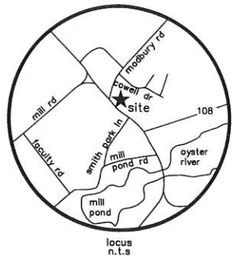
SITE PLAN

for

TOOMERFS, LLC

18 MAIN STREET & 12 COWELL DRIVE
DURHAM, NH

OCTOBER 3, 2018



locus
n.t.s

LEGEND

- EXISTING PROPERTY LINE
- SETBACK LINE
- EXISTING EDGE OF GRAVEL
- EXISTING EDGE OF PAVEMENT
- EXISTING TREE LINE
- PROPOSED TREE LINE
- TO BE REMOVED TREE LINE
- 45.55 PROPOSED SPOT GRADE
- S/S PROPOSED SILT SOCK
- PROPOSED PARKING SPACES
- 5'R PROPOSED PAVEMENT RADIUS
- 47 PROPOSED CONTOUR LINE
- 47 EXISTING CONTOUR LINE

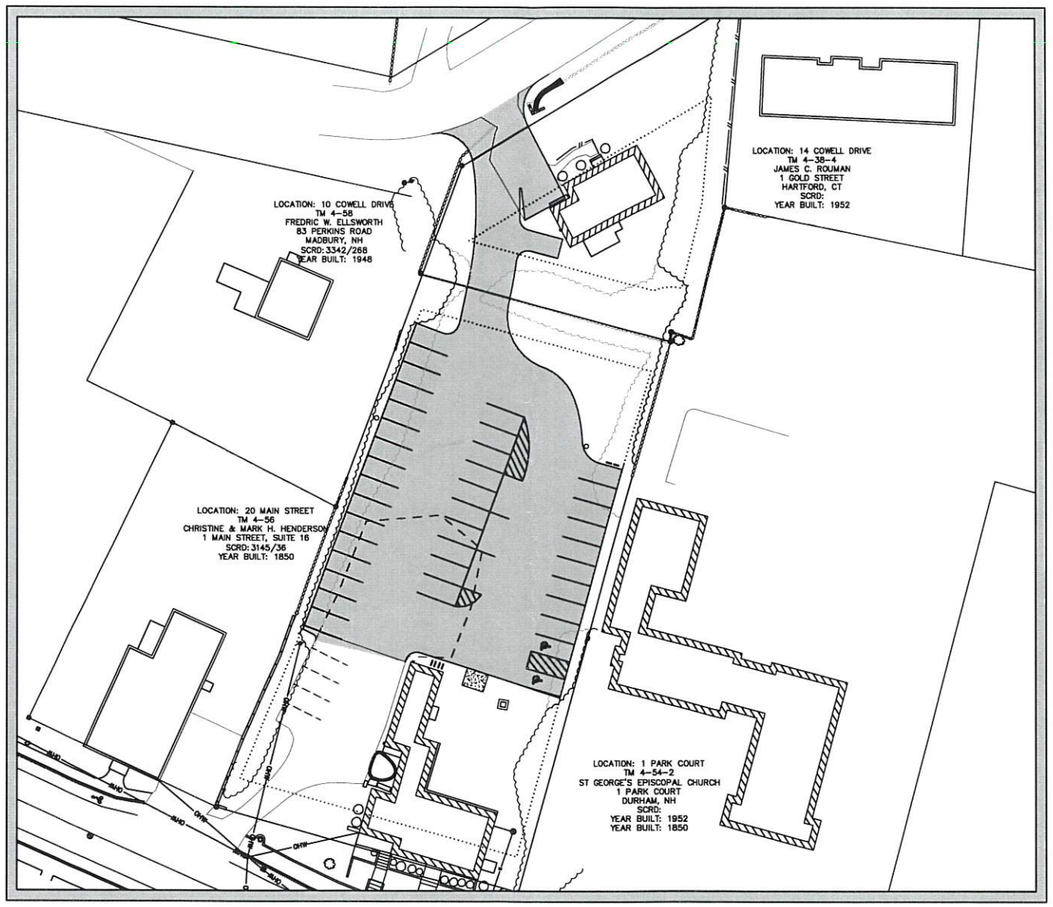


TABLE OF CONTENTS

OWNER

TOOMERFS, LLC
37 MAIN STREET
UNIT O
DURHAM, NH 03824

CIVIL ENGINEER

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 Railroad St., P.O. Box 359
Newmarket, NH 03857
Phone: (603) 659-4979, Fax: (603) 659-4627
E-mail: mjs@mjs-engineering.com

SURVEYOR

NORWAY PLAINS ASSOCIATES, INC.
2 CONTINENTAL BOULEVARD
ROCHESTER, NEW HAMPSHIRE
03867 (603) 335-3948

LANDSCAPE ARCHITECT

WOODBURN & COMPANY
103 KENT PLACE
NEWMARKET, NEW HAMPSHIRE
(603) 659-5949

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	10/5/18	EHK

LAND SURVEYORS

CIVIL ENGINEERS

LEGEND

existing
- monument
- lamp post
- utility pole
- bush
- deciduous tree
- catch basin
- firehydrant
- water shutoff
- water gate valve
- gas gate valve
- property line
- stonewall
- edge of pavement
- overhead wires
- fence

reserved registry of deeds

location: 20 main street
tm 4-56
christine & mark h. henderson
1 main street, suite 16
durham, nh
scrd: 3145/36

location: 10 cowell drive
tm 4-58
fredric w. ellsworth
83 perkins road
madbury, nh
scrd: 3442/268

location: 6 madbury road
tm 4-15
church of st thomas more
roman catholic bishop of nh
po box 620
durham, nh
scrd: 544/439,543/395

location: 3 cowell drive
tm 4-38-6
wood street associates llc
56 wood street
nashua, nh
scrd: 4288/587

location:
23-35 main street
tm 5-1-6
orion unh edge llc
10 liberty square
2nd floor
boston, ma
scrd: 4312/1

location: 21 main st.
tm 5-1-9
toomerfs llc
37 main street unit o
durham, nh
scrd: 4486/213

location: 18 main street
tm 4-55

location: 12 cowell drive
tm 4-38-5

location: 1 park court
tm 4-54-2
st george's episcopal church
1 park court
durham, nh
scrd: 595/474

location: 14 cowell dr.
tm 4-38-4
james c. rouman
1 gold street
hartford, ct
scrd: 970/206

main street

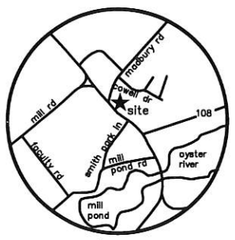
cowell drive

N 22°38'39" E 93.24'
N 20°21'51" E 50.57'
N 20°29'00" E 110.55'
N 20°10'47" E 51.38'
N 59°15'21" E 145.87'
S 75°04'47" E 114.87'
S 03°25'08" W 4.33'
S 05°07'47" W 92.41'
S 13°38'56" W 61.11'
N 69°50'17" W 9.76'
S 15°32'45" W 137.38'
S 15°32'45" W 116.89'
N 74°28'10" W 140.15'

dhf
dhs
dhf (NOT HELD)
dhf gbf 8"x9" (+18")
1" ipf (+3")
rbf (-5")
rbf (+1")
rbf 1" ipf (+7")(+16") w/elbow (held)
1" ipf (+0")
"npa" rbs (+2") replaced rbf
"jva" rbf (+10")
pole net 3/66/3
pole panh 1.66/2/30e net2 ugu
pole panh 2/8 30e/bell
pole panh 2/80/61 ugu
pole net 19s
tbm el.=72.46' survey nail
septic cover
well house
ledge
paved
gravel

abbreviation legend:
dhf – drill hole FOUND
dhs – drill hole set
gbf – granite bound found
ipf – iron pipe found
rbf – rebar found
(+2") – denotes height of the monument
tm – tax map & lot number
scrd – strafford county registry of deeds

monument identification inscriptions:
"npa" – norway plains associates
"jva" – james verra assoc. inc.



locus
n.t.s

reference plan:

1. "plan of land of the catholic church, ray macdonald, r.s. & m.w. harmon, durham, nh" dated: may 8, 1950 by r.r. harmon, m.j. chase recorded: scrd 1-3-13
2. "land & sewer easement...proposed post office site, durham, new hampshire" dated: 9-28-39 by office of the supervising architect, advanced dat & surveying unit recorded: scrd 1-3-31
3. "plan of land of elsie brown, durham, nh" dated: april 10, 1952 by r.s. harmon recorded: scrd 1-3-45
4. "plan showing land for new england tel-tel co, durham, nh" dated: june 1956 by thomas collard recorded: scrd 2-14-19
5. "plan of land of mrs. howard vallance jones, durham, nh" dated: june 2, 1952 by r.s. harmon recorded: scrd 1-3-44
6. "durham arms, main street" dated: nov. 14, 1931 by w.s. wheeler, ce recorded: scrd 3-3-40
7. "plan of land of r.s. & m.w. harmon, durham, nh" dated: may 9, 1950 by m.j. chase & r.s. harmon recorded: scrd 4-3-4
8. "layout of lots, property in durham, nh of horne and loveren and h.w. loveren dated: sept. 1945 by unknown recorded: scrd 4-3-18
9. "property in durham, nh of episcopal diocese of new hampshire" dated: aug. 1924 by c.s. dodge recorded: scrd 4-3-44
10. "easement plan, 1 park court, durham, new hampshire, owner: bishop of the protestant episcopal church in new hampshire, assessor's parcel no. 004-054-002 dated: 1-13-2010 by james verra and associates, inc recorded: scrd 99-41

notes:

1. total parcel areas:
   tm 4-55: 32,054 sf/0.74 acres
   tm 4-38-5: 12,394 sf/0.28 acres
2. parcel zoning
   tm 4-55 is in the church hill zone
   tm 4-38-5 is in the residence A zone
3. minimum lot requirements:
   residence A:
   lot size = 20,000 sf
   frontage = 100'
   Church Hill:
   lot size = 5,000 sf
   frontage = 50'
4. building setbacks:
   residence a = fy. = 30', sy. = 10', ry. = 20'
   church hill = fy. = 15', sy. = 5', ry. = 15'
5. the lots are serviced by the municipal water and sewer system.
6. the lots are not located within the 100 year flood zone as shown on the flood insurance rate map dated 9/30/15 community panel 33017c0318e.
7. parcels maybe subject to any easements of record

tm 4-55 & 4-38-5
owner of record:
toomerfs, llc
37 main street unit o
durham, nh
scrd: 4486/213

existing features plan
main street AKA NH ROUTE 108 & cowell drive, durham
strafford county, nh
for: toomerfs, llc

1"=20' august 2018

graphic scale
20 0 10 20 40 80

revisions:

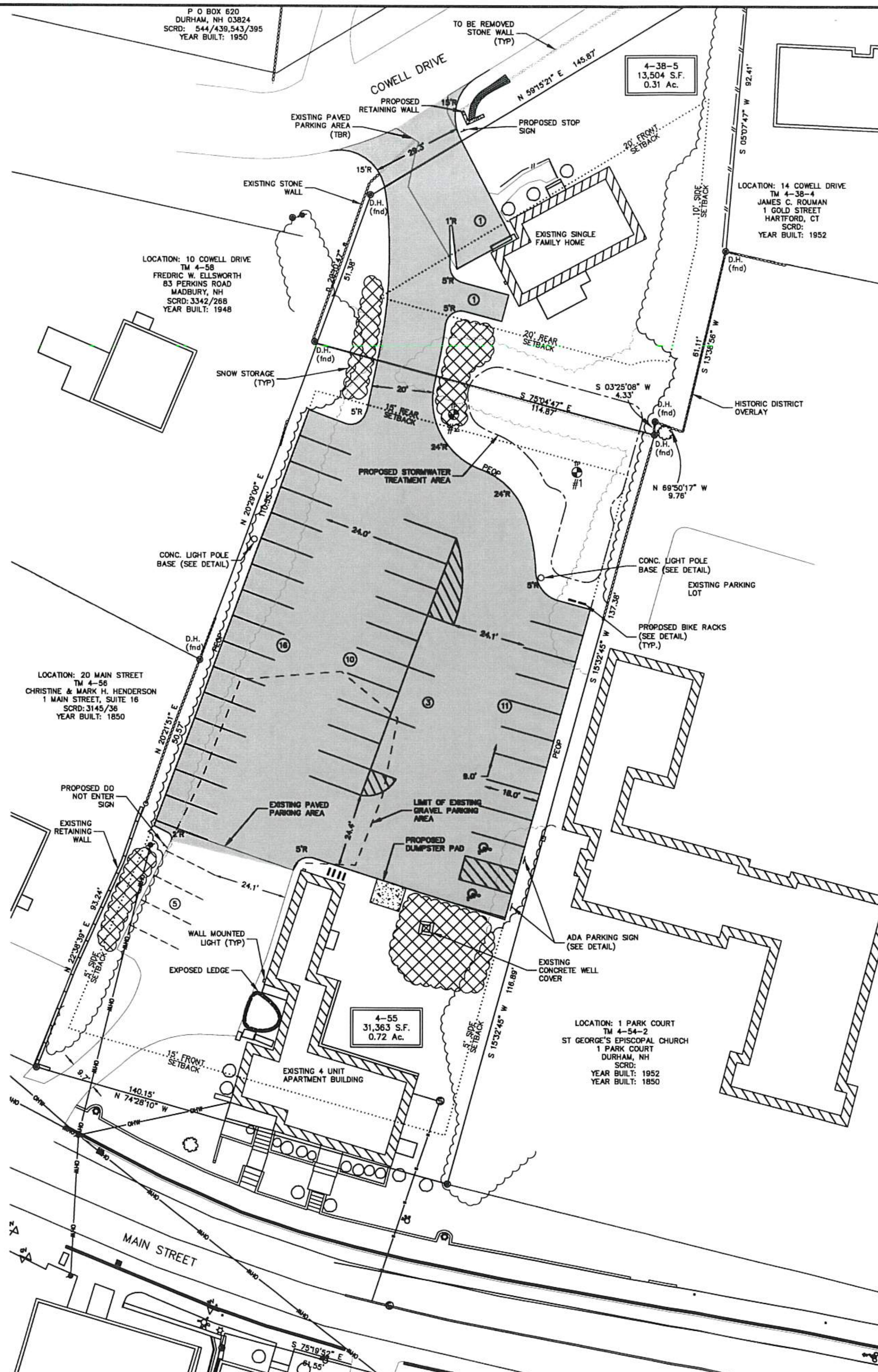
FILE NO.#329
PLAN NO.#c-2925
DWG. NO.18031-ldd/ef-1
F.B. NO. "ferg"

31 MOONEY STREET, ALTON, NH 603-875-3948

NORWAY PLAINS ASSOCIATES, INC.

2 CONTINENTAL BLVD., ROCHESTER, NH 603-335-3948

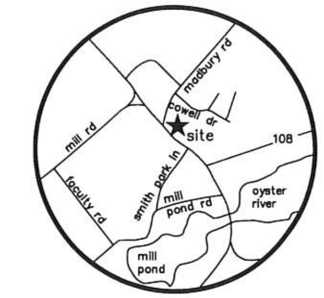
Drawing Name: P:\18proj\18-040\Internal\Drawing Files\18-040 C1 D.dwg
Fri, 05 Oct 2018 - 10:56am



GENERAL NOTES:

1. OWNER OF RECORD:
   TOOMERFS, LLC
   18 MAIN STREET
   DURHAM, NEW HAMPSHIRE 03824
   S.C.R.D. BOOK 4486, PAGE 213

   OWNER OF RECORD:
   TOOMERFS, LLC
   37 MAIN STREET UNIT O
   DURHAM, NEW HAMPSHIRE 03824
   S.C.R.D. BOOK 4486, PAGE 213
2. LOT AREA: .72 ACRES (31,363 S.F.)
3. REFERENCE PLANS:
   A. EXISTING FEATURES PLAN MAIN STREET AKA NH ROUTE 108 AND COWELL DRIVE, DURHAM STRAFFORD COUNTY, NH PREPARED FOR TOOMERFS, LLC, PREPARED BY NORWAY PLAINS ASSOCIATES, INC. DATED AUGUST, 2018.
4. VERTICAL DATUM IS ASSUMED.
5. IMPERVIOUS SURFACE RATIO:
   EXISTING = 22.5% (6,058 S.F.)
   PROPOSED = 69.4% (18,643 S.F.)
   DISCONNECTED IMPERVIOUS COVER = 0 S.F.
   EFFECTIVE IMPERVIOUS AREA (EIA) = 18.643 S.F.
6. ALL OUTSIDE CONSTRUCTION RELATED ACTIVITY RELATED TO THE DEVELOPMENT OF THIS SITE IS RESTRICTED TO THE HOURS OF 7:00 A.M. TO 6:00 P.M. MONDAY THROUGH FRIDAY AND 8:00 A.M. TO 3:00 P.M. SATURDAY.
7. FOR MORE INFORMATION ABOUT THIS SITE PLAN, OR TO SEE THE COMPLETE PLAN SET, CONTACT THE TOWN OF DURHAM PLANNING DEPARTMENT, 8 NEWMARKET ROAD, DURHAM, NH 03824. (603) 868-8064.
8. ALL EXTERIOR LIGHTING MUST BE FULLY SHIELDED AND NOT PROJECT GLARE TOWARD ANY ABUTTING PROPERTIES.
9. ACCESS INTO THE SITE FOR FIRE APPARATUS SHALL BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION PROCESS. PLEASE CONTACT THE FIRE DEPARTMENT AT 868-5531 WITH ANY QUESTIONS ABOUT ACCESS REQUIREMENTS.
10. SNOW SHALL NOT BE PUSHED AGAINST TREES OR SHRUBS IN ANY MANNER THAT COULD DAMAGE THEM.
11. THE GENERAL CONTRACTOR IS RESPONSIBLE TO VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE SITE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK. THIS INCLUDES DISCREPANCIES BETWEEN THESE PLANS AND ANY OTHER PLANS OR CONTRACT DOCUMENTS.



locus
n.t.s

SITE DATA BLOCK

PLAN INTENT: THE PROPOSAL IS TO CONSTRUCT A NEW PAVED PARKING LOT ON THE SUBJECT PARCEL

ZONE: CH – CHURCH HILL

OVERLAY DISTRICTS: HISTORIC DISTRICT

USE: COMMERCIAL

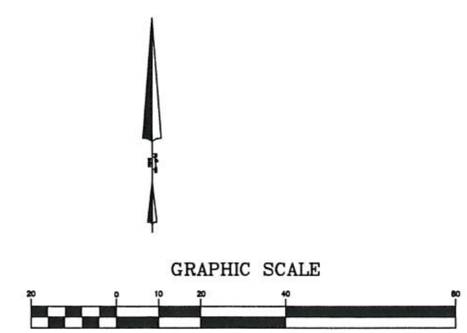
DIMENSIONAL REQUIREMENTS	REQUIRED IN CH DISTRICT	REQUIRED IN RA DISTRICT
MINIMUM LOT SIZE (SQUARE FEET)	5,000 SF	20,000 SF
MINIMUM FRONTAGE (FEET)	50	100'
MINIMUM LOT SETBACKS		
FRONT (FEET)	15'	30'
SIDE (FEET)	5'	10'
REAR (FEET)	15'	20'
MAXIMUM ROAD SETBACK (FEET)	NA	NA
MAXIMUM HEIGHT (FEET)	30'	30'
MAXIMUM HEIGHT W/ P.B. APPROVAL (FEET)	35'	35'
IMPERVIOUS SURFACES RATIO	80%	33%

PARKING REQUIREMENTS

USE	OCCUPANTS	REQUIRED	PROVIDED
LOT 4-38-5 DWELLING UNITS – PERMITTED FOR 3 OR MORE UNRELATED OCCUPANTS	3	1 SPACE/OCCUPANT = 3 SPACES	3 SPACES
LOT 4-55 DWELLING UNITS – PERMITTED FOR 3 OR MORE UNRELATED OCCUPANTS	15	1 SPACE/OCCUPANT = 15 SPACES	45 SPACES
		18 SPACES	*48 SPACES

*PER ARTICLE 10, SECTION 10.2.7: PARKING LOTS MAY CONTAIN UP TO TEN PERCENT (10%) MORE SPACES THAN THE REQUIRED MINIMUM. CONDITIONAL USE REQUIRED.

NOTE: ADDITIONAL PARKING SPACES FOR USE BY LOTS 1-9, 1-10, AND 1-15 ON TAX MAP 5 AND RENTAL SPACES. CONDITIONAL USE REQUIRED.



(IN FEET)
1 inch = 20 ft.

FINAL APPROVAL BY DURHAM PLANNING BOARD.
CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER
CERTIFIED ______________________
DATE ______________________

UTILITIES NOTE:
ALL ELECTRIC, GAS, TELEPHONE, WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION. THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN ON THIS SITE USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATION FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE: 1-888-DIG-SAFE (1-888-344-7233)

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	10/5/18	EHK

SEAL: STATE OF NEW HAMPSHIRE – MICHAEL J. SIEVERT No. 8397 – LICENSED PROFESSIONAL ENGINEER

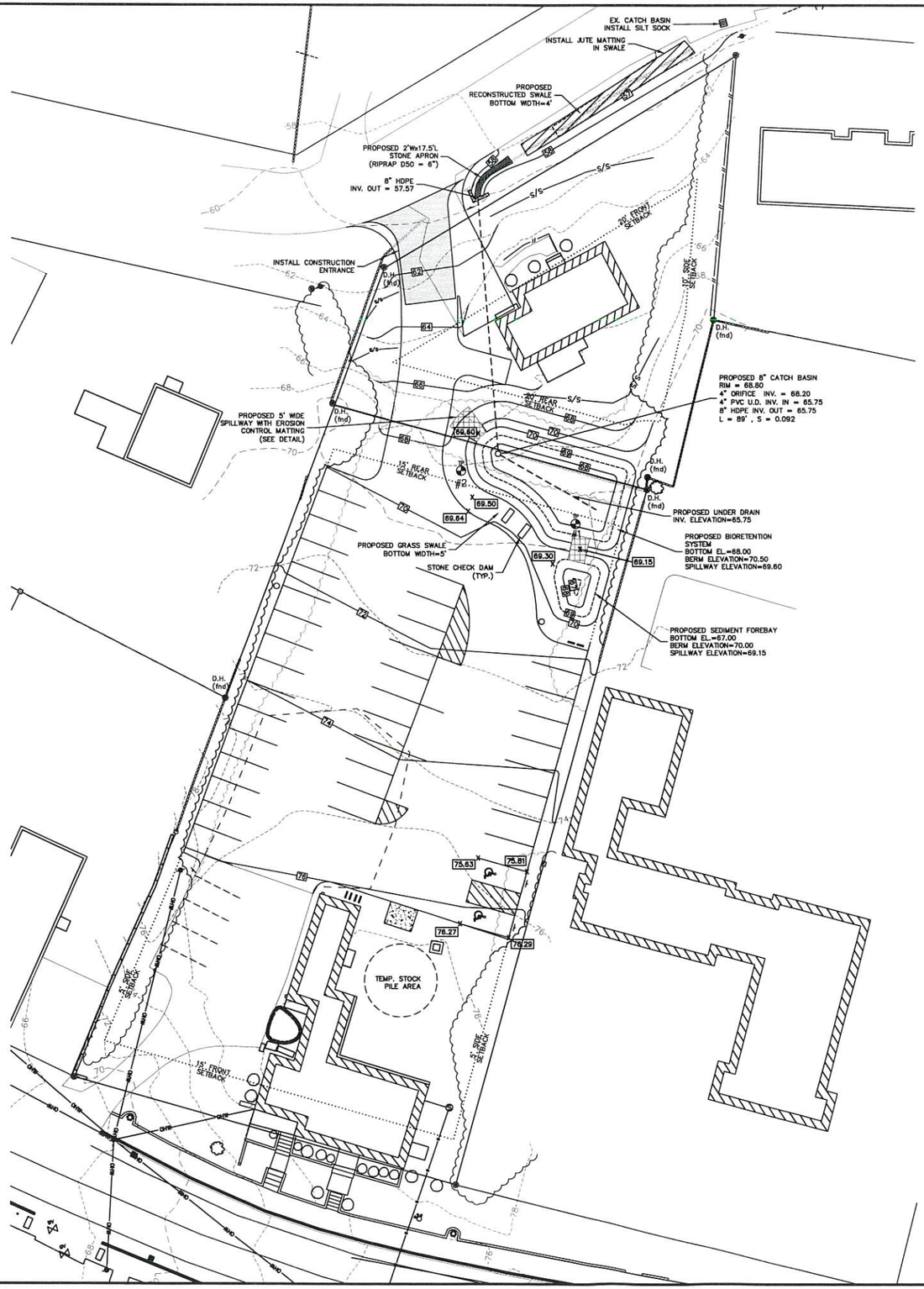
DATE: 10/5/18
SCALE: 1"=20'
DESIGNED BY: EHK
DRAWN BY: EHK
APPROVED BY: MJS
DWG FILE: 18-040 C1 D.dwg

PROPOSED SITE PLAN
prepared for
TOOMERFS, LLC
TAX MAP 4, LOTS 38-5 AND 55
18 MAIN ST AND 12 COWELL DR. DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 18-040

C1



GRADING, DRAINAGE, UTILITY & EROSION CONTROL NOTES

1. ALL EROSION AND SEDIMENTATION CONTROL STRUCTURES SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL THE VEGETATION IS ESTABLISHED AND THE GROUND SURFACE IS STABILIZED. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MONITORED BY THE APPLICANT ON A PERIODIC BASIS DURING CONSTRUCTION AND ANY DEFICIENCIES SHALL BE CORRECTED AS SOON AS POSSIBLE.
2. REFER TO CONSTRUCTION AND SEQUENCING AND EROSION CONTROL NOTES ON SHEET D1.
3. ALL DRIVEWAY AND PARKING AREA WORK SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AS PUBLISHED BY THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.
4. ALL DISTURBED AREAS NOT PAVED OR OTHERWISE TREATED SHALL RECEIVE 4" OF LOAM, SEED AND MULCH AS SPECIFIED IN THE NOTES ON SHEET D1.
5. COMPACTION REQUIREMENTS:

LOCATION:	MINIMUM COMPACTION*
BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%

*ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM PROCTOR DENSITY.

6. ADJUST ALL MANHOLES, CATCH BASINS ETC. WITHIN LIMITS OF WORK TO FINISHED GRADE.
7. EROSION CONTROL DEVICES SHALL BE INSPECTED AFTER EACH RAIN STORM OF 0.25 INCHES OR GREATER. DAMAGED EROSION CONTROL DEVICES SHALL BE REPAIRED/MODIFIED AS NECESSARY.
8. ALL TEMPORARY LOAM STOCKPILES SHALL RECEIVE TEMPORARY EROSION CONTROL MEASURES.

TP TEST PIT DATA:

TP#1:
0–12" LAOM
12–36" VERY FINE SILT LOAM AND FILL WITH GRANITE

NO SHWT TO 36"

TP#2:
0–3" TOPSOIL
3–15" FINE SANDY LOAM
GRANULAR FRIABLE (10YR 3/3)
15–28" FINE SANDY LOAM
GRANULAR LOOSE (10YR 4/4)
28–32" LOAMY FINE SAND
GRANULAR FRIABLE (2.5Y 5/3)

ESHWT AT 32"

TEST PITS LOGGED ON 8/22/18 BY MICHAEL J. SIEVERT, MJS ENGINEERING, PC.

FINAL APPROVAL BY DURHAM PLANNING BOARD.
CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER
CERTIFIED _____
DATE _____

UTILITIES NOTE:
ALL ELECTRIC, GAS, TELEPHONE, WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION. THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN ON THIS SITE USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATION FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE: 1-888-DIG-SAFE (1-888-344-7233)

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

NO.	REVISIONS	DATE	INT.
0	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	10/5/18	EHK

SEAL: MICHAEL J. SIEVERT No. 8307 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

DATE: 10/5/18
SCALE: 1" = 20'
DESIGNED BY: EHK
DRAWN BY: EHK
APPROVED BY: MJS
DWG FILE: 18-040 C1 D.dwg

GRADING, DRAINAGE & EROSION CONTROL PLAN

prepared for
TOOMERFS, LLC

TAX MAP 4, LOTS 38-5 AND 55
18 MAIN ST AND 12 COWELL DR. DURHAM, NH

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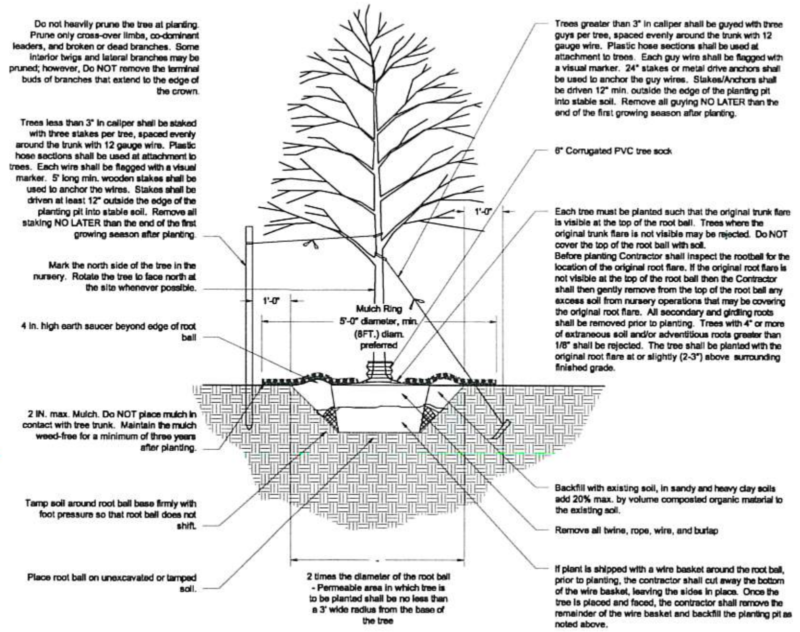
JOB: 18-040

C2



Tree Planting Detail, Typ.

Landscape Notes

1. Design is based on drawings by MJS Engineering dated September 2018 and may require adjustment due to actual field conditions.
2. The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.
3. Erosion Control shall be in place prior to construction.
4. Erosion Control to consist of Hay Bales and Erosion Control Fabric shall be staked in place between the work and Water bodies, Wetlands and/or drainage ways prior to any construction.
5. The Contractor shall verify layout and grades and inform the Landscape Architect or Client's Representative of any discrepancies or changes in layout and/or grade relationships prior to construction.
6. It is the contractor's responsibility to verify drawings provided are to the correct scale prior to any bid, estimate or installation. A graphic scale bar has been provided on each sheet for this purpose. If it is determined that the scale of the drawing is incorrect, the landscape architect will provide a set of drawings at the correct scale, at the request of the contractor.
7. Trees to Remain within the construction zone shall be protected from damage for the duration of the project by snow fence or other suitable means of protection to be approved by Landscape Architect or Client's Representative. Snow fence shall be located at the drip line at a minimum and shall include any and all surface roots. Do not fill or mulch on the trunk flare. Do not disturb roots. In order to protect the integrity of the roots, branches, trunk and bark of the tree(s) no vehicles or construction equipment shall drive or park in or on the area within the drip line(s) of the tree(s). Do not store any refuse or construction materials or portalets within the tree protection area.
8. Location, support, protection, and restoration of all existing utilities and appurtenances shall be the responsibility of the Contractor.
9. The Contractor shall verify exact location and elevation of all utilities with the respective utility owners prior to construction. Call DIGSAFE at 1-888-344-7233.
10. The Contractor shall procure any required permits prior to construction.
11. Prior to any landscape construction activities Contractor shall test all existing loam and loam from off-site intended to be used for lawns and plant beds using a thorough sampling throughout the supply. Soil testing shall indicate levels of pH, nitrates, macro and micro nutrients, texture, soluble salts, and organic matter. Contractor shall provide Landscape Architect with test results and recommendations from the testing facility along with soil amendment plans as necessary for the proposed plantings to thrive. All loam to be used on site shall be amended as approved by the Landscape Architect prior to placement.
12. Contractor shall notify landscape architect or owner's representative immediately if at any point during demolition or construction a site condition is discovered which may negatively impact the completed project. This includes, but is not limited to, unforeseen drainage problems, unknown subsurface conditions, and discrepancies between the plan and the site. If a contractor is aware of a potential issue, and does not bring it to the attention of the landscape architect or owner's representative immediately, they may be responsible for the labor and materials associated with correcting the problem.
13. The Contractor shall furnish and plant all plants shown on the drawings and listed thereon. All plants shall be nursery-grown under climatic conditions similar to those in the locality of the project. Plants shall conform to the botanical names and standards of size, culture, and quality for the highest grades and standards as adopted by the American Association of Nurserymen, Inc. in the American Standard of Nursery Stock, American Standards Institute, Inc. 230 Southern Building, Washington, D.C. 20005.
14. A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.
15. All plants shall be legibly tagged with proper botanical name.
16. The Contractor shall guarantee all plants for not less than one year from time of acceptance.
17. Owner or Owner's Representative will inspect plants upon delivery for conformity to Specification requirements. Such approval shall not affect the right of inspection and rejection during or after the progress of the work. The Owner reserves the right to inspect and/or select all trees at the place of growth and reserves the right to approve a representative sample of each type of shrub, herbaceous perennial, annual, and ground cover at the place of growth. Such sample will serve as a minimum standard for all plants of the same species used in this work.
18. No substitutions of plants may be made without prior approval of the Owner or the Owner's Representative for any reason.
19. All landscaping shall be provided with either of the following:
    a. An underground sprinkling system
    b. An outside hose attachment within 150 feet
20. If an automatic irrigation system is installed, all irrigation valve boxes shall be located within planting bed areas.
21. The contractor is responsible for all plant material from the time their work commences until final acceptance. This includes but is not limited to maintaining all plants in good condition, the security of the plant material once delivered to the site, and watering of plants. Plants shall be appropriately watered prior to, during and after planting. It is the contractor's responsibility to provide water from off site, should it not be available on site.
22. All disturbed areas will be dressed with 6" of topsoil and planted as noted on the plans or seeded except plant beds. Plant beds shall be prepared to a depth of 12" with 75% loam and 25% compost.
23. Trees, ground cover, and shrub beds shall be mulched to a depth of 2" with one-year-old, well-composted, shredded native bark not longer than 4" in length and ½" in width, free of woodchips and sawdust. Mulch for ferns and herbaceous perennials shall be no longer than 1" in length. Trees in lawn areas shall be mulched in a 5' diameter min. saucer. Color of mulch shall be black.
24. Drip strip shall extend to 6" beyond roof overhang and shall be edged with 3/16" thick metal edger.
25. In no case shall mulch touch the stem of a plant nor shall mulch ever be more than 3" thick total (including previously applied mulch) over the root ball of any plant.
26. Secondary lateral branches of deciduous trees overhanging vehicular and pedestrian travel ways shall be pruned up to a height of 6' to allow clear and safe passage of vehicles and pedestrians under tree canopy.
27. Snow shall be stored a minimum of 5' from shrubs and trunks of trees.
28. Landscape Architect is not responsible for the means and methods of the contractor.

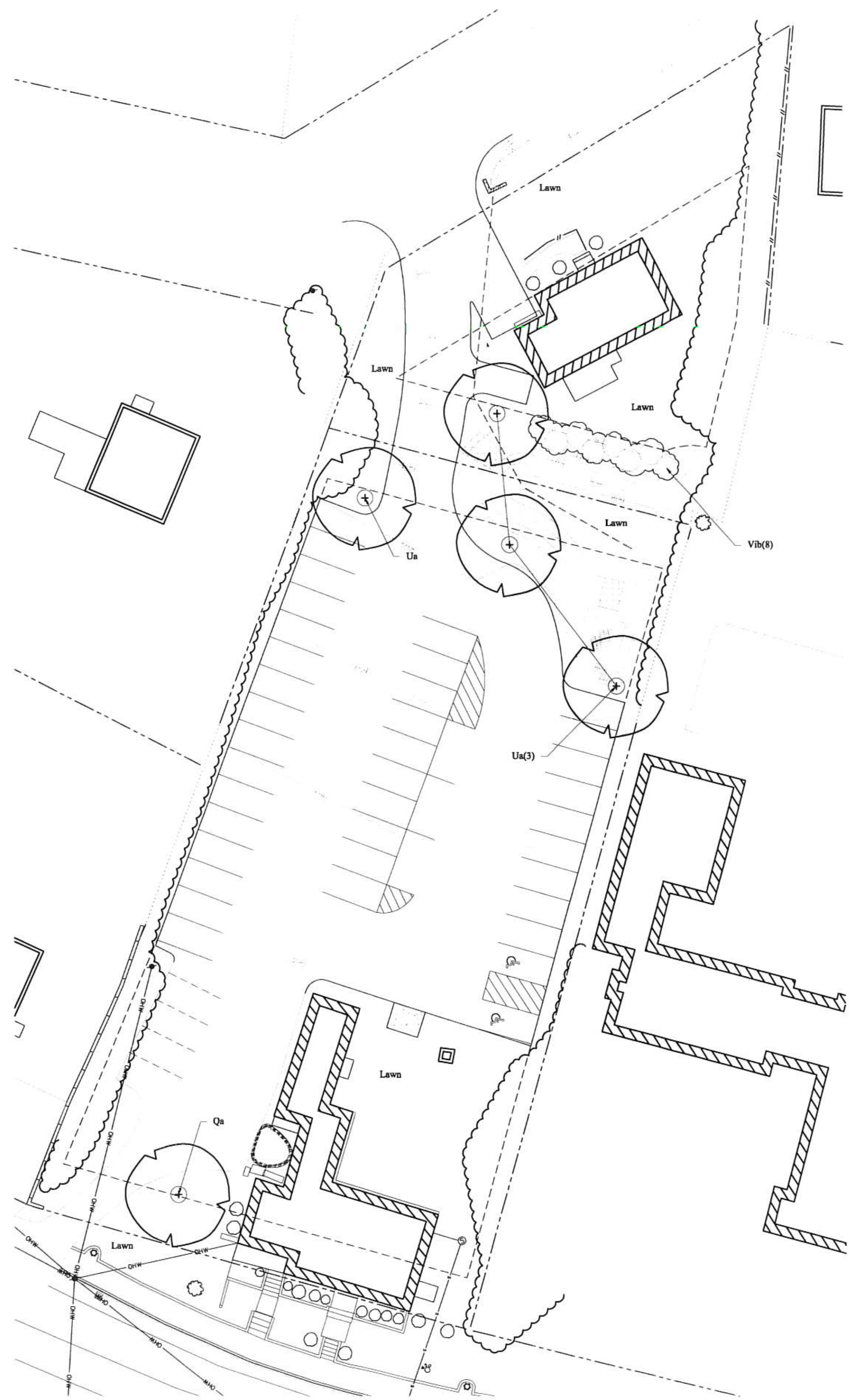
Plant List

TREES

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Qa	*Quercus alba*	White Oak	1	3-3.5" Cal	B&B
Ua	*Ulmus americana 'Princeton'*	Princeton American Elm	4	3-3.5" Cal	B&B

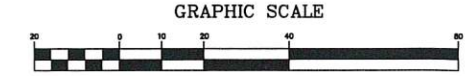
SHRUBS

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Vib	*Viburnum plicatum tomentosum 'Mariesii'*	Marie's Doublefile Viburnum	8	3-4' Ht	B&B



FINAL APPROVAL BY DURHAM PLANNING BOARD.
CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER
CERTIFIED ______________
DATE ______________

GRAPHIC SCALE



(IN FEET)
1 inch = 20 ft.

woodburn & company
LANDSCAPE ARCHITECTURE
103 Kent Place Newmarket, New Hampshire Phone: 603.659.5949

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO LEE PLANNING BOARD	9/28/18	VM

SEAL

DATE: 9/28/18
SCALE: 1"=20'
DESIGNED BY: VM
DRAWN BY: VM
APPROVED BY: RW
DWG FILE:

LANDSCAPE PLAN

prepared for
TOOMERFS, LLC.
TAX MAP 4, LOTS 38-5 AND 55
18 MAIN ST AND 12 COWELL DR. DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 18-040

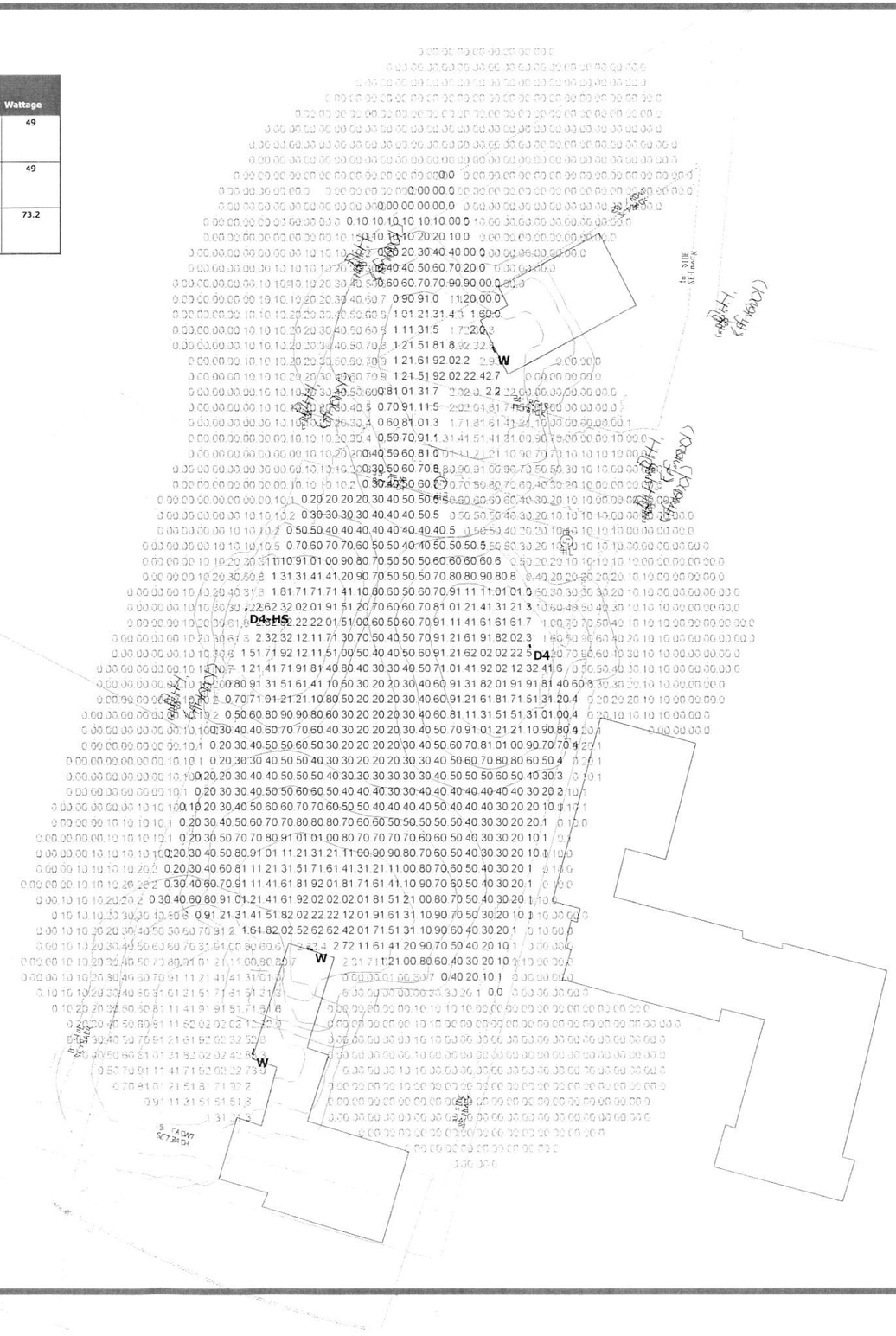
L1

Schedule

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens per Lamp	LLF	Wattage
	D4	1	Lithonia Lighting	DSX0 LED P2 30K TFTM MVOLT SPA DDBXD with SSS 15 4C DM19AS DDBXD	DSX0 LED Area Fixture; mounted at 15ft	LED	1	DSX0_LED_P2_30K_TFTM_MVOLT.ies	5576	0.9	49
	D4-HS	1	Lithonia Lighting	DSX0 LED P2 30K TFTM MVOLT HS SPA DDBXD with SSS 15 4C DM19AS DDBXD	DSX0 LED Area Fixture with houseside shield; mounted at 15ft	LED	1	DSX0_LED_P2_30K_TFTM_MVOLT_HS.ies	4353	0.9	49
	W	3	Lithonia Lighting	DSXW1 LED 20C 1000 40K TFTM MVOLT DDBXD	DSXW1 LED WITH (2) 10 LED LIGHT ENGINES, TYPE TFTM OPTIC, 4000K, @ 1000mA; mounted at 16ft	LED	1	DSXW1_LED_20C_1000_40K_TFTM_MVOLT.ies	7711	0.9	73.2

Statistics

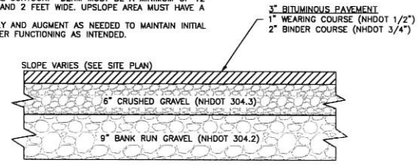
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Outside of Parking Lot	+	0.2 fc	3.4 fc	0.0 fc	N/A	N/A
Parking Lot	+	0.8 fc	2.8 fc	0.0 fc	N/A	N/A

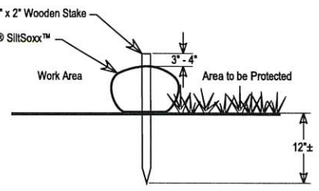


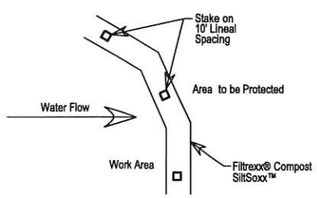
VISUAL

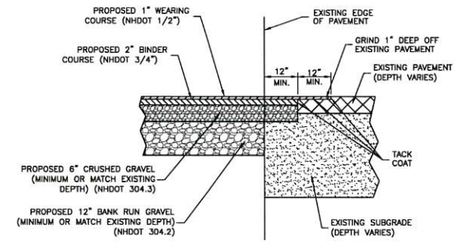
18 MAIN ST
Durham, NH
Site Lighting Layout

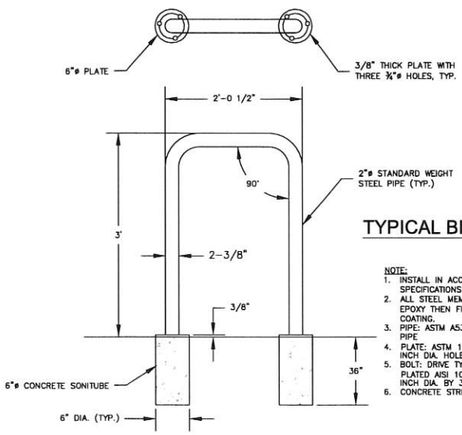
Designer
Heidi G. Connors Visible Light, Inc. 24 Stickney Terrace Suite 6 Hampton, NH 03842
Date
9/26/2018
Scale
1"=40'
Drawing No.
Summary











Drawing Name: P:\18pro\18-040\Internal\Drawing Files\18-040 C1 D.dwg
Fri, 05 Oct 2018 - 11:04am

CONSTRUCTION SEQUENCING AND EROSION CONTROL NOTES:

AREA OF DISTURBANCE/STABILIZATION

A. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL THE AREA OF UNSTABILIZED SOIL EXCEED 5 ACRES AT ANY ONE TIME BEFORE THE AREA IS STABILIZED.
B. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  1. IN AREAS TO BE PAVED, BASE COURSE GRAVELS MEETING THE GRADATION REQUIREMENTS OF NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2006, ITEM NO. 304.1 OR 304.2 HAVE BEEN INSTALLED;
  2. IN AREAS NOT TO BE PAVED
    2.A. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    2.B. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
    2.C. EROSION CONTROL BLANKETS HAVE BEEN INSTALLED IN ACCORDANCE WITH ENV-WQ 1506.03.
C. DISTURBED AREAS SHALL BE TEMPORARILY STABILIZED WITHIN 45 DAYS AND PERMANENTLY STABILIZED NO LATER THAN 3 DAYS AFTER FINAL GRADING.

EROSION CONTROL PRACTICES:

A. INSTALLATION:
  1. INSTALL ALL EROSION CONTROLS AS SHOWN ON THE GRADING PLAN, TYPICAL DETAILS, AND IN CONFORMANCE WITH THE EROSION AND SEDIMENT CONTROL NOTES ON THIS PAGE. MANUFACTURER'S SPECIFICATIONS SHALL BE FOLLOWED.
B. INSPECTION:
  1. INSPECT ALL EROSION CONTROLS WEEKLY AND AFTER EVERY RAIN EVENT OF 0.5 INCHES OR GREATER UNLESS OTHERWISE NOTED.
  2. TEMPORARY STABILIZATION PRACTICES SHALL BE INSPECTED ONCE PER WEEK DURING CONSTRUCTION UNTIL EXPOSED SURFACES ARE STABILIZED.
  3. ANY SIGNS OF RILL OR GULLY EROSION SHALL BE IMMEDIATELY REPAIRED.
C. MAINTENANCE:
  1. MAINTAIN EROSION CONTROLS PER THE TYPICAL DETAILS AND IN CONFORMANCE WITH THE EROSION AND SEDIMENT CONTROL NOTES ON THIS PAGE.
D. REMOVAL
  1. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE 85% VEGETATIVE COVER HAS BEEN ESTABLISHED.
  2. AFTER REMOVAL, ALL DISTURBED AREAS SHALL BE REGRADED, FERTILIZED, AND RESEEDED. MONITOR TO ENSURE VEGETATIVE GROWTH IS ESTABLISHED AND REPAIR AS NEEDED UNTIL MINIMUM OF 85% VEGETATIVE COVER IS ESTABLISHED.

COLD WEATHER SITE STABILIZATION

A. TO ADEQUATELY PROTECT WATER QUALITY DURING COLD WEATHER AND DURING SPRING RUNOFF, THE ADDITIONAL STABILIZATION TECHNIQUES SPECIFIED IN THIS SECTION SHALL BE EMPLOYED DURING THE PERIOD FROM OCTOBER 15 THROUGH MAY 1.
B. SUBJECT TO (C), BELOW, THE AREA OF EXPOSED, UNSTABILIZED SOIL SHALL BE:
  1. LIMITED TO ONE ACRE; AND
  2. PROTECTED AGAINST EROSION BY THE METHODS DESCRIBED IN THIS SECTION PRIOR TO ANY THAW OR SPRING MELT EVENT.
C. THE ALLOWABLE AREA OF EXPOSED SOIL MAY BE INCREASED IF A WINTER CONSTRUCTION PLAN IS DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST AND SUBMITTED TO THE DEPARTMENT FOR APPROVAL AS A REQUEST TO WAIVE THE ONE-ACRE LIMIT.
D. SUBJECT TO (F) AND (G), BELOW, ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE SEEDED AND COVERED WITH 3 TO 4 TONS OF HAY OR STRAW MULCH PER ACRE SECURED WITH ANCHORED NETTING OR TACKIFIER OR WITH AT LEAST 2 INCHES OF EROSION CONTROL MIX MEETING THE CRITERIA OF ENV-WQ 1506.05(B).
E. SUBJECT TO (F) AND (G), BELOW, ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF 15% OR GREATER THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE SEEDED AND COVERED WITH A PROPERLY INSTALLED AND ANCHORED EROSION CONTROL BLANKET OR WITH AT LEAST 4 INCHES OF EROSION CONTROL MIX MEETING THE CRITERIA OF ENV-WQ 1506.05(B).
F. ANCHORED HAY MULCH OR EROSION CONTROL MIX THAT MEETS THE CRITERIA OF ENV-WQ 1506.05(B) SHALL NOT BE INSTALLED OVER SNOW GREATER THAN ONE INCH IN DEPTH.
G. EROSION CONTROL BLANKETS SHALL NOT BE INSTALLED OVER SNOW GREATER THAN ONE INCH IN DEPTH OR ON FROZEN GROUND.
H. ALL PROPOSED STABILIZATION IN ACCORDANCE WITH (D) OR (E), ABOVE, SHALL BE COMPLETED WITHIN A DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS.
I. ALL DITCHES OR SWALES THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS, AS DETERMINED BY THE OWNER'S ENGINEERING CONSULTANT.
J. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING AREAS WHERE ACTIVE CONSTRUCTION OF THE ROAD OR PARKING AREA HAS STOPPED FOR THE WINTER SEASON SHALL BE PROTECTED WITH A MINIMUM 3-INCH LAYER OF BASE COURSE GRAVELS MEETING THE GRADATION REQUIREMENTS OF NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2016, TABLE 304-1, ITEM NO. 304.1, 304.2, OR 304.3, AVAILABLE AS NOTED IN APPENDIX B.

TEMPORARY VEGETATION

A. SITE PREPARATION
  1. INSTALL EROSION AND SEDIMENT CONTROL MEASURES AS SPECIFIED ABOVE.
  2. ENSURE RUNOFF IS DIVERTED FROM SEEDED AREA.
  3. ON SLOPES OF 4:1 OR STEEPER, CREATE HORIZONTAL GROOVES PERPENDICULAR TO THE DIRECTION OF THE SLOPE TO CATCH SEED AND REDUCE RUNOFF.
B. SEED BED PREPARATION
  1. REMOVE STONES AND TRASH FROM AREA TO BE SEEDED.
  2. COMPACTED SOIL SHALL BE LOOSENED TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME, AND SEED.
  3. APPLY FERTILIZER AT A RATE OF 600 LBS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE.
C. SEEDING
  1. SEED PER THE FOLLOWING RECOMMENDATIONS

SEASON	APPLICATION DATE	MIXTURE TYPE	QUANTITY (lb./Ac.)
EARLY SPRING	NO LATER THAN 5/15	OATS	80
LATE SPRING/ FALL	4/1 TO 6/1 & 8/15 TO 9/15	PERENNIAL RYE	30
EARLY SPRING/ FALL	4/1 TO 5/15 & 8/15 TO 9/15	ANNUAL RYE	40
FALL	8/15 TO 9/15	WINTER RYE	112

  2. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM ¼ TO ½ INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING.
  3. TEMPORARY SEEDING SHALL OCCUR PRIOR TO SEPTEMBER 15TH IN THE YEAR IN WHICH THE AREA BEING SEEDED WAS DISTURBED.
  4. AREAS SEEDED BETWEEN MAY 15TH AND AUGUST 15TH SHALL BE COVERED WITH HAY OR STRAW MULCH MEETING THE FOLLOWING CRITERIA:
    4.A. HAY AND STRAW MULCHES SHALL BE ANCHORED WITH MULCH NETTING OR TACKIFIER SO THAT THEY ARE NOT BLOWN AWAY BY WIND OR WASHED AWAY BY FLOWING WATER;
    4.B. MULCH MATERIALS SHALL BE SELECTED BASED UPON SOILS, SLOPE, FLOW CONDITIONS, AND TIME OF YEAR;
    4.C. HAY OR STRAW MULCH SHALL BE APPLIED AT A RATE OF 1.5 TO 2 TONS PER ACRE, EQUIVALENT TO 70 TO 90 POUNDS PER 1,000 SQUARE FEET;
  5. IF VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA IS NOT ACHIEVED PRIOR TO OCTOBER 15TH, ONE OR MORE ADDITIONAL EROSION CONTROL METHODS SHALL BE IMPLEMENTED.
D. MAINTENANCE
  1. TEMPORARY SEEDING SHOULD BE INSPECTED WEEKLY AND AFTER ANY RAINFALL EXCEEDING ½ INCH IN 24 HOURS ON ACTIVE CONSTRUCTION SITES. TEMPORARY SEEDING SHOULD ALSO BE INSPECTED JUST PRIOR TO SEPTEMBER 15, TO ASCERTAIN WHETHER ADDITIONAL SEEDING IS REQUIRED TO PROVIDE STABILIZATION OVER THE WINTER PERIOD.
  2. BASED ON INSPECTION, AREAS SHOULD BE RESEEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS. IF IT IS TOO LATE IN THE PLANTING SEASON TO APPLY ADDITIONAL SEED, THEN OTHER TEMPORARY STABILIZATION MEASURES SHOULD BE IMPLEMENTED.
  3. AT A MINIMUM, 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION.
  4. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEEDED, WITH OTHER TEMPORARY MEASURES (E.G., MULCH) USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.

FINAL APPROVAL BY DURHAM PLANNING BOARD.
CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER
CERTIFIED ______________________
DATE ______________________

PERMANENT VEGETATION

A. SITE PREPARATION
  1. REFER TO SITE PREPARATION FOR TEMPORARY SEEDING.
B. SEED BED PREPARATION
  1. REFER TO SEED BED PREPARATION FOR TEMPORARY SEEDING IN CONJUNCTION WITH THESE NOTES.
  2. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
  3. REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, CONCRETE, CLODS, LUMPS, TRASH OR OTHER UNSUITABLE MATERIAL.
  4. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED; THE AREA MUST BE TILLED AND FIRMED AS ABOVE.
  5. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
  6. APPLY FERTILIZER AT A RATE OF 600 LBS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE.
C. SEEDING
  1. UNLESS OTHERWISE NOTED, GRASS SEED MIXTURE 'C' SHALL BE APPLIED AT THE SPECIFIED RATE AS NOTED IN THE 'SEED MIXTURES FOR PERMANENT VEGETATION' TABLE.
  2. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM ¼ TO ½ INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING OPERATIONS SHOULD BE ON THE CONTOUR.
  3. WHERE FEASIBLE, EXCEPT WHERE EITHER A CULTIPACKER TYPE SEEDER OR HYDROSEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A ROLLER, OR LIGHT DRAG.
  4. WHEN HYDROSEEDING (HYDRAULIC APPLICATION), PREPARE THE SEEDBED AS SPECIFIED ABOVE OR BY HAND RAKING TO LOOSEN AND SMOOTH THE SOIL AND TO REMOVE SURFACE STONES LARGER THAN 2 INCHES IN DIAMETER.
  5. SLOPES MUST BE NO STEEPER THAN 2 TO 1.
  6. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. THE USE OF FIBER MULCH ON CRITICAL AREAS IS NOT RECOMMENDED (UNLESS IT IS USED TO HOLD STRAW OR HAY). BETTER PROTECTION IS GAINED BY USING STRAW MULCH AND HOLDING IT WITH ADHESIVE MATERIALS OR 500 POUNDS PER ACRE OF WOOD FIBER MULCH.
  7. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING.
  8. TEMPORARY SEEDING SHALL OCCUR PRIOR TO SEPTEMBER 15TH IN THE YEAR IN WHICH THE AREA BEING SEEDED WAS DISTURBED.
  9. AREAS SEEDED BETWEEN MAY 15TH AND AUGUST 15TH SHALL BE COVERED WITH HAY OR STRAW MULCH MEETING THE FOLLOWING CRITERIA:
    9.A. HAY AND STRAW MULCHES SHALL BE ANCHORED WITH MULCH NETTING OR TACKIFIER SO THAT THEY ARE NOT BLOWN AWAY BY WIND OR WASHED AWAY BY FLOWING WATER;
    9.A. MULCH MATERIALS SHALL BE SELECTED BASED UPON SOILS, SLOPE, FLOW CONDITIONS, AND TIME OF YEAR;
    9.B. HAY OR STRAW MULCH SHALL BE APPLIED AT A RATE OF 1.5 TO 2 TONS PER ACRE, EQUIVALENT TO 70 TO 90 POUNDS PER 1,000 SQUARE FEET;
  10. IF VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA IS NOT ACHIEVED PRIOR TO OCTOBER 15TH, ONE OR MORE ADDITIONAL EROSION CONTROL METHODS SHALL BE IMPLEMENTED.
D. MAINTENANCE
  1. PERMANENTLY SEEDED AREAS SHOULD BE INSPECTED MONTHLY.
  2. MOW SEEDED AREAS AS NECESSARY.
  3. BASED ON INSPECTION, AREAS SHOULD BE REPAIRED AND/OR RESEEDED TO ENSURE 85% OF THE SOIL SURFACE IS COVERED BY VEGETATION.

MULCHING & EROSION CONTROL MATTING

A. GENERAL
  1. APPLY PRIOR TO A STORM EVENT. CLOSELY MONITOR THE WEATHER TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.
  2. MULCHING WITHIN A SPECIFIED TIME PERIOD FROM ORIGINAL SOIL EXPOSURE
    2.A. WITHIN 100 FEET OF WETLANDS THE TIME PERIOD SHOULD BE NO GREATER THAN 7 DAYS.
    2.B. IN OTHER AREAS IT SHALL BE NO GREATER THAN 14 DAYS.
  3. MULCH MATERIALS SHALL BE SELECTED BASED UPON SOILS, FLOW CONDITIONS, AND TIME OF YEAR.
B. TEMPORARY MULCHING
  1. HAY OR STRAW MULCHES
    1.A. ORGANIC MULCHES INCLUDING HAY AND STRAW SHALL BE AIR-DRIED, FREE OF UNDESIRABLE SEEDS AND COARSE MATERIALS.
    1.B. APPLICATION RATE SHALL BE 2 BALES/1,000 SF (70-90 POUNDS) OR 1.5-2.0 TONS/ACRE TO COVER 75-90% OF THE GROUND.
    1.C. ANCHORING SHALL BE ONE OF THE FOLLOWING
      1.C.1. NETTING SHALL BE JUTE, WOOD FIBER, OR BIODEGRADABLE PLASTIC NETTING INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
      1.C.2. TACKIFIER: APPLY POLYMER OR ORGANIC TACKIFIER TO ANCHOR HAY OR STRAW MULCH. APPLY PER MANUFACTURER'S SPECIFICATIONS. TYPICAL APPLICATION RATES ARE 40-60 LBS/ACRE FOR POLYMER MATERIAL AND 80-120 LBS/ACRE FOR ORGANIC LIQUID.
    1.D. WINTER APPLICATION: APPLY TO A DEPTH OF 4 INCHES OR DOUBLE THE ABOVE LISTED APPLICATION RATE. NOTE THAT IF SEEDING IS NECESSARY, MULCH WILL NEED TO BE REMOVED AND THE AREA SEEDED AND MULCHED IN THE SPRING.
    1.E. MAINTENANCE
      1.E.1. INSPECT PERIODICALLY AND AFTER RAIN STORMS FOR RILLS OR DISPLACEMENT OF MULCH. REPAIR AS NECESSARY. CONTINUE INSPECTIONS UNTIL 85% VEGETATIVE COVER IS ESTABLISHED.
  2. EROSION CONTROL BLANKET OR MATTING
    2.A. REFER TO PLANS FOR TYPICAL EROSION CONTROL MATTING DETAIL. INSTALL PER MANUFACTURERS SPECIFICATIONS.
    2.B. APPLICATION AND TIMING
      2.B.1. DURING THE GROWING SEASON (APRIL 15 - SEPTEMBER 15) USE ON THE BASE OF GRASSED WATERWAYS, STEEP SLOPES (15% OR GREATER), ANY DISTURBED SOIL WITHIN 100 FEET OF LAKES, STREAMS, AND WETLANDS.
      2.B.2. DURING THE LATE FALL AND WINTER (SEPTEMBER 15 - APRIL 15) IN ADDITION TO THOSE LISTED ABOVE USE ON SIDE SLOPES OF GRASSED WATERWAYS AND MODERATE SLOPES (GREATER THAN 8%).
  3. MAINTENANCE
    3.A. INSPECT PERIODICALLY AND BEFORE AND AFTER STORM EVENTS TO ENSURE CONTACT WITH THE SOIL UNTIL 85% VEGETATIVE COVER IS ESTABLISHED. REPAIR AND RESTAPLE AS NECESSARY.
C. PERMANENT MULCHING
  1. WOOD CHIPS OR GROUND BARK
    1.A. APPLY TO A THICKNESS OF 2 TO 6 INCHES. APPLICATION RATES ARE 10-20 TONS/ACRE OR 460-920 POUNDS/1,000 SF.
    1.B. MAINTENANCE: INSPECT ANNUALLY AND AFTER RAIN EVENTS OF 2.5 INCHES OR MORE IN A 24 HOUR PERIOD. REPAIR/REPLACE AS NECESSARY.
  2. EROSION CONTROL MIX
    2.A. SHALL BE PLACED AT A THICKNESS OF 2 INCHES OR MORE FOR MULCHING.
    2.B. COMPOSITION OF THE MIX SHALL BE AS FOLLOWS:
      2.B.1. ORGANIC MATTER CONTENT SHALL BE BETWEEN 25-65% DRY WEIGHT BASIS.
      2.B.2. PARTICLE SIZE BY WEIGHT SHOULD BE 100% PASSING THE 3" SCREEN, 90-100% PASSING THE 1" SCREEN, 70-100% PASSING THE 0.75 INCH SCREEN, AND 30-75% PASSING THE 0.25 INCH SCREEN.
      2.B.3. THE ORGANIC PORTION SHALL BE ELONGATED AND FIBROUS SUCH AS FROM SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR EQUIVALENT MANUFACTURED PRODUCTS. IT SHALL NOT CONTAIN WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS.
      2.B.4. THE MIX SHALL NOT CONTAIN SILTS, CLAYS, OR FINE SANDS.
      2.B.5. SOLUBLE SALTS CONTENT SHALL BE < 4.0MMHOS/CM AND A pH OF 5.0-8.0,
    2.C. PLACEMENT OF BERM
      2.C.1. PLACE BERM ALONG A LEVEL CONTOUR. BERM MUST BE A MINIMUM OF 12" HIGH ON THE UPHILL SIDE AND 2 FEET WIDE. UPSLOPE AREA MUST HAVE A SLOPE OF LESS THAN 5%.
    2.D. MAINTENANCE: INSPECT PERIODICALLY AND AUGMENT AS NEEDED TO MAINTAIN INITIAL THICKNESS. REPLACE IF NO LONGER FUNCTIONING AS INTENDED.

TYPICAL PAVED PARKING LOT CROSS SECTION

N.T.S

NOTE:
1. LOAM SHALL BE REMOVED TO A MINIMUM DEPTH OF 15" PRIOR TO PLACING SELECT MATERIALS.
2. PROVIDE 1 FOOT GRAVEL SHOULDER ALONG LIMITS OF PARKING AREA.

SOIL STOCKPILES

A. GENERAL
1. STOCKPILES MUST BE LOCATED 50 FEET FROM DITCHES AND CULVERT INLETS.
B. PROTECTION OF STOCKPILES
1. PROTECT SOIL AND AGGREGATE STOCKPILES WITH TEMPORARY PERIMETER SEDIMENT BARRIER SUCH AS SILT FENCE OR SILT SOCK.
2. COVER ACTIVE STOCKPILES WITH ANCHORED PROTECTIVE COVERING PRIOR TO EXPECTED STORM EVENTS.
3. INACTIVE STOCKPILES SHALL BE COVERED WITH ANCHORED TARPS OR TEMPORARILY SEEDED AND MULCHED PER THE TEMPORARY VEGETATION AND MULCHING NOTES ON THIS PAGE.
4. STOCKPILES THAT ARE A SOURCE OF DUST SHALL BE COVERED.

DUST CONTROL

A. DUST SHALL BE CONTROLLED ON SITE DURING CONSTRUCTION BY IMPLEMENTING THE FOLLOWING DUST CONTROL MEASURES
1. MULCHING AND VEGETATIVE COVER TO REDUCE DUST.
2. MECHANICAL SWEEPERS AND FINE WATER SPRAYS.
3. COVER SURFACES WITH CRUSHED STONE OR COARSE GRAVEL.

SEED MIXTURE SELECTION BASED ON SOIL TYPE

		SOIL DRAINAGE		
USE	SEEDING MIXTURE	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A B C D	FAIR POOR POOR FAIR	GOOD GOOD GOOD EXCELLENT	GOOD FAIR EXCELLENT EXCELLENT
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A C	GOOD GOOD	GOOD EXCELLENT	GOOD EXCELLENT
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A B C	GOOD GOOD GOOD	GOOD GOOD EXCELLENT	GOOD FAIR EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E F	FAIR FAIR	EXCELLENT EXCELLENT	EXCELLENT EXCELLENT

NOTE: POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREAS AND ATHLETIC FIELDS.

SEED MIXTURES FOR PERMANENT VEGETATION

MIXTURE	SPECIES	POUNDS PER ACRE	POUNDS PER 1,000 SF
A	TALL FESCUE CREEPING RED FESCUE REDTOP *TOTAL*	20 20 2 *42*	0.45 0.45 0.05 *0.95*
B	TALL FESCUE CREEPING RED FESCUE CROWN VETCH OR FLATPEA *TOTAL*	15 10 15 - 30 *40 OR 55*	0.35 0.25 0.35 - 0.75 *0.95 OR 1.35*
☐C	TALL FESCUE CREEPING RED FESCUE BIRDSFOOT TREFOIL *TOTAL*	20 20 8 *48*	0.45 0.45 0.20 *1.10*
D	TALL FESCUE FLATPEA *TOTAL*	20 30 *50*	0.45 0.75 *1.20*
E	CREPPING RED FESCUE KENTUCKY BLUEGRASS *TOTAL*	50 50 *100*	1.15 1.15 *2.30*
F	TALL FESCUE	*150*	*3.60*

Filtrexx®SiltSoxx™ Section

®SiltSoxx™
Plan View

Notes:
1. All material to meet Filtrexx® specifications.
2. Use Certified Filtrexx FilterMedia.
3. Compost material to be dispersed on site up slope from protected area.

SILTSOXX DETAIL

N.T.S.

CONSTRUCTION SEQUENCING:

1. SCHEDULE A PRE-CONSTRUCTION MEETING WITH CITY OFFICIALS, OWNER, AND CONTRACTORS IF REQUIRED BY THE CONDITIONS OF APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
2. CONTACT DIG-SAFE, INDIVIDUAL UTILITIES, AND CITY DEPARTMENTS TO GET ALL UTILITIES MARKED PRIOR TO START OF CONSTRUCTION.
3. INSTALL AND STABILIZE ALL TEMPORARY AND PERMANENT SEDIMENT AND EROSION CONTROLS.
   A. SEDIMENT AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
4. CLEAR/GRUB ONLY WITHIN THE LIMITS OF GRADING AS SHOWN ON THE PLANS. REMOVE ORGANICS ONLY FROM THOSE AREAS THAT CAN BE WORKED AND STABILIZED WITHIN 45 DAYS OF REMOVAL.
5. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
6. TOTAL SITE DISTURBANCE DEPICTED ON THESE PLANS IS 13,600 S.F.
   A. REFER TO VEGETATION AND EROSION CONTROL NOTES ON THIS PLAN DURING CONSTRUCTION.
7. CLEAR/GRUB
   A. STUMPS MAY BE DISPOSED OFF-SITE IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS.
8. STOCKPILES
   A. STOCKPILE LOAM FOR RE-USE AS NEEDED.
   B. TEMPORARILY STABILIZE LOAM STOCKPILES WITH:
      1. WINTER RYE GRASS- PRIOR TO SEPTEMBER 15TH
      2. MULCH- FROM SEPTEMBER 15TH TO MAY 1ST
9. CONSTRUCT AND STABILIZE ALL TEMPORARY AND PERMANENT SEDIMENT AND EROSION CONTROLS. CONSTRUCT SWALES AND SEDIMENT FOREBAY AND STABILIZE. SEDIMENT FOREBAY SHALL BE USED AS A SEDIMENT TRAP WITH SPILLWAY OUTLET TO THE UNDISTURBED AREA DOWNSLOPE.
   A. THESE SHALL BE INSTALLED BEFORE ANY MAJOR EARTH MOVING OPERATIONS.
10. THE BIORETENTION SYSTEM ALLOWS INFILTRATION OF RUNOFF. DO NOT CONSTRUCT THE BIORETENTION SYSTEM UNTIL ALL UPSLOPE AREAS ARE STABILIZED. UNSTABILIZED AREAS THAT DRAIN TO THE BIORETENTION SYSTEM WILL DECREASE THE INFILTRATION CAPACITY OF THE UNDERLYING SOILS.
11. PARKING LOT CONSTRUCTION
   A. CUTS AND FILLS:
      1. CONSTRUCT IN LOCATIONS AND TO GRADES AS SHOWN ON THE PLANS.
      2. FILLS:
         A. PLACE MAXIMUM 12" LIFTS AND COMPACT TO 95% MAXIMUM DRY DENSITY.
         B. ALL MATERIAL BASED ON PROCTOR TEST SHALL BE FREE OF DELETERIOUS MATERIALS SUCH AS LOAM, STUMPS, BRUSH, AND ROCKS LARGER THAN 3/4 THE DEPTH OF THE LIFT BEING PLACED.
      3. LOAM AND SEED SLOPES WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
   C. BASE MATERIALS: BANK RUN AND CRUSHED GRAVEL SHALL BE PLACED IN 6" LIFTS AND COMPACTED TO 95% MAXIMUM DRY DENSITY TO THE DEPTHS SPECIFIED IN THE PARKING LOTS CROSS-SECTION DETAILS.
   D. STABILIZE ALL PARKING AREAS WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
   E. PAVEMENT
      1. PLACE AS SOON AS POSSIBLE AFTER THE SELECT MATERIALS ARE INSTALLED AND ACCEPTED TO ELIMINATE SOIL EROSION.
12. CONSTRUCT BIORETENTION SYSTEM AFTER UP SLOPE AREAS ARE STABILIZED.
13. INSPECT, MAINTAIN, AND IF NECESSARY, REPAIR ALL EROSION AND SEDIMENT CONTROL MEASURES AS STATED IN EROSION CONTROL NOTES ON THIS SHEET.
14. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES ONCE INITIAL GROWTH IS ESTABLISHED.

ADDITIONAL NOTES:

1. NO FUEL SHALL BE STORED ON SITE DURING CONSTRUCTION.
2. DURING CONSTRUCTION DUST SHALL BE PREVENTED FROM BECOMING A SAFETY OR HEALTH HAZARD BY THE IMPLEMENTATION OF ACCEPTED CONTROL METHODS SUCH AS WATERING.
3. ALL CONSTRUCTION MATERIALS THAT ARE SPILLED OR DEPOSITED ON THE PUBLIC ROADWAYS SHALL BE REMOVED BY THE CONTRACTOR.
4. DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE, AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
5. THE GENERAL CONTRACTOR IS RESPONSIBLE TO VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE SITE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.
6. NO CONSTRUCTION VEHICLES SHALL USE MAIN ST. ENTRANCE

TYPICAL PAVEMENT CROSS SECTION & SAWCUT DETAIL

SCALE: N.T.S.

TYPICAL BIKE RACK DETAIL

N.T.S

NOTE:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
2. ALL STEEL MEMBERS SHALL BE COATED W/ ZINC RICH EPOXY THEN FINISHED W/ POLYESTER POWDER COATING.
3. PIPE: ASTM A53 GRADE B STANDARD WEIGHT STEEL PIPE
4. PLATE: ASTM 136 ⅜ INCH THICK PLATE WITH THREE ¾ INCH DIA. HOLES AT 120 DEGREE SPACING.
5. BOLT: DRIVE TYPE ANCHOR BOLT MADE OF ZINC PLATED AISI 1038 HEAT TREATED CARBON STEEL, ½ INCH DIA. BY 3 INCHES LONG.
6. CONCRETE STRENGTH TO BE 3,000 PSI AT 28 DAYS.

NO.	REVISIONS	DATE	INT.
0	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	10/5/18	EHK

SEAL
MICHAEL J. SEVERT No. 8387

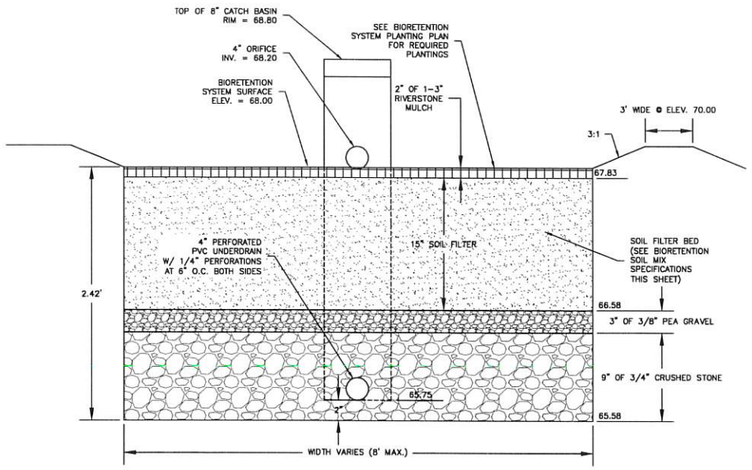
DATE: 10/5/18
SCALE: AS SHOWN
DESIGNED BY: EHK
DRAWN BY: EHK
APPROVED BY: MJS
DWG FILE:
18-040 C1 D.dwg

CONSTRUCTION DETAILS
prepared for
TOOMERFS, LLC
TAX MAP 4, LOTS 38-5 AND 55
18 MAIN ST AND 12 COWELL DR. DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 18-040

D1



BIORETENTION SYSTEM CROSS SECTION

N.T.S

CONSTRUCTION NOTES:

1. DO NOT PLACE BIORETENTION SYSTEM INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. TO PREVENT DEGRADATION OF INFILTRATION FUNCTION: DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO THE BIORETENTION SYSTEM DURING ANY STAGE OF CONSTRUCTION. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
3. CLEAR AND GRUB THE AREA WHERE THE BIORETENTION SYSTEM IS TO BE LOCATED. STOCKPILE LOAM FOR REUSE LATER.
4. THE FOUNDATION AREA SHALL BE SCARIFIED PRIOR TO PLACING FILL. ALL UNSUITABLE MATERIAL UNDER THE BERM SHALL BE REMOVED AND REPLACED WITH SUITABLE FOUNDATION MATERIAL.
5. THE BERM SHALL BE CONSTRUCTED BEGINNING FROM THE LOWEST POINT UNIFORMLY ALONG ITS ENTIRE LENGTH. PLACE MATERIALS IN MAXIMUM 12" LOOSE LIFTS COMPACTED TO 95% MAXIMUM MODIFIED PROCTOR DENSITY. EMBANKMENT SOIL SHALL HAVE NO ORGANIC MATTER OR FROZEN MATERIAL AND NO STONES LARGER THAN 2/3 OF THE MAXIMUM LOOSE LIFT THICKNESS. STONES AROUND ANY STRUCTURES AND/OR CONDUITS SHALL NOT EXCEED 3 INCHES. EMBANKMENT FILL MATERIAL SHALL HAVE THE FOLLOWING GRADATION:

SIEVE SIZE:	% PASSING:
#4	80-90
#40	50-80
#100	30-45
#200	15-30

6. ALL PIPE TO PIPE CONNECTIONS SHALL BE WATER-TIGHT.
7. ALL DISTURBED AREAS NOT OTHERWISE LANDSCAPED SHALL RECEIVE FOUR INCHES OF LOAM AND SEED.

GENERAL MAINTENANCE:

1. THE BIORETENTION BASIN SHALL BE INSPECTED TWCE EACH YEAR WITH PREVENTATIVE MAINTENANCE PROVIDED.
2. SYSTEMS SHALL BE INSPECTED ANNUALLY AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
3. TRASH AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION.
4. AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
5. VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

PLANTING REQUIREMENTS

1. THE BIORETENTION BASIN AND SEDIMENT FOREBAY BERM, BOTTOM AND INTERIOR SIDE SLOPES SHALL BE PLANTED WITH A 50:50 MIX OF NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES AND NEW ENGLAND CONSERVATION/WILDLIFE MIX AT 1,500 SF/LB AVAILABLE FROM:

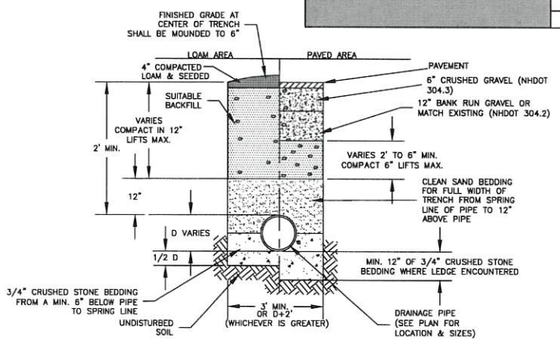
NEW ENGLAND WETLAND PLANTS. INC.
820 WEST AMHERST STREET
AMHERST, MA 01002

BIORETENTION SYSTEM GENERAL NOTES:

1. BIORETENTION SYSTEM FILTER SOIL MIX SHALL MEET THE FOLLOWNG REQUIREMENTS OF FILTER MEDIA OPTION A OR OPTION B.

BIORETENTION SYSTEM SOIL MIX SPECIFICATIONS			
		GRADATION OF MATERIAL	
COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	SIEVE NO.	% BY WEIGHT PASSING STANDARD SIEVE
FILTER MEDIA OPTION A			
ASTM C-33 CONCRETE SAND	50 TO 55		
LOAMY SAND TOPSOIL, WITH FINES AS INDICATED	20 TO 30	200	15 TO 25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	< 5
FILTER MEDIA OPTION B			
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	< 5
LOAMY COARSE SAND	70 TO 80	10	85 TO 100
		20	70 TO 100
		60	15 TO 40
		200	8 TO 15

FINAL APPROVAL BY DURHAM PLANNING BOARD.
CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER
CERTIFIED _____
DATE _____

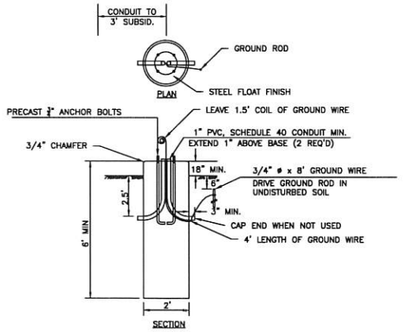


STANDARD DRAINAGE PIPE TRENCH

N.T.S

LITHONIA DSX0-LED POLE MOUNTED LIGHT FIXTURE

N.T.S.



CONCRETE LIGHT POLE BASE

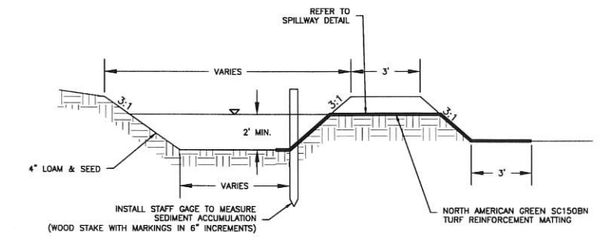
N.T.S

POLE MOUNTED LIGHTING SPECIFICATIONS:

1. ALL SITE WORK SHALL CONFORM TO TOWN OF DURHAM STANDARDS AND LOCAL AUTHORITIES HAVING JURISDICTION.
2. ALL MATERIAL WORKMANSHIP SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING STANDARDS, NEW HAMPSHIRE ELECTRIC CODE, FIRE PROTECTION ASSOCIATION, NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION.
3. ALL EXTERIOR CONDUITS FOR LIGHTING SHALL BE 1" MIN. DIAMETER PVC SCHEDULE 40. ALL ELBOWS SHALL BE SCHEDULE 40. ALL CONDUITS UNDER ROADWAYS AND PARKING AREAS SHALL HAVE MINIMUM COVER OF THREE (3) FEET.
4. ALL UNDERGROUND CONDUITS WILL HAVE NYLON PULL ROPE TO FACILITATE PULLING IN CABLES.
5. ALL EQUIPMENT TO BE LITHONIA LIGHTING - MR2-LED SERIES.
6. LUMINARIES SHALL BE LITHONIA LIGHTING - MR2-LED SERIES,
7. ALL EXTERIOR CONDUITS SHALL BE PROVIDED WITH 6" WIDE, METALIZED CONTINUOUS WARNING TAPE.
8. POLES SHALL BE LITHONIA LIGHTIN OR EQUAL.
9. PROVIDE FUSING ON ALL LUMINARIES. FUSES TO BE LOCATED AT POLE HANDHOLE. ALL LUMINARIES 277 VOLT.
10. GROUND ALL POLES. PROVIDE 3/4" X 8'-0" GROUND ROD AT EACH POLE WITH #6 AWG COPPER GROUND CONNECTION.
11. PROVIDE SHIMS AS REQUIRED AND SET ALL POLES PLUMB. PROVIDE FULL ANCHOR BOLT COVERS.
12. ALL NO. 8 WIRE AND LARGER SHALL BE TYPE THHN COPPER. NO. 8 WIRE AND SMALLER SHALL BE THWN COPPER.
13. MOUNTING HEIGHT SHALL BE 17'±.
14. USE MR2 LED 60C LEDS, WITH DRIVE CURRENT OF 700 mA DISTANCE TYPE T3M.

GENERAL LIGHTING NOTES:

1. LIGHTING SUPPLIER: VISIBLE LIGHT, INC. (603) 926-6049.
2. OWNER MAY ELECT TO USE ALTERNATIVE LIGHT FIXTURES IF FIRST APPROVED BY DESIGNER AND TOWN.
3. SITE LIGHTING WILL BE LOCATED AS SHOWN ON THE SITE PLAN.
4. ALL NON-ESSENTIAL LIGHTING WILL BE REQUIRED TO BE TURNED OFF AFTER BUSINESS HOURS, LEAVING ONLY THE NECESSARY LIGHTING FOR SECURITY.
5. ALL LIGHTING FOR SECURITY OR AESTHETICS WILL BE FULL CUT-OFF OR A SHIELDED TYPE, NOT ALLOWING ANY UPWARD DISTRIBUTION OF LIGHT.
6. PRECAST CONCRETE POLE BASE SHEA CONCRETE OR EQUAL.

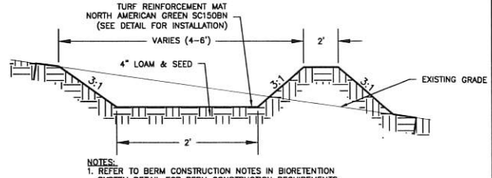


SEDIMENT FOREBAY TYPICAL CROSS SECTION DETAIL

N.T.S.

NOTES:

1. REFER TO BERM CONSTRUCTION NOTES IN BIORETENTION SYSTEM DETAIL FOR BERM CONSTRUCTION REQUIREMENTS.
2. REFER TO SPILLWAY CROSS SECTION DETAIL FOR SPILLWAY CONSTRUCTION REQUIREMENTS.
3. THE SEDIMENT FOREBAY SHALL BE MOWED WITH THE REST OF THE SITES LAWN AREAS TO PROMOTE HEALTHY GROWTH AND PREVENT THE ENCROACHMENT OF WEEDS AND WOODY VEGETATION.
4. INSTALL STAFF GAGE TO MEASURE SEDIMENT ACCUMULATION. SEDIMENT SHALL BE REMOVED AFTER SEDIMENT ACCUMULATES TO A DEPTH OF 1 FOOT.

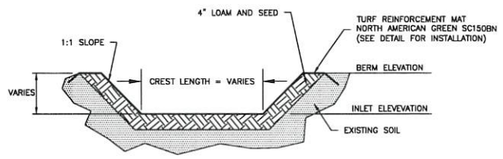


NOTES:

1. REFER TO BERM CONSTRUCTION NOTES IN BIORETENTION SYSTEM DETAIL FOR BERM CONSTRUCTION REQUIREMENTS.
2. THE SWALE SHALL BE MOWED WITH THE REST OF THE SITES LAWN AREAS TO PROMOTE HEALTHY GROWTH AND PREVENT THE ENCROACHMENT OF WEEDS AND WOODY VEGETATION. DO NOT MOW GRASS IN SWALE TOO SHORT. THIS WILL REDUCE THE SWALES FILTERING ABILITY.
3. THE SWALE SHOULD BE FERTILIZED ON AN AS NECESSARY BASIS, TO KEEP THE GRASS HEALTHY.
4. REFER TO THE STORMWATER MANAGEMENT PLAN FOR ADDITIONAL INSPECTION AND MAINTENANCE REQUIREMENTS.

VEGETATED SWALE DETAIL

N.T.S



NOTES: CREST BREADTH IS WIDTH OF BERM AT SPILLWAY.

BIORETENTION SYSTEM SPILLWAY CROSS SECTION

NOT TO SCALE

NOTE: SPILLWAY TO BE CONSTRUCTED TO THE DIMENSIONS AND SPECIFICATIONS SHOWN.

SPILLWAY DIMENSION TABLE

LOCATION	CREST ELEV.	BERM ELEV.	LENGTH*	WIDTH*
SPILLWAY #1 - SEDIMENT FOREBAY	69.15	70.00	6'	9'
SPILLWAY #2 - BIORETENTION SYSTEM	68.60	70.00	5'	11'

*REFER TO DETAIL ABOVE FOR LOCATION OF WIDTH AND LENGTH

NO.	DATE	INT.
6	10/5/18	EHK

REVISIONS

6 INITIAL SUBMISSION TO DURHAM PLANNING BOARD

SEAL: MICHAEL BEHRENDT No. 8387 LICENSED PROFESSIONAL ENGINEER NEW HAMPSHIRE

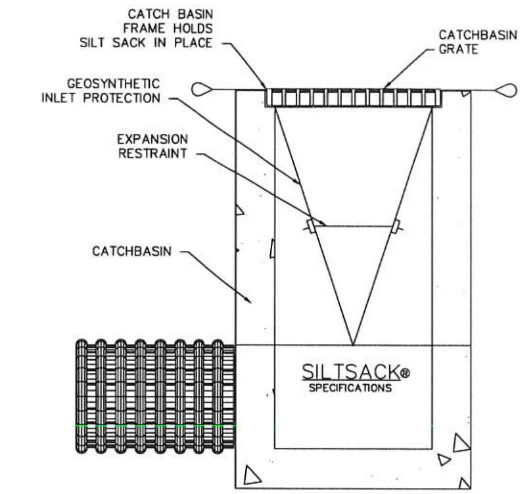
DATE: 10/5/18
SCALE: 1"=20'
DESIGNED BY: EHK
DRAWN BY: EHK
APPROVED BY: MJS
DWG FILE: 18-040 C1 D.dwg

CONSTRUCTION DETAILS
prepared for
TOOMERFS, LLC
TAX MAP 4, LOTS 38-5 AND 55
18 MAIN ST AND 12 COWELL DR. DURHAM, NH

ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 Railroad St., P.O. Box 359
Newmarket, NH 03857
Phone: (603) 659-4079 Fax: (603) 659-4627
Email: mjs@mjsengineering.com

JOB: 18-040

D2



REGULAR FLOW SILTSACK®

(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

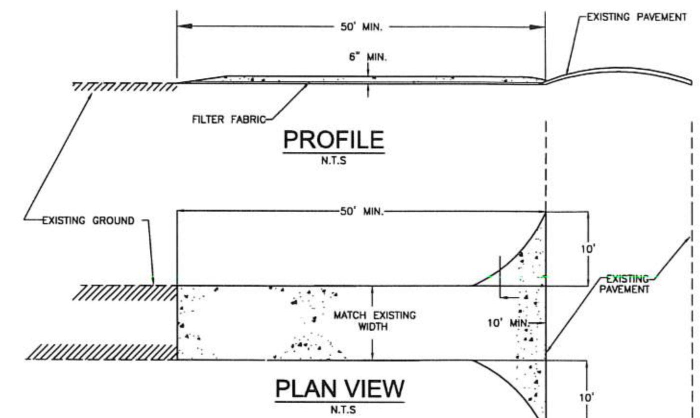
NOTES:

1. GEOSYNTHETIC SEDIMENT FILTER TRAP SHALL BE 'REGULAR FLOW SILTSACK®' OR APPROVED EQUAL. SPECIFICATIONS FOR SILTSACK® ARE DETAILED.

2. FILTER TRAPS SHALL BE INSPECTED AFTER EVERY RAIN EVENT OF 0.25" OR GREATER AND SEDIMENTS SHALL BE REMOVED FROM TRAP WHEN SEDIMENT HAS REACHED TWO THIRDS OF THE DEPTH OF THE TRAP, OR IF PONDING OF WATER AT SURFACE BEGINS TO OCCUR. DO NOT PUNCTURE FILTER TRAP TO MITIGATE PONDING.

CATCH BASIN GEOSYNTHETIC SEDIMENT TRAP

N.T.S.



STABILIZED CONSTRUCTION ENTRANCE DETAIL

N.T.S

STABILIZED CONSTRUCTION ENTRANCE NOTES:

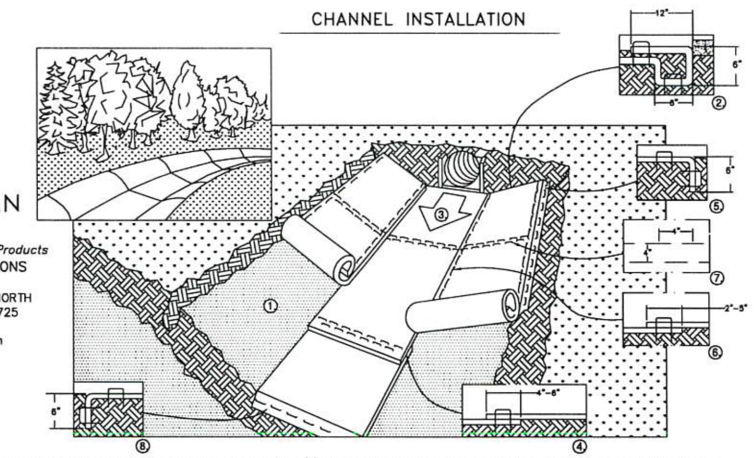
1. GRADE AND COMPACT ACCESS ROAD ENTRANCE AS NECESSARY. PLACE FILTER FABRIC (MIRAFI 140N OR EQUAL) AND PLACE 6" OF 3" STONE TO MATCH SLOPE OF EXISTING ROAD.
2. PROVIDE NECESSARY SWALES OR DIVERSIONS TO MINIMIZE DIRECT FLOW OF WATER ONTO STONE AREA.
3. CONSTRUCTION ENTRANCE SHALL BE MAINTAINED AS NECESSARY TO REMOVE SILT FROM TIRES PRIOR TO ENTERING PUBLIC ROADS. A SMALL SWALE SHALL BE CONSTRUCTED ON THE DOWN GRADIENT SIDE TO TRAP ANY SILT WASHED FROM THE STONE ENTRANCE.

NORTH AMERICAN GREEN

EROSION CONTROL *Products*
Guaranteed SOLUTIONS

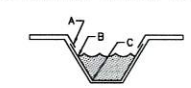
14649 HIGHWAY 41 NORTH
EVANSVILLE, IN 47725
800-772-2040
www.nagreen.com

CHANNEL INSTALLATION



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) ACROSS THE WIDTH OF THE RECP's.
3. ROLL CENTER RECP's IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE RECP's END OVER END (SHINGLE STYLE) WITH A 4" - 6" (10 CM -15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER TO SECURE RECP's.
5. FULL LENGTH EDGE OF RECP's AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECP's MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (5 CM -12.5 CM) (DEPENDING ON RECP's TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M - 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECP's MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

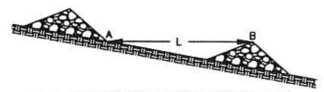
NOTE:
* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.



CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

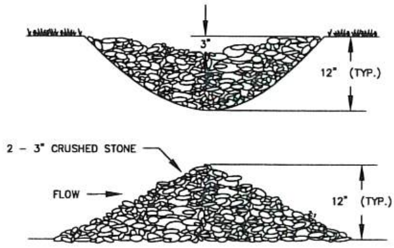
** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE REQUIRED.



L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION.

STONE CHECK DAM PROFILE VIEW

N.T.S

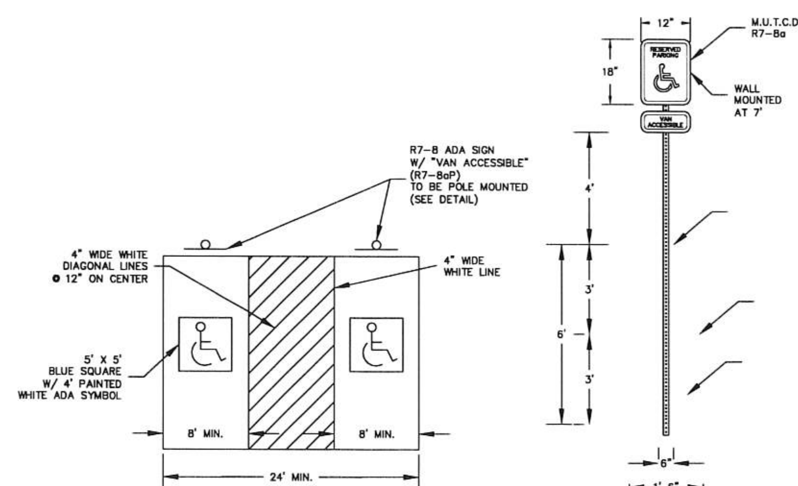


STONE CHECK DAM

N.T.S

CONSTRUCTION SPECIFICATIONS:
1. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION, AIR AND WATER POLLUTION WILL BE MINIMIZED.
5. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.

MAINTENANCE NOTES:
1. TEMPORARY GRADE STABILIZATION STRUCTURES SHOULD BE INSPECTED AFTER EACH STORM AND DAILY DURING PROLONGED STORM EVENTS. ANY DAMAGE TO THE STRUCTURES SHALL BE REPAIRED IMMEDIATELY.
2. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE.
3. WHEN REMOVING THE STRUCTURES, THE DISTURBED AREAS SHALL BE BROUGHT UP TO EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED AND MULCHED.
4. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT REACHES 1/2 THE ORIGINAL HEIGHT OF THE STRUCTURE.



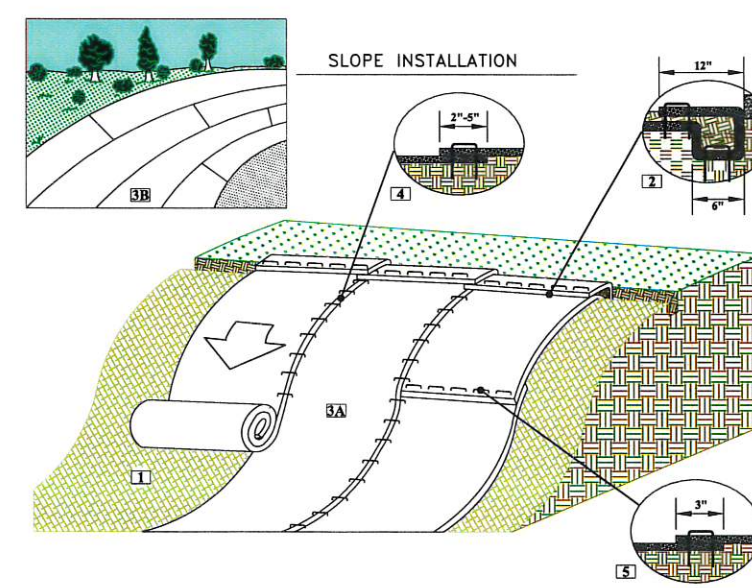
TYP. ADA STRIPING AND SIGN DETAIL

N.T.S

PAVEMENT MARKINGS:

1. STRIPE PARKING AREAS AND DRIVES AS SHOWN, INCLUDING PARKING SPACES, HANDICAP SYMBOLS, AND PAINTED ISLANDS. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) AND AASHTO M248 TYPE "F". MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT.
2. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE LATEST EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE "STANDARD ALPHABETS FOR HIGHWAY SIGN AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.
3. PAINTED ISLANDS SHALL BE 4 INCH WIDE DIAGONAL LINES SPACED AT 3 FT. O.C. BORDERED BY 4 INCH WIDE LINES.

SLOPE INSTALLATION



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6"(15CM) DEEP X 6"(15CM) WIDE TRENCH WITH APPROXIMATELY 12" (30CM) OF RECPS EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12"(30CM) PORTION OF RECPS BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12"(30CM) APART ACROSS THE WIDTH OF THE RECPS.
3. ROLL THE RECPS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. THE EDGES OF PARALLEL RECPS MUST BE STAPLED WITH APPROXIMATELY 2" - 5" (5-12.5CM) OVERLAP DEPENDING ON THE RECPS TYPE.
5. CONSECUTIVE RECPS SPLICED DOWN THE SLOPE MUST BE END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3"(7.5CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12"(30CM) APART ACROSS ENTIRE RECPS WIDTH.

TYPICAL TURF REINFORCEMENT MATTING DETAIL

N.T.S

NOTES:
1. BIORETENTION SYSTEM SPILLWAYS TO BE LINED WITH NORTH AMERICAN GREEN SC150BN EROSION CONTROL BLANKET OR APPROVED EQUAL.
2. FOR SALES CONTACT:
   EJ PRESCOTT, INC.
   210 SHEEP DAVIS RD.
   CONCORD, NH
   603-224-9545

NO.	REVISIONS	DATE	INT.
0	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	10/5/18	EHK

SEAL: STATE OF NEW HAMPSHIRE · MICHAEL J. SEVERT No. 8387 · LICENSED PROFESSIONAL ENGINEER

DATE: 10/5/18
SCALE: 1"=20'
DESIGNED BY: EHK
DRAWN BY: EHK
APPROVED BY: MJS
DWG FILE: 18-040 C1 D.dwg

CONSTRUCTION DETAILS
prepared for
TOOMERFS, LLC

TAX MAP 4, LOTS 38-5 AND 55
18 MAIN ST AND 12 COWELL DR. DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 18-040

D3

Drawing Name: P:\18pro\18-040\Internal\Drawing Files\18-040 C1 D.dwg
Fri, 05 Oct 2018 - 11:05am