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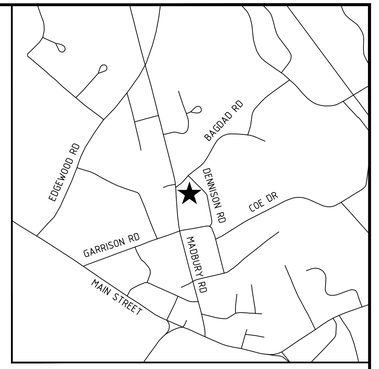
SITE PLAN

for

BW2 LLC
C/O HOUSING INTIATIVES OF NEW ENGLAND

38 BAGDAD ROAD
DURHAM, NH

JUNE 3, 2020
REVISED OCTOBER 29, 2020



LOCUS MAP
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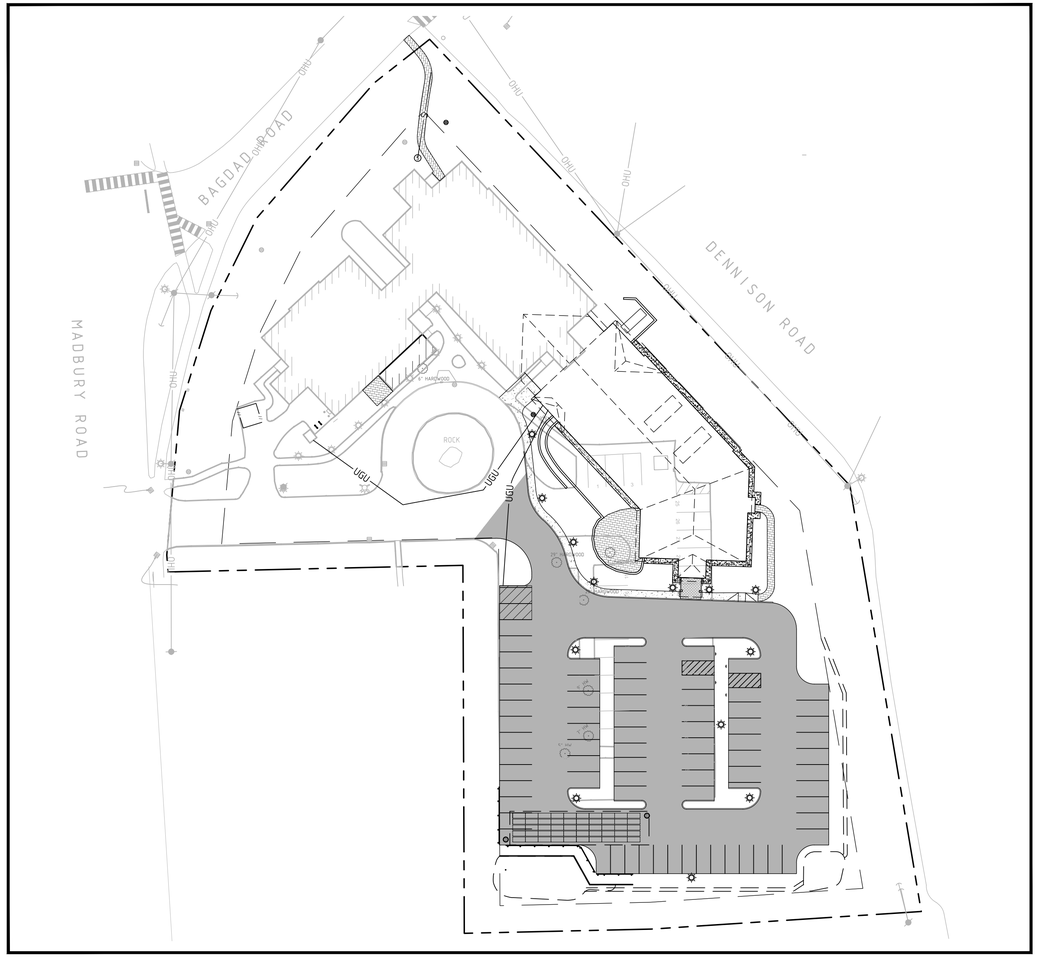


LEGEND

- PROPERTY LINES
- ABUTTER PROPERTY LINES
- SETBACK LINES
- SD — STORM SEWER PIPING
- W — DOMESTIC WATER PIPING
- OHU — OVERHEAD ELECTRICAL UTILITY LINES
- UGU — UNDERGROUND ELECTRICAL UTILITY LINES
- G — NATURAL GAS PIPING
- S — SANITARY SEWER PIPE
- FIRE HYDRANT
- UTILITY POLE
- SEWER MANHOLE
- LIGHTS

TABLE OF CONTENTS

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

OWNER

BW2 LLC
C/O HOUSING INITIATIVES OF NE CORP.
264 US ROUTE 1
BUILDING 300, SUITE 2A
SCARBOROUGH, ME 04074

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

ARCHITECT

LASSEL ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME
(207) 384-2049

LANDSCAPE ARCHITECT

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

SURVEYOR

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

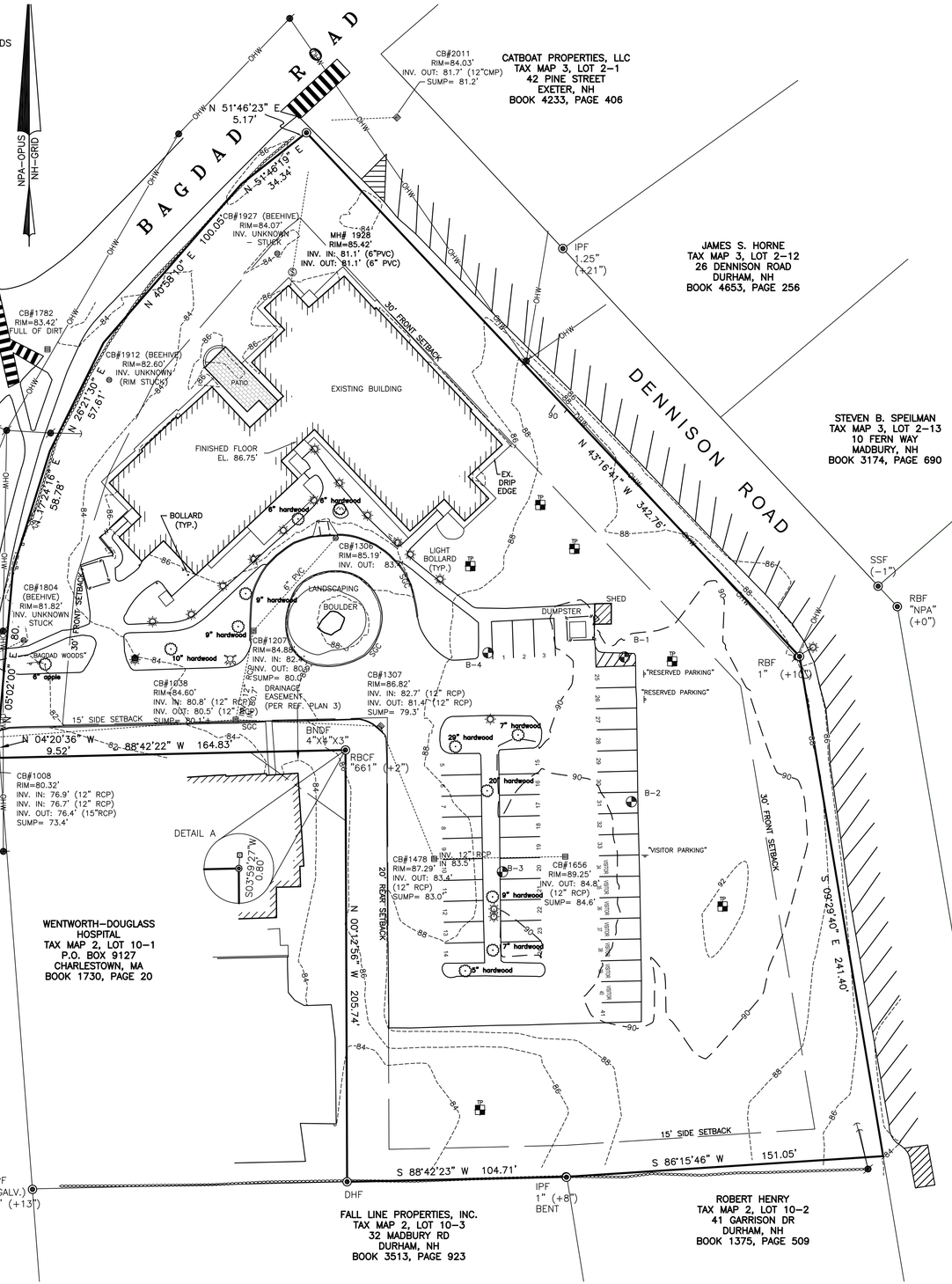
NO.	REVISIONS	DATE	INT.
2.	REVISIONS FOR BID SET	9/21/20	MJS
1.	RESUBMISSION	07/09/20	MJS
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	06/03/20	MJS

RESERVED REGISTRY OF DEEDS

LEGEND	EXISTING
◉	MONUMENT
▫	BOUND
⊸	UTILITY POLE
▤	CATCH BASIN
⊜	CATCH BASIN
∩	CATCH BASIN
Ⓓ	DRAIN MANHOLE
Ⓢ	SEWER MANHOLE
⋇	FIRE HYDRANT
WV	WATER SHUTOFF
WG	WATER GATE VALVE
⊸	SIGN
TP	TEST PIT
N 89°56'30" E 425.61'	PROPERTY LINE
	SETBACK LINE
D	DRAIN LINE
W	WATER LINE
S	SEWER LINE
G	GAS LINE
UE	UNDERGROUND ELECTRIC
OHW	OVERHEAD WIRES
// //	FENCE
	STONEWALL
	EDGE OF PAVEMENT

ABBREVIATION LEGEND:
DHF – DRILL HOLE FOUND
IPF – IRON PIPE FOUND
IPS – IRON PIPE SET
RBF – REBAR FOUND
RBS – REBAR SET
SSF – STEEL STAKE FOUND
BND FND – BOUND FOUND
(+2") – DENOTES HEIGHT OF MONUMENT
SCRD – STRAFFORD COUNTY REGISTRY OF DEEDS

MONUMENT INSCRIPTION ABBREVIATIONS:
"NPA" – NORWAY PLAINS ASSOCIATES, INC.
TBS – TO BE SET

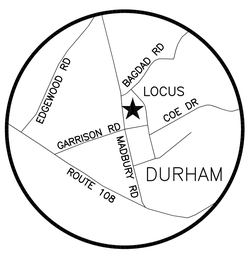


NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS OF THE PARCEL DESCRIBED IN STRAFFORD COUNTY REGISTRY OF DEEDS, BOOK 1783, PAGE 539.
2. PARCEL AREA: 119,138 SQ. FT. / 2.74 ACRES
3. TAX MAP INFORMATION:
   TOWN OF DURHAM TAX MAP 2, LOT 10–4.
4. THE SURVEYED PARCEL LIES WITHIN THE TOWN OF DURHAM PROFESSIONAL OFFICE (PO) DISTRICT. MINIMUM BUILDING SETBACKS ARE AS FOLLOWS:
   FRONT YARD = 30 FT (50 FT FROM ARTERIAL STREET)
   SIDE YARD = 15 FT
   REAR YARD = 20 FT
   MAX. BLD. HEIGHT = 30 FT (35 FT BY CONDITIONAL USE)
   MAX. IMPERVIOUS RATIO = 50%
5. THE SURVEYED PARCEL IS LOCATED WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE FEMA FLOOD INSURANCE RATE MAP (FIRM), MAP NO. 33017C0318E, MAP REVISED SEPTEMBER 30, 2015.
6. BEARINGS SHOWN ON THIS PLAN ARE BASED ON GRID NORTH, NEW HAMPSHIRE STATE PLANE, NAD83. ELEVATIONS AND CONTOURS ARE BASED ON NAVD88(GEOID12B), BASED ON GPS OBSERVATIONS TAKEN JANUARY 31, 2020. DISTANCES SHOWN ARE GROUND DISTANCES.
7. THE LOCATION SHOWN ON THIS PLAN FOR ABOVE AND UNDERGROUND UTILITIES ARE APPROXIMATE AND MUST BE VERIFIED BEFORE ANY EXCAVATION. FEDERAL AND STATE LAW REQUIRES ANYONE PERFORMING ANY SORT OF EXCAVATION, INCLUDING DIGGING, BACKFILLING, BORING, AND GRADING TO NOTIFY DIG–SAFE (1–888–344–7233) AT LEAST 72 HOURS BEFORE BEGINNING WORK.

REFERENCE PLANS:

1. "PLAN OF LAND OF W. TUCKERMAN"
   REVISED: FEB. 13, 1936 BY E.W. BOWLER
   RECORDED: PLAN #35, POCKET #3, FOLDER #2
2. "PLAN OF LAND FOR OYSTER RIVER COOPERATIVE SCHOOL DISTRICT"
   REVISED: APRIL 20, 1955 BY GRANT L. DAVIS
   RECORDED: PLAN #15, POCKET #2, FOLDER #21
3. "SUBDIVISION OF THE LAND OF MARION E. JAMES"
   REVISED: FEB. 6, 1981 BY DICKSON, HOLDEN, AND ASSOCIATES, INC.
   RECORDED: PLAN NO. 21A–34



LOCATION MAP
N.T.S

TAX MAP 2, LOT 10–4
OWNER OF RECORD:
BW2, LLC
C/O HOUSING INITIATIVES OF NEW ENGLAND CORP.
264 US ROUTE 1
BUILDING 300 SUITE 2A
SCARBOROUGH, ME 04074
BOOK 1783, PAGE 539

BOUNDARY & TOPOGRAPHIC SURVEY
38 MADBURY ROAD
DURHAM
STRAFFORD COUNTY
NEW HAMPSHIRE

FOR:
BW2, LLC
FEBRUARY 2020

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 885 JOEL D. RUNNALS
Joel D. Runnals
SIGNATURE

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 INCH = 30 FEET

S–1

FILE NO. 329
PLAN NO. C–3050
DWG. NO. 19203
F.B. NO. 163

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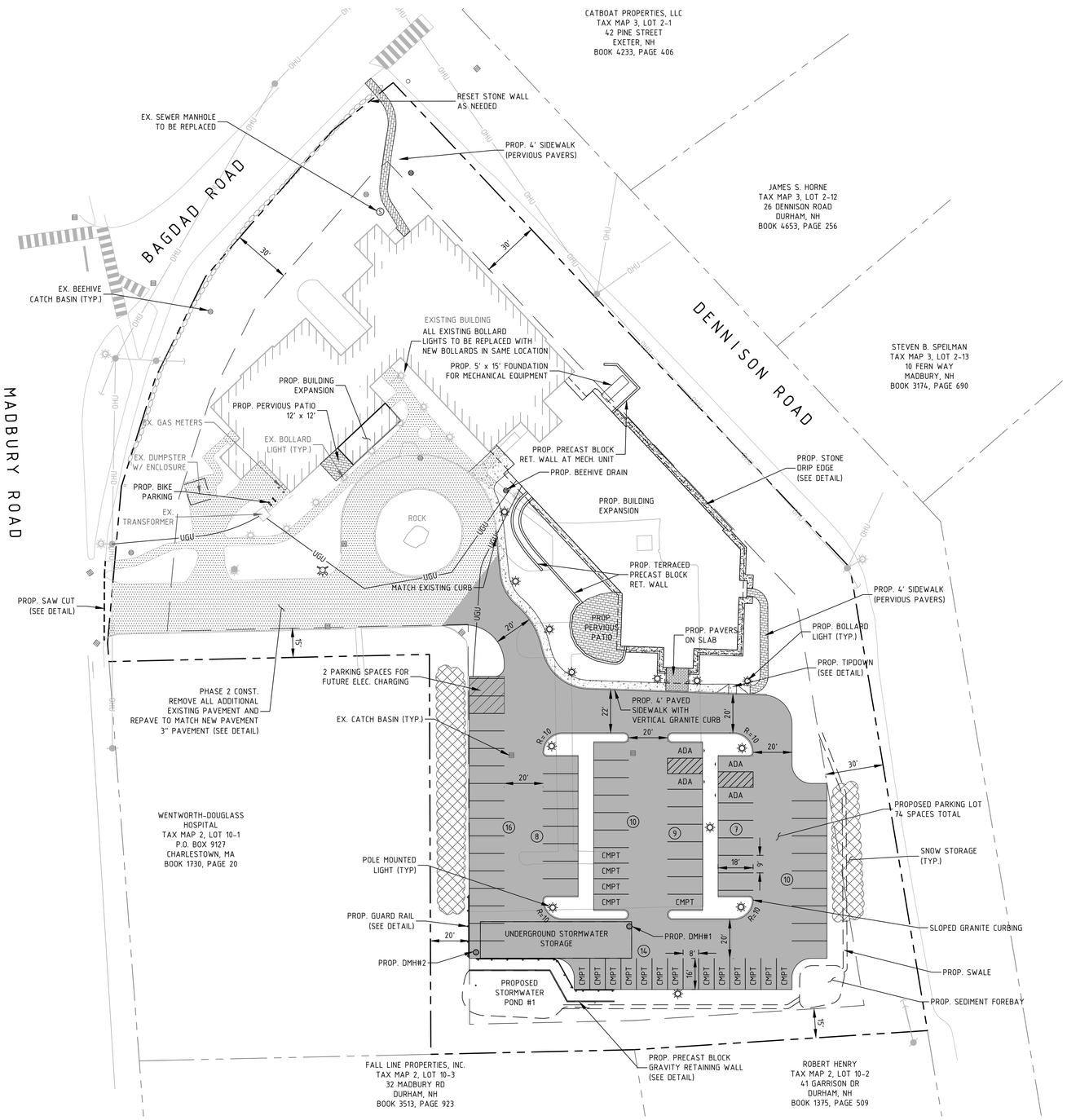
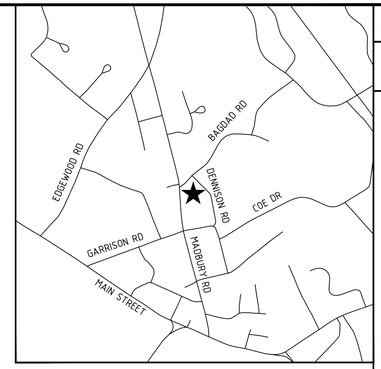
FINAL APPROVAL BY DURHAM PLANNING BOARD.
CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER
CERTIFIED _____
DATE _____





LOCUS MAP
SCALE 1:12 000

NOTES:

1. SUBJECT LOT:
   38 MADBURY ROAD
   TAX MAP 2, LOT 10-4
   S.C.R.D. BOOK 1783, PAGE 539

2. OWNER OR RECORD:
   BW2 LLC
   C/O HOUSING INITIATIVES OF NEW ENGLAND CORP.
   264 US ROUTE 1
   BUILDING 300 SUITE 2A
   SCARBOROUGH, ME 04074

3. LOT AREA: 2.74 ACRES / 119,138 SQ. FT.

4. THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED CHANGES TO THE SUBJECT PARCEL FOR THE EXPANSION OF THE BAGDAD WOODS SENIOR HOUSING FACILITY.

5. ZONING REQUIREMENTS:
   THE SUBJECT PARCEL IS LOCATED IN THE PROFESSIONAL OFFICE DISTRICT (PO) AND IS NOT WITHIN ANY OF THE ZONING OVERLAY DISTRICTS.

DIMENSIONAL STANDARDS FOR PO DISTRICT

MINIMUM LOT SIZE	10,000 SQ. FT.
MINIMUM LOT AREA PER DWELLING UNIT*	3,000 SQ. FT.*
MINIMUM FRONTAGE	100 FT
MINIMUM SETBACKS	
FRONT	30/30/50 FT
SIDE	15 FT
REAR	20 FT
MAXIMUM IMPERVIOUS SURFACE RATIO	50%

*PROPOSED DWELLING UNITS ARE SENIOR RESIDENTIAL AND SUBJECT TO THE SPECIAL DENSITY REQUIREMENTS IN DURHAM ZONING ORDINANCE 175-57(A).

6. THE SURVEYED PARCEL IS LOCATED WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE FEMA FLOOD INSURANCE RATE MAP (FIRM), MAP NO. 33017C0318E, MAP REVISED SEPTEMBER 30, 2015.

7. BEARINGS SHOWN ON THIS PLAN ARE BASED ON GRID NORTH, NEW HAMPSHIRE STATE PLANE, NAD83. ELEVATIONS AND CONTOURS ARE BASED ON NAVD88(GEOID12B), BASED ON GPS OBSERVATIONS TAKEN JANUARY 31, 2020. DISTANCES SHOWN ARE GROUND DISTANCES.

8. 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.

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. THE PROPOSED IMPERVIOUS SURFACE RATIO IS 49.8%

PARKING CALCULATION

USE	STANDARD	REQUIRED	PROVIDED
ELDERLY HOUSING	1 SPACE/UNIT 1 SPACE/EMPLOYEE	66 UNITS 4 EMPLOYEES	66 + 4 = 70 SPACES	74 SPACES

0 30 60 100
SCALE: 1" = 30'

NO.	REVISIONS	DATE	INT.
5.	REVISIONS PER TOWN PLANNER COMMENTS	10/14/20	MCS
4.	REVISIONS FOR BID SET	9/21/20	MCS
3.	REVISED PLAN SET	9/4/20	MCS
2.	REVISED DRAINAGE AND GRADING	7/13/20	MCS
1.	REVISED SITE PLAN AND GRADING	7/2/20	MCS
0.	INITIAL SUBMISSION TO THE DURHAM PLANNING BOARD	6/3/20	MCS

SEAL
STATE OF NEW HAMPSHIRE — MICHAEL J. SIEVERT — No. 8887 — LICENSED PROFESSIONAL ENGINEER

DATE ISSUED: 6/3/20
SCALE: 1"=30'
DESIGNED BY: MCS
DRAWN BY: MCS
APPROVED BY: MJS
DWG FILE: 19057 Civil.dwg

SITE PLAN
prepared for
BW2 LLC C/O
HOUSING INITIATIVES OF NEW ENGLAND
TAX MAP 2, LOT 10-4
BAGDAD ROAD, DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 Newmarket Rd., P.O. Box 193
Newmarket, NH 03857
Phone: (603) 659-4979, Fax: (603) 659-4627
E-mail: mjs@mjs-engineering.com

JOB: 19-057

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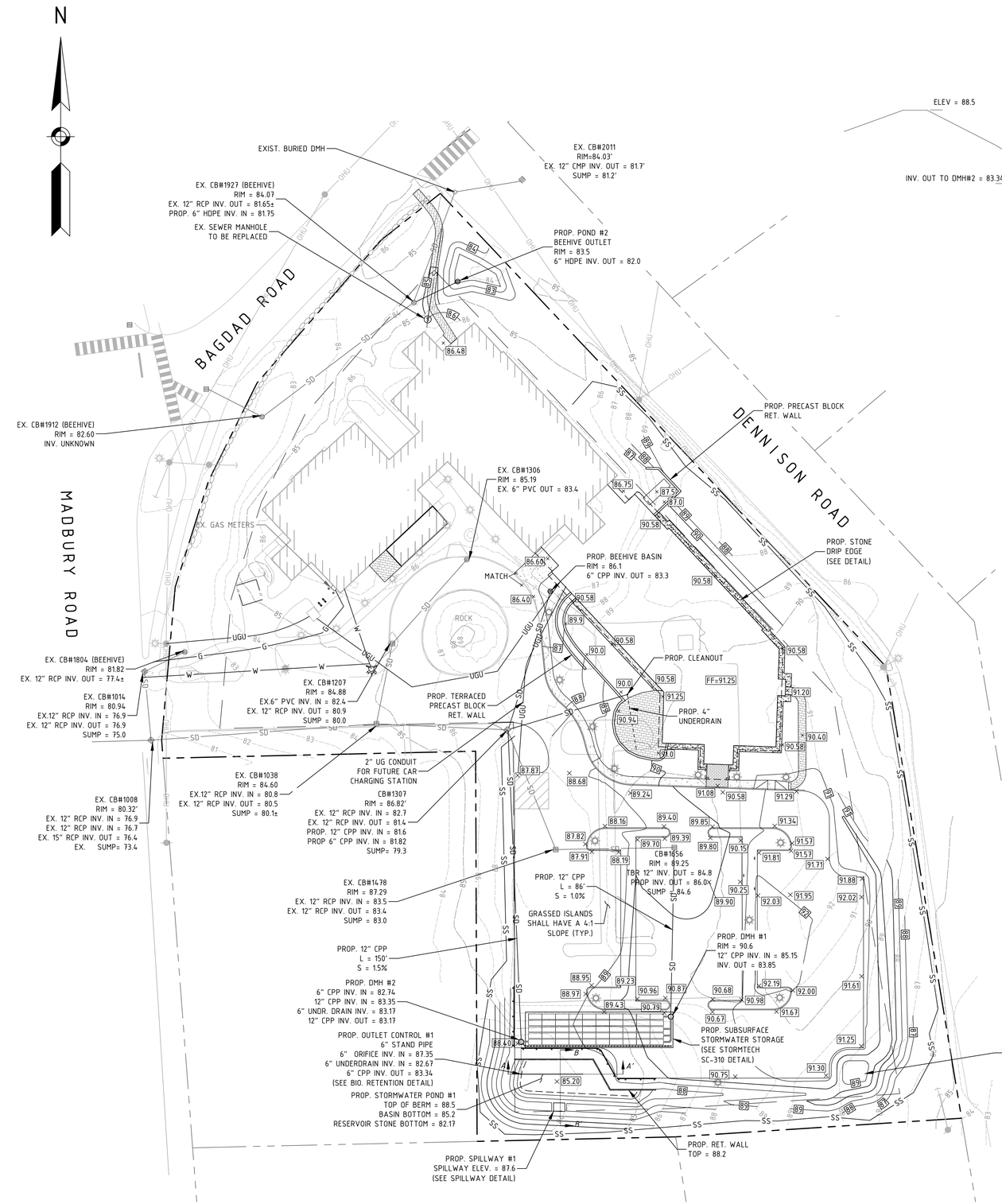
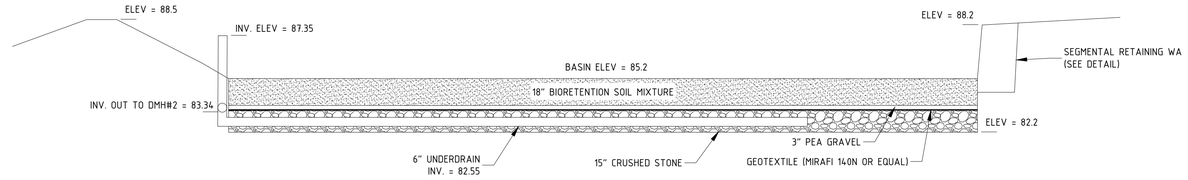
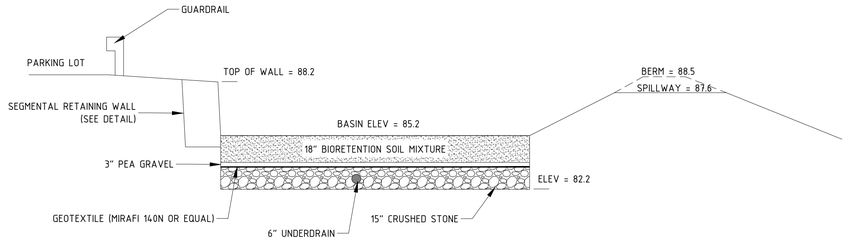




STORMWATER POND SECTION A-A'

SCALE: 1"=4'



STORMWATER POND SECTION B-B'

SCALE: 1"=4'

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

0 30 60 100

SCALE: 1" = 30'

NOTES:

1. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVABLE PHYSICAL EVIDENCE, 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 LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.
2. GEOSYNTHETIC FILTER BAGS SHOULD BE INSTALLED IN ALL CATCH BASINS LOCATED NEAR THE WORKING AREA. SEE DETAIL FOR MOST INFORMATION.
3. ANY BLASTING AND ON-SITE CHIPPING (OF STONE) IS RESTRICTED TO THE HOURS OF 9:00 A.M. TO 5:00 P.M. MONDAY THROUGH FRIDAY.

NO.	REVISIONS	DATE	INT.
5.	REVISIONS PER TOWN PLANNER COMMENTS	10/14/20	MCS
4.	REVISIONS FOR BID SET	9/21/20	MCS
3.	REVISED PLAN SET	9/4/20	MCS
2.	REVISED DRAINAGE AND GRADING	7/13/20	MCS
1.	REVISED SITE PLAN AND GRADING	7/2/20	MCS
0.	INITIAL SUBMISSION TO THE DURHAM PLANNING BOARD	6/3/20	MCS

SEAL

STATE OF NEW HAMPSHIRE · MICHAEL P. BIELERT · No. 8887 · LICENSED PROFESSIONAL ENGINEER

DATE ISSUED: 6/3/20
SCALE: 1"=30'
DESIGNED BY: MCS
DRAWN BY: MCS
APPROVED BY: MJS
DWG FILE: 19057 Civil.dwg

UTILITIES & GRADING PLAN

prepared for
BW2 LLC C/O
HOUSING INITIATIVES OF NEW ENGLAND
TAX MAP 2, LOT 10-4
BAGDAD ROAD, DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 Industrial Dr. • P.O. Box 459
Newmarket, NH 03857
Phone: (603) 659-4979, Fax: (603) 659-4627
E-mail: mjs@mjs-engineering.com

JOB: 19-057

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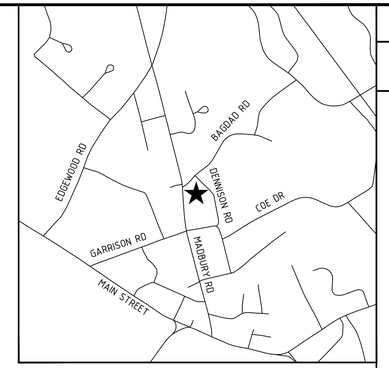
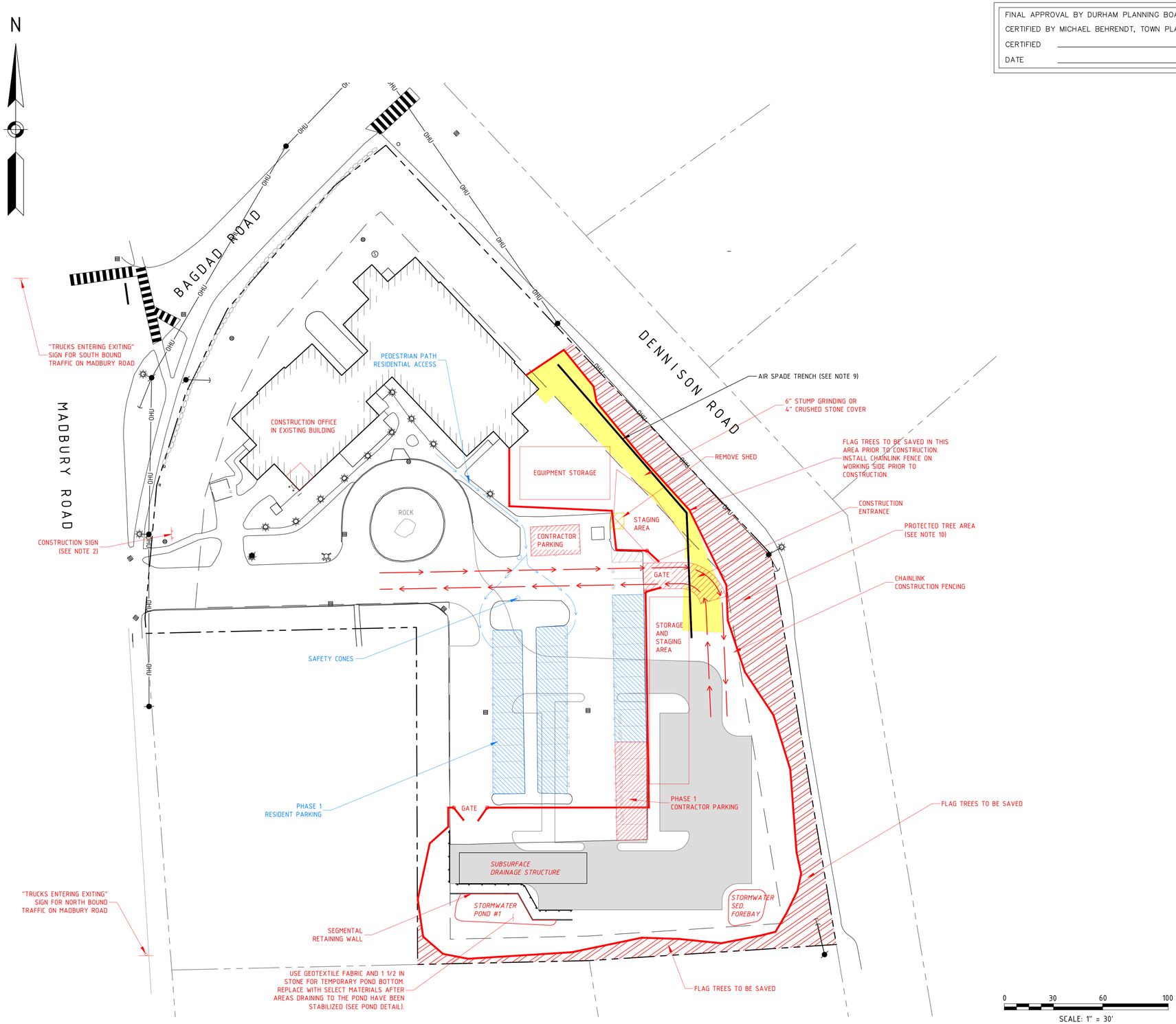
FINAL APPROVAL BY DURHAM PLANNING BOARD.
CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER
CERTIFIED _____
DATE _____



LOCUS MAP
SCALE 1:12 000



PHASE 1 CONSTRUCTION GENERAL NOTES

1. CONTACT DIG SAFE PRIOR TO ANY CONSTRUCTION ON THE SITE.
2. CONSTRUCTION SIGN TO HAVE CONTACT INFO FOR CONSTRUCTION COMPANY, INCLUDING PHONE NUMBER FOR PROJECT MANAGER AND SUPERINTENDENT.
3. CONSTRUCTION HOURS SHALL BE MONDAY THROUGH FRIDAY 7:00 AM TO 5:00 PM AND SATURDAY 8:00AM TO 2:00PM
4. CONSTRUCTION DELIVERIES SHALL BE MADE BETWEEN WORKING HOURS ONLY.
5. NO CONSTRUCTION DEBRIS SHALL BE STORED ON TOWN PROPERTY.
6. ALL PUBLIC STREETS SHALL BE CLEANED AT THE END OF EACH DAY IF NECESSARY.
7. DUST SHALL BE MINIMIZED ON SITE BY USE OF WATERING OR OTHER DUST CONTROL MEASURES.
8. EROSION SHALL BE CONTROLLED BY USING SILT SOXX AT THE PERIMETER OF THE CONSTRUCTION AREA AND SILT SACKS SHALL BE INSTALLED IN CATCH BASINS ON SITE. REFER TO EROSION CONTROL PLAN.
9. PRIOR TO ANY CONSTRUCTION EXCAVATE 1' WIDE X 2' DEEP TRENCH USING AN AIR SPADE SO THAT ROOTS ARE EXPOSED. CLEANLY CUT ALL ROOTS PASSING THROUGH THAT TRENCH.
10. DO NOT STORE CONSTRUCTION MATERIALS, PORTA-POTTY'S OR ITEMS WITHIN TREE PROTECTION AREAS
11. IF STAGING OR UNLOADING IS REQUIRE FROM MADBURY RD, THE CONTRACTOR MUST NOTIFY DPW AND POLICE DEPT AT LEAST 48 HOURS IN ADVANCE.
12. ANY BLASTING AND ON-SITE CHIPPING (OF STONE) IS RESTRICTED TO THE HOURS OF 9:00 AM TO 5:00 PM, MONDAY THROUGH FRIDAY.

TRAFFIC CONTROL NOTES

1. ALL TRUCK TRAFFIC SHALL FOLLOW STANDARD STATE AND TOWN POSTED TRUCKING LAWS AND REQUIREMENTS. TRUCKS SERVING THE SITE FROM OUTSIDE OF DURHAM SHALL BE RESTRICTED TO THE FOLLOWING ROUTES, UNLESS OTHERWISE APPROVED BY THE TOWN MANAGEMENT STAFF:

2. TRUCKS COMING TO THE SITE

2.1. FROM THE EAST OR SOUTH: NH ROUTE 108 TO MAIN STREET (OVER CHURCH HILL) AND RIGHT ONTO MADBURY ROAD.
2.2. FROM THE WEST: MAIN STREET TO GARRISON AVENUE AND LEFT ONTO MADBURY ROAD.

3. TRUCKS LEAVING THE SITE

LEFT ONTO MADBURY ROAD, RIGHT ONTO GARRISON AVENUE, AND RIGHT ONTO MAIN STREET. FOR DESTINATIONS TO THE EAST OR SOUTH HEAD EAST ON ROUTE 4.

PHASE 1 CONSTRUCTION SEQUENCING

1. MARK ALL TREES TO BE SAVED PRIOR TO CONSTRUCTION AND PRECONSTRUCTION MEETING.
2. SCHEDULE PRECONSTRUCTION MEETING
3. INSTALL EROSION CONTROLS AND SITE BARRIER FENCING.
4. CLEAR AND GRUB THE EXPANDED PARKING AREA AND STORMWATER PONDS 1 & 2.
5. CONSTRUCT STORMWATER POND 1, OUTLET AND TEMPORARY SEDIMENT BASIN NEAR STORMWATER POND 2.
6. CONSTRUCT TEMPORARY SEDIMENTATION BASINS IF REQUIRED.
7. CONSTRUCT UNDERGROUND DETENTION AREA AND RETENTION WALL OF STORMWATER POND #1. CONTINUE UP STREAM WITH STORMWATER CONSTRUCTION.
8. EXCAVATE, FILL, COMPACT AND CONSTRUCT THE EXPANDED PART OF THE PARKING LOT SHOWN AS PHASE 1 TO THE LINE AND GRADE SHOWN ON THE SITE PLAN
8. RESIDENT PARKING SPACES ARE SHOWN IN BLUE SHADING SPACES NUMBERED 5-24 AND 27-35.
9. CONTRACTOR PARKING SPACES ARE NUMBERED 1-3 AND 36-41.
10. COMPLETE EXPANDED PARKING AREA AS SHOWN IN LIGHT GRAY SHADING.
11. REMOVE PAVEMENT AND PROVIDE TEMPORARY ACCESS TO NEW PARKING DURING RECONSTRUCTION OF THE TWO EXISTING PARKING AREAS.
12. RECONSTRUCT EXISTING PARKING AREAS TO MATCH PROPOSED DESIGN, INCLUDING DRAINAGE.
13. ONCE THE NEW PARKING AREA IS COMPLETE, SHIFT ALL RESIDENT PARKING TO THE NEWLY CONSTRUCTED 31 SPACES

NO.	REVISIONS	DATE	INT.
4.	REVISIONS PER TOWN PLANNER COMMENTS	10/14/20	MCS
3.	REVISIONS FOR BID SET	9/21/20	MCS
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1.	REVISED SITE PLAN AND GRADING	7/22/20	MCS
0.	INITIAL SUBMISSION TO THE DURHAM PLANNING BOARD	6/3/20	MCS

REVISIONS

SEAL
STATE OF NEW HAMPSHIRE — MICHAEL J. SIEVERT — NO. 9869 — PROFESSIONAL ENGINEER

DATE ISSUED: 6/3/20
SCALE: 1"=30'
DESIGNED BY: MCS
DRAWN BY: MCS
APPROVED BY: MJS
DWG FILE: 19057 Civil.dwg

PHASE 1 CONSTRUCTION PLAN
prepared for
BW2 LLC C/O
HOUSING INITIATIVES OF NEW ENGLAND
TAX MAP 2, LOT 10-4
BAGDAD ROAD, DURHAM, NH

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

JOB: 19-057

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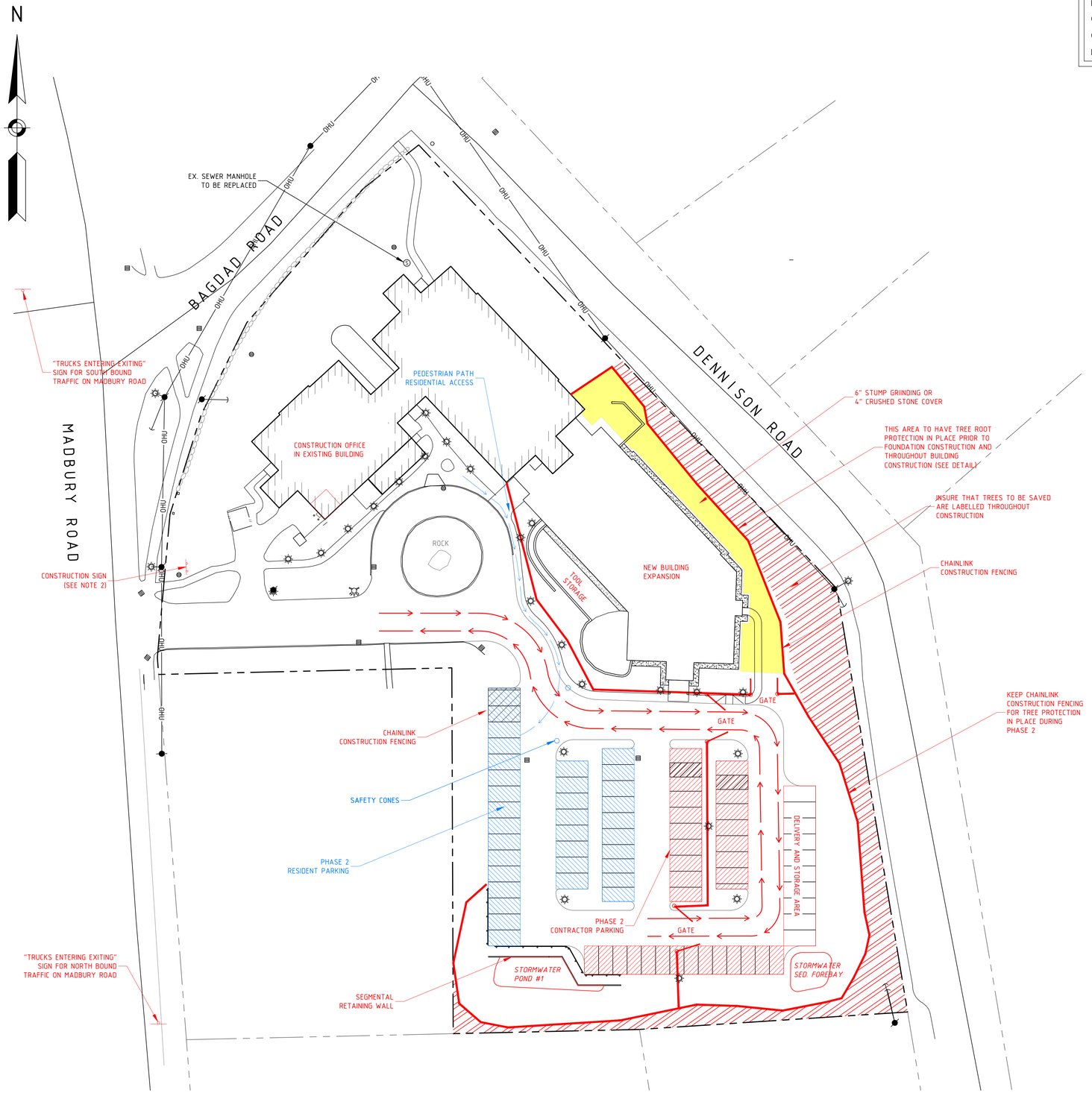

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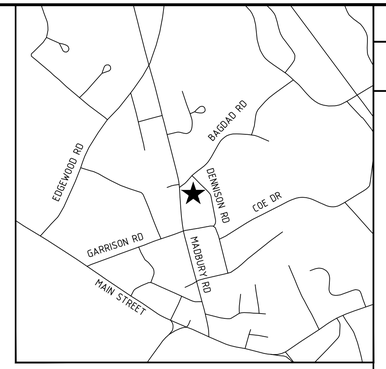
CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER
CERTIFIED _____
DATE _____



LOCUS MAP
SCALE 1:12 000

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1.	REVISED SITE PLAN AND GRADING	7/2/20	MCS
0.	INITIAL SUBMISSION TO THE DURHAM PLANNING BOARD	6/3/20	MCS

SEAL
I HEREBY CERTIFY THAT THE PLANS AND SPECIFICATIONS HEREIN ARE IN COMPLIANCE WITH THE LAWS OF THE STATE OF NEW HAMPSHIRE AND THE RULES OF THE BOARD OF LICENSURE FOR ENGINEERS AND LAND SURVEYORS
MICHAEL S. BEHRENDT NH 8881 PROFESSIONAL ENGINEER

DATE ISSUED: 9/1/20
SCALE: 1"=30'
DESIGNED BY: MCS
DRAWN BY: MCS
APPROVED BY: MJS
DWG FILE: 19057 Civil.dwg

PHASE 2 CONSTRUCTION PLAN
prepared for
BW2 LLC C/O
HOUSING INITIATIVES OF NEW ENGLAND
TAX MAP 2, LOT 10-4
BAGDAD ROAD, DURHAM, NH

MJS ENGINEERING P.C.
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Phone: (603) 659-4979, Fax: (603) 659-4627
E-mail: mjs@mjs-engineering.com

JOB: 19-057

C104

PHASE 2 CONSTRUCTION GENERAL NOTES

1. CONTACT DIG SAFE PRIOR TO ANY CONSTRUCTION ON THE SITE.
2. CONSTRUCTION SIGN TO HAVE CONTACT INFO FOR CONSTRUCTION COMPANY, INCLUDING PHONE NUMBER FOR PROJECT MANAGER AND SUPERINTENDENT.
3. CONSTRUCTION HOURS SHALL BE MONDAY THROUGH FRIDAY 7:00 AM TO 5:00 PM AND SATURDAY 8:00AM TO 2:00PM
4. CONSTRUCTION DELIVERIES SHALL BE MADE BETWEEN WORKING HOURS ONLY.
5. NO CONSTRUCTION DEBRIS SHALL BE STORED ON TOWN PROPERTY.
6. ALL PUBLIC STREETS SHALL BE CLEANED AT THE END OF EACH DAY IF NECESSARY.
7. DUST SHALL BE MINIMIZED ON SITE BY USE OF WATERING OR OTHER DUST CONTROL MEASURES.
8. EROSION SHALL BE CONTROLLED BY USING SILT SOXX AT THE PERIMETER OF THE CONSTRUCTION AREA AND SILT SACKS SHALL BE INSTALLED IN CATCH BASINS ON SITE. REFER TO EROSION CONTROL PLAN.
9. PRIOR TO ANY CONSTRUCTION EXCAVATE 1' WIDE X 2' DEEP TRENCH USING AN AIR SPADE SO THAT ROOTS ARE EXPOSED. CLEANLY CUT ALL ROOTS PASSING THROUGH THAT TRENCH.
10. DO NOT STORE CONSTRUCTION MATERIALS, PORTA-POTTY'S OR ITEMS WITHIN TREE PROTECTION AREAS
11. IF STAGING OR UNLOADING IS REQUIRE FROM MADBURY RD, THE CONTRACTOR MUST NOTIFY DPW AND POLICE DEPT AT LEAST 48 HOURS IN ADVANCE.
12. ANY BLASTING AND ON-SITE CHIPPING (OF STONE) IS RESTRICTED TO THE HOURS OF 9:00 AM TO 5:00 PM, MONDAY THROUGH FRIDAY.

TRAFFIC CONTROL NOTES

1. ALL TRUCK TRAFFIC SHALL FOLLOW STANDARD STATE AND TOWN POSTED TRUCKING LAWS AND REQUIREMENTS. TRUCKS SERVING THE SITE FROM OUTSIDE OF DURHAM SHALL BE RESTRICTED TO THE FOLLOWING ROUTES, UNLESS OTHERWISE APPROVED BY THE TOWN MANAGEMENT STAFF:

2. TRUCKS COMING TO THE SITE

2.1. FROM THE EAST OR SOUTH: NH ROUTE 108 TO MAIN STREET (OVER CHURCH HILL) AND RIGHT ONTO MADBURY ROAD.
2.2. FROM THE WEST: MAIN STREET TO GARRISON AVENUE AND LEFT ONTO MADBURY ROAD.

3. TRUCKS LEAVING THE SITE

LEFT ONTO MADBURY ROAD, RIGHT ONTO GARRISON AVENUE, AND RIGHT ONTO MAIN STREET. FOR DESTINATIONS TO THE EAST OR SOUTH HEAD EAST ON ROUTE 4.

PHASE 2 CONSTRUCTION SEQUENCING

1. SHIFT RESIDENT PARKING TO FIRST 30+/- SPACES IN THE WESTERLY AND MIDDLE PARKING AREAS (THE NEWLY RECONSTRUCTED PARKING FROM PHASE 1).
2. SHIFT CONSTRUCTION FENCING AREA PROPOSED BUILDING EXPANSION AREA.
3. EXCAVATE FOR BUILDING FOUNDATION AND BEGIN BUILDING CONSTRUCTION.
4. THE NEW PARKING EXPANSION AREA SHALL BE USED FOR DELIVERY AND STORAGE.
5. ALL UTILITY CONSTRUCTION SHALL BE COORDINATED WITH EXISTING BUILDING OPERATOR AND ACCESS.

0 30 60 100
SCALE: 1" = 30'

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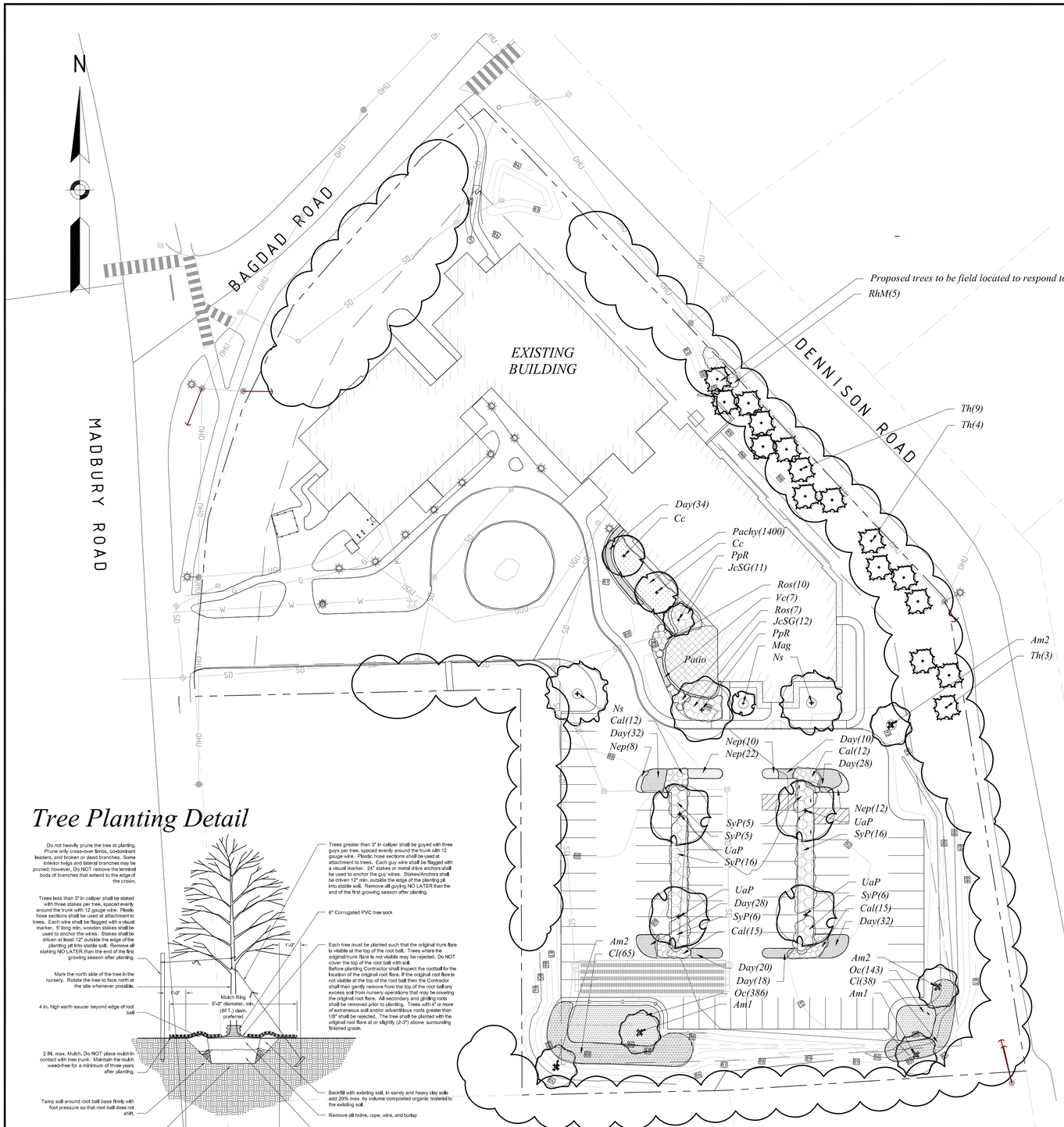


Plant List

TREES

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Am1	*Amelanchier canadensis*	Shadblow Serviceberry	2	3-3.5" cal	8-10' ht. B&B
Am2	*Amelanchier canadensis*	Shadblow Serviceberry	3	3-3.5" cal	10-12' ht. B&B
Cc	*Carpinus caroliniana*	American Hornbeam	2	3-3.5" cal	B&B
Mag	*Magnolia stellata 'Royal Star'*	Royal Star Magnolia	1	3-3.5" cal	6-7' ht. B&B
Ns	*Nyssa Sylvatica*	Black Tupelo	2	3-3.5" cal	B&B
PpR	*Prunus persica 'Reliance'*	Reliance Peach	2	2-2.5" cal	B&B
Th	*Thuja plicata 'Green Giant'*	Green Giant Arborvitae	16	3-3.5" cal	8-10' ht. B&B
UaP	*Ulmus americana 'Princeton'*	Princeton American Elm	4	3-3.5" cal	B&B

SHRUBS

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Cl	*Clethra alnifolia 'Hummingbird'*	Hummingbird Compact Summersweet	103	2'-2.5'	B&B
JcSG	*Juniperus chinensis 'Seagreen'*	Seagreen Juniper	23	5 gal.	
RhM	*Rhododendron maximum*	Rosebay Rhododendron	5	5 gal.	
Ros	*Rosa 'Knockout'*	Knockout Rose	17	5 gal.	
SyP	*Syringa meyeri 'Palibin'*	Dwarf Korean Lilac	54	2'-2.5'	B&B
Vc	*Vaccinium corymbosum 'Top Hat'*	Vaccinium 'Top Hat'	7	3 gal	

PERENNIALS, GROUNDCOVERS, VINES and ANNUALS

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Cal	*Calamagrostis acutifolia 'Karl Foerster'*	Feather Reed Grass	54	1 gal	3' O.C.
Day	*Hemerocallis 'Big Time Happy'*	Big Time Happy Daylily	101	1 gal	2' O.C.
	Hemerocallis 'Barbara Mitchell'	Barbara Mitchell Daylily	101	1 gal	2' O.C.
Nep	*Nepeta faassenii x 'Walker's Low'*	Walker's Low Catmint	52	1 gal	2' O.C.
Oc	*Osmunda cinnamomea*	Cinnamon Fern	529	1 gal	18" O.C.
Pachy	*Pachysandra terminalis*	Japanese Spurge	1400	100/flat	plant 8" o.c.

Landscape Notes:

1. Design is based on drawings by MJS Engineering, P.C. dated September 21, 2020 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. This plan is for review purposes only, NOT for Construction. Construction Documents will be provided upon request.
9. Location, support, protection, and restoration of all existing utilities and appurtenances shall be the responsibility of the Contractor.
10. 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.
11. The Contractor shall procure any required permits prior to construction.
12. 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.
13. 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.
14. 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.
15. 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.
16. All plants shall be legibly tagged with proper botanical name.
17. The guarantee shall be for a period of two years commencing from the time the certificate of occupancy is issued or installation of the landscaping materials, whichever occurs later. If replacements of any materials are subsequently needed within this two-year period then the applicant shall promptly replace those materials (subject to weather constraints).
18. 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.
19. No substitutions of plants may be made without prior approval of the Owner or the Owner's Representative for any reason.
20. All landscaping shall be provided with the following:
    a. Outside hose attachments spaced a maximum of 150 feet apart, and
    b. An underground irrigation system, or
    c. A temporary irrigation system designed for a two-year period of plant establishment.
21. If an automatic irrigation system is installed, all irrigation valve boxes shall be located within planting bed areas.
22. 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 clean water suitable for plant health from off site, should it not be available on site.
23. 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.
24. 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.
25. Drip strip shall extend to 6" beyond roof overhang and shall be edged with 3/16" thick metal edger.
26. 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.
27. 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. Within the sight distance triangles at vehicle intersections the canopies shall be raised to 8' min.
28. Snow shall be stored a minimum of 5' from shrubs and trunks of trees.
29. Landscape Architect is not responsible for the means and methods of the contractor.
30. Fertilizer. "Only low phosphorus/slow release nitrogen fertilizers for landscaping materials may be used."
31. Notice of decision. "It is the responsibility of the applicant, site contractor, and building contractor to follow all requirements related to this site plan approval. Please review these plans and the Planning Board Notice of Decision carefully. Contact the Durham Planning Department at (603) 868-8064 with any questions or concerns."

NOTE: Proposed trees to be field located to respond to specific locations of existing trees.

Tree Planting Detail

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

NO.	DATE	INT.
3.	9/21/20	LF
2.	REVISED RETAINING WALLS	
1.	REVISED DRAINAGE AND GRADING	7/14/20 LF
0.	REVISED SITE PLAN AND GRADING	7/2/20 LF
	INITIAL SUBMISSION TO THE DURHAM PLANNING BOARD	6/3/20 LF

REVISIONS

SEAL

DATE ISSUED: 5/28/20
SCALE: 1"=30'
DESIGNED BY: RW
DRAWN BY: LF
APPROVED BY: RW

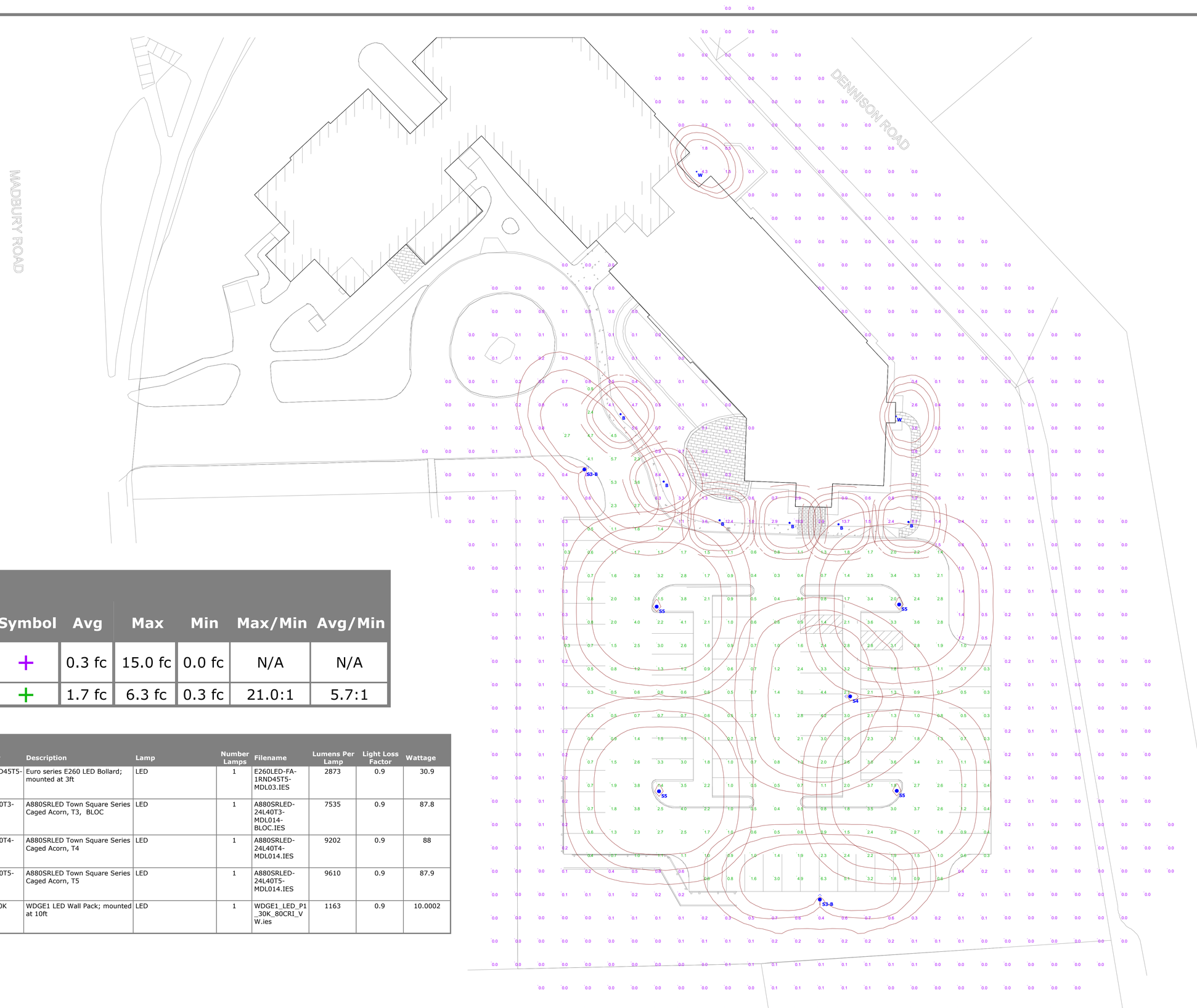
DWG FILE:

LANDSCAPE PLAN
prepared for
BW2, LLC
c/o HOUSING INITIATIVES of NE CORP.
TAX MAP 2, LOT 10-4
38 BAGDAD ROAD, DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 Railroad St., P.O. Box 359
Newmarket, NH 03857
Phone: 603-659-2214 Fax: 603-659-4471
E-mail: mjs@mjs-engineering.com

JOB: 19-057

LA-1



Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Outside of Parking Lot	+	0.3 fc	15.0 fc	0.0 fc	N/A	N/A
Parking Lot	+	1.7 fc	6.3 fc	0.3 fc	21.0:1	5.7:1

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	B	6	Sternberg Lighting	E260LED-FA-1RND45T5--MDL03	Euro series E260 LED Bollard; mounted at 3ft	LED	1	E260LED-FA-1RND45T5-MDL03.IES	2873	0.9	30.9
	S3-B	2	Sternberg Lighting	A880SRLED-24L40T3-MDL014-BLOC	A880SRLED Town Square Series Caged Acorn, T3, BLOC	LED	1	A880SRLED-24L40T3-MDL014-BLOC.IES	7535	0.9	87.8
	S4	1	Sternberg Lighting	A880SRLED-24L40T4-MDL014	A880SRLED Town Square Series Caged Acorn, T4	LED	1	A880SRLED-24L40T4-MDL014.IES	9202	0.9	88
	S5	4	Sternberg Lighting	A880SRLED-24L40T5-MDL014	A880SRLED Town Square Series Caged Acorn, T5	LED	1	A880SRLED-24L40T5-MDL014.IES	9610	0.9	87.9
	W	2	Lithonia Lighting	WDGE1 LED P1 30K 80CRI VW	WDGE1 LED Wall Pack; mounted at 10ft	LED	1	WDGE1_LED_P1_30K_80CRI_VW.ies	1163	0.9	10.0002

HOUSING INITIATIVES OF NEW ENGLAND
Site Lighting Layout

Designer
Heidi G. Connors
Visible Light, Inc.
24 Stickney Terrace
Suite 6
Hampton, NH 03842

Date
9/23/2020

Scale
1"=20'

Drawing No.

Summary

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2020-10-29T14:09:55

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, 2016, 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 WNTER 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 WNTER 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.

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.

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.

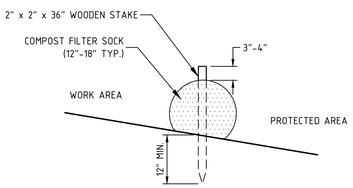
DUST CONTROL
A. DUST SHALL BE CONTROLLED ON SITE DURING CONSTRUCTION BY IMPLEMENTING THE FOLLOWING DUST CONTROL MEASURES
1. MULCHING AND VEGETATIVE COVER TO REDUCE DUST.
2. MECHANICAL SWEEPERS AND FINE WATER SPRAYS.
3. COVER SURFACES WITH CRUSHED STONE OR COARSE GRAVEL.

SEED MIXTURE SELECTION BASED ON SOIL TYPE

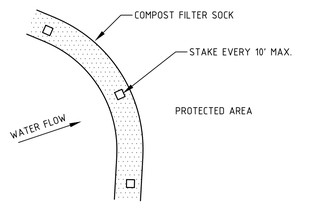
USE	SOIL DRAINAGE			
	SEEDING MIXTURE	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A B C D	FAIR POOR POOR FAIR	GOOD GOOD GOOD EXCELLENT	GOOD FAIR EXCELLENT EXCELLENT
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A C	GOOD GOOD	GOOD 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	20	0.45
	CREEPING RED FESCUE	20	0.45
	REDTOP	2	0.05
	TOTAL	*42*	*0.95*
B	TALL FESCUE	15	0.35
	CREEPING RED FESCUE	10	0.25
	CROWN VETCH	15	0.35
	OR	–	–
	FLATPEA	30	0.75
	TOTAL	*40 OR 55*	*0.95 OR 1.35*
C	TALL FESCUE	20	0.45
	CREEPING RED FESCUE	20	0.45
	BIRDSFOOT TREFOIL	8	0.20
	TOTAL	*48*	*1.10*
D	TALL FESCUE	20	0.45
	FLATPEA	30	0.75
	TOTAL	*50*	*1.20*
E	CREPPING RED FESCUE	50	1.15
	KENTUCKY BLUEGRASS	50	1.15
	TOTAL	*100*	*2.30*
F	TALL FESCUE	*150*	*3.60*



CROSS-SECTION



PLAN VIEW

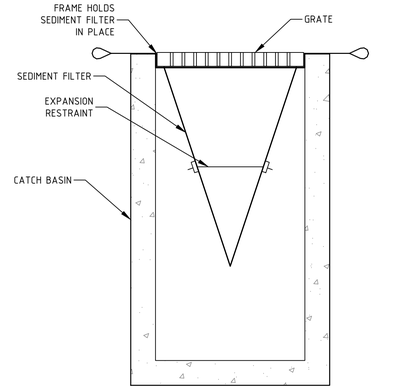
NOTES:
1. ALL COMPOST MATERIAL TO MEET MANUFACTURES SPECIFICATIONS.
2. FILTER SOCKS SHOULD BE INSTALLED FOLLOWING EXISTING CONTOURS.

COMPOST FILTER SOCK DETAIL
NTS

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 PERIMETER CONTROLS PRIOR TO ALL EARTHMOVING WORK.
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. CLEAR/GRUB
A. STUMPS MAY BE DISPOSED ON-SITE IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS.
7. 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
8. CONSTRUCT AND STABILIZE ALL TEMPORARY AND PERMANENT SEDIMENT, EROSION, AND STORMWATER CONTROL FACILITIES AS LISTED ABOVE.
A. THESE SHALL BE INSTALLED BEFORE ANY MAJOR EARTH MOVING OPERATIONS.
B. RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMPS ARE STABILIZED. REFER TO SEDIMENT TRAP DETAIL.
C. STORMWATER PONDS, INFILTRATION BASINS, AND SWALES MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
D. REFER TO INDIVIDUAL DETAILS FOR CONSTRUCTION REQUIREMENTS.
10. 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.
B. DRAINAGE AND UTILITY STRUCTURES
1. INSTALL AS SHOWN IN ACCORDANCE WITH DETAILS AND DRY STABILIZE.
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.
11. INSPECT, MAINTAIN, AND IF NECESSARY, REPAIR ALL EROSION AND SEDIMENT CONTROL MEASURES AS STATED IN EROSION CONTROL NOTES ON THIS SHEET.
12. 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.

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



NOTES:
1. SEDIMENT FILTER TRAP SHALL BE ACF REGULAR FLOW SILTSACK OR APPROVED EQUAL.
2. FILTERS 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 SEDIMENT FILTER DETAIL
NTS

NO	DATE	BY
5.	9/30/20	MCS
4.	9/21/20	MCS
3.	9/4/20	MCS
2.	7/2/20	MCS
1.	6/3/20	MCS
0.	DATE	INT.
	REVISED BID SET	
	REVISIONS FOR BID SET	
	REVISED PLAN SET	
	REVISED SITE PLAN AND GRADING	
	INITIAL SUBMISSION TO THE DURHAM PLANNING BOARD	
	REVISIONS	

SEAL
NEW HAMPSHIRE – MICHAEL J. BIEVENT – No. 8880 – PROFESSIONAL ENGINEER – STATE OF

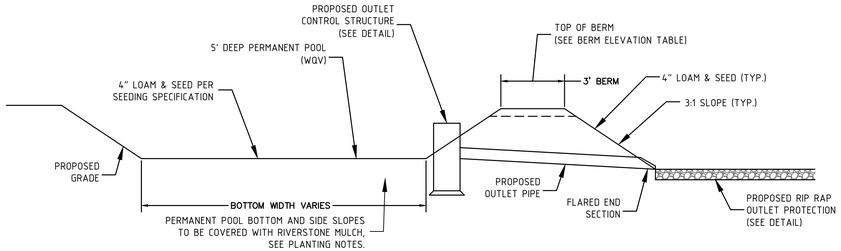
DATE ISSUED: 6/3/20
SCALE: AS SHOWN
DESIGNED BY: MCS
DRAWN BY: MCS
APPROVED BY: MJS
DWG FILE: 19057 DetHt.dwg

CONSTRUCTION DETAILS
prepared for
BW2 LLC C/O
HOUSING INITIATIVES OF NEW ENGLAND
TAX MAP 2, LOT 10-4
BAGDAD ROAD, DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 INDUSTRIAL WAY – Unit 3, Bldg. 359
SALEM, NH 03079
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: INFO@MJSENGINEERING.COM

JOB: 19-057

C501



CONSTRUCTION NOTES:

1. DO NOT PLACE STORMWATER POND INTO SERVICE UNTIL THE BMP HAS BEEN SEEDED AND STABILIZED. ALL CONTRIBUTING AREAS SHALL BE FULLY STABILIZED.
2. CLEAR AND GRUB THE AREA WHERE THE STORMWATER POND IS TO BE LOCATED. STOCKPILE LOAM FOR REUSE LATER.
3. 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.
4. 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 DRY 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

5. ALL PIPE TO PIPE CONNECTIONS SHALL BE WATER-TIGHT.
6. ALL DISTURBED AREAS SHALL RECEIVE FOUR INCHES OF LOAM AND SEEDED PER THE CONSTRUCTION SEQUENCING AND EROSION CONTROL NOTES.

PLANTING NOTES:

1. PERMANANT POOL BOTTOM AND SIDE SLOPES TO BE COVERED WITH 2" DEEP RIVERSTONE (1-1/2" TO 2" STONES).
2. POND BOTTOM
   POND BOTTOM EXCLUDING PERMANENT POOL TO BE SEEDED WITH NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES (50 LBS./ACRE).

   POND BERM AND SIDE SLOPES
   BERM AND SIDE SLOPES EXCLUDING PERMANENT POOL SHALL BE SEEDED WITH NEW ENGLAND CONSERVATION/WILDLIFE MIX (30 LBS PER ACRE).

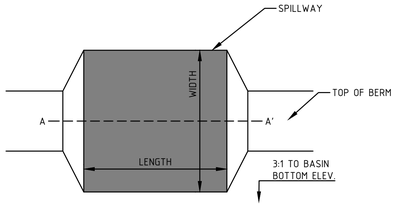
   AVAILABLE FROM:
   NEW ENGLAND WETLAND PLANTS, INC.
   820 WEST STREET
   AMHERST, MA 01002
   (413)-548-8000

STORMWATER POND MAINTENANCE:

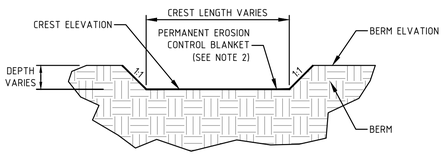
1. THE BOTTOM, SIDE SLOPES AND CREST SHALL BE MOWED AND THE VEGETATION MAINTAINED IN A HEALTHY CONDITION.
2. EMBANKMENTS SHOULD BE INSPECTED ANNUALLY BY A QUALIFIED PROFESSIONAL FOR SETTLEMENT, EROSION, SEEPAGE, ANIMAL BURROWS, AND WOODY VEGETATION. REPAIR AS NECESSARY.
3. A QUALIFIED PROFESSIONAL SHALL INSPECT THE OUTLET PIPE, SPILLWAY, AND OUTLET PROTECTION ANNUALLY. REPAIR AS NECESSARY.
4. TRASH AND DEBRIS SHALL BE REMOVED FROM THE BASIN AND PIPE INLETS AND OUTLETS WHENEVER PRESENT.
5. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN THE DEPTH EXCEEDS 4 INCHES.

TYPICAL STORMWATER POND DETAIL
NTS

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



PLAN VIEW



CROSS-SECTION A-A'

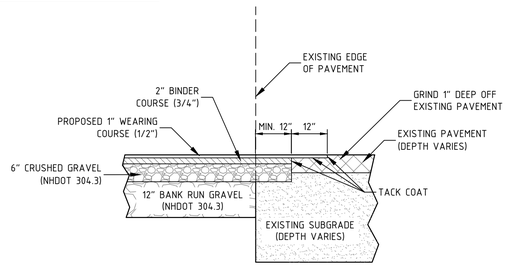
NOTES:
1. SPILLWAYS ARE LOCATED AT SEDIMENT FOREBAY OUTLETS, STORMWATER POND AND INFILTRATION BASIN.
2. PERMANENT EROSION CONTROL BLANKET SHOULD BE TENSAR P300 OR APPROVED EQUAL
3. INSTALL TURF REINFORCEMENT PER MANUFACTURER'S SPECIFICATIONS.

TYPICAL SPILLWAY DETAIL
NTS

SPILLWAY DIMENSION TABLE

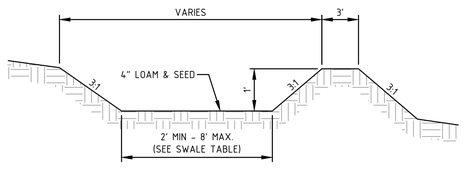
LOCATION	CREST ELEV.	BERM ELEV.	LENGTH* [FEET]	WIDTH* [FEET]
SPILLWAY #1 - STORMWATER POND #1	87.60	88.50	6.0	6.0

*REFER TO DETAIL ABOVE FOR LOCATION OF WIDTH AND LENGTH



NOTES:
1. SAWCUT THROUGH DEPTH OF PAVEMENT AT LEAST 1 FT. FROM EDGE OR GREATER IF REQUIRED BY NHDOT.
2. INSTALL AND COMPACT CRUSHED GRAVEL TO GRADE.
3. PLACE BINDER COURSE.
4. GRIND EXISTING PAVEMENT 1 FT. WIDE TO A DEPTH NECESSARY TO PROPERLY MATCH NEW WEARING COURSE PAVEMENT.
5. TACK COAT ALL EXISTING PAVEMENT SURFACES WITH EMULSIFIED ASPHALT (MS-1) PRIOR TO PLACING NEW PAVEMENT.

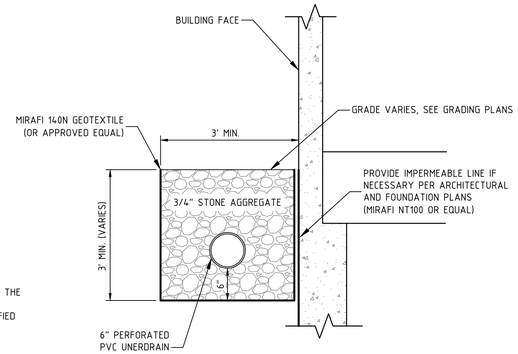
TYPICAL PAVEMENT SAWCUT DETAIL
NTS



CONSTRUCITON NOTES:
1. REFER TO BERM CONSTRUCTION NOTES IN STORMWATER POND DETAIL FOR BERM CONSTRUCTION REQUIREMENTS.
2. SWALE SHALL HAVE GREATER THAN 85% VEGETATIVE GROWTH PRIOR TO RECEIVING RUNOFF.
3. BOTTOM OF THE SWALE MUST BE ABOVE SEASON HIGH WATER TABLE.

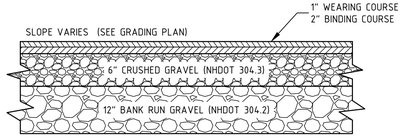
MAINTENANCE NOTES:
1. INSPECT ANNUALLY FOR EROSION, SEDIMENT ACCUMULATION, VEGETATION LOSS, AND PRESENCE OF INVASIVE SPECIES.
2. PERFORM PERIODIC MOWING. DO NOT MOW GRASS SHORTER THAN 4 INCHES.
3. REMOVE DEBRIS AND ACCUMULATED SEDIMENT BASED ON INSPECTION.
4. REPAIR ERODED AREAS, REMOVE INVASIVE SPECIES AND DEAD VEGETATION, AND RESEED WITH APPLICABLE GRASS MIX AS WARRANTED BY INSPECTION.

CONVEYANCE SWALE DETAIL
NTS



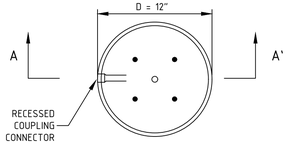
NOTES:
1. SEE PLANS FOR LOCATION.

DRIP STRIP DETAIL
NTS

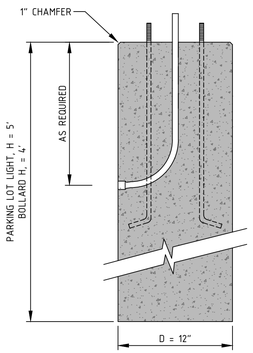


NOTES:
1. DELETERIOUS MATERIALS ENCOUNTERED BELOW PARKING AREA SHALL BE COMPLETELY REMOVED.
2. COMPACT SUBGRADE TO 95% OF STANDARD PROCTOR.

PAVED PARKING LOT CROSS-SECTION
NTS



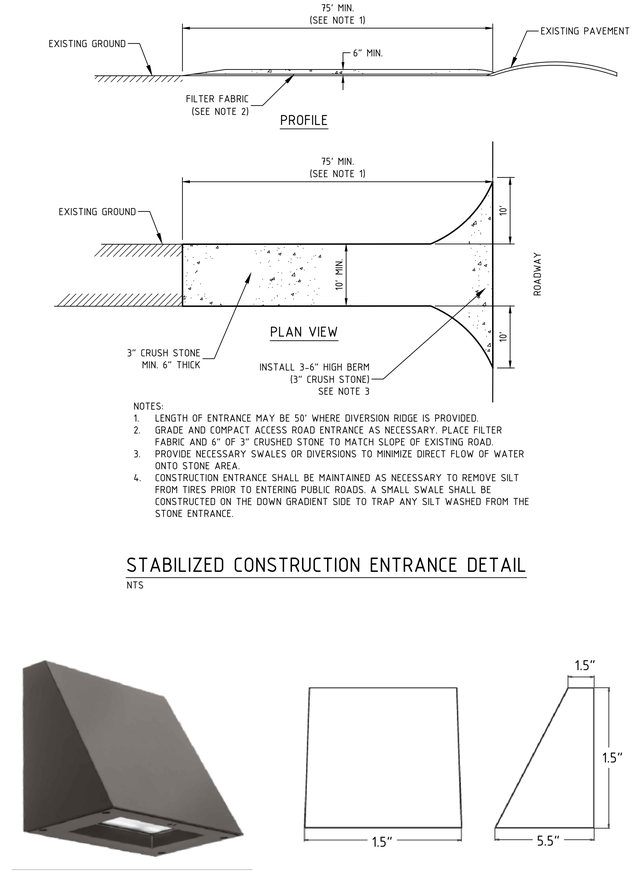
PLAN



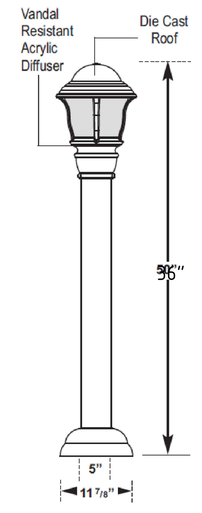
SECTION A-A'

NOTES:
1. CONCRETE MINIMUM 5,000 PSI AFTER 28 DAYS.
2. CONDUIT, ANCHOR BOLTS AND TEMPLATE SUPPLIED BY OTHERS.
3. LIGHT POLE BASE SIZE IS TO BE SPECIFIED BY A QUALIFIED ENGINEER.
4. TYPICAL BASE DIAMETERS 'D' INCLUDE: 12", 18", 24", AND 30".
5. TYPICAL BASE HEIGHTS 'H' RANGE FROM 4' TO 7'.
6. OTHER BASE SIZES AVAILABLE UPON REQUEST.

LIGHT POLE BASE DETAIL
NTS



WDGE1 LED WALL MOUNTED LIGHT FIXTURE
NTS



EURO LED LIGHTED BOLLARD FIXTURE
NTS

NOTE
1. LIGHT POLE IS TO BE 16' BLACK TEXTURED 450 LEXINGTON

A880SRLED LIGHT FIXTURE
NTS

PROFILE

PLAN VIEW

NOTES:
1. LENGTH OF ENTRANCE MAY BE 50' WHERE DIVERSION RIDGE IS PROVIDED.
2. GRADE AND COMPACT ACCESS ROAD ENTRANCE AS NECESSARY. PLACE FILTER FABRIC AND 6" OF 3" CRUSHED STONE TO MATCH SLOPE OF EXISTING ROAD.
3. PROVIDE NECESSARY SWALES OR DIVERSIONS TO MINIMIZE DIRECT FLOW OF WATER ONTO STONE AREA.
4. 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.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
NTS

NO.	REVISIONS	DATE	INT.
6.	REVISIONS PER TOWN PLANNER COMMENTS	10/14/20	MCS
5.	REVISED BID SET	9/30/20	MCS
4.	REVISIONS FOR BID SET	9/21/20	MCS
2.	REVISED PLAN SET	9/4/20	MCS
1.	REVISED SITE PLAN AND GRADING	7/2/20	MCS
0.	INITIAL SUBMISSION TO THE DURHAM PLANNING BOARD	6/3/20	MCS

SEAL — STATE OF NEW HAMPSHIRE — MICHAEL J. BIEVERT — No. 8881 — LICENSED PROFESSIONAL ENGINEER

DATE ISSUED: 6/3/20
SCALE: AS SHOWN
DESIGNED BY: MCS
DRAWN BY: MCS
APPROVED BY: MJS
DWG FILE: 19057 DetHt.dwg

CONSTRUCTION DETAILS
prepared for
BW2 LLC C/O
HOUSING INITIATIVES OF NEW ENGLAND
TAX MAP 2, LOT 10-4
BAGDAD ROAD, DURHAM, NH

MJS ENGINEERING, P.C.
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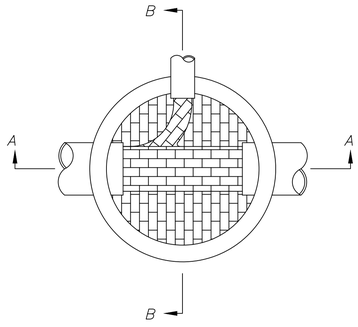
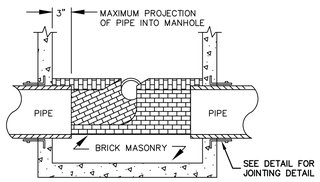
JOB: 19-057

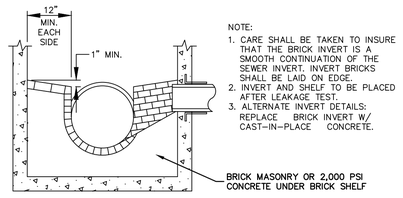
C502



PLAN



SECTION A–A

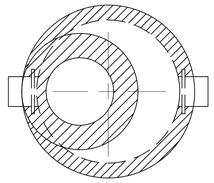


NOTE:
1. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.
2. INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST.
3. ALTERNATE INVERT DETAILS: REPLACE BRICK INVERT W/ CAST–IN–PLACE CONCRETE.

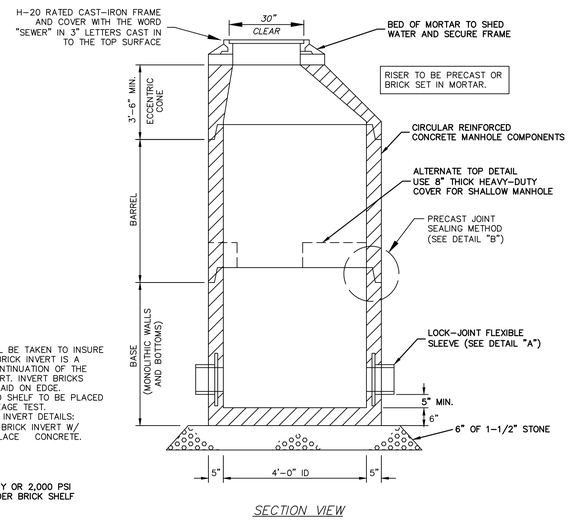
SECTION B–B

TYPICAL SEWER MANHOLE INVERT

NTS



PLAN VIEW



SECTION VIEW

STANDARD MANHOLE

NTS

NOTES:

1. SMH #1 IS A STANDARD MANHOLE WITH ECCENTRIC CONE TOP.
2. THERE SHALL BE NO STEPS INSTALLED WITHIN THE MANHOLE.

SEWER NOTES:

PER THE REQUIREMENTS OF "STANDARDS OF DESIGN AND CONSTRUCTION FOR SEWERAGE AND WASTEWATER TREATMENT FACILITIES."

GRAVITY SEWER CONSTRUCTION MATERIALS (Env–Wq 704.05)

(A) PLASTIC GRAVITY SEWER PIPE AND FITTINGS SHALL BE 8 INCH PVC SDR 35 SEWER PIPE (EXCEPT SEWER SERVICE SHALL BE 6" SRD 35 PVC) AND SHALL COMPLY WITH ASTM D3034–04e.

(B) PLASTIC SEWER PIPE SHALL HAVE A PIPE STIFFNESS RATING OF AT LEAST 46 PSI AT 5 PERCENT PIPE DIAMETER DEFLECTION, AS MEASURED IN ACCORDANCE WITH ASTM D2412–02 DURING MANUFACTURE.

(C) JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D3212–96(a)(2003)e1 AND SHALL BE PUSH–ON, BELL AND SPIGOT TYPE.

GRAVITY SEWER PIPE TESTING REQUIREMENTS (Env–Wq 704.07)

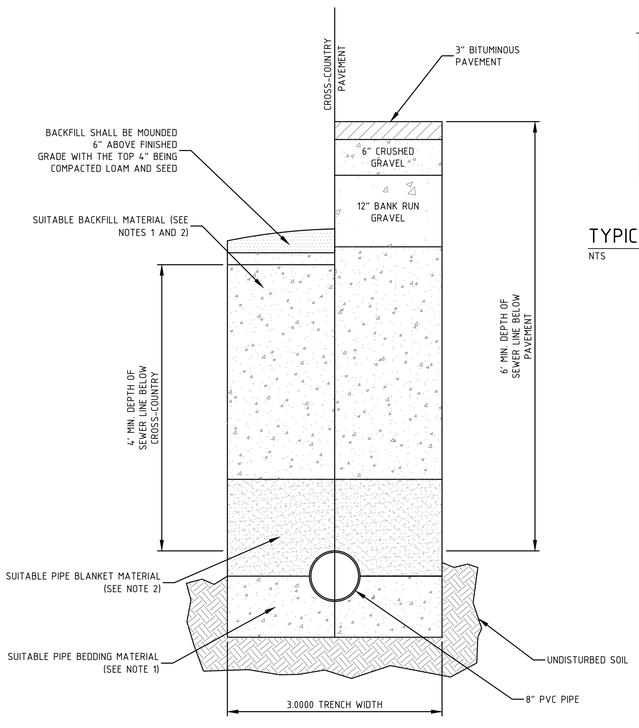
(A) ALL NEW SEWERS SHALL BE TESTED FOR WATER TIGHTNESS BY THE USE OF LOW–PRESSURE AIR TESTS.

(B) LOW–PRESSURE AIR TESTING SHALL BE IN CONFORMANCE WITH:
(1) ASTM F1417–92(2005) "STANDARD TEST METHOD FOR INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW–PRESSURE AIR"; OR
(2) UNI–BELL PVC PIPE ASSOCIATION UNI–B–6, "LOW–PRESSURE AIR TESTING OF INSTALLED SEWER PIPE" (1998).

(C) ALL NEW GRAVITY SEWERS SHALL BE CLEANED AND VISUALLY INSPECTED AND SHALL BE TRUE TO LINE AND GRADE FOLLOWING INSTALLATION AND PRIOR TO USE.

(D) ALL PLASTIC SEWER PIPE SHALL BE DEFLECTION TESTED NOT LESS THAN 30 DAYS FOLLOWING INSTALLATION.

(E) THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 7½ PERCENT OF AVERAGE INSIDE DIAMETER.



NOTES (IN ACCORDANCE WITH Env–Ws 706.05)

1. PIPE TRENCH BEDDING MATERIAL AND FILL MATERIAL FOR ORDERED EXCAVATION BELOW GRADE SHALL BE SCREENED GRAVEL OR CRUSHED STONE TO ASTM C33 STONE SIZE NO. 67. THE PIPE BEDDING MATERIAL SHALL BE PLACED 6 INCHES BELOW THE BOTTOM OF THE PIPE. THE FILL MATERIAL SHALL BE PLACED ABOVE THE PIPE SAND BLANKET MATERIAL AND EXTEND TO THE FINISHED GRADE OR TO THE BOTTOM OF THE SELECT MATERIALS FOR A PAVED AREA.
2. PIPE SAND BLANKET MATERIAL SHALL BE GRADED SAND, FREE FROM ORGANIC MATERIALS, 100% OF WHICH SHALL PASS THROUGH A 1/2 INCH SIEVE AND A MAXIMUM OF 15% OF WHICH SHALL PASS THROUGH A #200 SIEVE. THE SAND BLANKET SHALL COVER THE PIPE TO A DEPTH OF 12 INCHES.
3. BEDDING AND BLANKET MATERIALS SHALL BE COMPACTED IN 12 INCH LAYERS. BACKFILL MATERIAL SHALL BE COMPACTED IN 3 FOOT LAYERS TO THE FINISHED SURFACE EXCEPT FOR PAVED AREAS WHERE THE DEPTH BELOW PAVEMENT CONSISTING OF THE SELECT MATERIALS SHALL BE COMPACTED PER THE APPLICABLE PAVEMENT CONSTRUCTION GUIDELINES.
4. TRENCH BACKFILL MATERIAL FOR PAVED AREAS SHALL CONSIST OF THE NATURAL MATERIAL EXCAVATED FOR THE TRENCH WITH THE EXCEPTION OF: DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, WET OR SOFT MUCK, PEAT OF CLAY, EXCAVATED LEDGE MATERIAL, ROCKS OVER 6 INCHES IN THE LARGEST DIMENSION, AND ANY MATERIAL NOT APPROVED BY THE ENGINEER. TRENCH BACKFILL FOR CROSS–COUNTRY SHALL BE AS DESCRIBED ABOVE WITH THE EXCEPTION THAT TOP SOIL, LOAM, AND MUCK OR PEAT MAY BE USED AS LONG AS SUCH MATERIAL PROVIDES STABLE CONSTRUCTION.
5. ADDITIONAL REQUIREMENTS MAY BE FOUND IN Env–Ws 706.05.

STANDARD SEWER PIPE TRENCH

NTS

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

NO.	REVISIONS	DATE	INT.
5.	REVISED BID SET	9/30/20	MCS
4.	REVISIONS FOR BID SET	9/21/20	MCS
3.	REVISED PLAN SET	9/4/20	MCS
2.	REVISED SITE PLAN AND GRADING	7/2/20	MCS
1.	INITIAL SUBMISSION TO THE DURHAM PLANNING BOARD	6/3/20	MCS

SEAL

STATE OF NEW HAMPSHIRE — MICHAEL J. SIEVERT — No. 8886 — PROFESSIONAL ENGINEER

DATE ISSUED: 6/3/20
SCALE: AS SHOWN
DESIGNED BY: MCS
DRAWN BY: MCS
APPROVED BY: MJS
DWG FILE: 19057 DetlH.dwg

CONSTRUCTION DETAILS
prepared for
BW2 LLC C/O
HOUSING INITIATIVES OF NEW ENGLAND
TAX MAP 2, LOT 10–4
BAGDAD ROAD, DURHAM, NH

MJS ENGINEERING, P.C.
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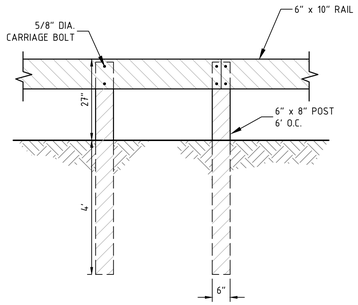
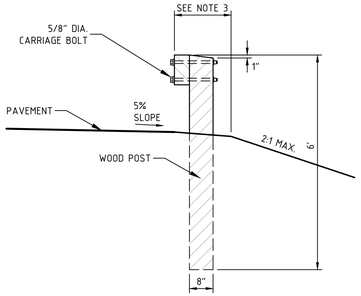
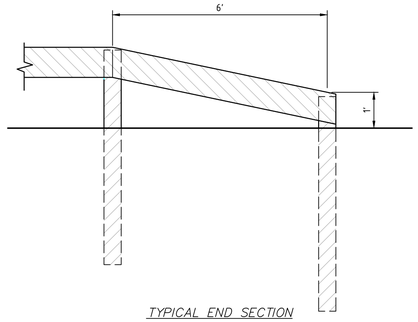
JOB: 19–057

C503





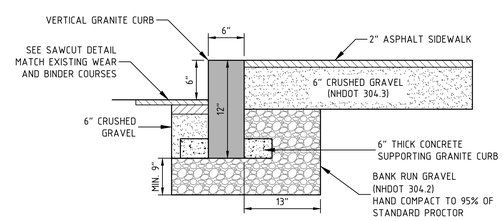


TYPICAL END SECTION

NOTE:
1. ALL MATERIAL AND INSTALLATION METHODS SHALL CONFORM W/NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 606-GUARDRAIL.
2. REFER TO SHEET C102 FOR LOCATION AND GRADING AROUND GUARD RAIL.
3. FACE OF GUARDRAIL SHOULD BE NO CLOSER THAN 6'-3" FROM THE FACE OF THE INSTALLED RETAINING WALL OR 2'-6" FROM SLOPES GREATER THAN 5%.

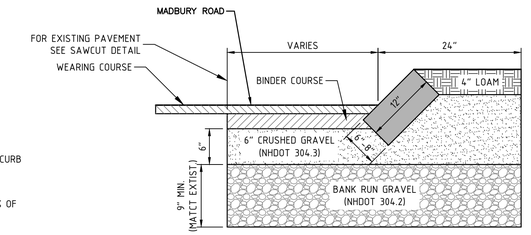
REFERENCE:
TIMBER BRIDGE DESIGN, CONSTRUCTION, INSPECTION, AND MAINTENANCE PUBLISHED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE FOREST SERVICE.

GUARD RAIL DETAIL
NTS



NOTES:
1. MINIMUM LENGTH OF CURB STONES = 3'
2. MAXIMUM LENGTH OF CURB STONES = 10'
3. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
4. SEE PLAN FOR LOCATION

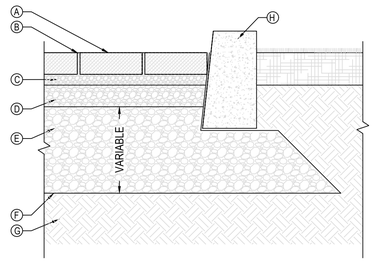
TYPICAL VERTICAL GRANITE CURB
NTS



NOTES:
1. REMOVE LOAM TO A MINIMUM DEPTH OF 8" BELOW SELECT MATERIALS.
2. COMPACT BASE, SUBBASE, AND SUBGRADE TO 95% OF STANDARD PROCTOR.
3. SEE PLAN FOR LOCATION

TYPICAL SLOPED GRANITE CURB
NTS

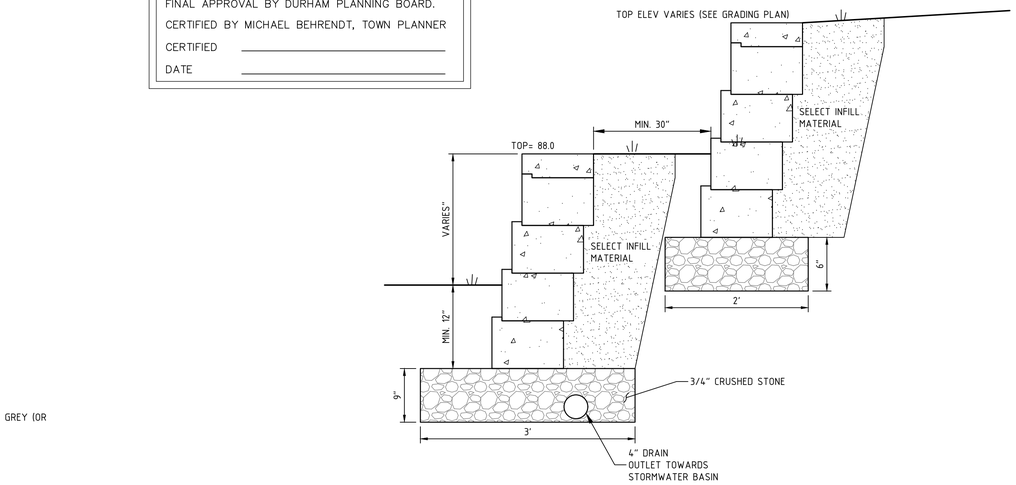
FINAL APPROVAL BY DURHAM PLANNING BOARD.
CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER
CERTIFIED _____
DATE _____



SECTION
CASE NO 1 - FULL INFILTRATION

LEGEND:
A. PERMEABLE PAVER FROM TECHO-BLOC, 2 3/8" TO 3 15/16" (60 TO 100 MM) PURE IN CHAMPLAIN GREY (OR SLATE GREY) CONFORMING TO ASTM C 936
B. JOINT FILLING MATERIAL, NO. 8 CONFORMING TO ASTM D 448
C. BEDDING COURSE, 2" (50 MM) THICK NO. 8 STONE CONFORMING TO ASTM D 448
D. BASE COURSE, 4" (100 MM) THICK NO. 57 STONE CONFORMING TO ASTM D 448
E. SUBBASE COURSE, THICKNESS AS PER DESIGN NO. 2 STONE CONFORMING TO ASTM D 448
F. GEOTEXTILE
G. SUBGRADE
H. EDGE RESTRAINT

TECHO PERMEABLE PAVER DETAIL
NTS

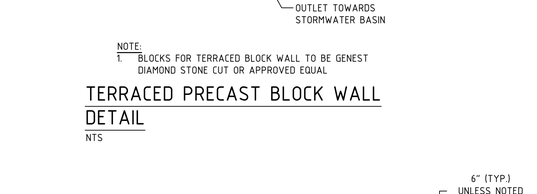


NOTE:
1. BLOCKS FOR TERRACED BLOCK WALL TO BE GENEST DIAMOND STONE CUT OR APPROVED EQUAL

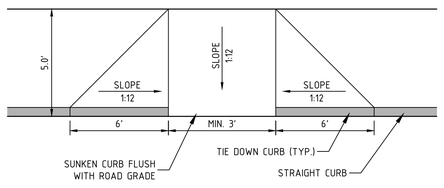
TERRACED PRECAST BLOCK WALL DETAIL
NTS

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 3/8 INCH THICK PLATE WITH THREE 3/4 INCH DIA. HOLES AT 120 DEGREE SPACING.
5. BOLT: DRIVE TYPE ANCHOR BOLT MADE OF ZINC PLATED AISI 1038 HEAT TREATED CARBON STEEL, 1/2 INCH DIA. BY 3 INCHES LONG.
6. CONCRETE STRENGTH TO BE 3,000 PSI AT 28 DAYS.

TYPICAL BIKE RACK DETAIL
NTS



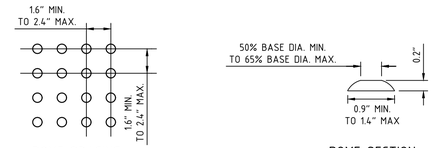
PROFILE VIEW



PLAN VIEW

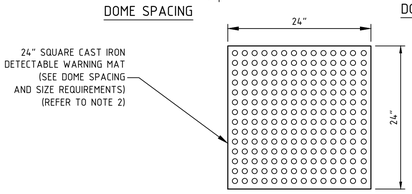
NOTES:
1. SEE SIDEWALK CONSTRUCTION DETAILS.

HANDICAP ACCESSIBLE RAMP
NTS

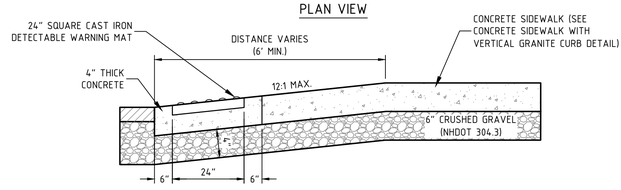


DOME SPACING

DOME SECTION

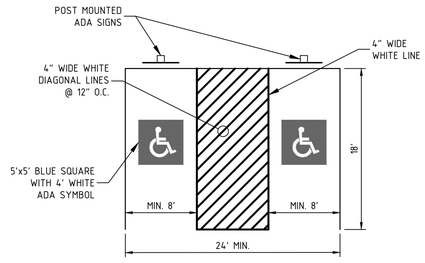


PLAN VIEW



NOTES:
1. CONCRETE TO BE 4,000 PSF.
2. REFER TO MANUFACTURER'S SPECIFICATIONS FOR INSTALLATION OF DETECTABLE WARNING MATS.

DETECTABLE WARNING MAT DETAIL
NTS

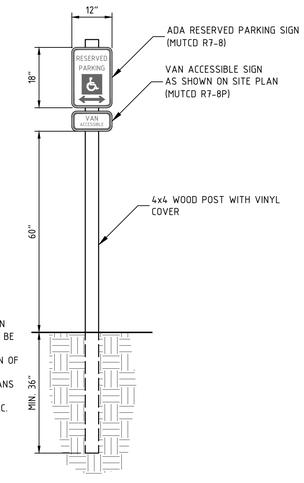


NOTES:
1. SEE SITE PLAN FOR STRIPING LAYOUT

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 EDITION 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.
4. MAXIMUM SLOPE OF ADA PARKING IS 2%

ADA STRIPING AND SIGN DETAIL
NTS



NO.	DATE	INT.
	REVISIONS	
5.	REVISED BID SET	9/30/20 MCS
4.	REVISIONS FOR BID SET	9/21/20 MCS
3.	REVISED PLAN SET	9/4/20 MCS
2.	REVISED SITE PLAN AND GRADING	7/2/20 MCS
1.	INITIAL SUBMISSION TO THE DURHAM PLANNING BOARD	6/3/20 MCS

SEAL — STATE OF NEW HAMPSHIRE — MICHAEL J. BIEVENT — No. 8887 — LICENSED PROFESSIONAL ENGINEER

DATE ISSUED: 6/3/20
SCALE: AS SHOWN
DESIGNED BY: MCS
DRAWN BY: MCS
APPROVED BY: MJS
DWG FILE: 19057 DetHt.dwg

CONSTRUCTION DETAILS
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BW2 LLC C/O
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TAX MAP 2, LOT 10-4
BAGDAD ROAD, DURHAM, NH

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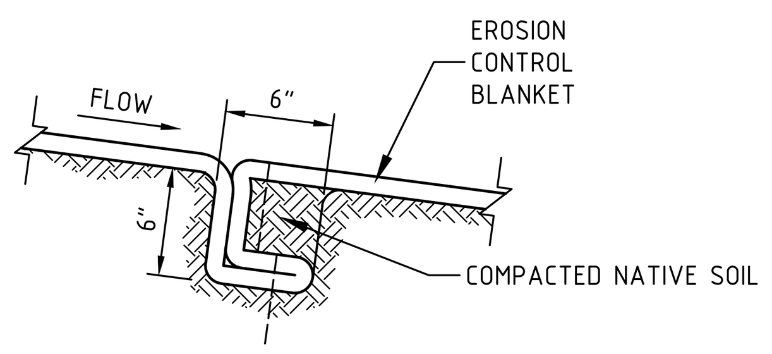
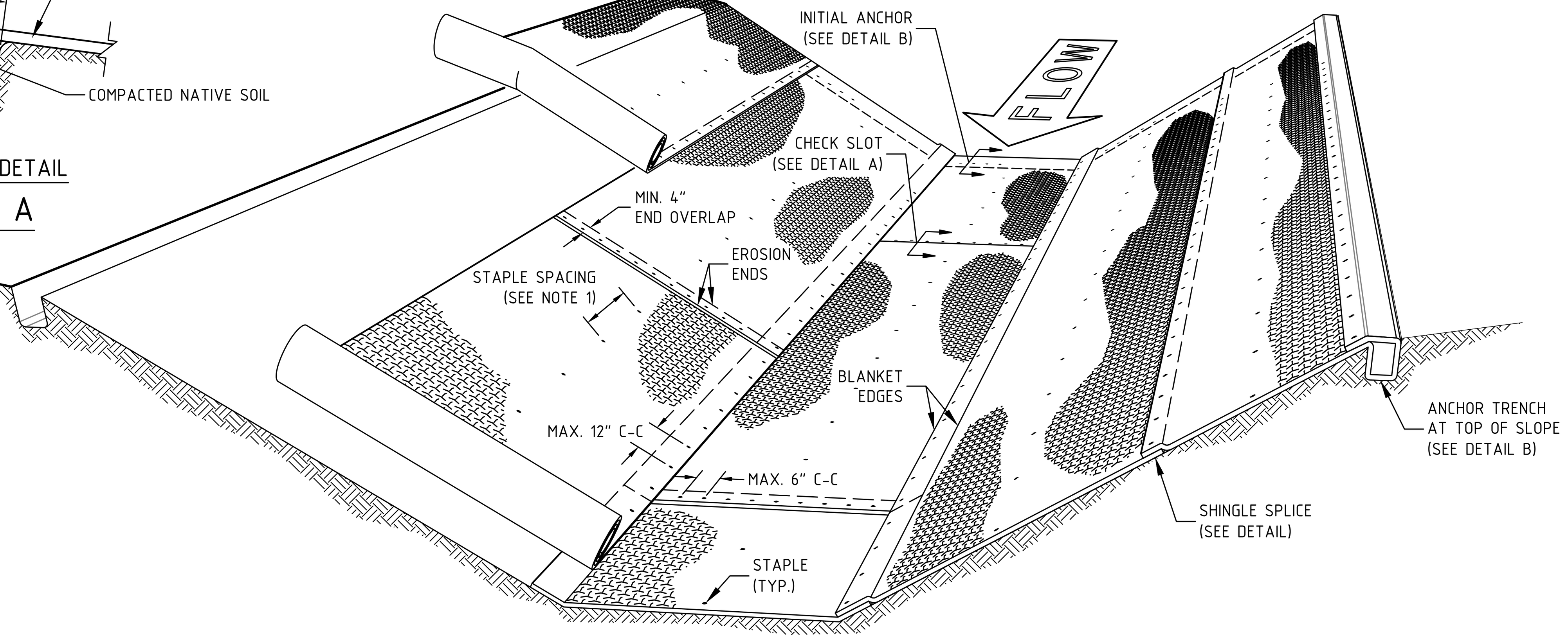
JOB: 19-057

C504

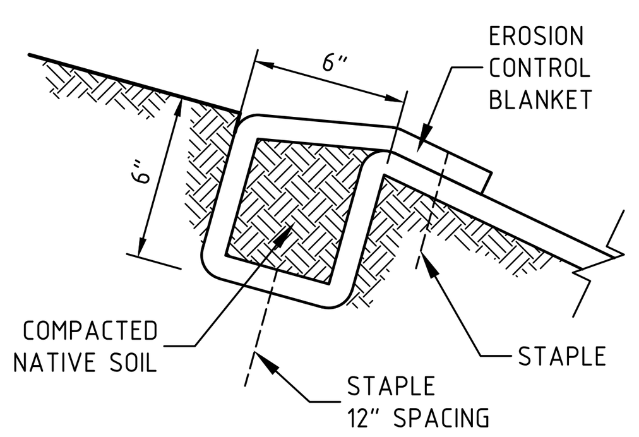


CHECK SLOT DETAIL

DETAIL A

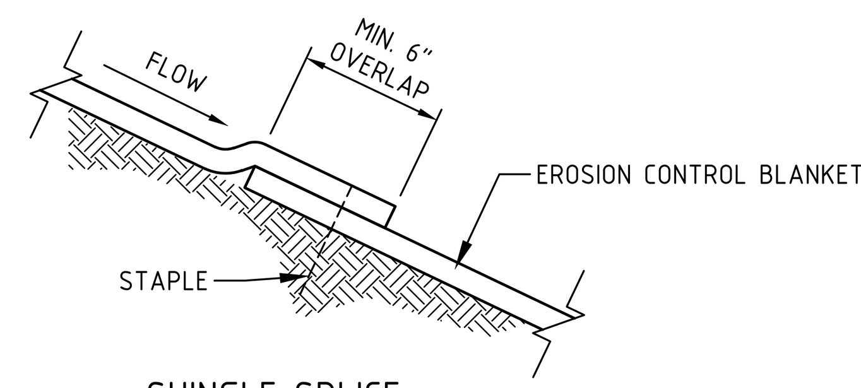


CHANNEL INSTALLATION



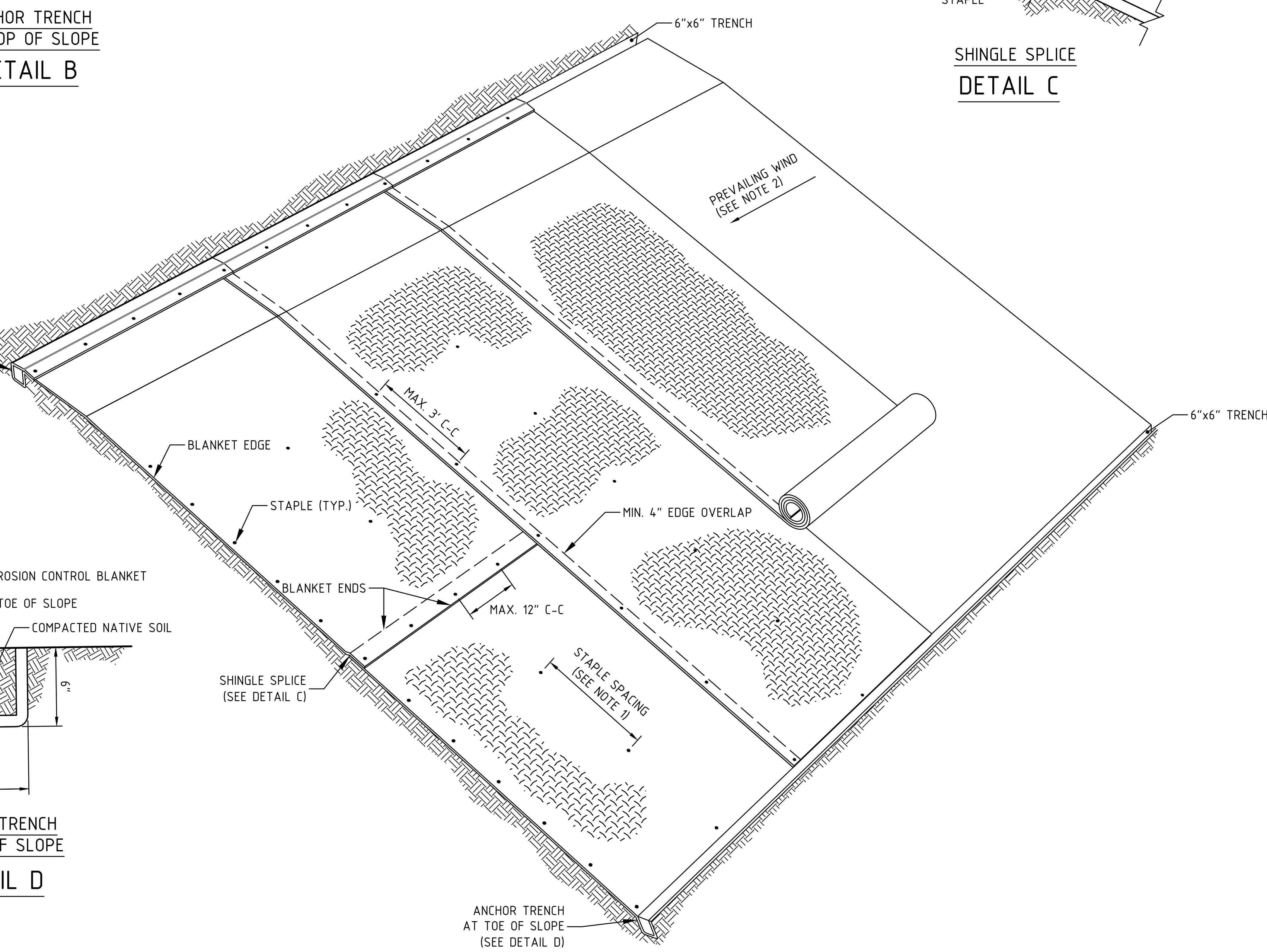
ANCHOR TRENCH AT TOP OF SLOPE

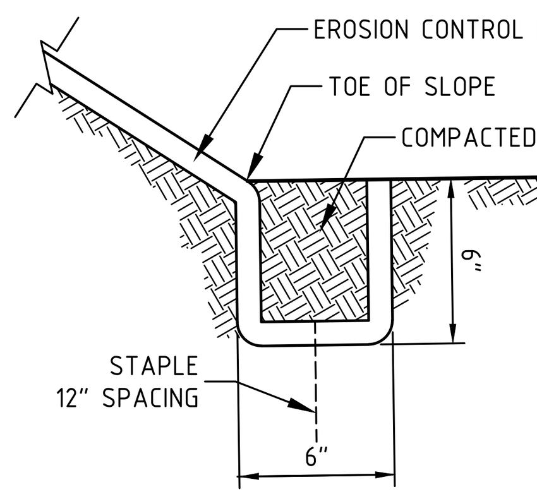
DETAIL B



SHINGLE SPLICE

DETAIL C





ANCHOR TRENCH AT TOE OF SLOPE

DETAIL D

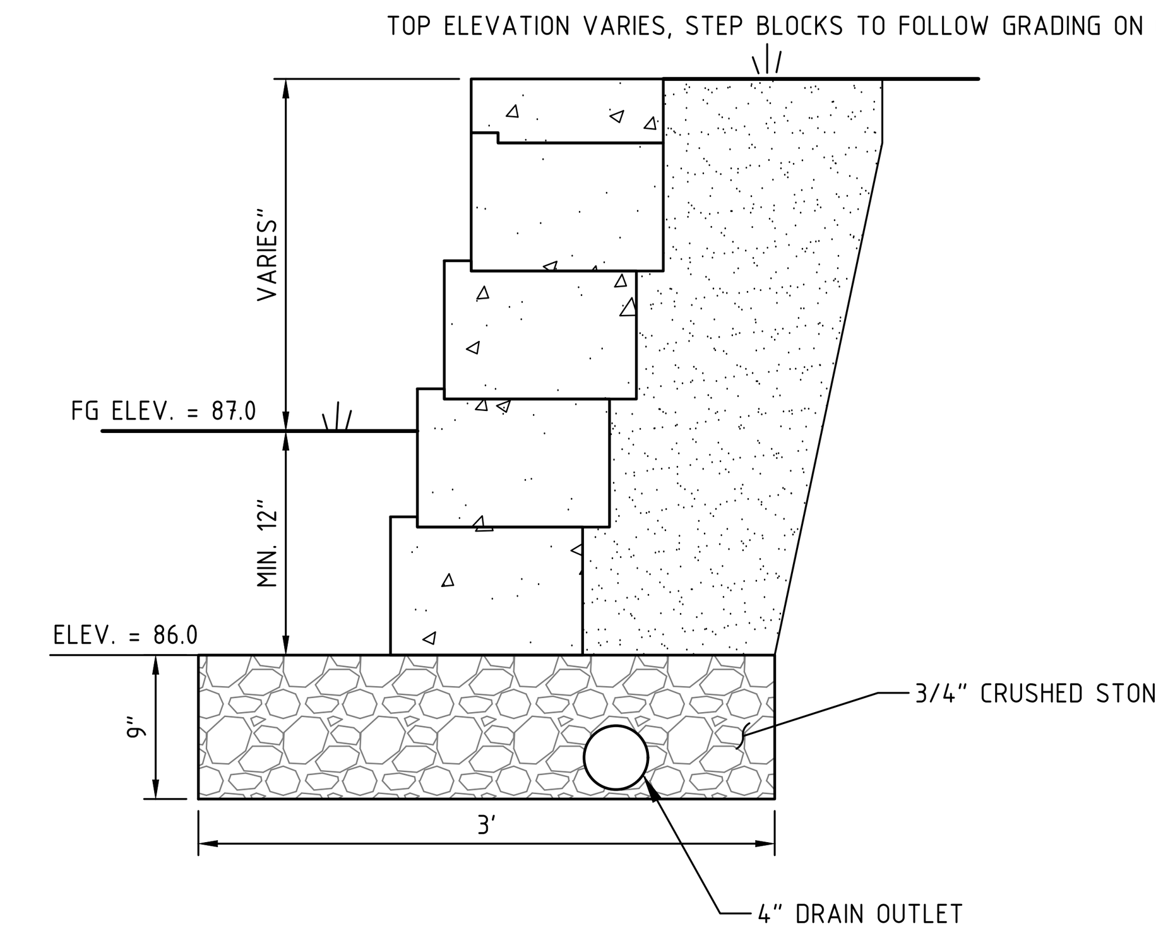
SLOPE INSTALLATION

NOTES:
1. INSTALL STAPLES ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
2. OVERLAP IN THE DIRECTION OF THE PREVAILING WIND.
3. INSTALL STAPLES ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
4. PROVIDE CHECK SLOTS ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
5. ROLL ENDS MAY BE SPLICED IN A CHECK SLOT.
6. TRAPEZOIDAL DITCH SHOWN. SIMILAR DETAILS FOR A V-DITCH.

ROLLED EROSION CONTROL DETAIL

NTS

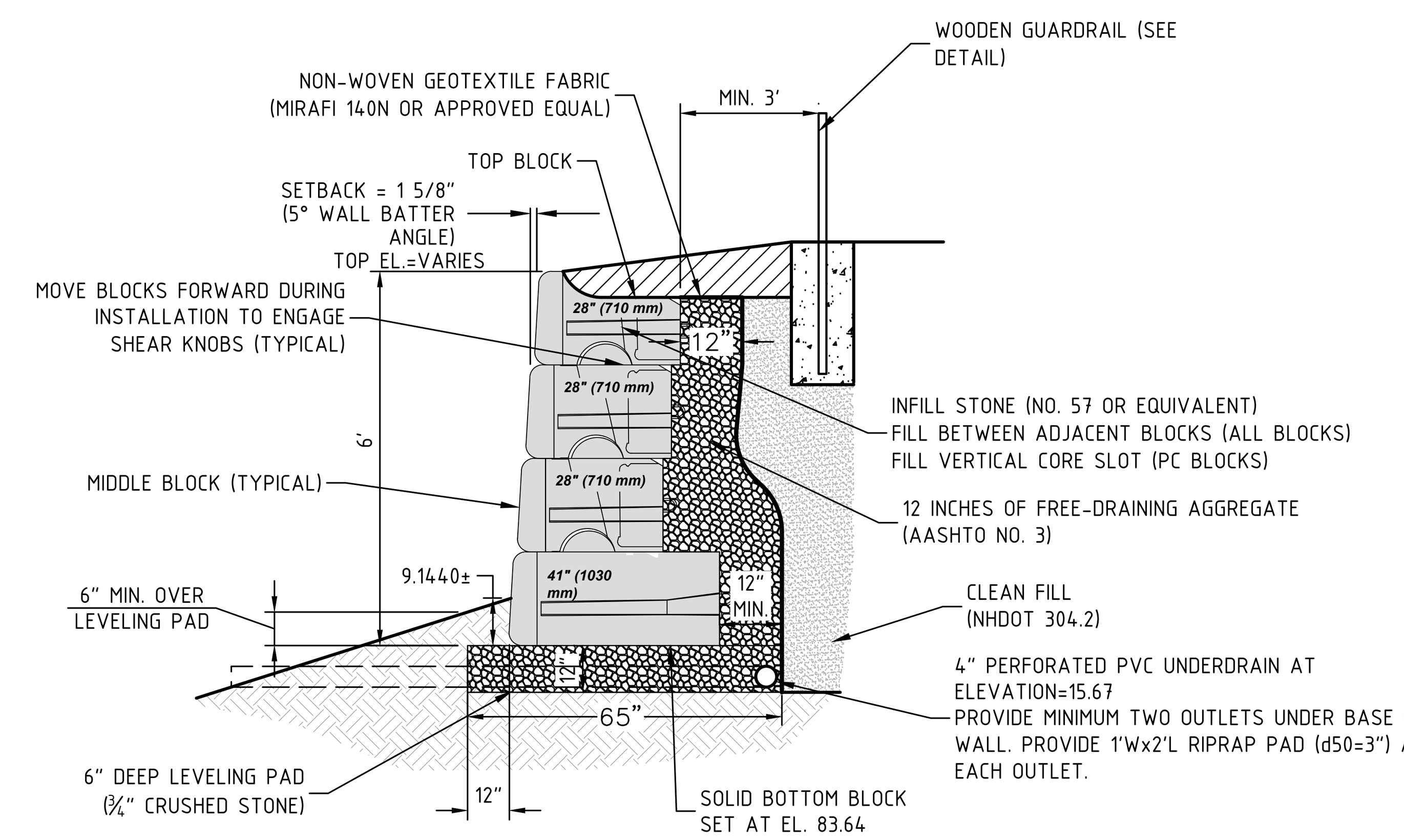
FINAL APPROVAL BY DURHAM PLANNING BOARD.
CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER
CERTIFIED ____________
DATE ____________



NOTE:
1. BLOCKS FOR TERRACED BLOCK WALL TO BE GENEST DIAMOND STONE CUT OR APPROVED EQUAL

PRECAST BLOCK WALL AT MECH. UNIT DETAIL

NTS



PRECAST CONCRETE RETAINING WALL NOTES:
1. RETAINING WALL TO BE CONSTRUCTED WITH REDI-ROCK PRECAST CONCRETE BLOCKS.
2. RETAINING WALL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. STEP WALL AS NECESSARY TO MAINTAIN 6" MINIMUM COVER OVER LEVELING PAD. THIS WILL RESULT IN APPROXIMATELY 9" OF EMBEDMENT OF THE FIRST COURSE OF BLOCKS.
4. THE INFILL SHALL MEET THE FOLLOWING GRADATION:
ASTM NO. 57 (3/8" CUT STONE)

SIEVE SIZE	PERCENT PASSING
1 1/2"	100
1"	95 TO 100
1/2"	25 TO 60
#4	0 TO 10
#8	0 TO 5

5. 12" OF FREE DRAINING MATERIAL BEHIND WALL SHALL MEET THE FOLLOWING GRADATION: AASHTO NO. 3

SIEVE SIZE	PERCENT PASSING
2 1/2"	100
2"	90 TO 100
1 1/2"	35 TO 70
1"	0 TO 15
1/2"	0 TO 5

6. FOR SALES, CONTACT:

MICHIE CORPORATION
173 BUXTON INDUSTRIAL DRIVE
P.O. BOX 1870
HENNIKER, NH 03234
(603) 428-3218

GRAVITY RETAINING WALL DETAIL

NTS

NO.	REVISIONS	DATE	INT.
6.	REVISIONS PER TOWN PLANNER COMMENTS	10/14/20	MCS
5.	REVISED BID SET	9/30/20	MCS
4.	REVISIONS FOR BID SET	9/21/20	MCS
2.	REVISED PLAN SET	9/4/20	MCS
1.	REVISED SITE PLAN AND GRADING	7/2/20	MCS
0.	INITIAL SUBMISSION TO THE DURHAM PLANNING BOARD	6/3/20	MCS

SEAL: STATE OF NEW HAMPSHIRE, MICHAEL J. SIEVERT, No. 8597, LICENSED PROFESSIONAL ENGINEER

DATE ISSUED: 6/3/20
SCALE: AS SHOWN
DESIGNED BY: MCS
DRAWN BY: MCS
APPROVED BY: MJS
DWG FILE: 19057 DetlH.dwg

CONSTRUCTION DETAILS
prepared for
BW2 LLC C/O
HOUSING INITIATIVES OF NEW ENGLAND
TAX MAP 2, LOT 10-4
BAGDAD ROAD, 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: 19-057

C505

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2020-10-29 11:10:44

PROPOSED LAYOUT	
52	STORMTECH SC-310 CHAMBERS
10	STORMTECH SC-310 END CAPS
6	STONE ABOVE (in)
6	STONE BELOW (in)
40	STONE VOID
1877	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)
1518	SYSTEM AREA (SF)
207.3	SYSTEM PERIMETER (ft)

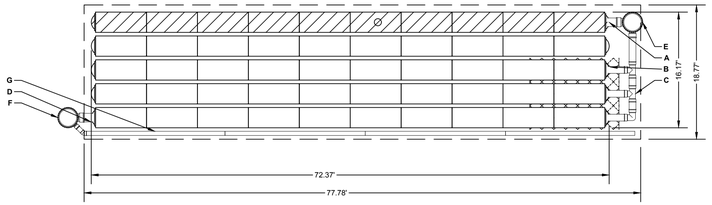
PROPOSED ELEVATIONS	
MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	93.00
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	87.00
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	86.50
MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	86.50
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	86.50
TOP OF STONE:	85.50
TOP OF SC-310 CHAMBER:	85.00
10" x 10" TOP MANIFOLD INVERT:	83.79
12" ISOLATOR ROW INVERT:	83.75
12" BOTTOM CONNECTION INVERT:	83.75
BOTTOM OF SC-310 CHAMBER:	83.67
UNDERDRAIN INVERT:	83.17
BOTTOM OF STONE:	83.17

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	12" BOTTOM PREFABRICATED END CAP/TYP OF ALL 12" BOTTOM CONNECTIONS AND ISOLATOR ROWS	0.90"	
PREFABRICATED END CAP	B	10" TOP PREFABRICATED END CAP/TYP OF ALL 10" TOP CONNECTIONS	1.40"	
MANIFOLD	C	10" x 10" TOP MANIFOLD, MOLDED FITTINGS	1.40"	
PIPE CONNECTION	D	12" BOTTOM CONNECTION	0.90"	
NYLOPLAST (INLET W/ ISO ROW)	E	30" DIAMETER (24.00" SUMP MIN)		3.7 CFS IN
NYLOPLAST (OUTLET)	F	30" DIAMETER (DESIGN BY ENGINEER)		2.0 CFS OUT
UNDERDRAIN	G	6" ADS N-12 DUAL WALL PERFORATED HDPE UNDERDRAIN		

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE IN-SITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.

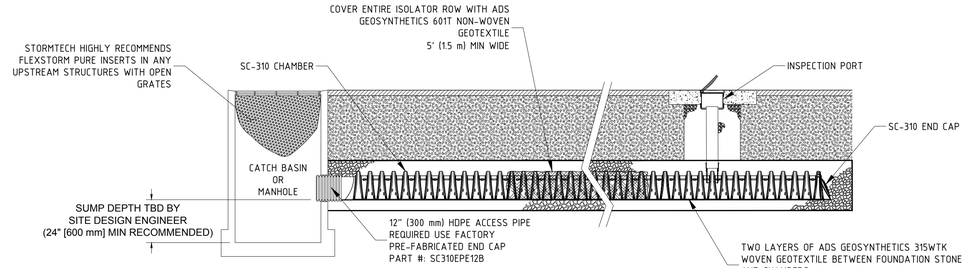


ISOLATOR ROW
(SEE DETAIL)

PLACE MINIMUM 12.50' OF ADS GEOSYNTHETICS 315WTK WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

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



SC-310ISOLATOR DETAIL

NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

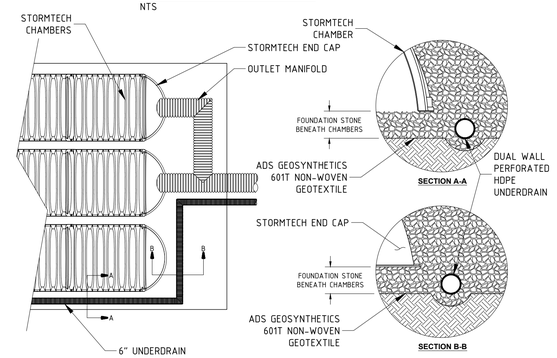
STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

UNDERDRAIN DETAIL

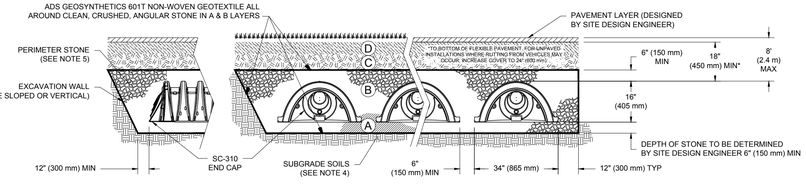
NTS



ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	*FINAL FILL:* FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	*INITIAL FILL:* FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	*EMBEDMENT STONE:* FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	*FOUNDATION STONE:* FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE[2,3]

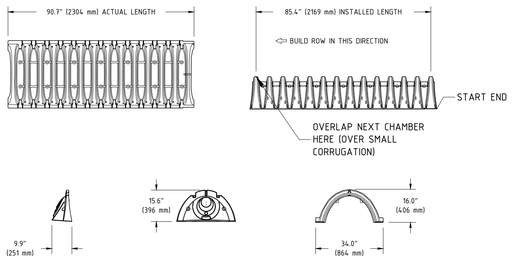
PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLYETHYLENE) OR ASTM F2418-16a (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2922 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

SC-310 TECHNICAL SPECIFICATION

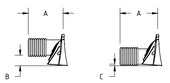
NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	34.0" X 16.0" X 85.4"	(864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE	14.7 CUBIC FEET	(0.42 m^3)
MINIMUM INSTALLED STORAGE*	31.0 CUBIC FEET	(0.88 m^3)
WEIGHT	35.0 lbs.	(16.8 kg)

"ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS



STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---
SC310EPE06B / SC310EPE06BPC			---	0.5" (13 mm)
SC310EPE08T / SC310EPE08TPC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	---
SC310EPE08B / SC310EPE08BPC			---	0.6" (15 mm)
SC310EPE10T / SC310EPE10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	---
SC310EPE10B / SC310EPE10BPC			---	0.7" (18 mm)
SC310EPE12B	12" (300 mm)	13.5" (343 mm)	---	0.9" (23 mm)

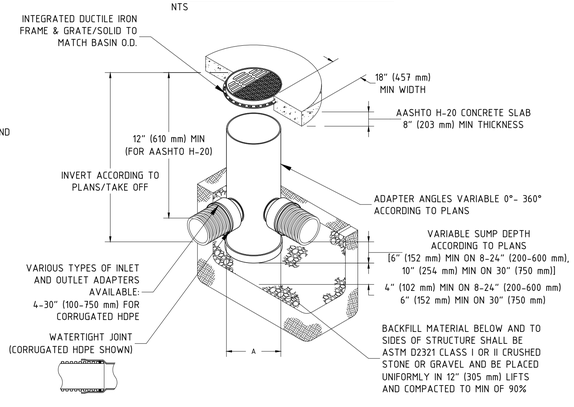
ALL STUBS, EXCEPT FOR THE SC310EPE12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

"FOR THE SC310EPE12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

NYLOPLAST DRAIN BASIN

NTS



NOTES
1. 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
2. 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
5. FOR COMPLETE DESIGN AND PRODUCT INFORMATION: WWW.NYLOPLAST-US.COM
6. TO ORDER CALL: 800-821-6710

A	PART #	GRATE/SOLID COVER OPTIONS		
8" (200 mm)	2808AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
10" (250 mm)	2810AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
12" (300 mm)	2812AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
15" (375 mm)	2815AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
18" (450 mm)	2818AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
24" (600 mm)	2824AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
30" (750 mm)	2830AG	PEDESTRIAN AASHTO H-20	STANDARD AASHTO H-20	SOLID AASHTO H-20

NO.	DATE	INT.
5.	9/30/20	MCS
4.	9/21/20	MCS
3.	9/4/20	MCS
2.	7/2/20	MCS
1.	6/3/20	MCS
0.	REVISED BID SET REVISIONS FOR BID SET REVISED PLAN SET REVISED SITE PLAN AND GRADING INITIAL SUBMISSION TO THE DURHAM PLANNING BOARD	

REVISIONS

SEAL

DATE ISSUED: 6/3/20
SCALE: AS SHOWN
DESIGNED BY: MCS
DRAWN BY: MCS
APPROVED BY: MJS
DWG FILE: 19057 DetHt.dwg

CONSTRUCTION DETAILS
prepared for
BW2 LLC C/O
HOUSING INITIATIVES OF NEW ENGLAND
TAX MAP 2, LOT 10-4
BAGDAD ROAD, DURHAM, NH

MJS ENGINEERING P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 NAMARATH DRIVE, BOW, NH 03304-3259
PHONE: (603) 659-4979, FAX: (603) 659-4627
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C506