.net

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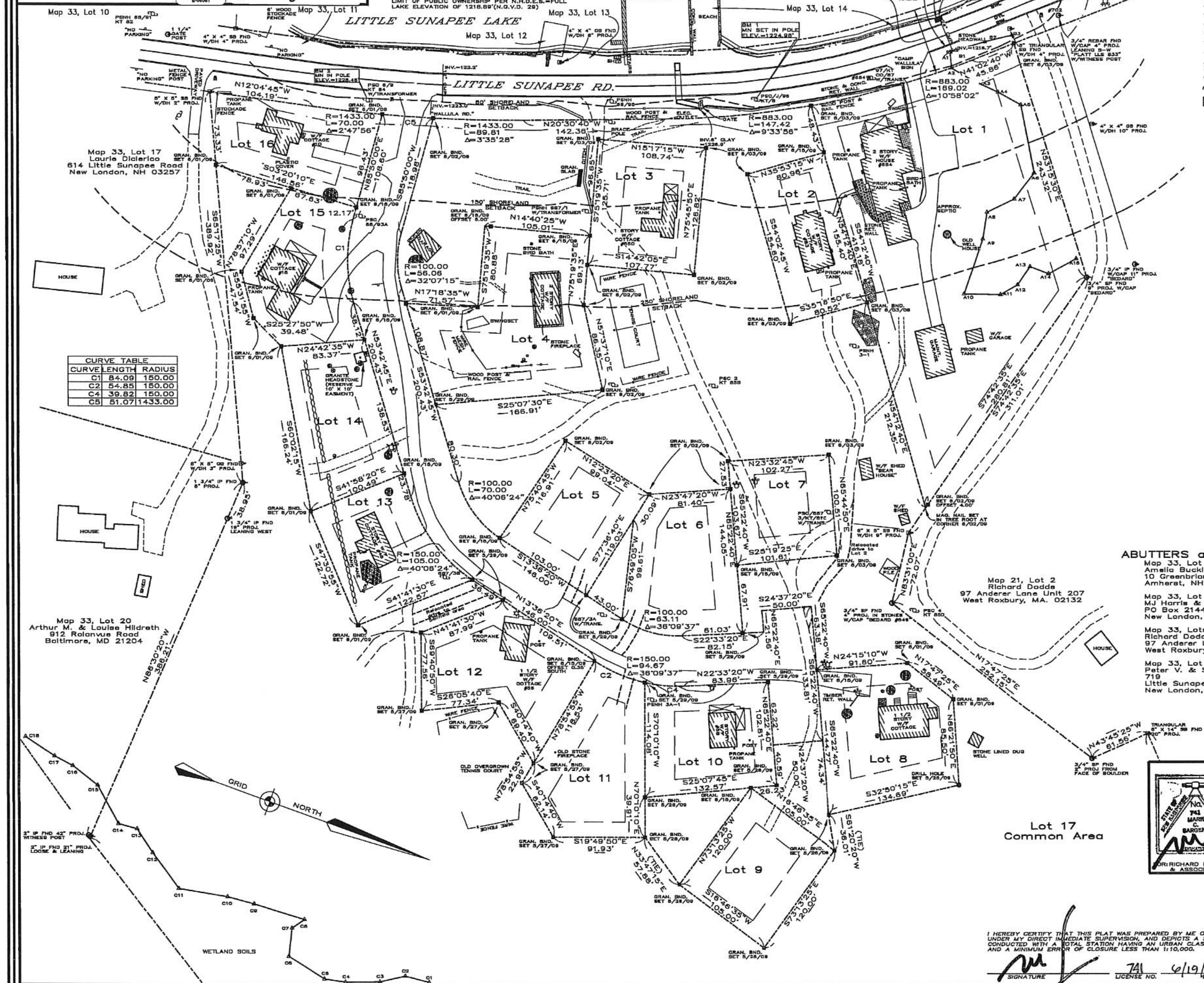
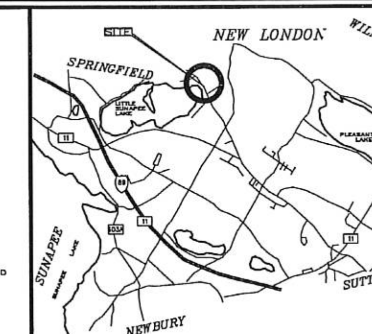
LICENSED LAND SURVEYORS



CURVE TABLE		
CURVE	LENGTH	RADIUS
C1	84.09	150.00
C2	54.85	150.00
C4	39.82	150.00
C5	51.07	1433.00

LEGEND

- PROPERTY LINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- OVERHEAD WIRES
- DRAINAGE LINE
- SEWER LINE
- GAS LINE
- SETBACKS
- SHORE LINE
- STONEWALL
- EDGE OF WOODS
- CONCRETE
- WELL
- IRON PIPE OR REBAR
- GRANITE OR CONCRETE BOUND
- DRILL HOLE
- UTILITY POLE
- CATCH BASIN
- HYDRANT
- WATER SHUT-OFF
- GAS SHUT-OFF
- SIGN
- WETLAND FLAG
- MAILBOX
- DELINEATOR POST
- HARDWOOD TREE
- SOFTWOOD TREE
- SHRUB OR BUSH
- BOULDER
- GRANITE BOUND SET OR TO BE SET



VICINITY MAP
SCALE: 1" = 5,000'±

LOT AREA SYNOPSIS

LOT 1	70,728 Sq. Ft.	or 1.62 Acres
LOT 2	12,514 Sq. Ft.	or 0.29 Acres
LOT 3	13,668 Sq. Ft.	or 0.31 Acres
LOT 4	23,672 Sq. Ft.	or 0.54 Acres
LOT 5	11,915 Sq. Ft.	or 0.27 Acres
LOT 6	15,004 Sq. Ft.	or 0.34 Acres
LOT 7	10,406 Sq. Ft.	or 0.24 Acres
LOT 8	17,234 Sq. Ft.	or 0.39 Acres
LOT 9	12,600 Sq. Ft.	or 0.29 Acres
LOT 10	13,599 Sq. Ft.	or 0.31 Acres
LOT 11	15,671 Sq. Ft.	or 0.36 Acres
LOT 12	15,448 Sq. Ft.	or 0.35 Acres
LOT 13	12,668 Sq. Ft.	or 0.29 Acres
LOT 14	13,727 Sq. Ft. (excludes area within 10' x 10' Easement)	or 0.32 Acres
LOT 15	13,641 Sq. Ft.	or 0.31 Acres
LOT 16	13,198 Sq. Ft.	or 0.30 Acres
PROPOSED ROAD	45,670 Sq. Ft.	or 1.05 Acres
LOT 17	REMAINDER 20.82 Acres	

(Total Acreage — 28.4 Ac. per plan in note 6)

ABUTTERS across road

Map 33, Lot 10
Amelia Bucklin
10 Greenbriar Lane
Amherst, NH 03031

Map 33, Lot 11
MJ Harris & CS Bucklin Trust
PO Box 2144
New London, NH 03257

Map 33, Lots 12 & 13
Richard Dodds
97 Anderer Lane, Unit 207
West Roxbury, MA. 02132

Map 33, Lot 15
Peter V. & Susan E. Moore
719
Little Sunapee Road
New London, NH 03257

BEST PRACTICES STATEMENT

During construction, contractors will be required to use the most current methods for erosion control to insure protection of the lake and the land below the subdivision as required by the State and the Town of New London.

TOWN OF NEW LONDON PLANNING BOARD

NHDES SUBDIVISION APPROVAL NO. FOR WASTEWATER TREATMENT SA2009009070
NH WETLANDS BOARD—WETLANDS PERMIT: DREDGE & FILL PERMIT NO. N/A
NHDES LAND DISTURBANCE (RSA 485-A:17) PERMIT NO. N/A
NHDES COMMUNITY WATER SUPPLY PERMIT NO. EPA ID– 172010
NH DEPARTMENT OF TRANSPORTATION ACCESS PERMIT NO. 02-335-0003
DATE FINAL APPLICATION FILED: 11 MAY 2009
FINAL APPLICATION HEARING DATE: 26 MAY 2009
APPROVAL DATE May 26, 2009
SIGNATURES OF PLANNING BOARD
[signature] CHAIR
[signature] VICE CHAIR
SECRETARY
Michele Holton
[signature]
Emma R. Crane
Christina M. Helm

RICHARD D. BARTLETT & ASSOCIATES, LLC
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LICENSED LAND SURVEYORS

STATE OF NEW HAMPSHIRE No. 741 MARK C. SARGENT LICENSED LAND SURVEYOR
FOR: RICHARD D. BARTLETT & ASSOCIATES, LLC

NO.	DATE	REVISION
3	6/8/09	BOUNDS SET
2	6/1/09	NOTES
1	4/09/09	ADJUST LOT INFO/ZONING

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED BY ME OR THOSE UNDER MY DIRECT IMMEDIATE SUPERVISION, AND DEPICTS A SURVEY CONDUCTED WITH A TOTAL STATION HAVING AN URBAN CLASSIFICATION AND A MINIMUM ERROR OF CLOSURE LESS THAN 1:10,000.

[signature] SIGNATURE — 741 LICENSE NO. — 6/19/09 DATE

JOB NO. 08007
JESSEMAN ASSOCIATES, P.C.
CONSULTING ENGINEERS
176 Newport Road, New London, NH 03257
phone 603-526-2055, email info@jesseman.com

SUBDIVISION PLAT of CAMP WALLULA LITTLE SUNAPEE ROAD NEW LONDON, NH

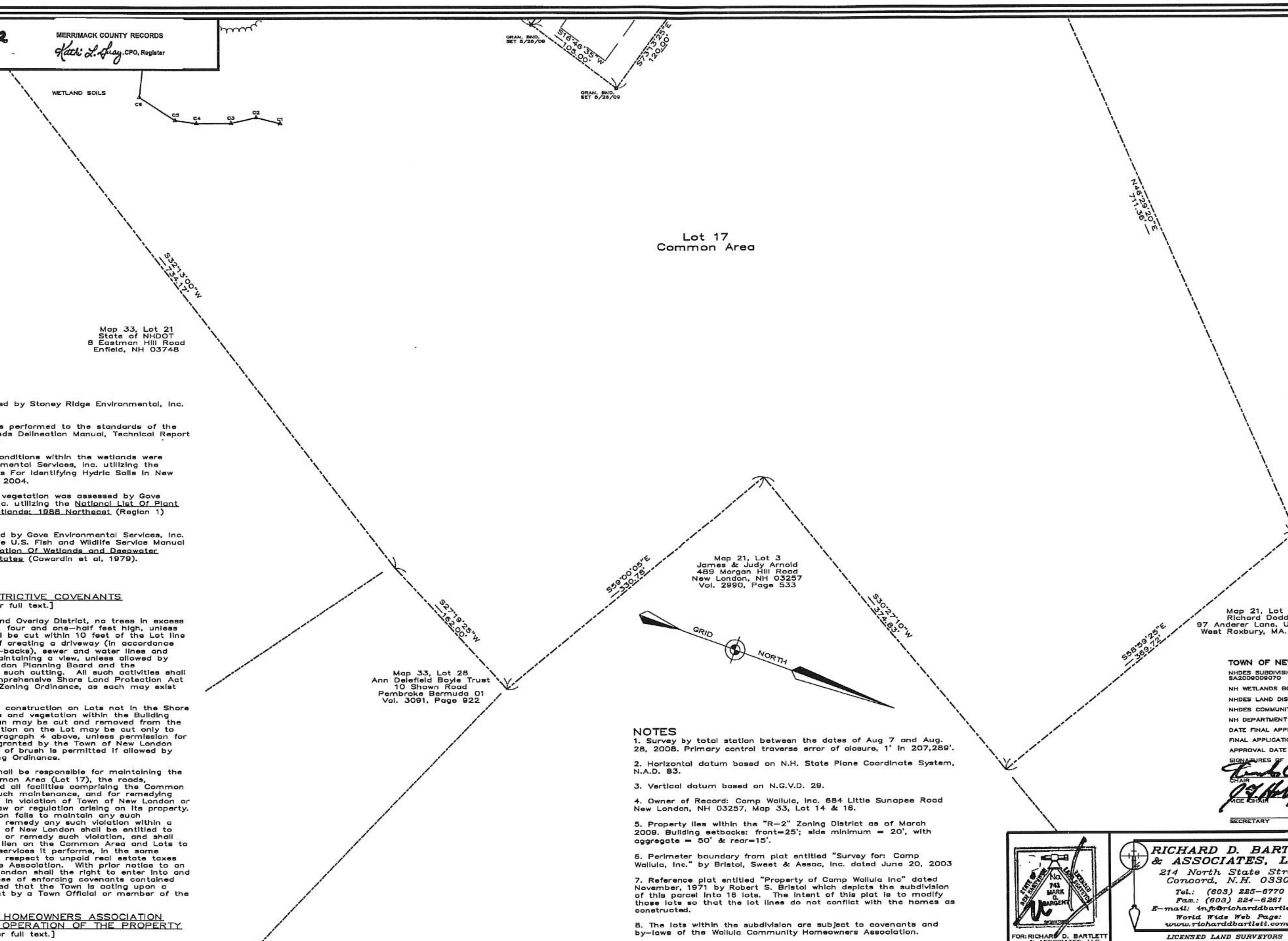
PROJECT: 684 LITTLE SUNAPEE RD
LOCATION: MAP 33, LOTS 14,16 NEW LONDON, NH

GRAPHIC SCALE 0 25' 50' 100'
SCALE: 1" = 50'

DATE: MARCH 2, 2009
JOB NO.: 708.161
SHEET C-3

Doc#: 19288
Book: Pages:0000 2 of 2
07/01/2009 9:11AM

MERRIMACK COUNTY RECORDS
Kathi L. Guay, CPO, Register



WETLAND NOTES

1. Wetlands were delineated by Stoney Ridge Environmental, Inc. on June 2008.

2. Wetland delineation was performed to the standards of the Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, (January, 1987).

3. Dominant hydric soil conditions within the wetlands were identified by Gove Environmental Services, Inc. utilizing the criteria of "Field Indicators For Identifying Hydric Soils In New England", version 2, July, 2004.

4. Dominance of wetland vegetation was assessed by Gove Environmental Services, Inc. utilizing the National List Of Plant Species That Occur In Wetlands: 1988 Northeast (Region 1) (Porter B. Reed, Jr.)

5. Wetlands were classified by Gove Environmental Services, Inc. utilizing the criteria of the U.S. Fish and Wildlife Service Manual FWS/OBS-79/31 Classification Of Wetlands and Deepwater Habitats Of The United States (Cowardin et al, 1979).

DECLARATION OF RESTRICTIVE COVENANTS

[Excerpt, see document for full text.]

4. If in the Shore Land Overlay District, no trees in excess of four inches in diameter, four and one-half feet high, unless diseased or damaged, shall be cut within 10 feet of the Lot line except for the purposes of creating a driveway (in accordance with required driveway set-backs), sewer and water lines and except for clearing and maintaining a view, unless allowed by both the Town of New London Planning Board and the Association, in advance of such cutting. All such activities shall comply with the state Comprehensive Shore Land Protection Act and Town of New London Zoning Ordinance, as each may exist from time to time.

5. In connection with construction on Lots not in the Shore Land Overlay District, trees and vegetation within the Building Envelope shown on the Plan may be cut and removed from the site, and any other vegetation on the Lot may be cut only to the extent set forth in paragraph 4 above, unless permission for greater cutting has been granted by the Town of New London Planning Board. Trimming of brush is permitted if allowed by Town of New London Zoning Ordinance.

20. The Association shall be responsible for maintaining the improvements on the Common Area (Lot 17), the roads, drainage, water system and all facilities comprising the Common Area and for paying for such maintenance, and for remedying any environmental problem in violation of Town of New London or State of New Hampshire law or regulation arising on its property. In the event the Association fails to maintain any such improvement or facility, or remedy any such violation within a reasonable time, the Town of New London shall be entitled to perform such maintenance or remedy such violation, and shall have the right to place a lien on the Common Area and Lots to secure payment for such services it performs, in the same manner as it may do with respect to unpaid real estate taxes at the sole expense of the Association. With prior notice to an Owner, the Town of New London shall the right to enter into and inspect Lots for the purpose of enforcing covenants contained herein, and further, provided that the Town is acting upon a legitimate written complaint by a Town Official or member of the public.

WALLULA COMMUNITY HOMEOWNERS ASSOCIATION BYLAWS: ARTICLE V: OPERATION OF THE PROPERTY

[Excerpt, see document for full text.]

8. Septic System Design. All subsurface disposal systems (septic systems) for new construction, building improvements, and septic system upgrades and/or replacements shall obtain Construction Approval from the New Hampshire Department of Environmental Services Subsurface Bureau. Repair of existing systems not meeting current standards shall not be performed unless inspected and approved by a certified septic designer. Repairs may be made to lines to septic tanks or leach fields without the requirement of replacement of the entire system. All work on repaired or failed septic systems will comply with the then current standards of the New Hampshire Department of Environmental Services.

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED BY ME OR THOSE UNDER MY DIRECT IMMEDIATE SUPERVISION, AND DEPICTS A SURVEY CONDUCTED WITH A TOTAL STATION HAVING AN URBAN CLASSIFICATION AND A MINIMUM ERROR OF CLOSURE LESS THAN 1:10,000.

SIGNATURE ____ LICENSE NO. 741 DATE 6/19/09

NOTES

1. Survey by total station between the dates of Aug 7 and Aug. 28, 2008. Primary control traverse error of closure, 1' in 207,289'.

2. Horizontal datum based on N.H. State Plane Coordinate System, N.A.D. 83.

3. Vertical datum based on N.G.V.D. 29.

4. Owner of Record: Camp Wallula, Inc. 684 Little Sunapee Road New London, NH 03257, Map 33, Lot 14 & 16.

5. Property lies within the "R-2" Zoning District as of March 2009. Building setbacks: front=25'; side minimum = 20', with aggregate = 50' & rear=15'.

6. Perimeter boundary from plat entitled "Survey for: Camp Wallula, Inc." by Bristol, Sweet & Assoc, Inc. dated June 20, 2003

7. Reference plat entitled "Property of Camp Wallula Inc" dated November, 1971 by Robert S. Bristol which depicts the subdivision of this parcel into 16 lots. The intent of this plat is to modify those lots so that the lot lines do not conflict with the homes as constructed.

8. The lots within the subdivision are subject to covenants and by-laws of the Wallula Community Homeowners Association.

9. New construction and improvements on a portion of the subject premises are subject to the provisions of the Comprehensive Shoreland Protection Act.

10. For title to the shorefront reference New Hampshire Supreme Court decision, Hoban v. Bucklin 88 NH 73 (1936) and deed of Bernard A. Hoban to Camp Wallula, Inc., MCRD Vol. 874. Page 493. For north and south boundaries of shorefront parcel see boundary line agreements in MCRD Vol. 1247, Pages 223 and 236 and MCRD plan number 4047.

11. Subject premises does not lie within the 100-Year Flood Hazard Area as shown on Community Panel No. 330230 0010 B, effective date July 16, 1991.

TOWN OF NEW LONDON PLANNING BOARD

NHDES SUBDIVISION APPROVAL NO. FOR WASTEWATER TREATMENT SA2009009070

NH WETLANDS BOARD-WETLANDS PERMIT: DREDGE & FILL PERMIT NO. N/A

NHDES LAND DISTURBANCE (RSA 485-A:17) PERMIT NO. N/A

NHDES COMMUNITY WATER SUPPLY PERMIT NO. EPA ID- 172010

NH DEPARTMENT OF TRANSPORTATION ACCESS PERMIT NO. 02-335-0003

DATE FINAL APPLICATION FILED: 11 MAY 2009

FINAL APPLICATION HEARING DATE: 26 MAY 2009

APPROVAL DATE May 26, 2009

SIGNATURES OF PLANNING BOARD

CHAIR

VICE CHAIR

SECRETARY

STATE OF NEW HAMPSHIRE
No. 741
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LICENSED LAND SURVEYOR

FOR: RICHARD D. BARTLETT & ASSOCIATES, LLC

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LICENSED LAND SURVEYORS

NO.	DATE	REVISION
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1	4/09/09	ADJUST LOT INFO/ZONING

JOB NO. 08007

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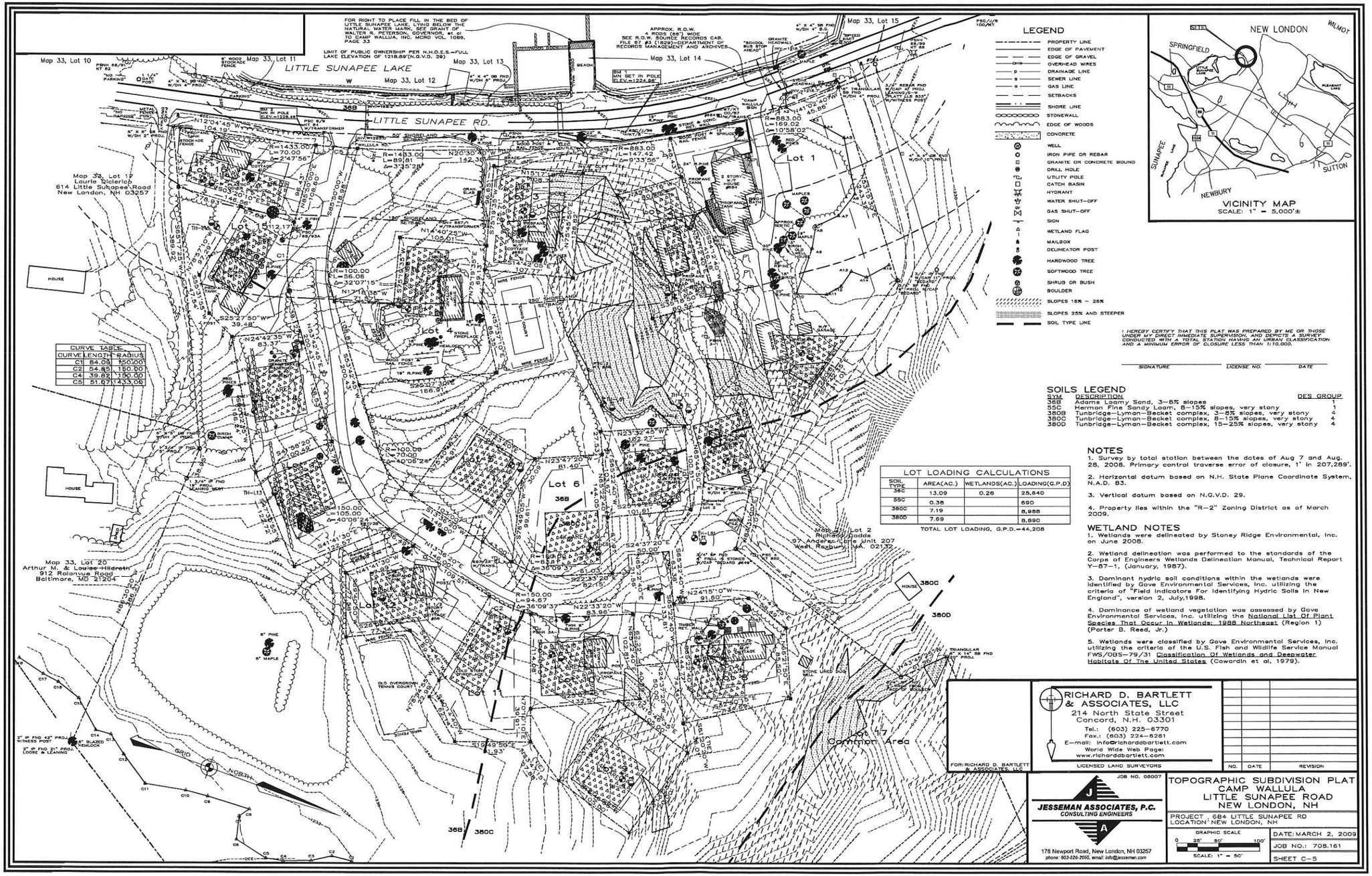
phone: 603-526-2055, email: info@jesseman.com

SUBDIVISION PLAT of
CAMP WALLULA
LITTLE SUNAPEE ROAD
NEW LONDON, NH

PROJECT LOCATION: 684 LITTLE SUNAPEE RD, MAP 33, LOTS 14,16 NEW LONDON, NH

GRAPHIC SCALE: 0 25' 50' 100'
SCALE: 1" = 50'

DATE: MARCH 2, 2009
JOB NO.: 708.161
SHEET C-4



SOILS LEGEND

SYM.	DESCRIPTION	DES GROUP
36B	Adams Loamy Sand, 3–8% slopes	1
55C	Hermon Fine Sandy Loam, 8–15% slopes, very stony	1
380B	Tunbridge–Lyman–Becket complex, 3–8% slopes, very stony	4
380C	Tunbridge–Lyman–Becket complex, 8–15% slopes, very stony	4
380D	Tunbridge–Lyman–Becket complex, 15–25% slopes, very stony	4

LOT LOADING CALCULATIONS

SOIL TYPE	AREA(AC.)	WETLANDS(AC.)	LOADING(G.P.D)
36B	13.09	0.26	25,640
55C	0.38		690
380C	7.19		8,988
380D	7.69		8,890

TOTAL LOT LOADING, G.P.D.=44,208

NOTES

1. Survey by total station between the dates of Aug 7 and Aug. 28, 2008. Primary control traverse error of closure, 1' in 207,289'.
2. Horizontal datum based on N.H. State Plane Coordinate System, N.A.D. 83.
3. Vertical datum based on N.G.V.D. 29.
4. Property lies within the "R–2" Zoning District as of March 2009.

WETLAND NOTES

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LICENSED LAND SURVEYORS
FOR: RICHARD D. BARTLETT & ASSOCIATES, LLC

NO.	DATE	REVISION

JESSEMAN ASSOCIATES, P.C.
CONSULTING ENGINEERS
178 Newport Road, New London, NH 03257
phone: 603-526-2055, email: info@jesseman.com

JOB NO. 08007

TOPOGRAPHIC SUBDIVISION PLAT
CAMP WALLULA
LITTLE SUNAPEE ROAD
NEW LONDON, NH

PROJECT : 684 LITTLE SUNAPEE RD
LOCATION: NEW LONDON, NH

GRAPHIC SCALE 0 25' 50' 100'
SCALE: 1" = 50'

DATE: MARCH 2, 2009
JOB NO.: 708.161
SHEET C–5

Test Hole "L1"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-16"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
16"-39"	10YR 5/4 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
39"-75"	2.5Y 5/4 Light Yellowish Brown Loamy Sand, Granular, Loose

SHWT: None Observed
H_2O: None Observed
Roots: Many to 35"
Rocks: None Observed
Ledge: None Observed
Perc. Rate: 4 minutes per inch at 24 inches

Test Hole "L2"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-8"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
8"-34"	10YR 5/4 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
34"-68"	2.5Y 5/4 Light Yellowish Brown Loamy Sand, Granular, Loose

SHWT: None Observed
H_2O: None Observed
Roots: Many to 34"
Rocks: None Observed
Ledge: None Observed
Perc. Rate: 6 minutes per inch at 24 inches

Test Hole "L3"
Camp Wallula
New London, NH
29 October 2008

	Pine Needles
0"-3"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
3"-10"	10YR 5/6 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
10"-78"	2.5Y 5/4 Light Yellowish Brown Gravel, Granular, Loose

SHWT: None Observed
H_2O: None Observed
Roots: Many to 12"
Rocks: Up to 4", full depth
Ledge: None Observed
Perc. Rate: 2 minutes per inch at 24 inches

Test Hole "L4"
Camp Wallula
New London, NH
29 October 2008

	Lawn
0"-14"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
14"-32"	10YR 5/6 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
32"-74"	2.5Y 5/4 Light Yellowish Brown Loamy Sand, Granular, Loose

SHWT: None Observed
H_2O: None Observed
Roots: Many to 30"
Rocks: None Observed
Ledge: None Observed
Perc. Rate: 4 minutes per inch at 24 inches

Test Hole "L5"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-7"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
7"-28"	10YR 5/6 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
28"-66"	2.5Y 5/4 Light Yellowish Brown Loamy Sand, Granular, Friable

SHWT: None Observed
H_2O: None Observed
Roots: Many to 22"
Rocks: Up to 30" diameter, full depth
Ledge: None Observed
Perc. Rate: 4 minutes per inch at 24 inches

Test Hole "L6"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-6"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
6"-48"	10YR 5/4 Yellowish Brown Medium Sand, Granular, Loose
48"-65"	2.5Y 5/4 Light Yellowish Brown Loamy Sand, Granular, Friable

SHWT: 48"
H_2O: None Observed
Roots: Many to 18"
Rocks: Up to 14" diameter, full depth
Ledge: None Observed
Perc. Rate: 4 minutes per inch at 24 inches

Test Hole "L61"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-7"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
7"-28"	10YR 5/4 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
28"-65"	2.5Y 5/4 Light Yellowish Brown Loamy Sand, Granular, Very Friable

SHWT: None Observed
H_2O: None Observed
Roots: Many to 28"
Rocks: Up to 3" diameter, full depth
Ledge: Refusal @ 65"
Perc. Rate: 6 minutes per inch at 24 inches

Test Hole "L7"
Camp Wallula
New London, NH
20 April 2009

	Forest Mat
0"-8"	10YR 4/3 Dark Brown Fine Sandy Loam, Weak Blocky, Very Friable
8"-60"	2.5Y 6/3 Light Yellowish Brown Medium Sand, Granular, Loose
60"-64"	2.5Y 5/3 Light Olive Brown Very Fine Sand, Granular, Very Friable

SHWT: None Observed
H_2O: None Observed
Roots: Many to 8"
Rocks: None Observed
Ledge: None Observed
Perc. Rate: 4 minutes per inch at 22 inches

Test Hole "L71"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-6"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
6"-27"	10YR 5/6 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
27"-78"	2.5Y 5/4 Light Yellowish Brown Loamy Sand, Granular, Loose

SHWT: None Observed
H_2O: None Observed
Roots: Many to 22"
Rocks: Up to 4" diameter, full depth
Ledge: Refusal @ 78"
Perc. Rate: 4 minutes per inch at 24 inches

Test Hole "L8"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-8"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
8"-31"	10YR 5/6 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
31"-70"	2.5Y 5/4 Light Olive Brown Loamy Sand, Granular, Loose

SHWT: None Observed
H_2O: None Observed
Roots: Many to 32"
Rocks: Up to 36", full depth
Ledge: None Observed
Perc. Rate: 4 minutes per inch at 22 inches

Test Hole "L81"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-7"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
7"-22"	10YR 5/4 Yellowish Brown Fine Sandy Loam, Weak Blocky, Friable
22"-36"	2.5Y 5/4 Light Yellowish Brown Fine Loamy Sand, Granular, Friable
36"-68"	2.5Y 5/4 Light Yellowish Brown Loamy Sand, Granular, Loose

SHWT: 22"
H_2O: None Observed
Roots: Many to 18"
Rocks: Up to 24" diameter, full depth
Ledge: None Observed
Perc. Rate: 6 minutes per inch at 24 inches

Test Hole "L9"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-4"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
4"-8"	10YR 5/4 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
8"-74"	2.5Y 5/4 Light Olive Brown Loamy Sand, Granular, Loose

SHWT: None Observed
H_2O: None Observed
Roots: Many to 22"
Rocks: None Observed
Ledge: None Observed
Perc. Rate: 2 minutes per inch at 22 inches

Test Hole "L10"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-10"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
10"-22"	10YR 5/6 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
22"-34"	10YR 5/4 Yellowish Brown Very Fine Sandy Loam, Weak Blocky, Friable
34"-39"	2.5Y 5/4 Light Yellowish Brown Very Fine Loamy Sand, Granular, Firm
39"-75"	2.5Y 5/4 Light Yellowish Brown Loamy Sand, Granular, Loose

SHWT: 34"
H_2O: None Observed
Roots: Many to 30"
Rocks: Up to 36" diameter, full depth
Ledge: None Observed
Perc. Rate: 6 minutes per inch at 24 inches

Test Hole "L11"
Camp Wallula
New London, NH
20 April 2009

	Forest Mat
0"-10"	10YR 4/4 Dark Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
10"-21"	7.5YR 4/6 Strong Brown Fine Sandy Loam, Weak Blocky, Very Friable
21"-43"	10YR 5/6 Yellowish Brown Fine Sandy, Granular, Friable
43"-62"	2.5Y 5/3 Light Olive Brown Very Fine Sand, Weak Blocky, Friable

SHWT: None Observed
H_2O: None Observed
Roots: Many to 12"
Rocks: None Observed
Ledge: None Observed
Perc. Rate: 6 minutes per inch at 24 inches

Test Hole "L12"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-7"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
7"-36"	10YR 5/4 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
36"-45"	2.5Y 5/4 Light Yellowish Brown Very Fine Sandy Loam, Granular, Friable
45"-62"	2.5Y 5/4 Light Yellowish Brown Fine Loamy Sand, Granular, Very Friable
62"-80"	2.5Y 5/4 Light Yellowish Brown Fine Loamy Sand, Granular, Friable

SHWT: None Observed
H_2O: None Observed
Roots: Many to 32"
Rocks: Up to 36" diameter, full depth
Ledge: None Observed
Perc. Rate: 8 minutes per inch at 24 inches

Test Hole "L13"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-7"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
7"-36"	10YR 5/6 Yellowish Brown Fine Loamy Sand, Weak Blocky, Friable
36"-70"	2.5Y 5/4 Light Olive Brown Very Fine Loamy Sand, Granular, Firm

SHWT: 36"
H_2O: None Observed
Roots: Many to 32"
Rocks: 24", Surface only
Ledge: None Observed
Perc. Rate: 8 minutes per inch at 22 inches

Test Hole "L14"
Camp Wallula
New London, NH
29 October 2008

	Lawn
0"-7"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
7"-29"	10YR 5/4 Yellowish Brown Very Fine Sandy Loam, Weak Blocky, Friable
29"-70"	2.5Y 6/4 Light Yellowish Brown Very Fine Loamy Sand, Granular, Friable

SHWT: 44"
H_2O: None Observed
Roots: Many to 27"
Rocks: None Observed
Ledge: None Observed
Perc. Rate: 8 minutes per inch at 24 inches
Broke abandoned 1" plastic water line digging hole

Test Hole "L15"
Camp Wallula
New London, NH
29 October 2008

	Lawn
0"-16"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
16"-44"	10YR 6/6 Brownish Yellow Fine Sandy Loam, Weak Blocky, Very Friable
44"-72"	2.5Y 7/4 Light Gray Fine Loamy Sand, Granular, Very Friable

SHWT: None Observed
H_2O: None Observed
Roots: Many to 34"
Rocks: None Observed
Ledge: None Observed
Perc. Rate: 6 minutes per inch at 24 inches

Test Hole "L16"
Camp Wallula
New London, NH
29 October 2008

	Lawn
0"-17"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
17"-28"	7.5YR 4/4 Dark Brown Fine Sandy Loam, Weak Blocky, Very Friable
28"-54"	2.5Y 4/4 Olive Brown Loamy Sand, Granular, Very Friable
54"-76"	2.5Y 6/4 Light Yellowish Brown Fine Loamy Sand, Granular, Very Friable

SHWT: None Observed
H_2O: None Observed
Roots: Many to 28"
Rocks: None Observed
Ledge: None Observed
Perc. Rate: 6 minutes per inch at 22 inches

Test Hole "L17"
Camp Wallula
New London, NH
29 October 2008

	Forest Litter
0"-10"	Decayed logs and organic matter
10"-16"	10YR 3/2 Very Dark Greyish Brown Fine Sandy Loam, Massive, Very Friable
16"-52"	10YR 5/6 Yellowish Brown Fine Sandy Loam, Weak Blocky, Very Friable
52"-68"	2.5Y 5/4 Light Yellowish Brown Loamy Sand, Granular, Friable, Mottled

SHWT: 52"
H_2O: None Observed
Roots: Many to 38"
Rocks: None Observed
Ledge: None Observed
Perc. Rate: 8 minutes per inch at 24 inches

Notes:

1. Test holes were logged in accordance with Env-Wq 1006. Soil descriptions were recorded following Env-Wq 1006.05 guidlines, including colors from the "Munsell Soil Color Charts, 2000 Edition", and terminology in conformance with "NRCS National Cooperative Soil Survey Field Book for Describing and Sampling Soils: Version 2.0".

2. Test holes locations are shown on sheet: C-7.

JESSEMAN ASSOCIATES, P.C.
CONSULTING ENGINEERS
176 Newport Road, New London, NH 03257
phone: 603-526-2055, email: info@jesseman.com

PROJECT NAME:
CAMP WALLULA 17-LOT / 17 UNIT SUBDIVISION

STATUS:
Approved May 2009

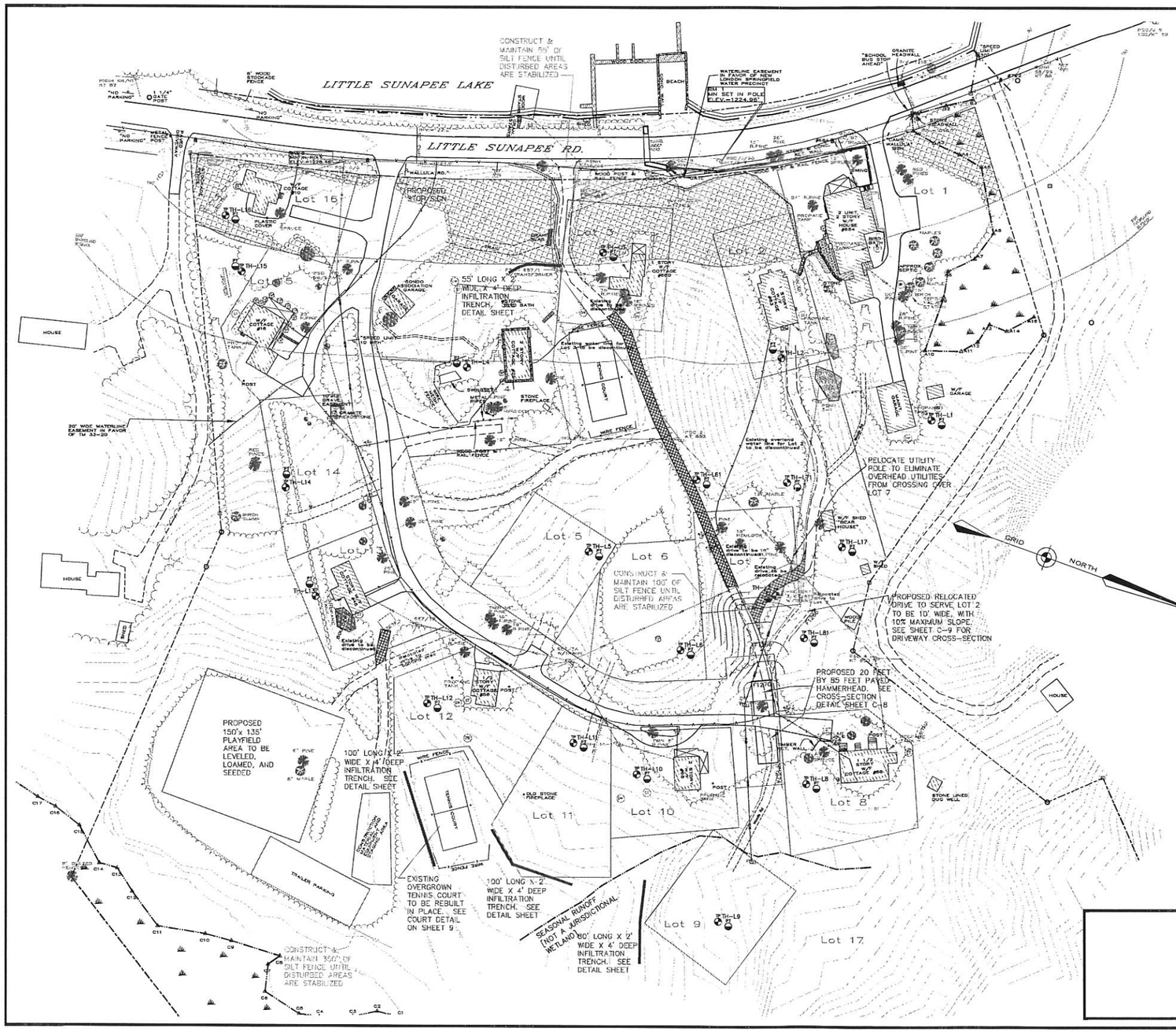
PREPARED FOR:
Camp Wallula Inc.
684 Little Sunapee Road
New London, NH 03257

NO.	DATE	DESCRIPTION	BY
3	6/5/09	Add notes per conditions of approval to sheet C-4	NRF
2	5/8/09	Address Dept Head & PB Comments	NRF
1	4/10/09	Address Dept Head & PB Comments	NRF

DATE OF ISSUE: 8 May 2009
PROJECT NUMBER: 08007
DRAWING SCALE: AS NOTED

TITLE:
TEST HOLE LOGS

SHEET:
C-6



NOTES

1. Boundary and topographic survey was performed by Richard D Bartlett Assoc. Survey by total station between the dates of Aug 7 and Aug. 28, 2008. Primary control traverse error of closure, 1' in 207,289'.

2. Permits required:
   State Subdivision: SA2009009070
   Alteration of Terrain: N/A
   Wetlands: N/A
   Municipal Water: EPA ID– 1721010
   Shoreland: Lot development only
   NHDOT: 02–335–0003

3. See sheet C–3 for lot size, dimensions, and setbacks.

4. The following table identifies the buildable area of each lot based upon the setbacks within the original lot boundaries. The Comprehensive Shoreland Protection Act [CSPA] affects seven of the parcels within Camp Wallula. Each of the seven lots has been previously developed. Any re–development of those seven lots will need to meet or exceed the rules set forth in the CSPA. The maximum building footprint and other impermeable areas for each of those lots will be limited by the CSPA. The Town of New London regulations may also affect the maximum area available for development or re–development of each lot.

Parcel ID	Proposed Buildable Setback Area	Original Buildable Setback Area	Original Lot Area	Undisturbed Natural Woodland Buffer	Natural Woodland Buffer Area
Lot 1	35,364 [50% rule]	35,364 [50% rule]	70,728	4,832 – 23%	21,400
Lot 2	3,538	5,833	12,514	3,366 – 100%	3,366
Lot 3	5,024	6,746	13,668	5,148 – 78%	6,533
Lot 4	10,299	6,221	12,500		
Lot 5	4,014	5,584	12,000		
Lot 6	5,737	5,596	12,000		
Lot 7	3,225	4,467	10,500		
Lot 8	7,521	7,448	15,125		
Lot 9	4,400	5,850	12,600		
Lot 10	5,131	6,010	12,600		
Lot 11	6,332	5,227	12,256		
Lot 12	6,102	7,368	15,600		
Lot 13	4,380	5,581	11,500		
Lot 14	5,329	6,092	12,750		
Lot 15	5,600	5,425	12,750		
Lot 16	3,390	4,737	13,198	4,409 - 33%	13,172
Lot 17	n/a	n/a	n/a	18,682 – 43%	42,780

LEGEND

- PROPERTY LINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- OVERHEAD WIRES
- DRAINAGE LINE
- SEWER LINE
- GAS LINE
- WATER LINE
- SHORE LINE
- IRON PIPE OR REBAR
- GRANITE OR CONCRETE BOUND
- UTILITY POLE
- HYDRANT
- WATER SHUT–OFF
- SOIL TEST HOLE
- SOIL PERCOLATION TEST
- STONEWALL
- EDGE OF WOODS
- CONCRETE
- WOODS ROAD
- UNDISTURBED WOODLAND BUFFER

JESSEMAN ASSOCIATES, P.C.
CONSULTING ENGINEERS
176 Newport Road, New London, NH 03257
phone: 603-526-2055, email: info@jesseman.com

PROJECT NAME:
CAMP WALLULA 17-LOT / 17 UNIT SUBDIVISION

STATUS:
Approved May 2009

PREPARED FOR:
Camp Wallula Inc.
684 Little Sunapee Road
New London, NH 03257

NO.	DATE	DESCRIPTION	BY
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2	5/8/09	Address Dept Head & PB Comments	NRF
1	4/10/09	Address Dept Head & PB Comments	NRF

DATE OF ISSUE: 8 May 2009
PROJECT NUMBER: 08007
DRAWING SCALE: 1" =50'

TITLE: **GRADING, IMPROVEMENTS, & EROSION CONTROL PLAN**

SHEET: **C-7**

Stoney Ridge Environmental LLC
229 Prospect Mountain Road
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tlenv@worldpath.net

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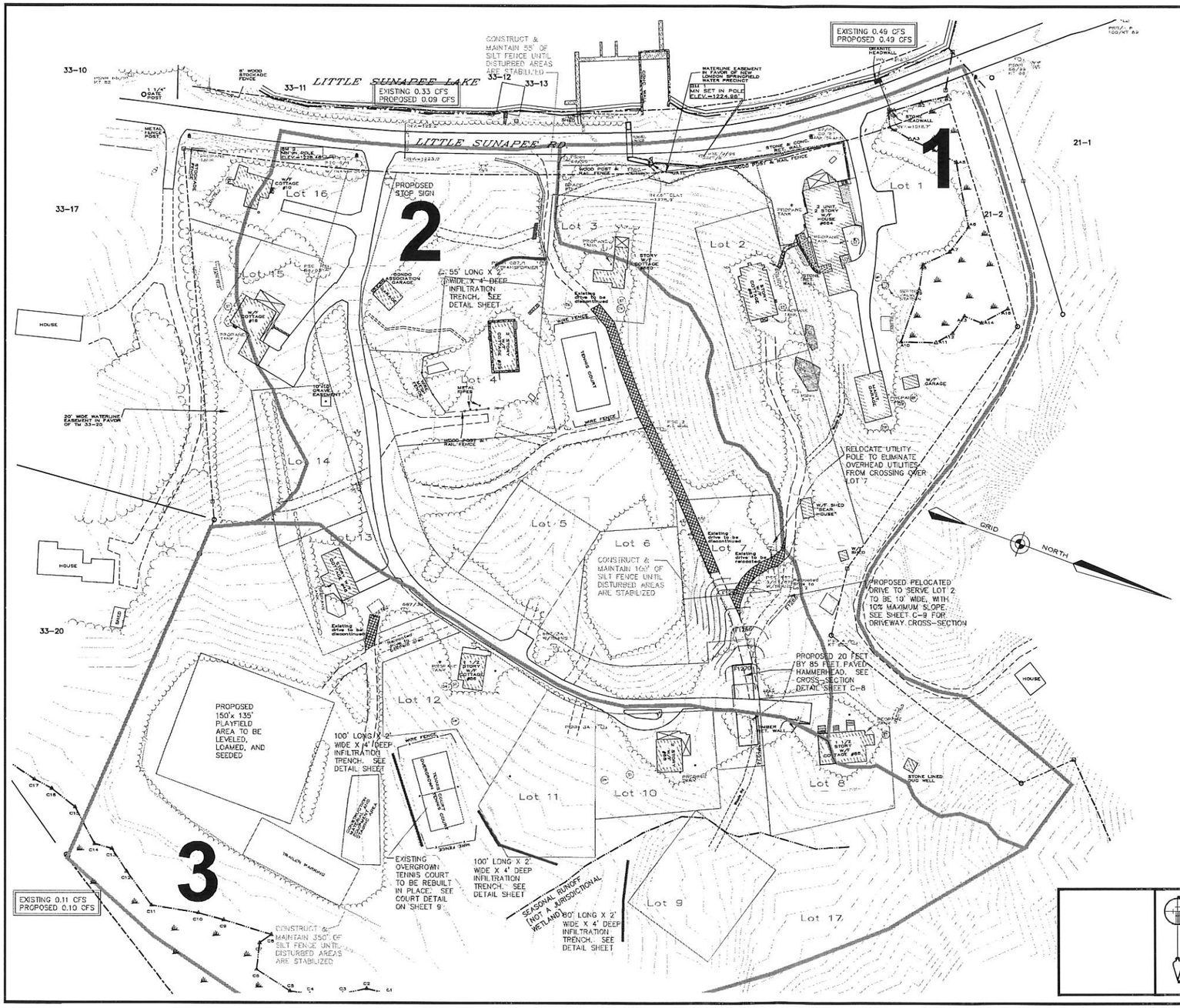
LICENSED LAND SURVEYORS



NOTES

1. Boundary and topographic survey was performed by Richard D Bartlett Assoc. Survey by total station between the dates of Aug 7 and Aug. 28, 2008. Primary control traverse error of closure, 1' in 207,289'.
2. Horizontal datum based on N.H. State Plane Coordinate System, N.A.D. 83.
3. Vertical datum based on N.G.V.D. 29.
4. Property lies within the "R-2" Zoning District.
5. Original site layout shown on this sheet, based upon "Proposed Planned Unit Redevelopment, Camp Wallula Inc, dated November 1971, by Robert S Bristol."
6. Setback lines shown on the plan represent the setback lines from 1971 to determine maximum allowable building area for each site.
7. Undisturbed woodland buffer area is shown as it exists as of March 2009.

WETLAND NOTES

1. Wetlands were delineated by Stoney Ridge Environmental, Inc. on June 2008.
2. Wetland delineation was performed to the standards of the Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, (January, 1987).
3. Dominant hydric soil conditions within the wetlands were identified by Gove Environmental Services, Inc. utilizing the criteria of "Field Indicators For Identifying Hydric Soils In New England", version 2, July,1998.
4. Dominance of wetland vegetation was assessed by Gove Environmental Services, Inc. utilizing the National List Of Plant Species That Occur In Wetlands: 1988 Northeast (Region 1) (Porter B. Reed, Jr.)
5. Wetlands were classified by Gove Environmental Services, Inc. utilizing the criteria of the U.S. Fish and Wildlife Service Manual FWS/OBS-79/31 Classification Of Wetlands and Deepwater Habitats Of The United States (Cowardin et al, 1979).

LEGEND

- PROPERTY LINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- OHP — OVERHEAD WIRES EXISTING
- OHP — OVERHEAD WIRES PROPOSED
- W — WATER LINE EXISTING
- W — WATER LINE PROPOSED
- S — SEWER LINE
- G — GAS LINE
- SHORE LINE
- MONITORING WELL
- IRON PIPE OR REBAR
- GRANITE OR CONCRETE BOUND
- UTILITY POLE
- SEPTIC TANK
- DRAIN MANHOLE
- CATCH BASIN
- HYDRANT
- WATER SHUT-OFF
- GAS SHUT-OFF
- STONEWALL
- EDGE OF WOODS
- CONCRETE
- WOODS ROAD
- UNDISTURBED WOODLAND BUFFER

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LICENSED LAND SURVEYORS

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PROJECT NAME:
CAMP WALLULA 17-LOT / 17 UNIT SUBDIVISION

STATUS:
Approved May 2009

PREPARED FOR:
Camp Wallula Inc.
684 Little Sunapee Road
New London, NH 03257

NO.	DATE	DESCRIPTION	BY
3	6/5/09	Add notes per conditions of approval to sheet C-4	NRF
2	5/8/09	Address Dept Head & PB Comments	NRF
1	4/10/09	Address Dept Head & PB Comments	NRF

DATE OF ISSUE: 8 May 2009
PROJECT NUMBER: 08007
DRAWING SCALE: 1" =50'

TITLE:
DRAINAGE & EROSION CONTROL PLAN

SHEET:
C-11

EROSION AND SEDIMENT CONTROL SPECIFICATIONS

1. GENERAL
The purpose of this specification is to control soil erosion and sedimentation resulting from site construction and development.

2. DEFINITIONS
Critical Areas: Disturbed areas of any size within 50 feet of a stream, waterbody, poorly or very poorly drained soils; disturbed areas exceeding 2,000 square feet in highly erodible soils; or, disturbed areas containing slope lengths exceeding 25 feet on slopes greater than 15 percent.

Development: Any construction or grading activities on real estate for other than agricultural and silvacultural practices.
Disturbed Area: An area where the natural vegetation has been removed exposing the underlying soil.
Erosion: The detachment and movement of soil or rock fragments by water, wind, ice, or gravity.
Highly Erodible Soils: Any soil with an erodibility class (K factor) greater than or equal to .43 in any layer as found in Table 3-1 of the "Stormwater Management and Erosion and Sediment Control Handbook For Urban and Developing Areas In New Hampshire".
Project Area: The area within the subdivision or site plan boundaries.
Sediment: Solid material, either mineral or organic, that is in suspension, is transported, or has been moved from its site of origin by erosion.
Stabilization: The seeding, fertilizing, mulching, and establishment of vegetative growth sufficient to prevent erosion.
Stream: A stream that flows for sufficient times of the year to develop and maintain defined channels but may not flow during dry portions of the year. Includes but is not limited to all perennial and intermittent streams located on U. S. Geological Survey Maps.

3. GENERAL CONSTRUCTION STANDARDS
The following standards shall be applied in planning for erosion and sediment control:
A. All erosion and sediment control measures shall meet the Best Management Practices set forth in the "Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas In New Hampshire" as amended and adopted by the Merrimack County Conservation District. The erosion control plan as prepared by Jesseman Associates, P.C. is based on the criteria set forth in the aforementioned book.
B. Whenever practical, natural vegetation shall be retained, protected or supplemented. The stripping of vegetation will be done in a manner that minimizes soil erosion.
C. Appropriate control measures shall be installed prior to removal of vegetation.
D. Construction shall be sequenced so that a maximum of five (5) acres is disturbed at any given time. Any disturbed area remaining idle for more than thirty (30) days shall be seeded and mulched.
E. Measures shall be taken to control sediment and retain it within the project area. Sediment in runoff water shall be trapped and retained within the project area using measures approved by engineer. Very poorly drained soils and waterbodies shall be protected from sediment.
F. Off-site surface water and runoff from undisturbed areas shall be carried non-erosively through the project area, or diverted away from disturbed areas where feasible.
G. Naturally occurring streams, channels, and wetlands shall be used for conveyance of runoff leaving the project area. All available measures shall be taken to ensure that water shall be kept "silt" free for the entire duration of this project.
H. All temporary erosion and sediment control measures shall be removed after final site stabilization. Trapped sediment and other disturbed soil areas resulting from the removal of temporary measures shall be permanently stabilized within 30 days.

4. EROSION CONTROL MEASURES

A. Dust Control
Temporary Measures
1. Mulches - The Mulching Best Management Practice (BMP) contains mulch materials with rates of application that can be used.
2. Temporary Vegetation - The Seeding for Temporary Protection of Disturbed Areas BMP contains plant selections and application rates for this measure.
3. Water - The exposed soil surfaces and travel ways can be moistened periodically to control dust.
4. Calcium Chloride - Calcium chloride in either granule or flake form can be spread on travel surfaces at a rate that will keep the surface moist, but will not cause pollution.

Permanent Measures
1. Permanent Vegetation - The Seeding for Long Term Cover BMP contains recommendations for site preparation, liming, fertilizing, and seed mixture rates for establishing a stand of vegetation on areas where construction has been completed.
2. Stone - Crushed stone or coarse gravel can be used to cover exposed surfaces. If used on roadways or haul roads other temporary measures may be needed in conjunction with the stone to control the dust.

Maintenance
When temporary measures are used for dust control, it may be necessary to repeat the treatment many times to adequately control the dust. As dust becomes a problem or as determined by the engineer, repeat the procedures. Vegetation should be maintained in a vigorous condition to assure that exposed surfaces are kept to a minimum. Top dressing and irrigation may be required to maintain a healthy stand of vegetation.

B. Erosion Control Blanket

Materials
Swale Matting: C125BN Double Net Coconut Fiber Erosion Control Blanket (North American Green or approved equivalent) meeting the following requirements:
1. Matrix: 100% coconut fiber, min. wt. (.5 lbs/sy)
2. Netting: Top and Bottom UV stabilized polypropylene with .6 inch openings.
3. Stitching: Non-degradeable thread on 1.5 inch centers.
4. Roll Size: 6.5' x 83.5', 60 SY.
5. Roll Weight: 30 lbs +/- 10%
6. Staples: The erosion control material(s) shall be anchored with "U" shaped 11 gauge wire staples or wooden staked with a minimum top width of one inch and length of six inches. Fastener type (metal or wood) shall be designated by the engineer. Longer and/or wider staples or stakes may be designated by the engineer as necessary for various soil types and specific application needs.

Construction Specifications
1. Site Preparation:
A. Surface of ditches and slopes
1. Conform to grades and cross sections shown on plan.
2. Finish to a smooth and even condition with all debris, roots, stones, and lumps greater than 3 inches in diameter raked out and removed.
3. Loosen top .5-1 inch of soil to accommodate seed and mat bedding.
4. Unless otherwise directed, apply seed, fertilizer, and lime before mat placement.
B. Mat Channel Installation:
1. Prepare soil before installing blankets, including application of lime, fertilizer, and seed.
2. Begin at the top of the channel by anchoring the blanket in a 6 inch deep by 6 inch wide trench.
3. Roll center blanket in direction of water flow on bottom of channel.
4. Place blankets end over end (shingle style) with 6 inch overlap. Use a double row of staggered staples 4 inches apart to secure blankets.
5. Full length edge of blankets at top of side slopes must be anchored in a 6 inch deep by 6 inch wide trench. Backfill and compact the trench after stapling.
6. Blankets on side slopes must be overlapped 4 inches over the center blanket and stapled. (2" for C350 matting)
7. In high flow channel applications, a staple check slot is recommended at 30 to 40 foot intervals. Use a row of staples 4 inches apart over entire width of channel. Place a second row of 4 inches below the first row in a staggered pattern.
8. The terminal end of the blankets must be anchored in a 6 inch deep by 6 inch wide trench. Backfill and compact the trench after stapling.
9. Refer to manufacturers staple guide for correct staple pattern.

C. Grassed Waterways or Outlets
Construction Specifications
1. The foundation area of the waterway shall be cleared and grubbed of all trees, brush, stumps, and other objectionable material. Materials removed shall be disposed of so they will not interfere with the construction or proper functioning of the waterway.
2. The waterway shall be excavated or shaped to line, grade, and cross section as required to meet the design criteria. The waterway shall be free of irregularities which will impede normal flow.
3. Earth fills required to meet subgrade requirements because of over excavation or topography shall be compacted to the same density as the surrounding soil to prevent unequal settlement that could cause damage to the completed waterways. Earth removed and not needed in construction shall be spread or disposed of so it will not interfere with the functioning of the waterway.
4. Stone and bedding for rock lined waterways shall meet the gradation requirements of the design and shall be durable and free of soil and other debris.
5. Construction operations shall be carried out in such a manner as to minimize erosion and air and water pollution. NH appropriate state and local laws and regulations shall be complied with for design and installation.
6. The waterway shall be stabilized using the appropriate Best Management Practices for vegetative measures or stone center.

Maintenance
Maintenance of the vegetation in the grassed waterway is extremely important in order to prevent rilling, erosion, and failure of the waterway. Mowing should be done frequently enough to control encroachment of weeds and woody vegetation and to keep the grasses in a vigorous condition. The vegetation should not be mowed too closely so as to reduce the erosion resistance in the waterway. The waterway should be inspected periodically and after every major storm to determine the condition of the waterway. Rills and damaged areas should be promptly repaired and re-vegetated as necessary to prevent further deterioration. Periodic applications of lime and fertilizer may be needed to maintain vigorous growth.

EROSION AND SEDIMENT CONTROL SPECIFICATIONS CONTINUED

D. Hydraulic Planting
Construction Specifications
Site Preparation
1. Grade as needed and feasible to permit the use for seedbed preparation.
2. Install needed erosion control practices, such as sediment basins, diversion dikes, and channels, prior to seeding. Divert concentrated flows away from hydraulic planted areas. See Temporary Diversion Dike or Continuous Berm BMPs.
3. Conduct soil tests to determine pH. Add amendments as necessary to adjust pH. See Temporary Seeding BMP.
4. The seedbed should be firm but not compact. The top 3 inches (76 mm) of soil should be loose, moist, and free of large clods and stones. See Surface Roughening BMP.

Planting
1. See Permanent Seeding BMP.
2. Seed to soil contact is important for successful germination.
3. Use permanent seed blends for sites to be left dormant for 1 year or more or in no further disturbances are planned.
4. Use permanent seeding techniques before seasonal rains or freezing weather is anticipated.
5. Use dormant seeding techniques for late fall or winter seeding schedules.
6. Use seed blends appropriate to the season and site conditions. Consult a local agronomist or erosion control specialist for seed mix. Use a seed blend to include annuals, perennials, and legumes.
7. Use seed rates based on pure live seed (PLS) of 80%. When PLS is below 80%, adjust rates accordingly.
Apply pellet inoculated legumes immediately after placing them in the tank. If they cannot be immediately applied, pellet inoculated legumes shall be dry and applied followed by the hydraulic applications.

Hydraulic Mulching
1. See Mulching BMP.
2. The mulch shall be mixed with seed, fertilizer, and additives as specified and applied at a rate recommended by the manufacturer in order to achieve uniform, effective coverage and provide adequate distribution of seed.
3. If using paper mulch, use approximately 50 lbs. of mulch per 100 gallons of water (23 kg/380 l) and applied at a rate of 1500-2000 lbs/ac (1700-2200 kg/ha), mixed with seed and fertilizer, at recommended rates, in order to achieve uniform, effective coverage.
4. Paper mulch used to tack and blind straw mulch can be specified at 750 lbs/ac (850 kg/ha).
5. If using wood fiber mulch, use approximately 30-35 lbs. of mulch per 100 gallons of water (14-16 kg/380 l) applied at a rate of 1500-2000 lbs/ac (1700-2200 kg/ha), mixed with seed and fertilizer, at recommended rates, in order to achieve uniform, effective coverage.
6. Minimum application rates for hydraulic matrices are 500 lbs/ac (561 kg/ha) wood fiber mulch, 1000 lbs/ac (1121 kg/ha) recycled paper mulch combined with 150 lbs/ac (168 kg/ha) acrylic copolymer with minimum 55% solids content.
7. For bonded fiber matrix, the BFM shall be applied at rates from 3000-4000 lbs/ac (3363-4484 kg/ha).
8. Bonded fiber matrix shall not be applied before, during, and immediately after rainfall such that the matrix will have 24 hours to cure and dry after installation.
9. When tacking or anchoring straw with paper fiber mulch, apply at a rate of 750 lbs/ac (840 kg/ha).
10. Polymer tackifiers are to be applied at rates of 40-60 lbs/ac (44-67 kg/ha) depending on manufacturers recommendations.
11. Plant mucilage or guar tackifiers are to be applied at rates of 80-120 lbs/ac (90-135 kg/ha) depending on manufacturer's recommendations.
12. Apply liquid straw mulch binders heavier at the edges, in valleys and at the crest of banks.

Inspection and Maintenance
1. Hydraulically treated areas shall be inspected and monitored after installation and periodically thereafter.
2. Hydraulic mulches and tackifiers shall provide the necessary erosion protection until permanent erosion-resistant coverage cover is established. If sheet or rill erosion is evident then re-application of treatments shall be necessary.
3. Necessary repairs shall be made promptly.
4. If the hydraulic mulch or tackifiers were applied as stand alone (without vegetation) treatments for erosion and dust control, the products longevity must match the length of time that the soil will remain bare or until revegetation occurs. Periodic inspections will assure the intended purposes will be met.
5. Areas which fail to establish cover adequate to prevent erosion shall be reseeded and re-mulched as soon as such areas are identified.
6. If hydraulically planted areas are damaged by concentrated runoff, the prompt implementation of additional practices and BMPs may be necessary.

E. Land Grading & Slope Stabilization

Construction Specifications
1. All graded or disturbed areas including slopes shall be protected during clearing and construction in accordance with the approved erosion and sediment control plan until they are permanently stabilized.
2. All sediment control practices and measures shall be constructed, applied, and maintained in accordance with the approved erosion and sediment control plan.
3. Topsoil required for the establishment of vegetation shall be stockpiled in amounts necessary to complete finished grading of all exposed areas.
4. Areas to be filled shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots, or other objectionable material.
5. Areas which are to be topsoiled shall be scarified to a minimum depth of 3 inches prior to placement of topsoil.
6. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence, or other related problems. Fill intended to support buildings, structures, and conduits, etc., shall be compacted in accordance with local requirements or codes.
7. All fill shall be placed and compacted in layers not to exceed 8 inches in thickness.
8. Except for approved landfills, fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris, and other objectionable materials that would interfere with or prevent construction of satisfactory fills.
9. Frozen material or soft, mucky, or highly compressible materials shall not be incorporated into fills.
10. Fill shall not be placed on a frozen foundation.
11. Benches shall be kept free of sediment during all phases of development.
12. Seeps or springs encountered during construction shall be handled in accordance with the Best Management Practice for Subsurface Drain or other approved methods.
13. All graded areas shall be permanently stabilized immediately following final grading.
14. Stockpiles, borrow areas, and spoil areas shall be shown on the plans and shall be subject to the provisions of this Best Management Practice.

Maintenance
All slopes should be checked periodically to see that vegetation is in good condition. Any rills or damage from erosion and animal burrowing should be repaired immediately to avoid further damage. If seeps develop on the slopes, the area should be evaluated to determine if the seep will cause an unstable condition. Subsurface drains
or gravel mulching may be required to solve seep problems. Diversions, berms, and waterways in the land grading area should be checked to see that they are functioning properly. Problems found during the inspections should be repaired promptly. Areas requiring vegetation should be repaired immediately. Slopes and associated practices utilizing vegetation should be limed and fertilized as necessary to keep the vegetation healthy. Encroachment of undesirable vegetation such as weeds and woody growth that is not planned should be controlled to avoid problems of bank stability in the future.

F. Mulch
1. Mulch to be hay or straw mulch applied at a rate of one (1) to two (2) tons per acre.

Maintenance
1. Straw or grass mulches that blow or wash away should be repaired promptly where feasible.
2. Blanket mulch that is displaced by flowing water should be repaired as soon as possible.
3. If plastic netting is used to anchor mulch, care should be taken during initial mowings to keep the mower height high. Otherwise, the netting can wrap up on the mower blade shafts. After a period of time, the netting degrades and becomes less of a problem.

G. Riprap Apron
Construction Specifications
1. The subgrade for the filter material, geotextile fabric, and riprap shall be prepared to the lines and grades shown on plans.
2. The rock or gravel used for filter or riprap shall conform to the specified gradation.
3. Geotextile fabrics shall be protected from puncture or tearing during the placement of the rock riprap. Damaged areas in the fabric shall be repaired by placing a piece of fabric over the damaged area or by complete replacement of the fabric. All overlaps required for repairs or joining two pieces of fabric shall be a minimum of 12 inches.
4. Stone for the riprap may be placed by equipment and shall be constructed to the full layer thickness in one operation and in such a manner as to prevent segregation of the stone sizes.

Maintenance
The outlet protection should be checked at least annually and after every major storm. If the riprap has been displaced, undermined or damaged, it should be repaired immediately. The channel immediately below the outlet should be checked to see that erosion is not occurring. The downstream channel should be kept clear of obstructions such as fallen trees, debris, and sediment that could change flow patterns and/or tailwater depths on pipes. Repairs must be carried out immediately to avoid additional damage to the outlet protection apron.

H. Silt Fence

Under NO circumstances shall silt fence be substituted with a hay bale barrier.

EROSION AND SEDIMENT CONTROL SPECIFICATIONS CONTINUED

Criteria for Silt Fences:
1. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

Fabric Properties	Test Values	Method
Minimum Acceptable Grab Tensile Strength (lbs.)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682
Mullen Burst Strength (psi)	190	ASTM D3786
Puncture Strength (lbs.)	40	ASTM D751
Equivalent Opening Size	40-80	US Std Sieve

Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 degrees F to 120 degrees F.

2. Stakes for filter barriers shall have a cross-sectional area of no less than 3 square inches wood (preferred) or equivalent metal with a minimum length of 3 feet.

Construction Specifications
The sediment barrier utilizes standard strength or extra strength synthetic filter fabrics. It is designed for situations in which only sheet or overland flows are expected.

1. The height of the silt fence shall not exceed 36 inches (higher fences may impound volumes of water sufficient to cause failure of the structure).
2. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid use of joints. When joints are necessary, filter cloth shall be spliced together only at support post, with a minimum 6-inch overlap, and securely sealed.
3. Posts shall be spaced a maximum of 10 feet apart at the barrier location and driven securely into the ground (minimum of 16 inches). When extra strength fabric is used, post spacing shall not exceed 6 feet.
4. A trench shall be excavated approximately 4 inches wide and 4 inches deep along the line of posts and up slope of the barrier.
6. The standard strength filter fabric shall be stapled or wired to the fence and 8 inches of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches above the original ground surface.
7. When extra strength filter fabric and closer post spacing are used, the filter fabric is stapled or wired directly to the posts with all other provisions of item (F.) applying.
8. The trench shall be backfilled and the soil compacted over the filter fabric.
9. Silt fences shall be removed when they have served their useful purpose, but not before the up slope areas have been permanently stabilized.

Maintenance
1. Silt fences shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They should be inspected if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately and/or at the direction of the engineer. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam.
2. Should the fabric on a silt fence decompose or become ineffective prior to the end of the expected usable life and the silt fence is still necessary, the fabric shall be replaced promptly.
3. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier and/or as directed by the engineer.
4. Any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform with the existing grade, prepared and seeded.

I. Stabilized Construction Entrance
Construction Specifications
1. Stone for a stabilized construction entrance shall be 1 to 2 inch stone, reclaimed stone, or recycled concrete equivalent.
2. The length of the stabilized entrance shall not be less than 50 feet.
3. The thickness of the stone for the stabilized entrance shall not be less than 6 inches.
4. The width of the entrance shall not be less than the full width of the entrance where ingress or egress occurs or 10 feet, which ever is greater.
5. Geotextile filter cloth shall be placed over the entire area prior to placing the stone.
6. All surface water that is flowing to or diverted toward the construction entrance shall be piped beneath the entrance. If piping is impractical, a berm with 5:1 slopes that can be crossed by vehicles may be substituted for the pipe.
7. The entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and or clean out of any measures used to trap sediment. All sediment spilled, washed, or tracked onto public right-of-way must be removed promptly.
8. Wheels shall be cleaned to remove mud prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone which drains into an approved sediment trapping device.

Maintenance
Mud and soil particles will eventually clog the voids in the gravel and the effectiveness of the gravel pad will not be satisfactory. When this occurs, the pad should be top dressed with new stone. Complete replacement of the pad may be necessary when the pad becomes completely clogged.

If washing facilities are used, the sediment traps should be cleaned out as often as necessary to assure that adequate trapping efficiency and storage volume is available. Vegetative filter strips should be maintained to insure a vigorous stand of vegetation at all times.

5. RESPONSIBILITY FOR INSTALLATION/CONSTRUCTION
The contractor shall bear final responsibility for the installation, construction, maintenance, and disposition of all erosion and sediment control measures required by the provisions of this specification. Contractor shall bear financial responsibility for any Federal, State, or Local fines for failure to properly install or maintain erosion control measures. Site development shall not begin before the erosion and sediment control plan is approved. Erosion and sediment control measures shall be installed as scheduled in the approved plan.

6. MAINTENANCE
The contractor shall maintain all soil erosion and sediment control measures, including devices and plantings as specified in the approved plan, in effective working condition. Responsibility for maintenance by subsequent owners of the property on which permanent measures have been installed shall be included in the deed and shall run with the land. If the owner fails to adequately maintain such measures, the town shall have the authority to perform required maintenance. The cost of such work shall be borne by the owner.

7. ACCIDENTAL INFRACTIONS
In the event of an accidental wetlands or erosion control infraction (such as improper equipment* in wetlands, breached silt fence, presence of silt in running water, etc.,) the contractor shall contact Jesseman Associates, P.C. (603-526-2055) before proceeding. Under NO circumstances shall the contractor attempt to hide or cover-up any such infractions. Contractor will take every precaution to prevent accidental infractions.
*- Improper equipment is defined as any equipment that disturbs the soil surface.

8. INTENTIONAL INFRACTIONS
UNDER NO CIRCUMSTANCES SHALL INTENTIONAL INFRACTIONS (such as improper equipment* in wetlands, omission of erosion control measures without engineers consent, removal of silt fence prior to stabilization, etc...) BE TOLERATED. Contractor shall disregard directives forcing Intentional Infractions. The contractor shall be held responsible for following directives that cause Intentional infractions.
*- Improper equipment is defined as any equipment that disturbs the soil surface.

9. INSPECTION
Inspection by the engineer shall be made during site development to ensure compliance with the approved plan and to ensure that control measures are properly installed or performed and maintained.

JESSEMAN ASSOCIATES, P.C.
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PROJECT NAME:
CAMP WALLULA 17-LOT / 17 UNIT SUBDIVISION

STATUS:
Approved May 2009

PREPARED FOR:
Camp Wallula Inc.
684 Little Sunapee Road
New London, NH 03257

NO.	DATE	DESCRIPTION	BY
3	6/5/09	Add notes per conditions of approval to sheet C-4	NRF
2	5/8/09	Address Dept Head & PB Comments	NRF
1	4/10/09	Address Dept Head & PB Comments	NRF

DATE OF ISSUE: 8 May 2009
PROJECT NUMBER: 08007
DRAWING SCALE: AS NOTED

TITLE:
SPECIFICATIONS

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