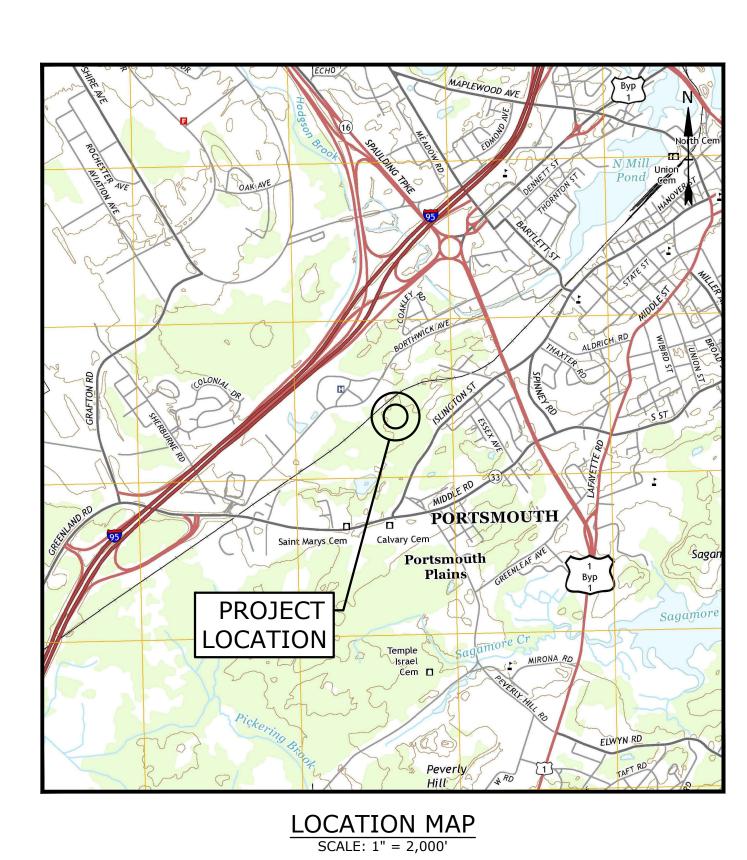
# PROPOSED SUBDIVISION ROAD & OFFICE BUILDING DEVELOPMENT

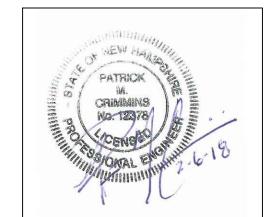
# PORTSMOUTH, NEW HAMPSHIRE PERMIT DRAWINGS

MARCH 20, 2017 LAST REVISED: FEBRUARY 6, 2018

	LIST OF DRAWINGS					
SHEET NO.	SHEET TITLE	LAST				
SHELLI NO.	SHEET THEE	REVISED				
	COVER SHEET	02/06/2018				
1 OF 5	LOT CONSOLIDATION & RESUBDIVISION PLAN	02/05/2018				
2 OF 5	LOT CONSOLIDATION & RESUBDIVISION PLAN	02/05/2018				
3 OF 5	LOT CONSOLIDATION & RESUBDIVISION PLAN	02/05/2018				
4 OF 5	LOT CONSOLIDATION & RESUBDIVISION PLAN	02/05/2018				
5 OF 5	LOT CONSOLIDATION & RESUBDIVISION PLAN	02/05/2018				
G-101	GENERAL NOTES, ABBREVIATIONS & LEGEND SHEET	02/06/2018				
C-101	OVERALL EXISTING CONDITIONS PLAN	02/06/2018				
C-101.1	EXISTING CONDITIONS/DEMOLITION PLAN	02/06/2018				
C-101.2	EXISTING CONDITIONS/DEMOLITION PLAN	02/06/2018				
C-102	OVERALL SITE PLAN	02/06/2018				
C-102.1	SITE PLAN & ROADWAY PROFILE	02/06/2018				
C-102.2	SITE PLAN	02/06/2018				
C-103.1	GRADING, DRAINAGE & EROSION CONTROL PLAN	02/06/2018				
C-103.2	GRADING, DRAINAGE & EROSION CONTROL PLAN	02/06/2018				
C-104.1	UTILITY PLAN & PROFILES	02/06/2018				
C-104.2	UTILITY PLAN	02/06/2018				
C-105.1	LANDSCAPE PLAN	02/06/2018				
C-105.2	LANDSCAPE PLAN	02/06/2018				
C-106	BUFFER RESTORATION & PLANTING SEQUENCING PLAN	02/06/2018				
C-501	EROSION CONTROL NOTES SHEET	02/06/2018				
C-502	DETAILS SHEET	02/06/2018				
C-503	DETAILS SHEET	02/06/2018				
C-504	DETAILS SHEET	02/06/2018				
C-505	DETAILS SHEET	02/06/2018				
C-506	DETAILS SHEET	02/06/2018				
C-507	DETAILS SHEET	02/06/2018				
C-508	DETAILS SHEET	02/06/2018				
1 OF 1	PHOTOMETRICS PLAN	02/05/2018				
A3.01	EXTERIOR ELEVATIONS	01/12/2018				
A3.02	EXTERIOR ELEVATIONS	01/12/2018				









DATRICK M CRIMMING DE

BRAD MEZQUITA, P.

Applicant:

Borthwick Forest, LLC c/o The Kane Company 210 Comerce Way Portsmouth, New Hampshire 03801

**Survey Consultant:** 

Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857

**Wetland Consultant:** 

Gove Environmental Services, Inc. 8 Continental Dr Bldg 2 Unit H Exeter, New Hampshire 03833

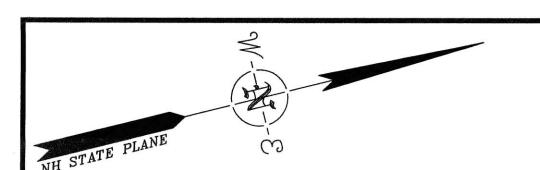
**CONSTRUCTION NOTES:** 

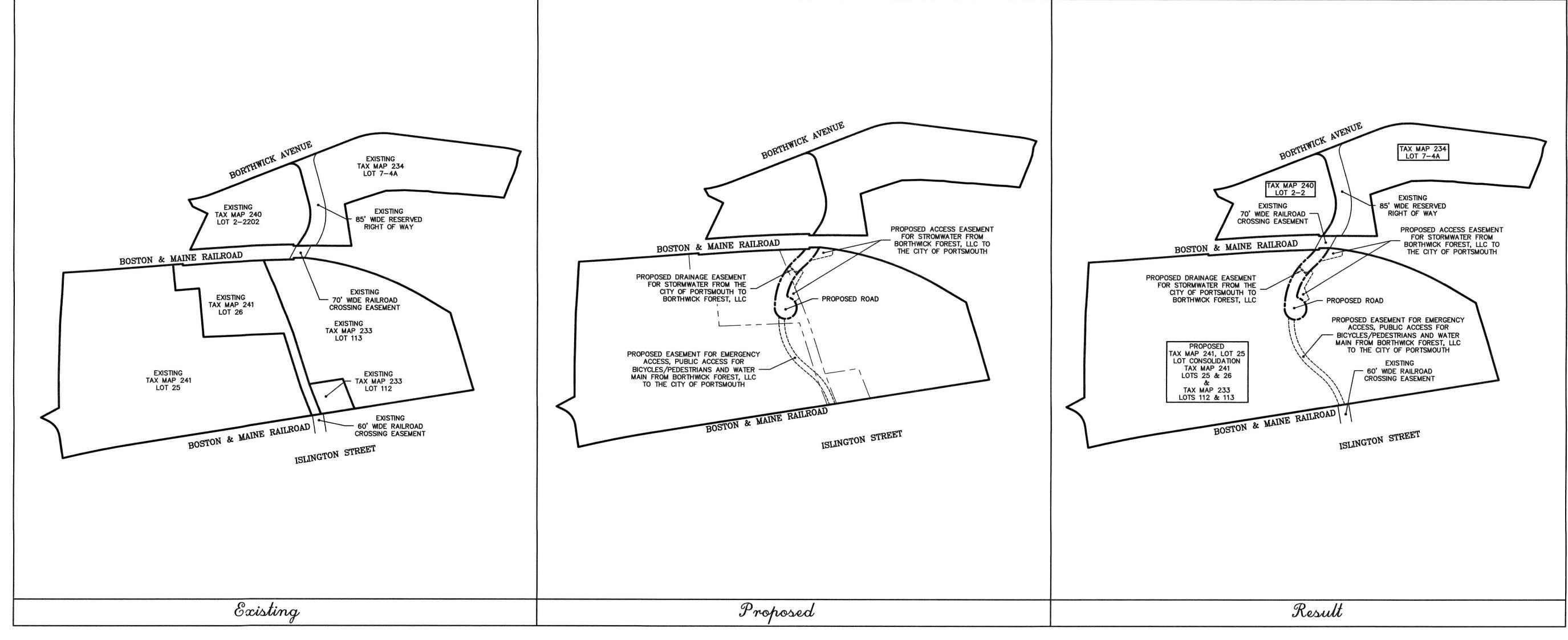
 THE CONTRACTOR SHALL NOT RELY ON SCALED DIMENSIONS AND SHALL CONTACT THE ENGINEER FOR CLARIFICATION IF A REQUIRED DIMENSION IS NOT PROVIDED ON THE PLANS.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, AND FOR SITE CONDITIONS THROUGHOU CONSTRUCTION. NEITHER THE PLANS NOR THE SEAL OF THE ENGINEER AFFIXED HEREON EXTEND TO OR INCLUDE SYSTEMS REQUIRED FOR THE SAFETY OF THE CONTRACTOR, THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND IMPLEMENTING SAFETY PROCEDURES AND SYSTEMS AS REQUIRED BY THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND ANY STATE OR LOCAL SAFETY REGULATIONS.

3. TIGHE & BOND. ASSUMES NO RESPONSIBILITY FOR ANY ISSUES LEGAL OR OTHERWISE, RESULTING FROM CHANGES MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION OF TIGHE & BOND.







Key Plan (n.t.s.)

<u>LEGEND</u>

EXISTING PROPERTY LINES

PROPOSED RIGHT OF WAY

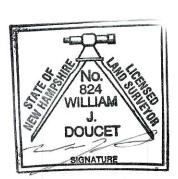
EXISTING EASEMENT

PROPOSED EASEMENT

PROPERTY LINES TO BE ABANDONED

9	2/5/18	REMOVE EASEMENT	MWF
8	11/2/17	FOR RECORDING	MWF
7	9/26/17	REVISE EASEMENTS	MWF
6	4/17/17	ADD ADDITIONAL EASEMENTS	MWF
5	3/17/17	REVISED LAYOUT	MWF
4	3/22/16	REVISED ROAD LAYOUT	MWF
3	3/3/16	REV. LAYOUT & EASEMENTS	MWF
2	1/19/16	REVISED ROAD LAYOUT	MWF
1	11/17/15	PER ATTORNEY	MWF
NO.	DATE	DESCRIPTION	BY

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



I certify that this survey and plan were prepared by me or by those under my direct supervision and falls under the Urban Survey Classification of the NH Code of Administrative Rules of the Board of Licensure for Land Surveyors. I certify that this survey was made on the ground and is correct to the best of my knowledge and belief. Random traverse survey by Total Station, with a precision greater than 1:15,000.

L.L.S. #824 2-5-/8 DATE

The certifications shown hereon are intended to meet registry of deed requirements and are not a certification to title or ownership of property shown. Owners of adjoining properties are according to current town assessors records.

LOT CONSOLIDATION &

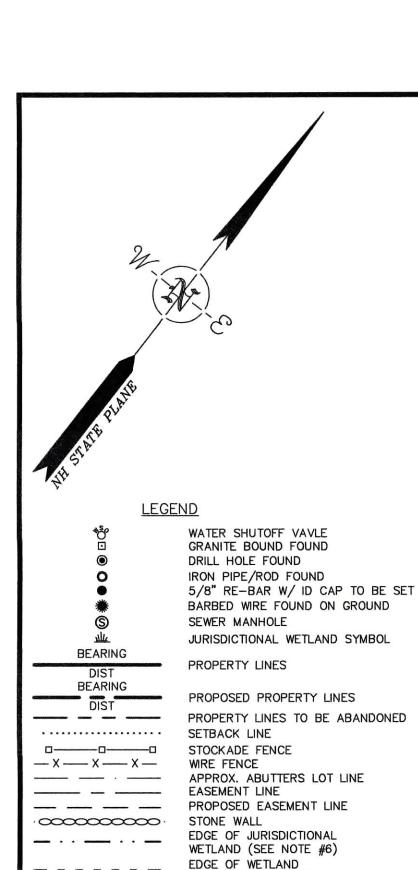
RESUBDIVISION PLAN
LAND OF BORTHWICK FOREST, LLC
AND SHOWING LAND OF
HCA REALTY, INC.

TAX MAP 233 LOTS 112 & 113, TAX MAP 234 LOT 7-4A, TAX MAP 240 LOT 2-2202, & TAX MAP 241 LOTS 25 & 26 & BORTHWICK AVE. & ISLINGTON ST.

PORTSMOUTH, NH

DRAWN BY:	M. W.F.	DATE: MARCH 16, 2017
CHECKED BY:	S. V.M.	DRAWING NO.: 3445G
IOP NO .	3445	SHEET 1 OF 5





(PER REF. PLAN #2) APPROX. WATERLINE LOCATION ----XW-----(PER PORTSMOUTH DPW) ASSESSORS TAX MAP/LOT # FEATURES PER EASTERN TOPOGRAPHICS PAVED ROADS \_\_ \_\_ \_\_ GRAVEL ROADS OBSCURED PAVEMENT DRIVEWAYS UNPAVED DRIVEWAY **FENCES** STONEWALL BROOK/STREAM

OBSCURED RAILROAD TRACKS

RAILROAD TRACKS

REMOVE EASEMENT

REVISE EASEMENTS

REVISED LAYOUT REVISED ROAD LAYOUT

REVISED ROAD LAYOUT

PER ATTORNEY

DESCRIPTION

FOR RECORDING

6 4/17/17 ADD ADDITIONAL EASEMENTS MWF

3 3/3/16 REV. LAYOUT & EASEMENTS MWF

9 2/5/18

8 11/2/17

7 9/26/17

4 3/22/16

2 1/19/16

1 11/17/15

NO. DATE

(233/111)

TAX MAP 233, LOTS 112 & 113 TAX MAP 234, LOT 7-4A REFERENCE: TAX MAP 240, LOT 2-2202 TAX MAP 241, LOTS 25 & 26 LOT 112: 0.732 AC. 2. PARCEL AREAS: LOT 113:13.815 AC LOT 7-4A: 9.085 AC LOT 2-2202: 4.978 AC.

LOT 26: 4.927 AC. 3. OWNER OF RECORD: TAX MAP 233, LOTS 112 (R.C.R.D. BOOK 4754, PAGE 626) TAX MAP 233, LOT 113 (R.C.R.D. BOOK 4754, PAGE 626) TAX MAP 241, LOT 25 (R.C.R.D. BOOK 4754, PAGE 626) TAX MAP 241, LOT 26 (R.C.R.D. BOOK 5670, PAGE 1115)

LOT 25: 22.807 AC.

BORTHWICK FOREST, LLC 210 COMMERCE WAY, SUITE 300 PORTSMOUTH, NH 03801 R.C.R.D. BOOK 4754, PAGE 626

TAX MAP 234, LOT 7-4A (R.C.R.D. BOOK 4400, PAGE 2048) TAX MAP 240, LOT 2-2202 (R.C.R.D. BOOK 5694, PAGE 310) HCA REALTY, INC. C/O DUCHARME MCMILLEN & ASSOC. PO BOX 80610

INDIANAPOLIS, IN 46280 4. ZONE: OR (OFFICE RESEARCH) LOTS 112, 113, 7-4A, 2-2, 25 & 26

DIMENSIONAL REQUIREMENTS: 15,000 SQ. FT. 100 FT. MIN. FRONTAGE MIN. FRONT SETBACK 30 FT. MIN. SIDE SETBACK MIN. REAR SETBACK MAX. BUILDING HEIGHT MAX. BUILDING COVERAGE WETLAND BUFFER: 100 FT.

5. FIELD SURVEY PERFORMED BY DOUCET SURVEY, INC., BETWEEN 2003 AND 2013. TRAVERSE ADJUSTMENTS BASED ON LEAST SQUARES ANALYSIS. AERIAL TOPOGRAPHY PROVIDED BY EASTERN TOPOGRAPHICS, INC.

6. JURISDICTIONAL WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. DURING APRIL 2013 AND AMENDED IN NOVEMBER 2013. WETLANDS DELINEATED IN ACCORDANCE WITH 1987 CORPS OF ENGINEERS WETLANDS DELINEATIONS MANUAL, TECHNICAL REPORT Y-87-1.

7. FLOOD HAZARD ZONE: "X", PER FIRM MAP #3301390260E, DATED 5/17/05.

GAS, TEL. WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC

MWF FASHION. THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK

BY LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

MWF 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

8. HORIZONTAL DATUM BASED ON NH STATE PLANE COORDINATE SYSTEM ZONE 1800 AS ESTABLISHED BY VERRA & ASSOCIATES IN MAY 2003.

9. VERTICAL DATUM IS BASED ON NGVD 29 PER NHDOT DISK R-50 (379-0150) ELEV.=33.24'.

10. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE

11. DUE TO THE COMPLEXITY OF RESEARCHING ROAD RECORDS AS A RESULT OF INCOMPLETE, UNORGANIZED INCONCLUSIVE, OBLITERATED, OR LOST DOCUMENTS, THERE IS AN INHERENT UNCERTAINTY INVOLVED WHEN ATTEMPTING TO DETERMINE THE LOCATION AND WIDTH OF A ROADWAY RIGHT OF WAY. THE EXTENT OF ISLINGTON STREET & BORTHWICK AVENUE AS DEPICTED HEREON IS BASED ON RESEARCH CONDUCTED AT THE PORTMOUTH CITY CLERKS OFFICE AND ROCKINGHAM COUNTY REGISTRY OF DEEDS.

12. FINAL MONUMENTATION MAY BE DIFFERENT THAN THE PROPOSED MONUMENTATION SHOWN HEREON, DUE TO THE FACT THAT SITE CONDITIONS WILL DICTATE THE ACTUAL LOCATION AND TYPE OF MONUMENTS INSTALLED IN THE FIELD. PLEASE REFER TO EITHER THE "MONUMENTATION LOCATION PLAN" TO BE RECORDED OR CONTACT DOUCET SURVEY, INC. FOR CLARIFICATION OF MONUMENTS SET. (A RECORDED PLAN WILL BE PRODUCED AT THE DISCRETION OF DOUCET SURVEY, INC.).

(233/109)

13. AERIAL TOPOGRAPHY WAS CONDUCTED BY EASTERN TOPOGRAPHICS FROM IMAGES TAKEN DURING 04/2003 WITH A PHOTO SCALE OF 1:3600. CONTOURS AND OBJECTS SHOWN WITHIN OBSCURED AREAS ARE APPROXIMATE AND SHOULD BE VERIFIED BEFORE USE FOR DESIGN OR CONSTRUCTION PURPOSES.

14. THE PARCELS ARE SUBJECT TO, AND/OR IN BENEFIT OF THE FOLLOWING EASEMENTS, RESTRICTIONS, ETC. A) INTENTIONALLY DELETED. TÁX MAP 233. LOTS 112. 113. TAX MAP 234. LOT 7-4A & TAX MAP 241. LOT 25

B) IN BENEFIT OF AN EASEMENT GRANTED TO ISLINGTON WOODS, LLC BY BOSTON AND MAINE CORPORATION, BOOK 4617, PAGE 2613. TAX MAP 233, LOT 113 C) SUBJECT TO A WATER LINE EASEMENT FROM SHUTTLEWORTH TO THE CITY PORTSMOUTH, SEE

R.C.R.D. BOOK 583, PAGE 324. D) SUBJECT TO A WATER LINE EASEMENT FROM SHUTTLEWORTH TO THE CITY PORTSMOUTH, SEE R.C.R.D. BOOK 1409, PAGE 31 E) IN BENEFIT OF A R.O.W. FROM BOSTON AND MAINE CORP., SEE R.C.R.D. BOOK 2400, PAGE 923.

TAX MAP 234, LOT 7-4A F) SUBJECT TO A WATER LINE EASEMENT GRANTED BY SPINNEY TO JONES, SEE R.C.R.D.

BOOK 551, PAGE 11. (EXACT LOCATION UNDETERMINED). G) SUBJECT TO AN ELECTRIC EASEMENT GRANTED BY SAN ANTONIO ET AL TO NH ELECTRIC CO, SEE R.C.R.D. BOOK 1230, PAGE 222.

H) SUBJECT TO THE RIGHTS OF THE CITY OF PORTSMOUTH TO CONSTRUCT & MAINTAIN A SEWER LINE, AS MENTIONED BY REFERENCE IN R.C.R.D. BOOK 1361, PAGE 235. NO EASEMENT DOCUMENT FOUND. I) SUBJECT TO A WATER LINE EASEMENT GRANTED BY ALLEN GREENOUCH TO THE CITY OF PORTSMOUTH, SEE R.C.R.D. BOOK 541, PAGE 254. J) SUBJECT TO A SEWER EASEMENT GRANTED BY COAKLEY TO THE CITY OF PORTSMOUTH,

SEE R.C.R.D. BOOK 984, PAGE 379. K) SUBJECT TO THE RIGHTS OF THE STATE OF NEW HAMPSHIRE, SEE R.C.R.D. BOOK 1158,

L) SUBJECT TO THE RIGHT GRANTED IN A DEED FROM COAKLEY ET AL TO BEACON CONSTRUCTION CO., INC., SEE R.C.R.D. BOOK 1284, PAGE 3. M) SUBJECT TO ELECTRIC EASEMENT GRANTED BY COAKLEY ET AL TO NH ELECTRIC CO, SEE

R.C.R.D. BOOK 1315, PAGE 306. N) SUBJECT TO RESTRICTIONS OUTLINED IN A DEED FROM GARLAND ET AL TO PORTSMOUTH PARK TRUST, SEE R.C.R.D. BOOK 2521, PAGE 999.

O) SUBJECT TO RESTRICTIVE AGREEMENT BETWEEN PORTSMOUTH PARK TRUST AND HCA REALTY, INC., SEE R.C.R.D. BOOK 2556, PAGE 1764. P) GAS LINE EASEMENT RESERVED BY NORTHEAST UTILITIES, BOOK 4392, PAGE 110.

AB) SUBJECT TO AN ACCESS & UTILITY EASEMENT, SEE R.C.R.D. BOOK 4639, PAGE 2128. TAX MAP 241, LOT 25 Q) SUBJECT TO WATER RIGHTS GRANTED BY SHERBURNE TO THE PROPRIETORS OF THE PORTSMOUTH

AQUEDUCT, SEE R.C.R.D. BOOK 488 PAGE 431. R) IN BENEFIT OF A R.O.W. FROM BOSTON AND MAINE CORP., SEE R.C.R.D. BOOK 2400, PAGE 923. S) SUBJECT TO TWO R.O.W.'s RESERVED IN A DEED FROM COAKLEY TO WALDRON, SEE R.C.R.D. BOOK

1559 PAGE 190. T) IN BENEFIT OF A R.O.W. RESERVED IN A DEED FROM SARGENT TO DEVELATRON CORP., SEE R.C.R.D. BOOK 1563, PAGE 269. TAX MAP 233, LOT 113

U) SUBJECT TO A WATER LINE EASEMENT FROM SHUTTLEWORTH TO THE CITY PORTSMOUTH, SEE R.C.R.D. BOOK 583, PAGE 324.

V) SUBJECT TO A WATER LINE EASEMENT FROM SHUTTLEWORTH TO THE CITY PORTSMOUTH, SEE R.C.R.D. BOOK 1409, PAGE 31. W) IN BENEFIT OF A R.O.W. FROM BOSTON AND MAINE CORP., SEE R.C.R.D. BOOK 2400, PAGE 923.

X) IN BENEFIT OF A 12' R.O.W. TO ISLINGTON STREET, SEE R.C.R.D. BOOK 455, PAGE 449. TAX MAP 241, LOT 26
Y) SUBJECT TO AND/OR IN BENEFIT OF ANY PERTINENT EASEMENTS, RESTRICTIONS, ETC. THAT IMPACT

TAX MAP 241, LOT 25, SINCE LOT 26 WAS ORIGINALLY PART OF LOT 25. Z) SUBJECT TO AN ACCESS EASEMENT, SEE R.C.R.D. BOOK 2375, PAGE 808.

TAX MAP 240, LOT 2-2202

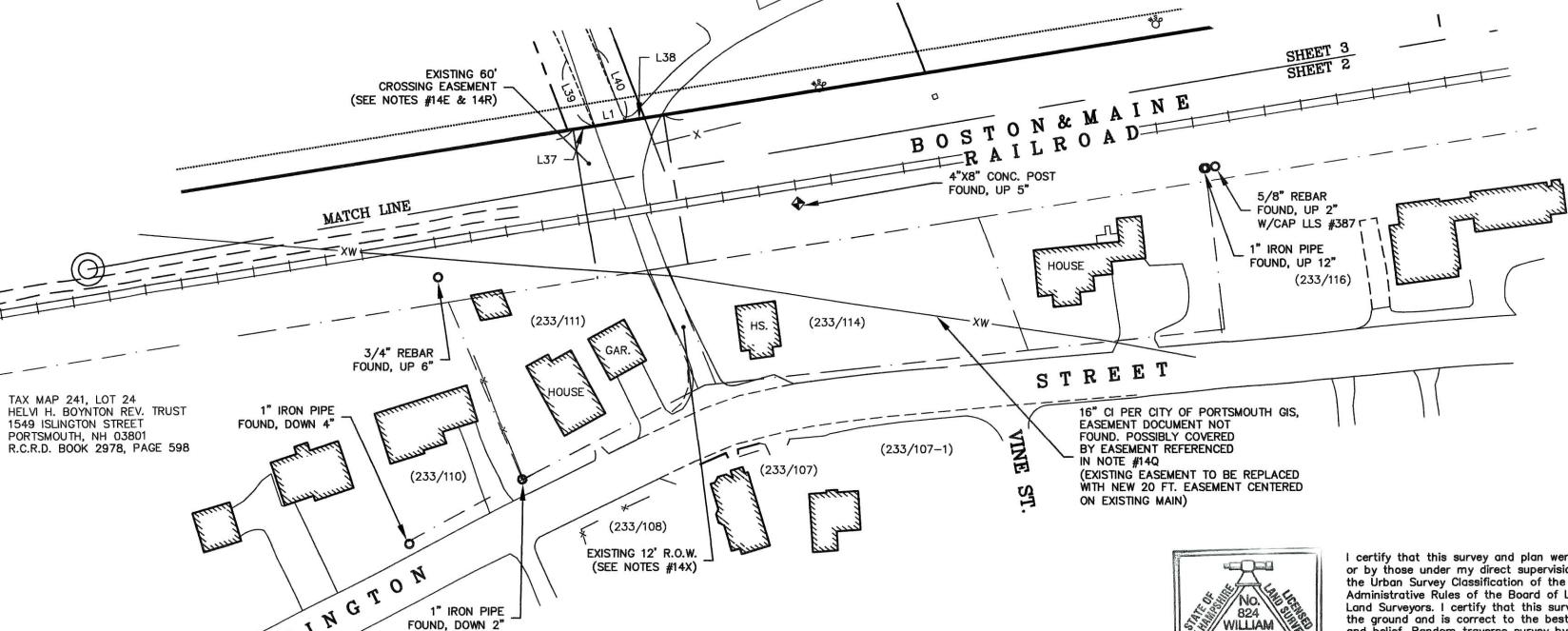
AC) SUBJECT TO A SEWER EASEMENT, SEE R.C.R.D. BOOK 984, PAGE 378 AD) SUBJECT TO A GAS LINE EASEMENT, SEE R.C.R.D. BOOK 1372, PAGE 148

AE) SUBJECT TO A GAS LINE EASEMENT, SEE R.C.R.D. BOOK 4392, PAGE 110 AF) SUBJECT TO A 10' WIDE BUFFER, SEE R.C.R.D. BOOK 4639, PAGE 2133.

ADDITIONAL ABUTTERS TAX MAP 233, LOT 111 RICHARD L & MARY C. RASH REV. TRUST 2007 RICHARD L & MARY C. RASH, TRUSTEES 1507 ISLINGTON STREET PORTSMOUTH, NH 03801 R.C.R.D. BOOK 4763, PAGE 1360 TAX MAP 233, LOT 110 JASON R. STILES MARGARET ANN KRISTIANSEN 1527 ISLINGTON STREET PORTSMOUTH, NH 03801 R.C.R.D. BOOK 3187, PAGE 1517 TAX MAP 233, LOT 109 DENNIS A. & CHERYL A. MINARD 1500 ISLINGTON STREET PORTSMOUTH, NH 03801 TAX MAP 233, LOT 108 PAUL M. & LAURA L. MANNLE 1490 ISLINGTON STREET PORTSMOUTH, NH 03801 R.C.R.D. BOOK 2837, PAGE 1263 TAX MAP 233, LOT 107 ZAKARY ROBINSON 1474 ISLINGTON STREET PORTSMOUTH, NH 03801 R.C.R.D. BOOK 5596, PAGE 2951 TAX MAP 233, LOT 107-1 MARC C. THERRIEN 6 VINE STREET PORTSMOUTH, NH 03801 R.C.R.D. BOOK 5712, PAGE 2092 TAX MAP 233, PAGE 106 JAMES R. & LINDSAY RICHARD 1438 ISLINGTON STREET PORTSMOUTH, NH 03801 R.C.R.D. BOOK 5382, PAGE 1684 TAX MAP 233, LOT 115 STEPHEN J. CAMARDA 7 DEBRA LANE KITTERY, ME 03904 R.C.R.D. BOOK 2737, PAGE 2373 TAX MAP 233, LOT 116-1 WILLIAM F. & KATJA P. BECKSTED 1395 ISLINGTON STREET R.C.R.D. BOOK 3745, PAGE 2748

PORTSMOUTH, NH 0380 TAX MAP 233, LOT 116-2 TERRENCE J. RADICAN II 207 ROCKLAND STREET PORTSMOUTH, NH 03801 R.C.R.D. BOOK 5565, PAGE 2739 TAX MAP 233, LOT 117 JASON BALDWIN 1363 ISLINGTON STREET PORTSMOUTH, NH 03801 R.C.R.D. BOOK 5254, PAGE 331 TAX MAP 233, LOT 118 KEVIN D. & LIZA E. CONLEY 1345 ISLINGTON STREET PORTSMOUTH, NH 03801 R.C.R.D. BOOK 5622, PAGE 1783 TAX MAP 233, LOT 119 CHRISTOPHER H. GARRETT REV. TRUST 2007

CHRISTOPHER H. GARRETT, TRUSTEE 11 BARBERRY LANE PORTSMOUTH, NH 03801 R.C.R.D. BOOK 4862, PAGE 1609



GRAPHIC SCALE

( IN FEET )

1 inch = 60 ft.

certify that this survey and plan were prepared by me or by those under my direct supervision and falls under the Urban Survey Classification of the NH Code of Administrative Rules of the Board of Licensure for Land Surveyors. I certify that this survey was made o the ground and is correct to the best of my knowledge and belief. Random traverse survey by Total Station, with a precision greater than 1:15,000.

DOUCET

SIGNATURE



The certifications shown hereon are intended to meet registry of deed requirements and are not a certification to title or ownership of property shown. Owners of adjoining properties are according to curren town assessors records.

# REFERENCE PLANS:

- 1. "PLAT OF LAND BARBERRY LANE PORTSMOUTH, NH FOR NORTHERN UTILITIES, INC.," BY DURGIN-SCHOFIELD ASSOCIATES, DATED 2/21/89, R.C.R.D. PLAN #D-19079.
- 2. "ALTA/ACSM LAND TITLE SURVEY FOR NORTHLAND DEVELOPMENT, BORTHWICK AVENUE, COUNTY OF ROCKINGHAM, PORTSMOUTH, NH," BY MILLETTE, SPRAGUE & COLWELL, INC.
- 3. "GAS LINE AS-BUILT EASEMENT AND CONSERVATION EASEMENT PLAN," BY KIMBALL CHASE COMPANY, INC. DATED 10/31/85, R.C.R.D. PLAN #D-15830.
- 4. "LAND IN PORTSMOUTH, NH BOSTON AND MAINE CORPORATION TO LANDERS AND GRIFFIN, INC.," J.D. BATCHELER ENGINEER OF DESIGN, DATED 2/66, R.C.R.D. PLAN #843.
- 5. "SUBDIVISION OF LAND LOCATED IN PORTSMOUTH, NH FOR HOSPITAL CORPORATION OF AMERICA," BY KIMBALL CHASE COMPANY, INC. DATED 2/28/84.
- 6. "SUBDIVISION PLAN OF LAND FOR PORTSMOUTH PARK TRUST BORTHWICK AVE. EXT./ COAKLEY RD. COUNTY OF ROCKINGHAM PORTSMOUTH, NH," BY RICHARD P. MILLETTE
- AND ASSOCIATES, DATED 3/27/85, R.C.R.D. PLAN #D-13747. 7. "PLAT OF PROPERTY AND IMPROVEMENTS, PORTSMOUTH HOSPITAL OFFICE BUILDING, A CONDOMINIUM PORTSMOUTH, NH," BY CESP, INC., DATED 12/12/86, R.C.R.D. PLAN
- 8. "RIGHT-OF-WAY AND TRACK MAP, CONCORD AND PORTSMOUTH R.R. OPERATED BY THE BOSTON AND MAINE R.R., STATION 33+0 TO STATION 85+80, V28/2" BY VALUATION
- ENGINEERS, DATED 6/30/14. 9. "RIGHT-OF-WAY AND TRACK MAP, CONCORD AND PORTSMOUTH R.R. OPERATED BY THE BOSTON AND MAINE R.R., STATION 85+80 TO STATION 138+60, V28/3" BY VALUATION
- ENGINEERS, DATED 6/30/14. 10."RIGHT-OF-WAY AND TRACK MAP, CONCORD AND PORTSMOUTH R.R. OPERATED BY THE BOSTON AND MAINE R.R., STATION 2928+05 TO STATION 2966+20, V3 NH/54" BY
- VALUATION ENGINEERS, DATED 6/30/14. 11."LOT LINE RELOCATION PLAN FOR J. HARRISON HOLMAN OFF ISLINGTON ST. COUNTY OF
- ROCKINGHAM PORTSMOUTH, N.H." DATED MARCH 6, 1980 BY RICHARD P. MILLETTE AND ASSOCIATES. R.C.R.D. PLAN #D-9356.
- 12."PLAN OF LAND CURT GOWDY BROADCASTING CORPORATION PORTSMOUTH, N.H." DATED FEBRUARY 25, 1977 BY THOMAS F. MORAN, INC. R.C.R.D. PLAN #D-6765.
- 13."CITY OF PORTSMOUTH DEFENSE HOMES LOCATION PLAN" REVISED JUNE 17, 1941 BY JOHN W. DURGIN, R.C.R.D. PLAN #01106. 14."PLAN NO. 220 SHOWING PORTION OF PROPERTY OF THE HEIRS OF CORNELIUS COAKLEY TO BE CONVEYED TO BEACON CONSTRUCTION COMPANY" DATED APRIL 28, 1953 BY
- 15."SUBDIVISION OF LAND LOCATED IN PORTSMOUTH, N.H." DATED MARCH 6, 1984 BY KIMBALL CHASE COMPANY, INC. R.C.R.D. PLAN #D-13069.
- 16."LOT LINE RELOCATION PLAN FOR PORTSMOUTH PARK TRUST AND HOSPITAL CORPORATION OF AMERICA BORTHWICK AVE. EXTENSION COUNTY OF ROCKINGHAM PORTSMOUTH, N.H." DATED JUNE 14, 1985 BY RICHARD P. MILLETTE AND ASSOCIATES. PLAN #D-15924.
- 17."SUBDIVISION OF LAND PORTSMOUTH, N.H. FOR J. HARRISON HOLMAN DATED MAY 1982 BY JOHN W. DURGIN ASSOCIATES, INC. R.C.R.D. PLAN #D-10843.
- 18."LOT LINE REVISION FOR RUTH M. GATS & FREDERICK C. & JACQUELINE O. MURRAY TRUSTEES ISLINGTON STREET PORTSMOUTH N.H." DATED JANUARY 17, 2002 BY E.J. COTE & ASSOCIATES INC. R.C.R.D. PLAN #C-29645.
- 19."PERSHING TERRACE PORTSMOUTH, N.H. BELMONT REALTY CO. PROVIDENCE, R.I." DATED JULY 1918 BY WM. A. GROVER CIVIL ENGINEER, R.C.R.D. PLAN #082.
- 20."PLAN OF RIGHT OF WAY ROBERT W. MESERVE ET. AL TRUSTEES OF THE PROPERTY OF BOSTON & MAINE CORPORATION TO J. HARRISON HOLMAN OFF ISLINGTON ST. COUNTY OF ROCKINGHAM PORTSMOUTH, N.H." DATED DECEMBER 1980 BY RICHARD P. MILLETTE AND ASSOCIATES. R.C.R.D. PLAN #D-10458.
- 21."BASE PLAN OF LOT 7-4A BORTHWICK AVENUE COUNTY OF ROCKINGHAM PORTSMOUTH, N.H." DATED NOVEMBER 8, 2002 BY MILLETTE, SPRAGUE & COLWELL, INC.
- 22."STREET REVERSION AND LOT LINE RELOCATION PLAN MAP 233-LOTS 141, 143, 144, 146 & 147 FOR DENNIS COAKLEY, DONNA & WILLAIM GLADHILL, JOSEPH ARNSTEIN AND THE CITY OF PORTSMOUTH FOCH AVENUE, BARBERRY LANE & HAIG AVENUE PORTSMOUTH, N.H. COUNTY OF ROCKINGHAM" DATED JUNE 2001 BY AMBIT ENGINEERING, INC. R.C.R.D. PLAN #D-29809.
- 23."LOT LINE REVISION PLAN TAX MAP R-34 LOTS 6 & 7-6 LOCATED ON BORTHWICK AVE., COAKLEY ROAD AND U.S. ROUTE 1 BYPASS IN PORTSMOUTH, N.H. COUNTY OF ROCKINGHAM" DATED OCTOBER 20, 1993 BY KIMBALL CHASE. R.C.R.D.
- 24."LOT LINE REVISION PERSHING TERRACE BARBERRY LANE & FOCH AVENUE PORTSMOUTH, NEW HAMPSHIRE FOR DENNIS N. COAKLEY" DATED SEPTEMBER 25, 1992. BY DURGIN, VERRA & ASSOCIATES, INC. R.C.R.D. PLAN #D-22042.
- 25."WATER PIPE EASEMENT PORTSMOUTH, N.H. BOSTON & MAINE RAILROAD-TO-ELDREDGE BREWING COMPANY, INC." DATED JUNE 1937 BY W.J. CUMMINGS,
- 26."PLAN OF LOT, ISLINGTON ST., PORTSMOUTH, NH FOR EDWIN BOYNTON" DATED MARCH, 1955 BY JOHN W. DURGIN, R.C.R.D. PLAN #1349-227.
- 27. "PLAN OF PORTSMOUTH NATIONAL RECOVERY MUNICIPAL PROTECT NO. 152"
- DATED 1933, ON FILE AT NHDOT DISTRICT VI. 28. "LOT LINE REVISION PLAN FOR PORTSMOUTH HOSPITAL OFFICE BUILDING ASSOCIATION, ISLINGTON WOODS, LLC AND HCA REALTY, INC.", BY DOUCET SURVEY, INC., DATED JANUARY 13, 2006, R.C.R.D. PLAN D-33642.
- 29. "EASEMENT PLAN FOR ISLINGTON WOODS, LLC AND BOSTON & MAINE CORPORATION" BY DOUCET SURVEY, INC., DATED OCTOBER 20, 2005, R.C.R.D. PLAN D-33500.

SEE SHEET 5 FOR LINE & CURVE TABLES

# LOT CONSOLIDATION

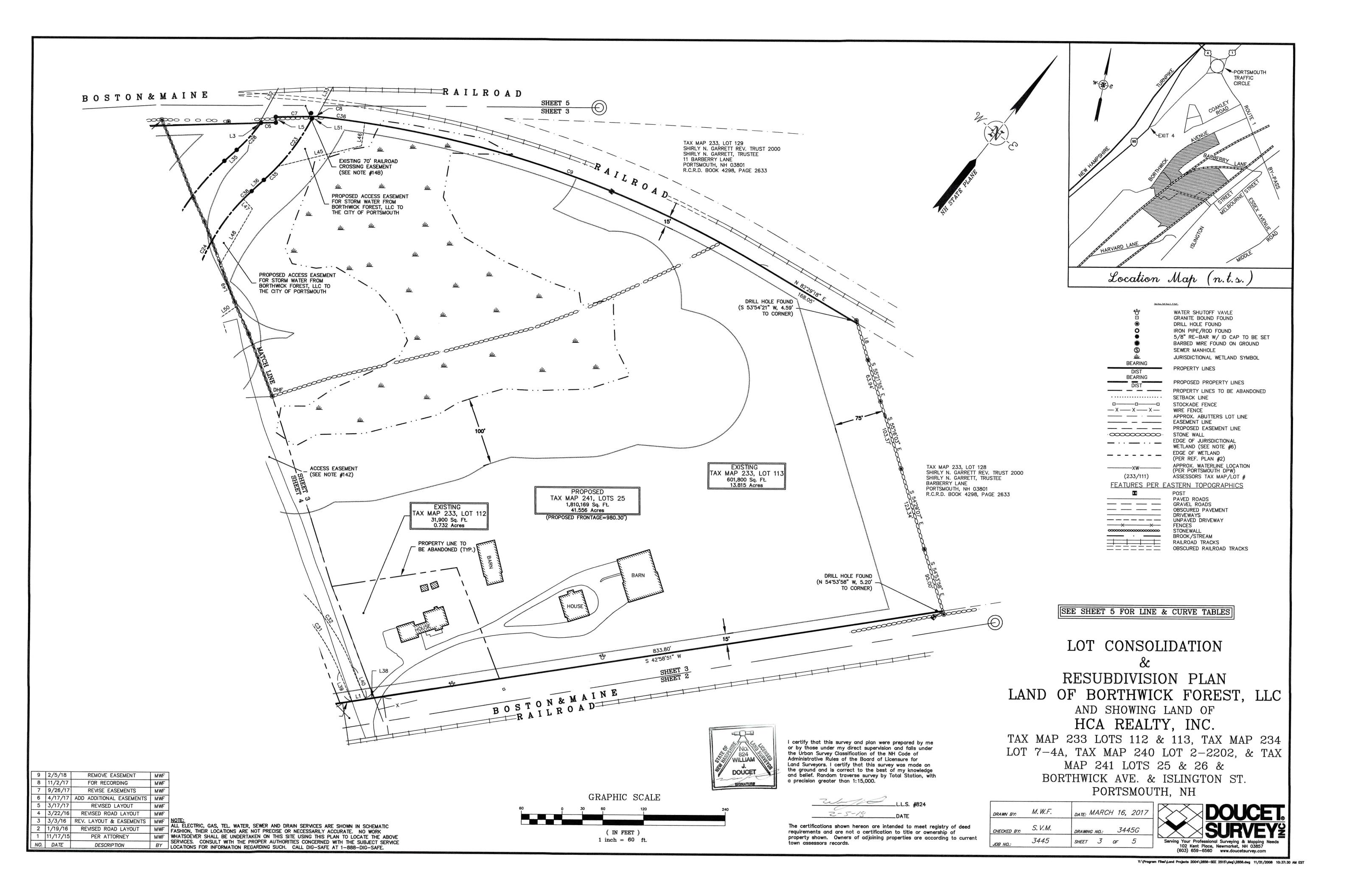
RESUBDIVISION PLAN LAND OF BORTHWICK FOREST, LLC AND SHOWING LAND OF HCA REALTY, INC.

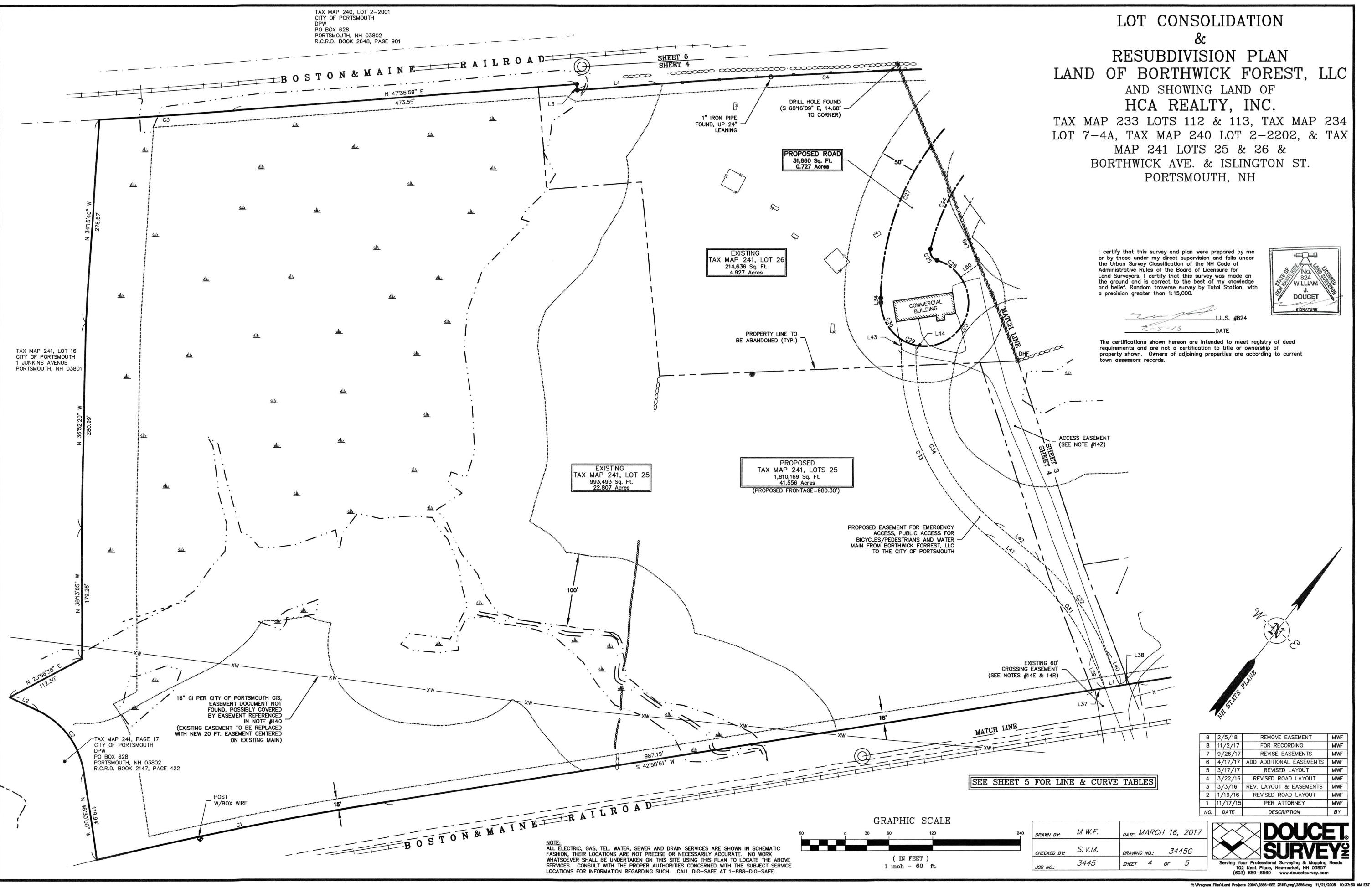
TAX MAP 233 LOTS 112 & 113, TAX MAP 234 LOT 7-4A, TAX MAP 240 LOT 2-2202, & TAX MAP 241 LOTS 25 & 26 &

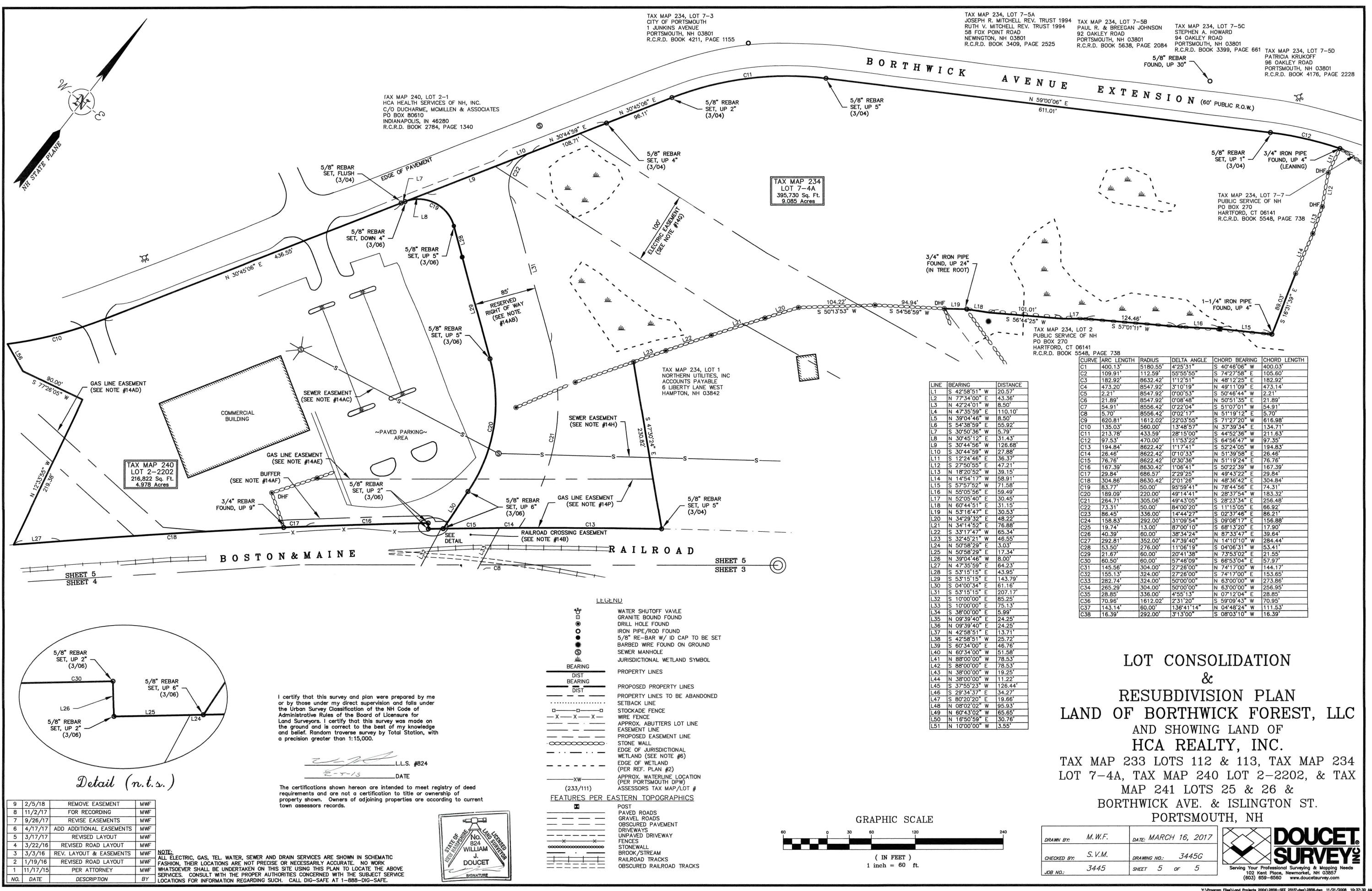
> BORTHWICK AVE. & ISLINGTON ST. PORTSMOUTH, NH

DRAWN BY:	M. W.F.	DATE: MARCH 16, 2017
CHECKED BY:	S. V.M.	DRAWING NO.: 3445G
IOR NO	3445	SHEET 2 OF 5









# **GENERAL NOTES:**

- THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
- COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
- THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR OR PROFESSIONAL ENGINEER TO DETERMINE ALL LINES AND GRADES. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE
- AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES AND COMPLY WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
- THE CONTRACTOR SHALL OBTAIN AND PAY FOR AND COMPLY WITH ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING
- THE CONTRACTOR SHALL PHASE DEMOLITION AND CONSTRUCTION AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO EXISTING BUSINESSES AND HOMES THROUGHOUT THE CONSTRUCTION PERIOD. EXISTING BUSINESS AND HOME SERVICES INCLUDE, BUT ARE NOT LIMITED TO ELECTRICAL, COMMUNICATION, FIRE PROTECTION, DOMESTIC WATER AND SEWER SERVICES. TEMPORARY SERVICES, IF REQUIRED, SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. CONTRACTOR SHALL PROVIDE DETAILED CONSTRUCTION SCHEDULE TO OWNER PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITIES AND SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
- CONTRACTOR TO SUBMIT AS-BUILT PLANS ON REPRODUCIBLE MYLARS AND IN DIGITAL FORMAT (.DWG FILE) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR OR PROFESSIONAL ENGINEER.
- CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
- THE PROPERTY OWNER SHALL PROVIDE AN AS-BUILT RESTORATION PLAN AND FOLLOW-UP MONITORING ONE AND THREE YEARS AFTER THE RESTORATION WORK HAS BEEN COMPLETED TO INSURE A SURVIVAL RATE OF AT LEAST 80% OF THE NEW PLANTINGS. THE MONITORING PLAN SHALL BE SUBMITTED TO THE PLANNING DEPARTMENT AND SHALL INCLUDE A REQUIREMENT THAT ANY NEW INVASIVE SPECIES FOUND IN THE RESTORATION AREA DURING THE SITE MONITORING BE MECHANICALLY REMOVED.
- 12. ATV USE SHALL BE PROHIBITED IN THE DESCRIBED BLANDING TURTLE NESTING AREA AND THE IMPACTED AREA SHALL BE SIGNED ACCORDINGLY BY THE PROPERTY OWNER.
- THE SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS. 14. ALL IMPROVEMENTS SHOWN ON THE SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
- 5. THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS SHALL BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR AND REPLACEMENT OF ALL REQUIRED SCREENING AND LANDSCAPE MATERIALS.
- ALL REQUIRED PLANT MATERIALS SHALL BE TENDED AND MAINTAINED IN A HEALTHY GROWING CONDITION, REPLACED WHEN NECESSARY, AND KEPT FREE OF REFUSE AND DEBRIS. ALL REQUIRED FENCES AND WALLS SHALL BE MAINTAINED IN GOOD REPAIR.
- 7. THE PROPERTY OWNER SHALL BE RESPONSIBLE TO REMOVE AND REPLACE DEAD OR DISEASED PLANT MATERIALS IMMEDIATELY WITH THE SAME TYPE, SIZE AND QUANTITY OF PLANT MATERIALS AS ORIGINALLY INSTALLED, UNLESS ALTERNATIVE PLANTINGS ARE REQUESTED, JUSTIFIED AND APPROVED BY THE PLANNING BOARD OR PLANNING DIRECTOR.

# **DEMOLITION NOTES:**

- EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE
- CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
- COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
- ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- SAW CUT AND REMOVE PAVEMENT ONE (1) FOOT OFF PROPOSED EDGE OF PAVEMENT OR EXISTING CURB LINE IN ALL AREAS WHERE PAVEMENT TO BE REMOVED ABUTS EXISTING PAVEMENT OR CONCRETE TO REMAIN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
- UTILITIES SHALL BE TERMINATED AT THE MAIN LINE PER UTILITY COMPANY AND CITY OF PORTSMOUTH STANDARDS. THE CONTRACTOR SHALL REMOVE ALL ABANDONED UTILITIES LOCATED WITHIN THE LIMITS OF WORK UNLESS OTHERWISE NOTED. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
- PAVEMENT REMOVAL LIMITS ARE SHOWN FOR CONTRACTOR'S CONVENIENCE. ADDITIONAL PAVEMENT REMOVAL MAY BE REQUIRED DEPENDING ON THE CONTRACTOR'S OPERATION. CONTRACTOR TO VERIFY FULL LIMITS OF PAVEMENT REMOVAL PRIOR TO BID.
- THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT, CURBS, LIGHTING, MANHOLES, CATCH BASINS, UNDER GROUND PIPING, POLES, STAIRS, SIGNS, FENCES, RAMPS, WALLS, BOLLARDS, BUILDING SLABS, FOUNDATION, TREES AND LANDSCAPING.
- REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
- CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
- . PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT MAY RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
- . SEE ROADWAY IMPROVEMENT PLANS FOR OFF-SITE DEMOLITION.
- . THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.

- 15. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL UTILITIES TO BE REMOVED AND PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT
- 16. THE CONTRACTOR SHALL REMOVE AND SALVAGE EXISTING GRANITE CURB FOR REUSE.

# **SITE NOTES:**

- PAVEMENT MARKINGS SHALL BE INSTALLED AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, FIRE LANES, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES. ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE PAVEMENT MARKINGS. ALL THERMOPLASTIC PAVEMENT MARKINGS INCLUDING LEGENDS, ARROWS, CROSSWALKS AND STOP BARS SHALL MEET THE REQUIREMENTS OF AASHTO M249. ALL PAINTED PAVEMENT MARKINGS INCLUDING CENTERLINES, LANE LINES AND PAINTED MEDIANS SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F".
- 2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST
- 3. SEE DETAILS FOR PAVEMENT MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
- 4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES.
- 5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
- 6. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE, WHITE THERMOPLASTIC AND CONFORM TO CURRENT MUTCD STANDARDS.
- 7. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
- 8. SEE ARCHITECTURAL/BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING. 9. COORDINATE ALL OFF-SITE SITE WORK WITH ROADWAY IMPROVEMENT PLANS.
- 10. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
- 11. ALL LIGHT POLE BASES NOT PROTECTED BY A RAISED CURB SHALL BE PAINTED YELLOW.
- 12. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR
- 13. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING RETAINING WALL DESIGN FROM WALL MANUFACTURERS, AND SUBMITTING DESIGN TO ENGINEER PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO CONSTRUCT WALL IN ACCORDANCE WITH DESIGN APPROVED BY THE ENGINEER. RETAINING WALL SHALL BE SEGMENTAL BLOCK WALL SYSTEM AS OUTLINED IN THE SPECIFICATIONS.
- 14. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
- 15. EASEMENTS BETWEEN THE APPLICANT AND THE CITY OF PORTSMOUTH SHALL BE RECORDED PRIOR TO EXECUTED SITE REVIEW AGREEMENT.
- 16. APPLICANT SHALL PROVIDE LIGHT POLE BASE, 24 FT ALUMINUM LIGHT POLE WITH 8 FT ARM AND WIRING FOR STREET LIGHTING. CITY OF PORTSMOUTH TO PROVIDE LED FIXTURES.

# **GRADING AND DRAINAGE NOTES:**

1. COMPACTION REQUIREMENTS:

BELOW LOAM AND SEED AREAS

- BELOW PAVED OR CONCRETE AREAS TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL
- \* ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.
- 2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL) OR RCP CLASS IV, UNLESS OTHERWISE SPECIFIED.
- 3. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
- 4. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
- ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6' LOAM, SEED FERTILIZER AND MULCH.
- ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
- 7. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS

# **EROSION CONTROL NOTES:**

1. SEE SHEET C-501 FOR GENERAL EROSION CONTROL NOTES AND DETAILS.

# **UTILITY NOTES:**

- 1. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
- NATURAL GAS UNITIL
- WATER CITY OF PORTSMOUTH • SEWER - CITY OF PORTSMOUTH
- ELECTRIC EVERSOURCE
- TELECOMMUNICATIONS FAIRPOINT & COMCAST
- 2. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE. 3. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER
- CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE CITY OF PORTSMOUTH WATER DEPARTMENT.
- 4. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED. 5. CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO CITY OF
- PORTSMOUTH STANDARDS. 6. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE
- 7. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.

DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER

- 8. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
- 9. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING
- 10. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND
- 11. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
- 12. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.
- 13. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
- 14. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY
- 15. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.

- 16. ALL SEWER PIPE WITH LESS THAN 6' OF COVER SHALL BE INSULATED.
- 17. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER
- 18. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL
- 19. CONTRACTOR SHALL CONSTRUCT ALL UTILITIES AND DRAINS TO WITHIN 10' OF THE FOUNDATION WALLS AND CONNECT THESE TO SERVICE STUBS FROM THE BUILDING
- 20. FINAL DESIGN FOR ALL ELECTRIC, TELECOMMUNICATIONS, AND GAS WORK SHALL BE COORDINATED WITH THE UTILITY COMPANY AND CITY OF PORTSMOUTH PRIOR TO CONSTRUCTION.
- 21. THE APPLICANT SHALL HAVE A SITE SURVEY CONDUCTED BY A RADIO COMMUNICATIONS CARRIER APPROVED BY THE CITY'S COMMUNICATIONS DIVISION. THE RADIO COMMUNICATIONS CARRIER MUST BE FAMILIAR AND CONVERSANT WITH THE POLICE AND RADIO CONFIGURATION. IF THE SITE SURVEY INDICATES IT IS NECESSARY TO INSTALL A SIGNAL REPEATER EITHER ON OR NEAR THE PROPOSED PROJECT, THOSE COSTS SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE OWNER SHALL COORDINATE WITH THE SUPERVISOR OF RADIO COMMUNICATIONS FOR THE CITY.

# **LANDSCAPE NOTES:**

- THE CONTRACTOR SHALL FURNISH AND PLANT ALL PLANTS IN QUANTITIES AS SHOWN ON THIS PLAN. NO SUBSTITUTIONS WILL BE PERMITTED UNLESS APPROVED BY OWNER. ALL PLANTS SHALL BE NURSERY GROWN
- ALL PLANTS SHALL BE NURSERY GROWN AND PLANTS AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS, INCLUDING BUT NOT LIMITED TO SIZE, HEALTH, SHAPE, ETC., AND SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO ARRIVAL ON-SITE AND AFTER PLANTING
- PLANT STOCK SHALL BE GROWN WITHIN THE HARDINESS ZONES 4 THRU 7 ESTABLISHED BY THE PLANT HARDINESS ZONE MAP, MISCELLANEOUS PUBLICATIONS NO. 814, AGRICULTURAL RESEARCH SERVICE, UNITED STATES DEPARTMENT AGRICULTURE, LATEST
- 4. PLANT MATERIAL SHALL BARE THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE PRIOR TO DIGGING
- THE NUMBER OF EACH INDIVIDUAL PLANT TYPE AND SIZE PROVIDED IN THE PLANT LIST OR ON THE PLAN IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. IF A DISCREPANCY EXISTS BETWEEN THE NUMBER OF PLANTS ON THE LABEL AND THE NUMBER OF SYMBOLS SHOWN ON THE DRAWINGS, THE GREATER NUMBER SHALL APPLY.
- NO SUBSTITUTION OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL LOCATE, VERIFY AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTING AND UTILITIES SHALL IMMEDIATELY BE REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE
- 8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED, SHALL RECEIVE 6" OF LOAM AND SEED. NO FILL SHALL BE PLACED IN ANY WETLAND AREA.
- THREE INCHES (3") OF UNTREATED BARK MULCH IS TO BE USED AROUND THE TREE AND SHRUB PLANTING AS SPECIFIED IN THE DETAILS. WHERE BARK MULCH IS TO BE USED IN A CURBED ISLAND THE BARK MULCH SHALL MEET THE TOP INSIDE EDGE OF THE CURB. ALL OTHER AREAS SHALL RECEIVE 6" INCHES OF LOAM AND SEED
- 10. SEE PLANTING DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- 11. TREE STAKES SHALL REMAIN IN PLACE FOR NO LESS THAN 6 MONTHS AND NO MORE THAN 1 YEAR.
- 12. PLANTING SHALL BE COMPLETED FROM APRIL 15TH THROUGH OCTOBER 1ST. NO PLANTING DURING JULY AND AUGUST UNLESS SPECIAL PROVISIONS ARE MADE FOR DROUGHT 13. PARKING AREA PLANTED ISLANDS TO HAVE MINIMUM OF 1'-0" TOPSOIL PLACED TO WITHIN 3 INCHES OF THE TOP OF CURB ELEVATION. REMOVE ALL CONSTRUCTION DEBRIS BEFORE
- 14. TREES SHALL BE PRUNED IN ACCORDANCE WITH THE LATEST EDITION OF ANSI A300 'TREES, SHRUBS AND OTHER WOOD PLANT MAINTENANCE STANDARD PRACTICES.
- 15. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN, IF NECESSARY DURING THE FIRST GROWING SEASON. LANDSCAPE CONTRACTOR SHALL COORDINATE WATERING SCHEDULE WITH OWNER DURING THE ONE (1) YEAR GUARANTEE
- 16. EXISTING TREES AND SHRUBS SHOWN ON THE PLAN ARE TO REMAIN UNDISTURBED. ALL EXISTING TREES AND SHRUBS SHOWN TO REMAIN ARE TO BE PROTECTED WITH A 4-FOOT SNOW FENCE PLACED AT THE DRIP LINE OF THE BRANCHES OR AT 8 FEET MINIMUM FROM THE TREE TRUNK. ANY EXISTING TREE OR SHRUB SHOWN TO REMAIN, WHICH IS REMOVED DURING CONSTRUCTION, SHALL BE REPLACED BY A TREE OF COMPARABLE SIZE AND SPECIES TREE OR SHRUB.
- 17. THE CONTRACTOR SHALL GUARANTEE ALL PLANTINGS TO BE IN GOOD HEALTHY. FLOURISHING AND ACCEPTABLE CONDITION FOR A PERIOD OF ONE (1) YEAR BEGINNING AT THE DATE OF ACCEPTANCE OF SUBSTANTIAL COMPLETION. ALL GRASSES, TREES AND SHRUBS THAT, IN THE OPINION OF THE LANDSCAPE ARCHITECT, SHOW LESS THAN 80% HEALTHY GROWTH AT THE END OF ONE YEAR PERIOD SHALL BE REPLACED BY THE CONTRACTOR.
- 18. UPON EXPIRATION OF THE CONTRACTOR'S ONE YEAR GUARANTEE PERIOD, THE OWNER SHALL BE RESPONSIBLE FOR LANDSCAPE MAINTENANCE INCLUDING WATERING DURING PERIODS OF DROUGHT
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL THE FORMAL ACCEPTANCE OF ALL THE PLANTINGS.
- 20. PRE-PURCHASE PLANT MATERIAL AND ARRANGE FOR DELIVERY TO MEET PROJECT SCHEDULE AS REQUIRED IT MAY BE NECESSARY TO PRE-DIG CERTAIN SPECIES WELL IN ADVANCE OF ACTUAL PLANTING DATES.

NEW HAMPSHIRE DEPARTMENT

NHDES OF ENVIRONMENTAL SERVICES

NORTHEAST REGIONAL

NATURAL RESOURCES

CONSERVATION SERVICE

CLIMATE CENTER

OD OUTSIDE DIAMETER

MANHOLE

POS STRUCTURE

PROP PROPOSED

PVMT PAVEMENT

R RADIUS

RL ROOF LEADER

PAD PROPOSED AREA DRAIN

PC POINT OF CURVATURE

PCB PROPOSED CATCH BASIN

PI POINT OF INTERSECTION

PROPOSED OUTLET

PSMH PROPOSED SEWER MANHOLE

PT POINT OF TANGENCY

PVC POLYVINYL CHLORIDE

PYD PROPOSED YARD DRAIN

RCP REINFORCED CONCRETE PIPE

PROPOSED DRAINAGE

OC ON CENTER

	AMERICAN ASSOCIATION OF	ID	INSIDE DIAMETER
TO	STATE HIGHWAY &	INV	INVERT
	TRANSPORTATION OFFICIALS	L	LENGTH
	ACRES	LF	LINEAR FEET
4	AMERICANS WITH	MAX	MAXIMUM
_	DISABILITIES ACT	MIN	MINIMUM
R	AGGREGATE		NATIONAL COOPERATIVE
Г	ALTERATION OF TERRIAN	NCSS	SURVEY
_			JUNVET

BEST MANAGEMENT PRACTICE(S) BOC BOTTOM OF CURB BOW BOTTOM OF WALL CATCH BASIN CCB CAPE COD BERM

BLDG BUILDING

PLACING TOPSOIL

- CMP CORRUGATED METAL PIPE CONST CONSTRUCT COORD COORDINAT DIAMETER DIP DUCTILE IRON PIPE DMH DRAINAGE MANHOLE
- DWG DRAWING ELEV ELEVATION EP EDGE OF PAVEMENT EXIST EXISTING
- FES FLARED END SECTION FINISHED FLOOR HDPE HIGH DENSITY POLYETHYLENE HMA HOT MIX ASPHALT HMP HOT MIX PAVEMENT HW HEADWALL

HYD HYDRANT

- ROW RIGHT OF WAY SF SQUARE FEET SSSNNE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND STD STANDARD TBR TO BE REMOVED TOC TOP OF CURB TOW TOP OF WALL
- TYP TYPICAL UD UNDERDRAIN USCS UNIFIED SOIL CLASSIFICATION UNITED STATES DEPARTMENT OF AGRICULTURE W WIDTH
- WITH YD YARD DARIN



STONE WALL

WATER LINE

SEWER LINE

EASEMENT LINE

OBSCURED AREA

PARKING OUTLINE

MINOR CONTOUR

MAJOR CONTOUR

PROPERTY LINES

ZONING BOUNDARY

PROPOSED TREELINE

APPROXIMATE LIMIT OF WORK

——SS——SS——

 $\longrightarrow$ 

APPROXIMATE ABBUTERS LINE

PROPOSED RIGHT OF WAY LINE

100' WETLAND BUFFER LINE

PROPOSED GAS SERVICE

PROPOSED WATER

PROPOSED SEWER

PROPOSED CONTOUR

PROPOSED PAVEMENT

PROPOSED PERIMETER EROSION CONTROL

PROPOSED LIMIT OF CLEARING

PAVEMENT TO BE REMOVED

PROPOSED UNDERGROUND ELECTRIC/COMMUNICATION

SETBACK LINE

OVERHEAD WIRE

ABOVE GROUND MARKER)

UNDERGROUND GAS LINE (WITNESSED BY

REMNANT STONE WALL

——s—— S ——s——

**BOX WIRE FENCE** CHAINLINK FENCE Proposed RAILROAD TRACKS **Subdivision Road** EDGE OF WETLAND (SEE REFERENCE PLAN #32 & & Office Building EDGE OF WETLAND Development

Borthwick Forest, LLC

J 2/6/2018 Planning Board Submission

Engineers | Environmental Specialists

PATRICK

CRIMMINS.

No. 12378

# Portsmouth, New Hampshire

I	1/12/2018	GMP Submission		
Н	11/3/2017	For Submission to RCRI		
G	8/31/2017	Revised TAC Submissio		
F	6/2/2017	AoT Submission		
E	5/11/2017	Planning Board Submis		
D	4/24/2017	TAC & ConCom Submis		
С	3/31/2017	TAC Submission		
В	3/29/2017	Conditional Use Permit Submission		
Α	3/20/2017	TAC Submission		
MARK	DATE	DESCRIPTION		
PROJE	CT NO:	K0076-13		
DATE:		3/20/2017		
	· ·			

PPROVED BLM GENERAL NOTES, ABBREVIATIONS & LEGEND

SHEET

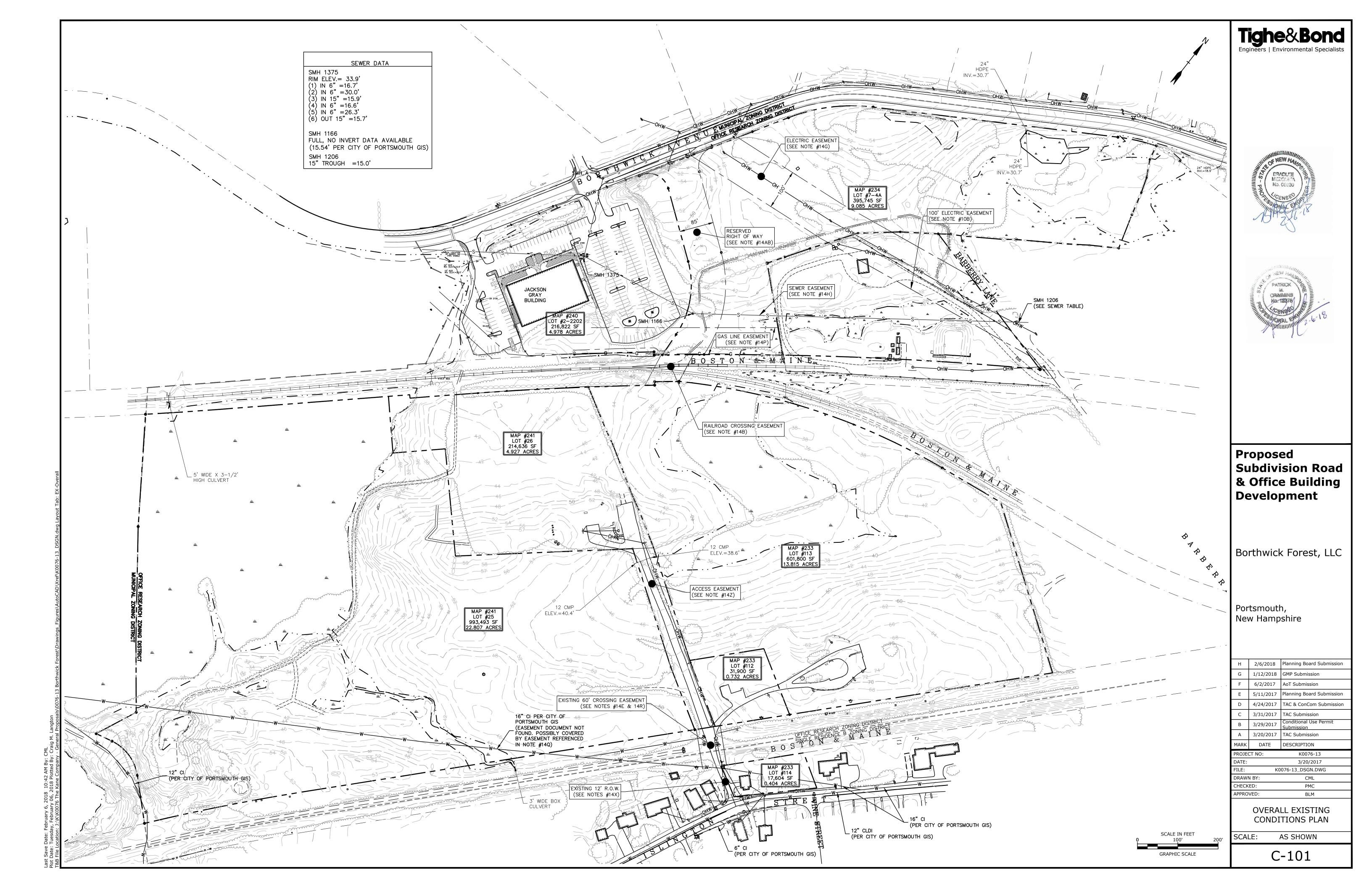
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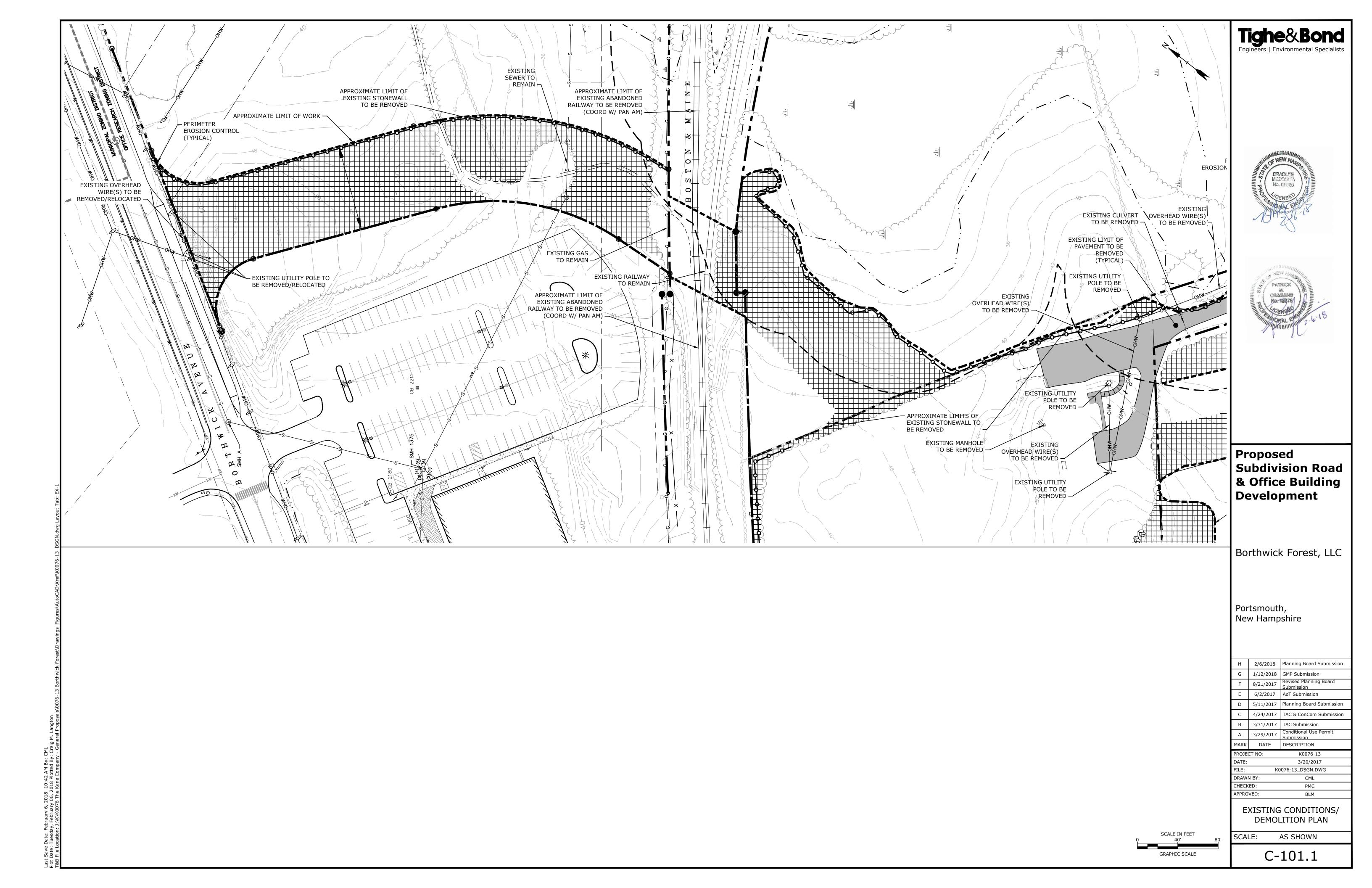
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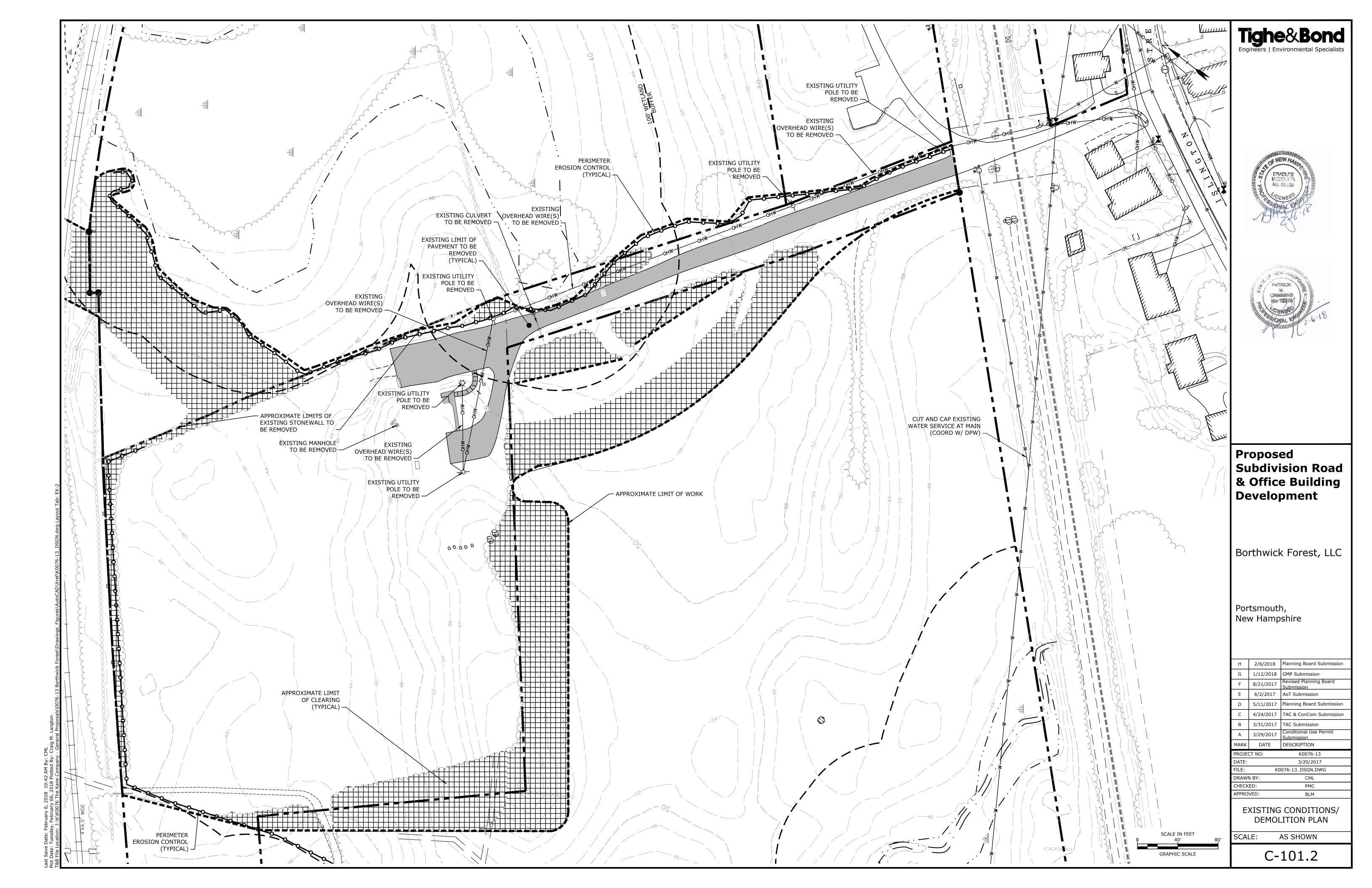
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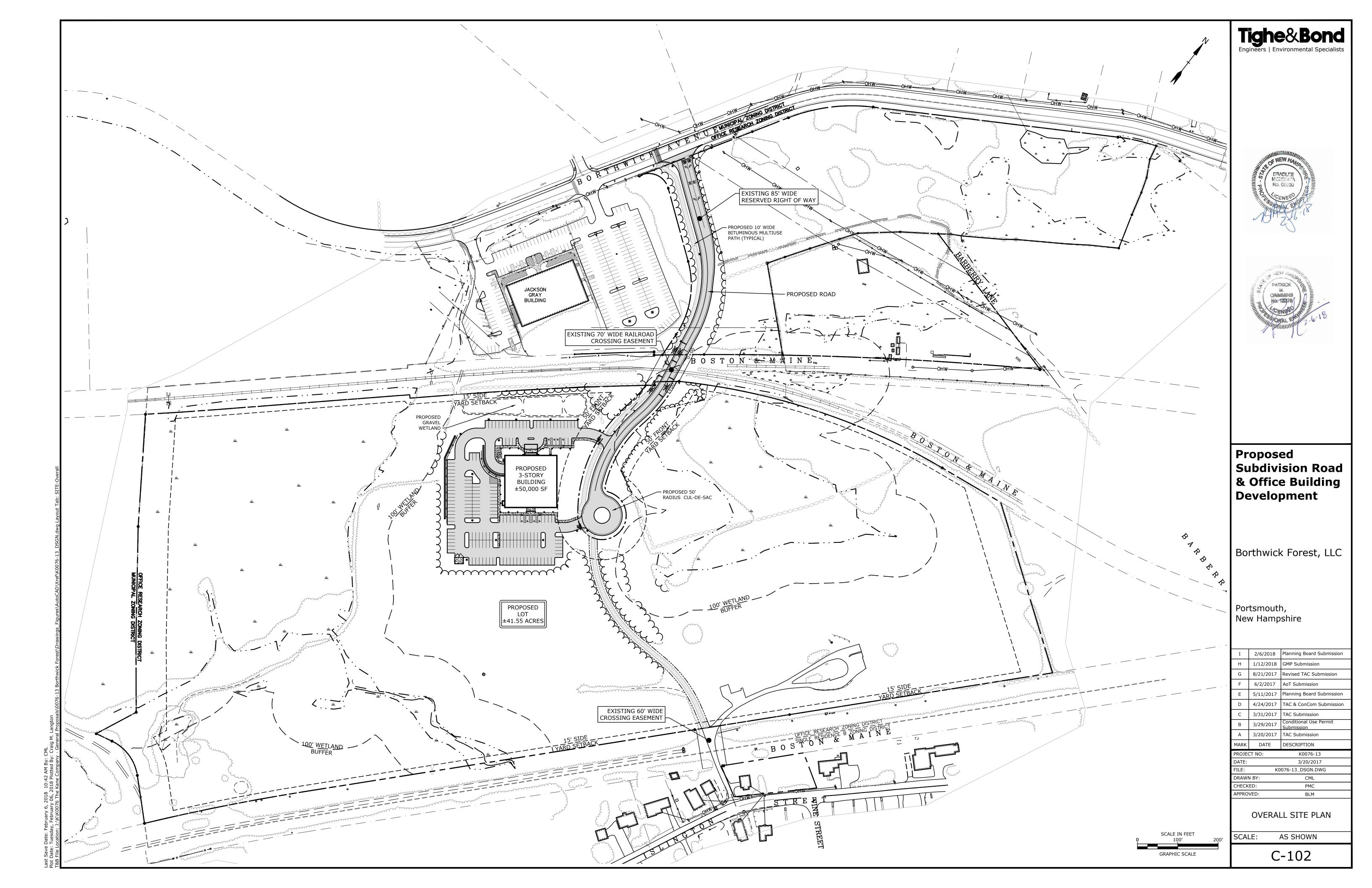
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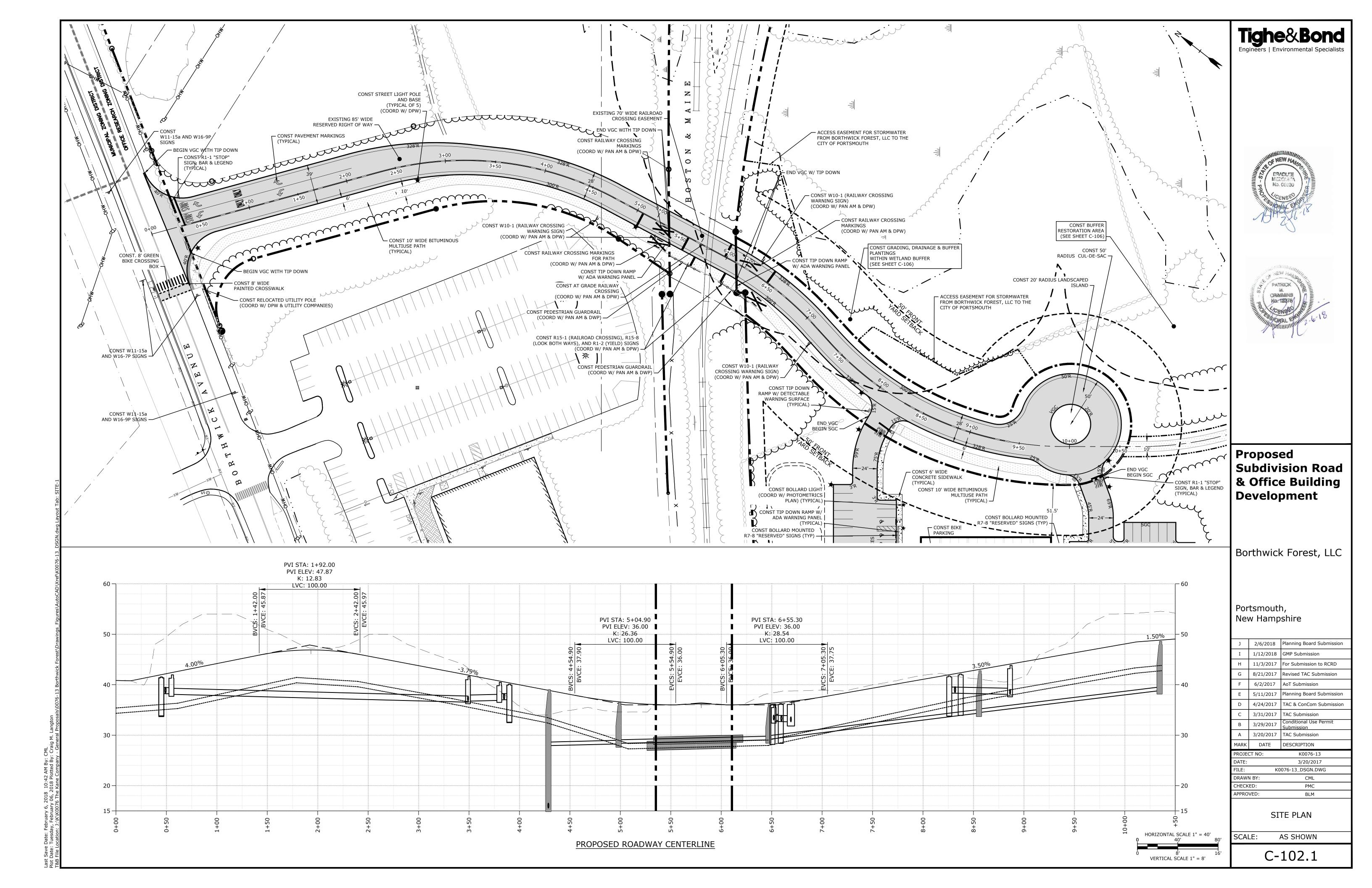
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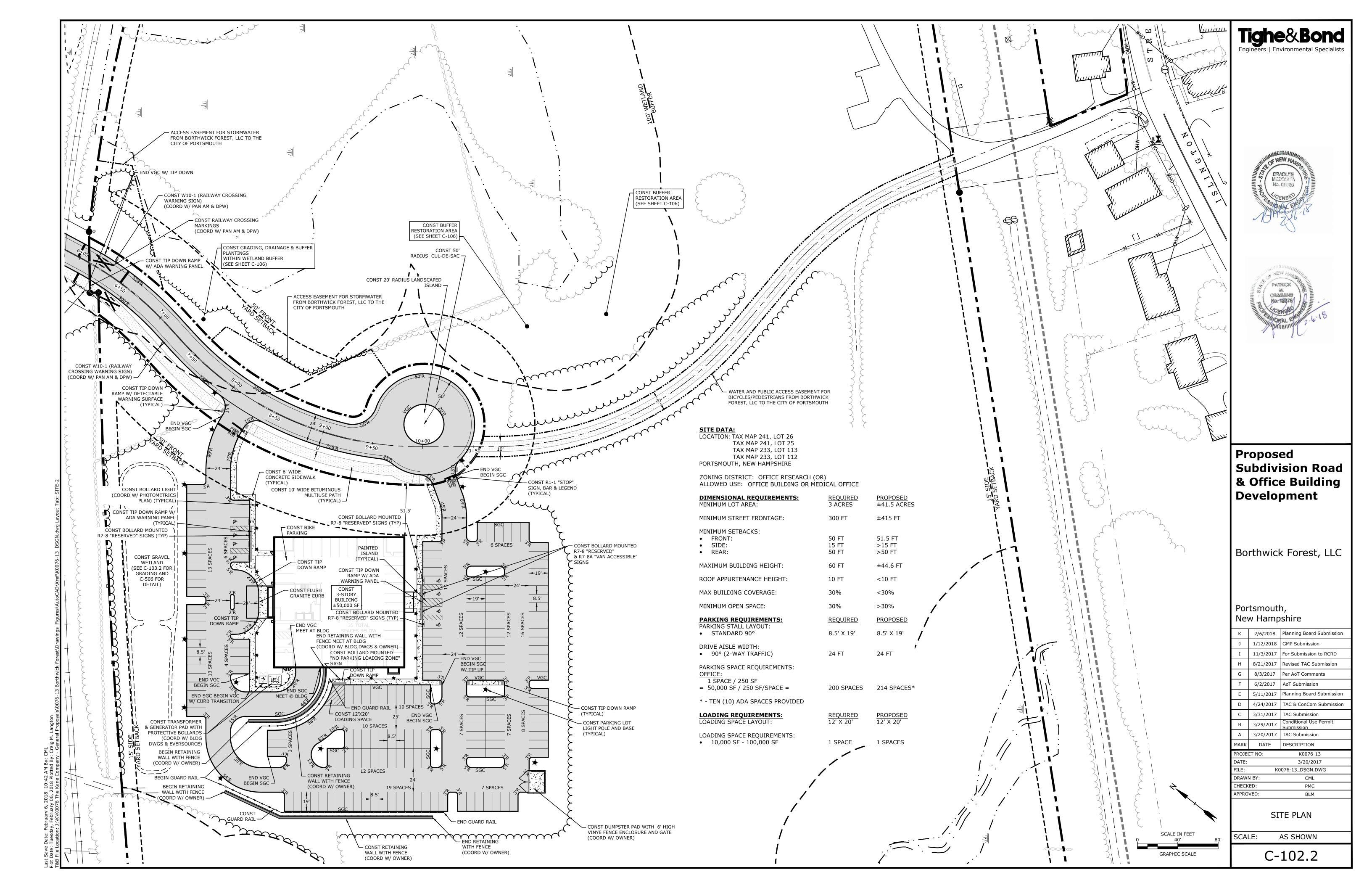


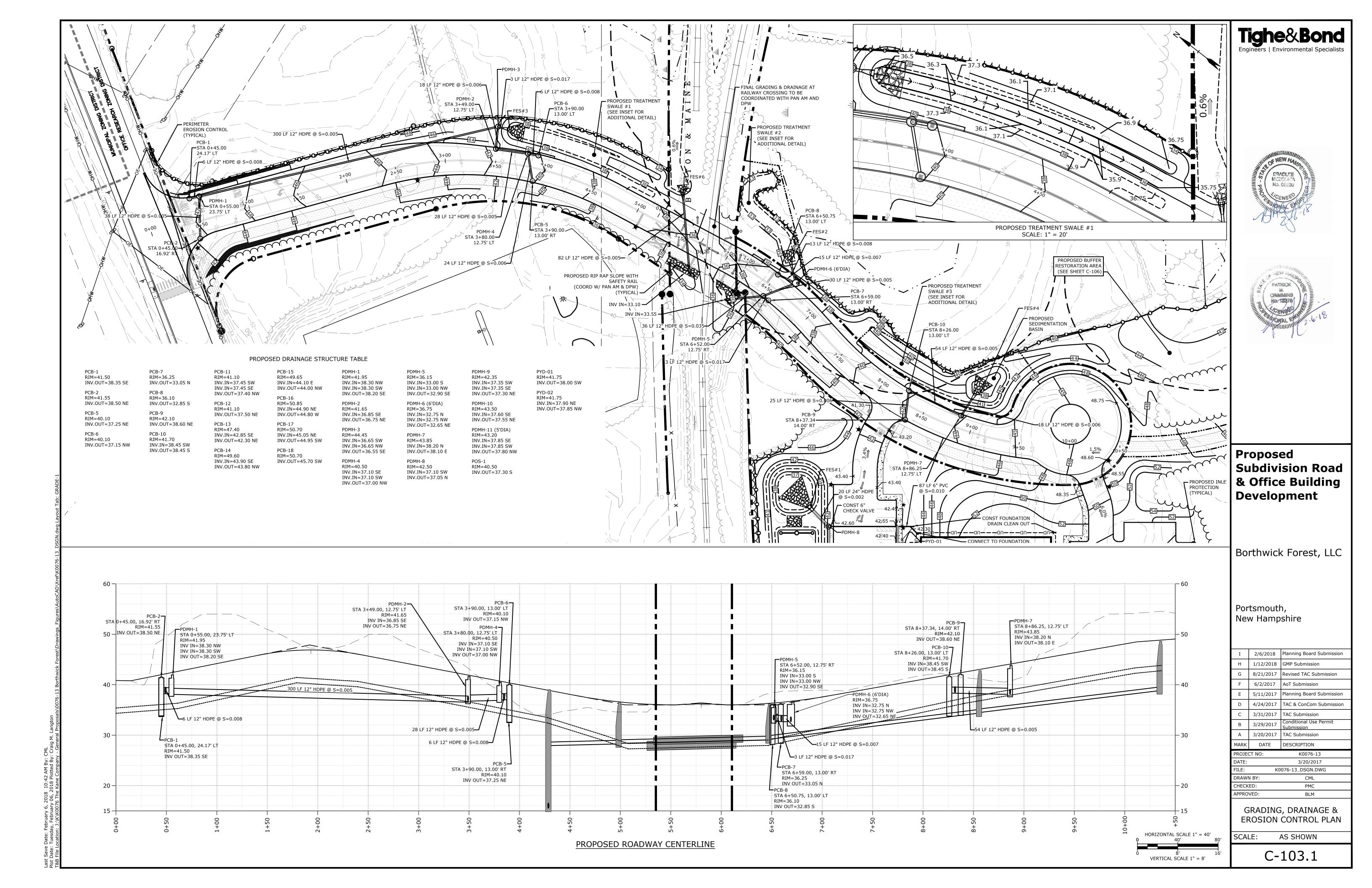


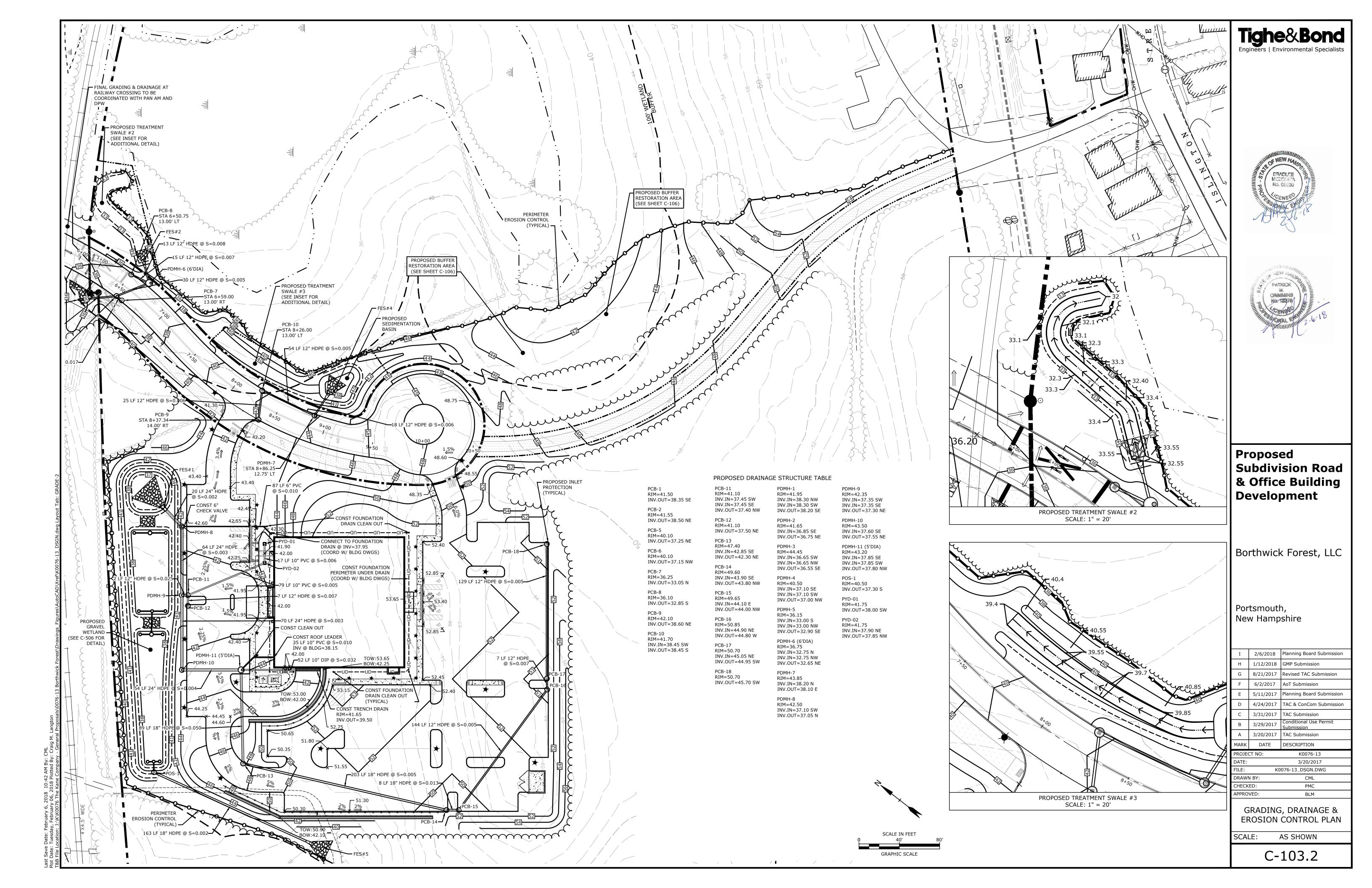


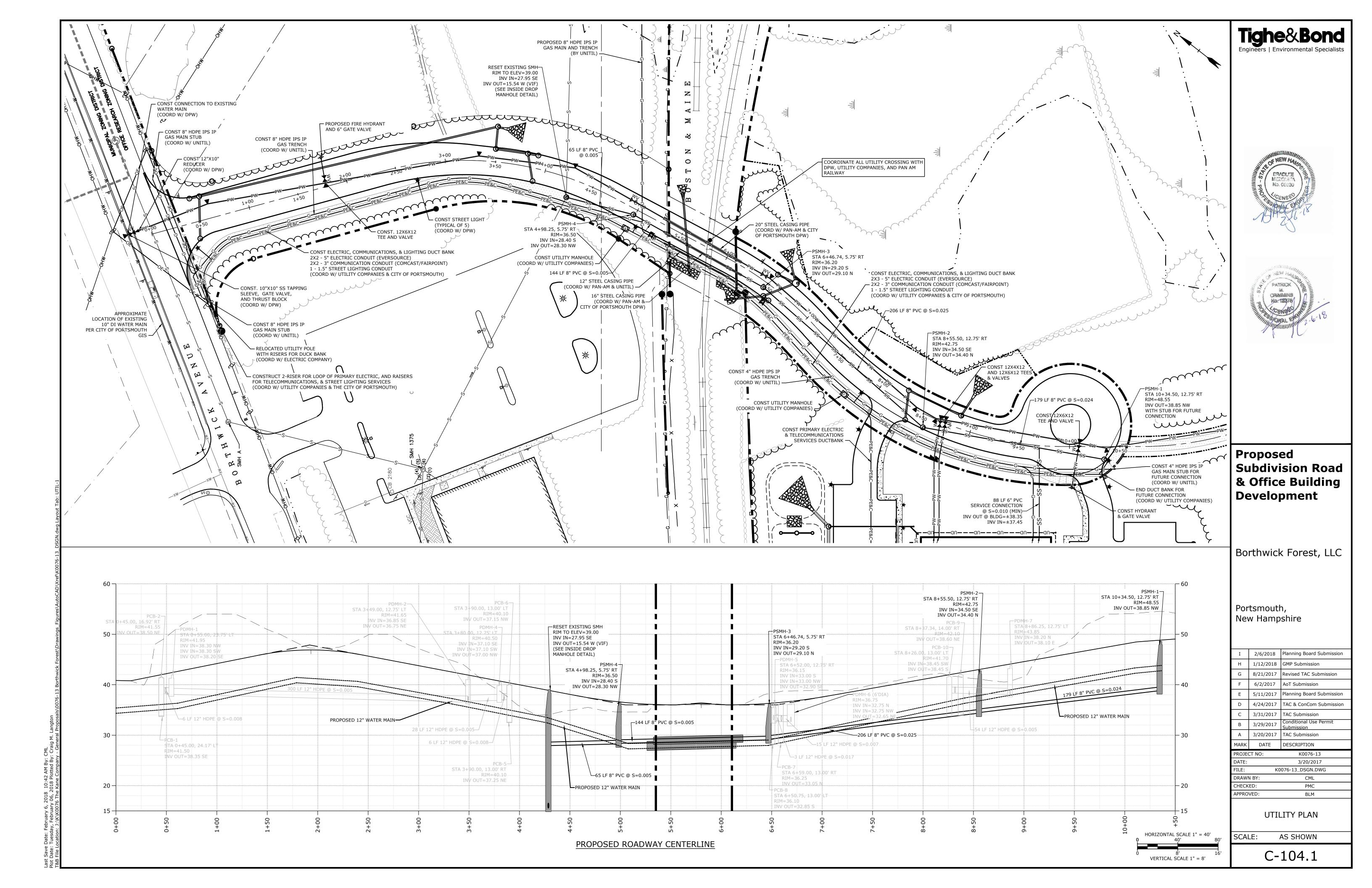


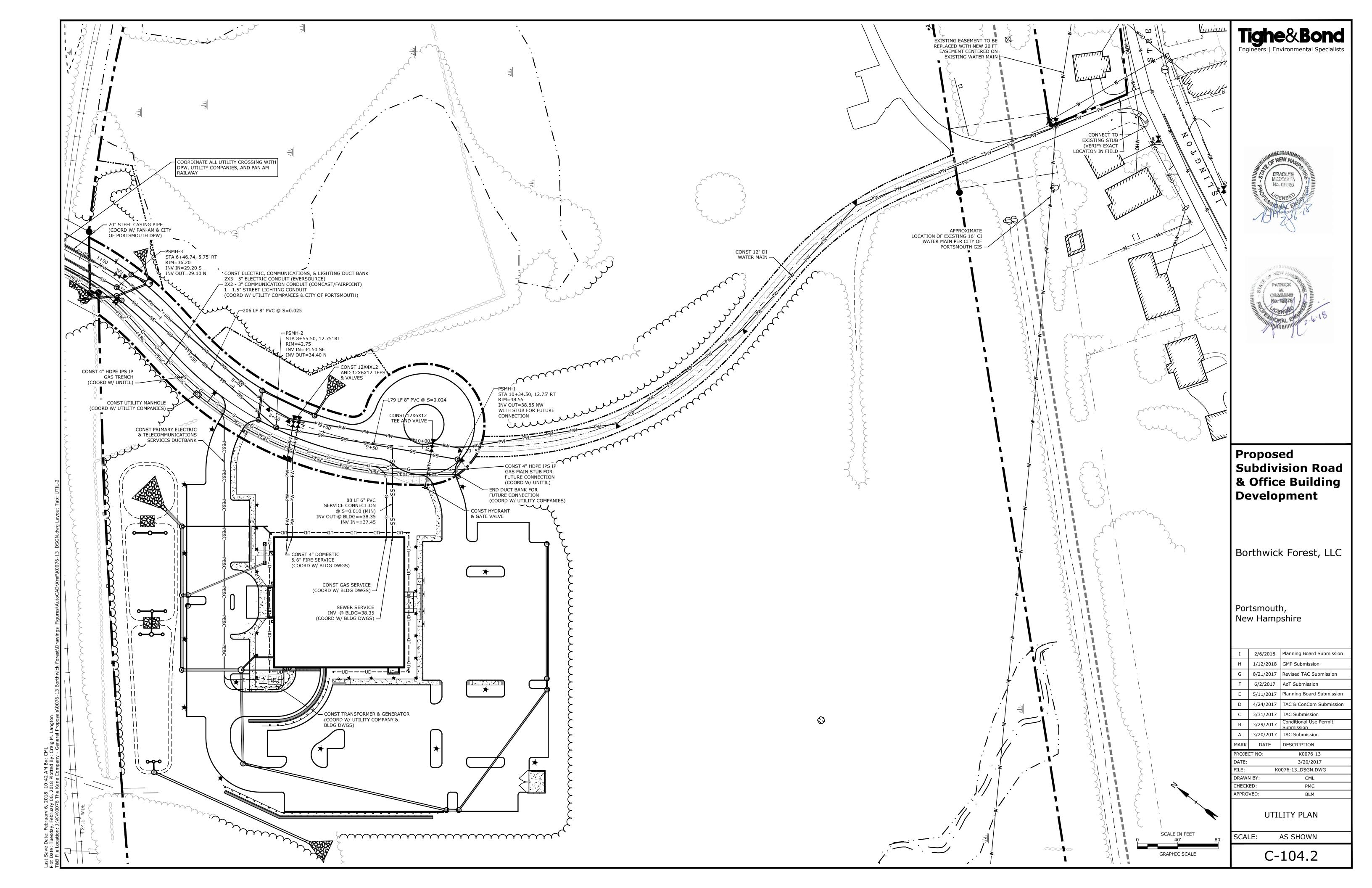


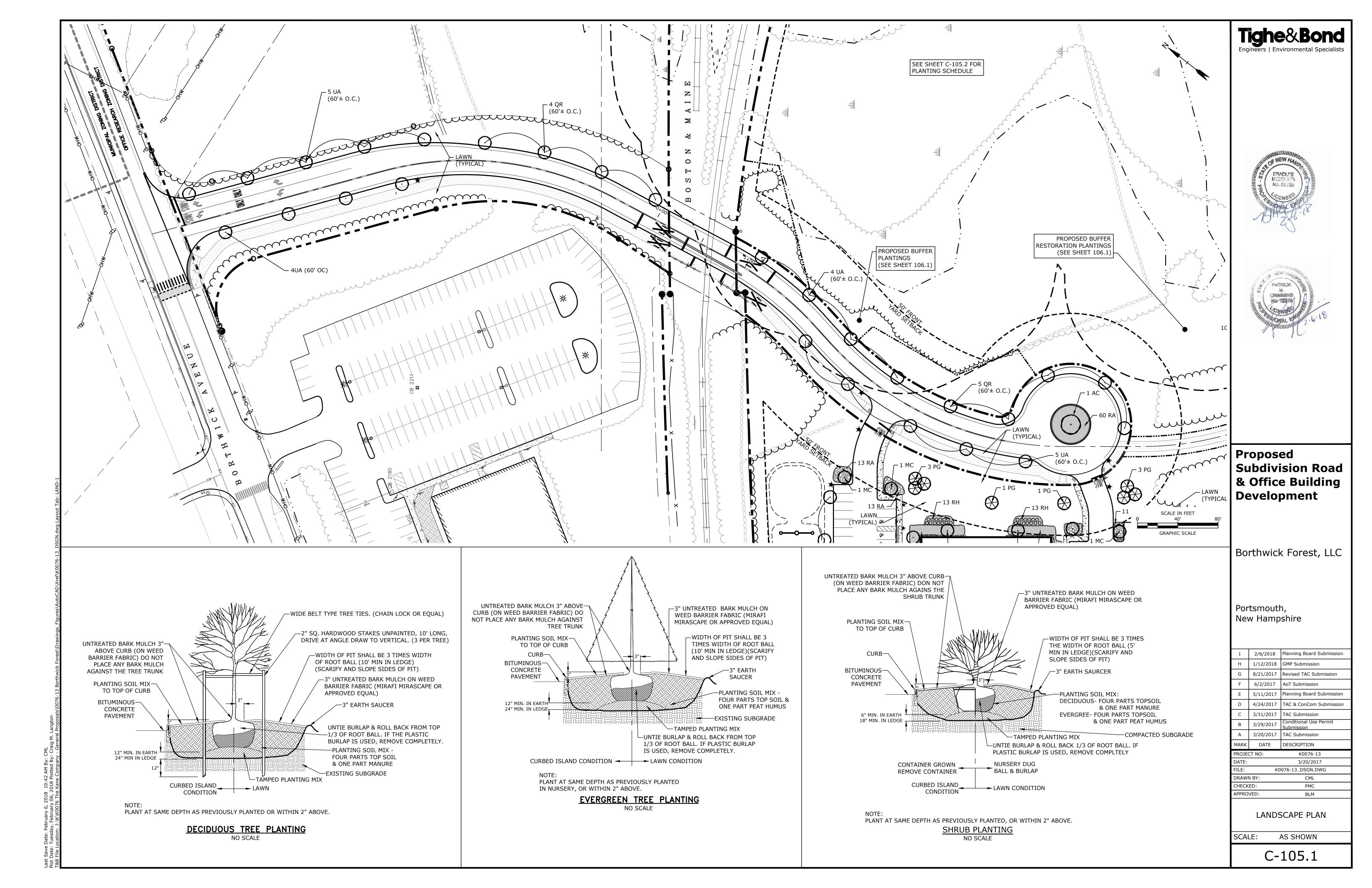


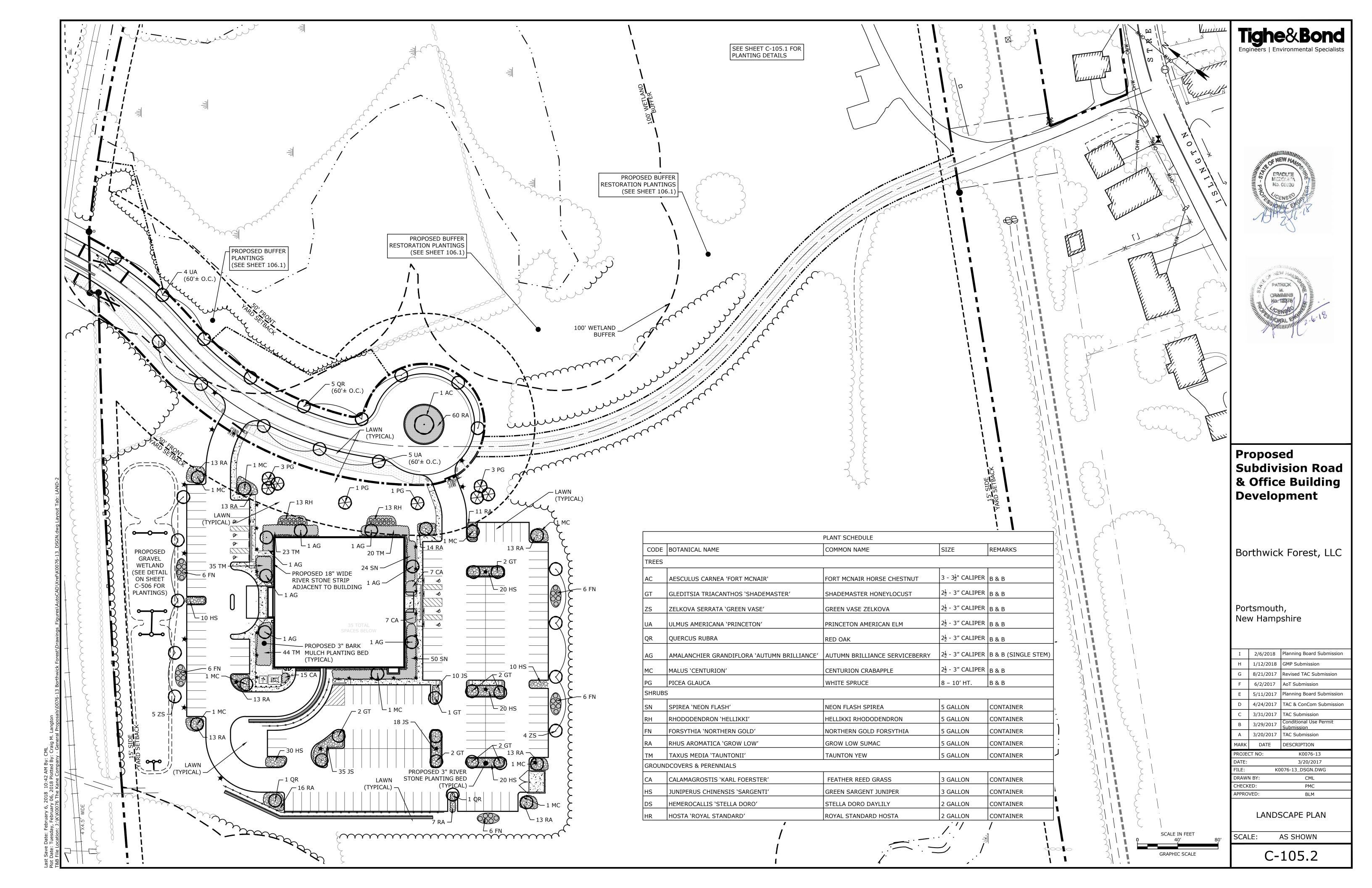


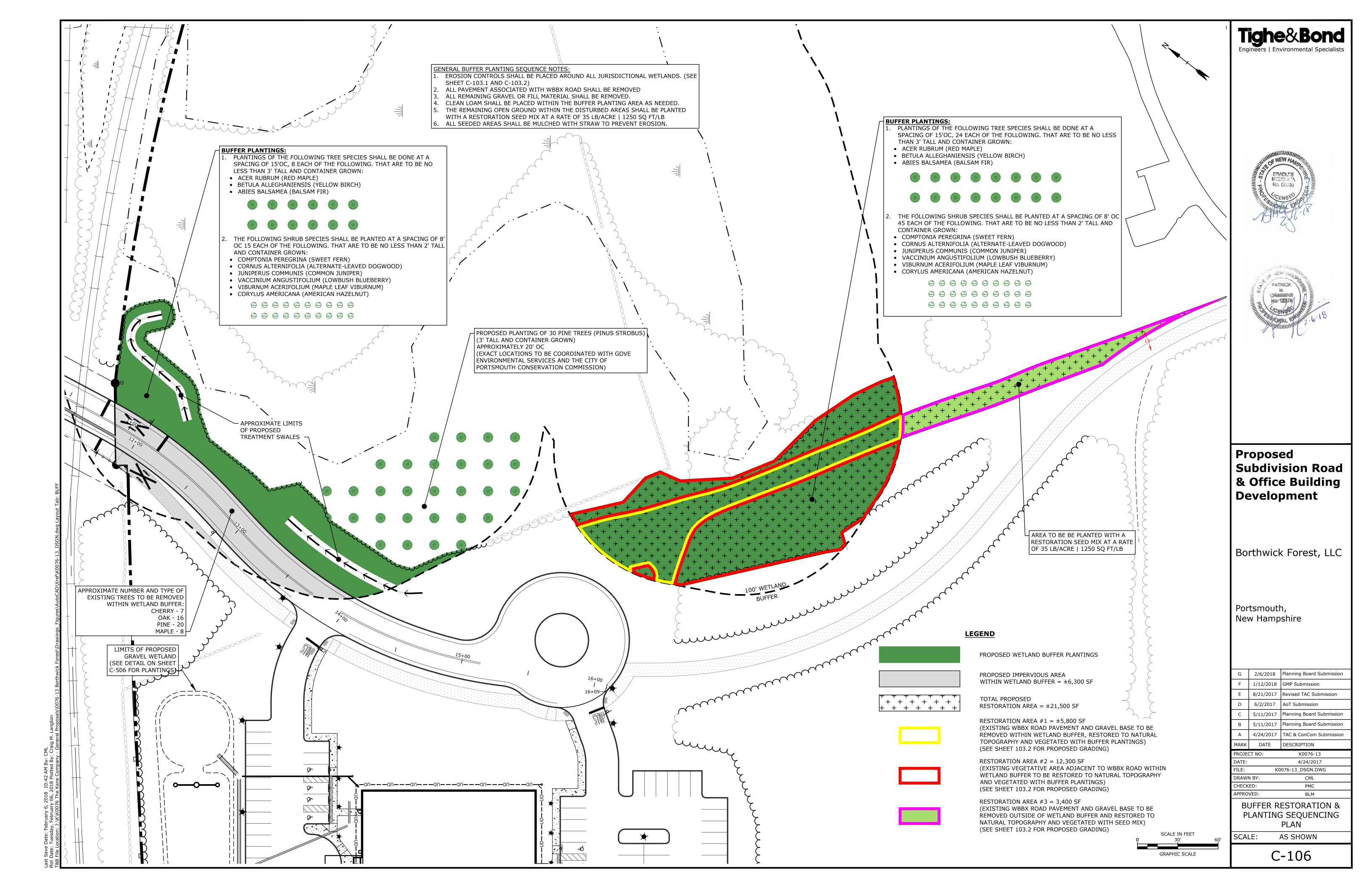












210 COMERCE WAY PORTSMOUTH, NEW HAMPSHIRE 03801 PROPOSED SUBDIVISION ROAD & OFFICE BUILDING DEVELOPMENT

PROJECT ADDRESS: BORTHWICK AVENUE

PORTSMOUTH, NEW HAMPSHIRE 03801 PROJECT LATITUDE: 43°-08'-14"N

PROJECT LONGITUDE: 70°-56'-22"W

THE PROJECT CONSISTS OF APPROXIMATELY 1,100 LF OR ROADWAY AS WELL AS A 3 STORY 50,000 SF OFFICE BUILDING WITH ASSOCIATED SITE IMPROVEMENTS THE WORK IS ANTICIPATED TO START IN SPRING OF 2018, AND BE COMPLETED BY WINTER OF 2019.

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 7 ACRES.

BASED ON THE NRCS WEB SOIL SURVEY FOR THE SOILS ON SITE CONSIST OF

CHATFIELD-HOLLIS-CANTON COMPLEX AND URBAN LAND SOILS WHICH ARE MODERATELY DRAINED

# NAME OF RECEIVING WATERS

THE STORM WATER RUNOFF WILL ULTIMATELY DISCHARGE INTO AN UNNAMED WETLAND. PRIOR TO DISCHARGING TO THE WETLAND, STORMWATER RUNOFF WILL BE COLLECTED AND TREATED BY VARIOUS TREATMENT SWALES, SEDIMENTATION BASINS AND A GRAVEL WETLAND.

# CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES: CUT AND CLEAR TREES.

- CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
  - NEW CONSTRUCTION
  - DEVELOPMENT OF BORROW PIT AREAS DISPOSAL OF SEDIMENT SPOIL, STUMP AND OTHER SOLID WASTE
  - FLOOD PLAIN EXCAVATION WORK
  - STREAM CHANNEL MODIFICATIONS CONTROL OF DUST
  - CONSTRUCTION OF ACCESS AND HAUL ROAD
  - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
- CLEAR AND DISPOSE OF DEBRIS.
- CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED
- ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF
- GRADE AND GRAVEL ROADWAYS AND PARKING AREAS ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL
- BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
- INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
- COMPLETE PERMANENT SEEDING AND LANDSCAPING.
- ). REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

# SPECIAL CONSTRUCTION NOTES:

- THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE. 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 LOT DISTURBANCE, OTHER THAN THAT SHOWN ON THE APPROVED PLANS, SHALL NOT COMMENCE
- UNTIL AFTER THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE. - THIS NOTE IS APPLICABLE TO SINGLE/DUPLEX FAMILY SUBDIVISIONS, WHEN LOT DEVELOPMENT IS NOT PART OF THE PERMIT.

- ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
- PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
- CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALES, SILT FENCES, MULCH BERMS, SILT SACKS AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
- SILT SACK INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE
- PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION
- CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND
- INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN
- STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

- AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
- A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED; B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
- C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN
- INSTALLED; D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.;
- E. IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM
- 304.2 HAVE BEEN INSTALLED. WINTER STABILIZATION PRACTICES:
- A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN
- GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS; ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE
- STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS; AFTER NOVEMBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH
- THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT; STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
- A. TEMPORARY SEEDING; B. MULCHING.
- WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY

EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED. 5. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY NOVEMBER 15.

- THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE
- CONSTRUCTION PERIOD. 2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
- 3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

- . LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND
- CULVERTS 2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES
- PRIOR TO THE ONSET OF PRECIPITATION. 3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO

ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE

INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY. 4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT

MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

# **OFF SITE VEHICLE TRACKING:**

. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY **EXCAVATION ACTIVITIES.** 

- 1. TEMPORARY GRASS COVER A. SEEDBED PREPARATION
- a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
- B. SEEDING: a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
- b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
- c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
- a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).

# 2. VEGETATIVE PRACTICE:

- A. FOR PERMANENT MEASURES AND PLANTINGS: a. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF
- THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5; b. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20
- c. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH
- d. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH
- e. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE; f. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL
- NOXIOUS WEEDS REMOVED; THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED 1. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE

# APPLIED AT THE INDICATED RATE: APPLICATION RATE SEED MIX CREEPING RED FESCUE 50 LBS/ACRE KENTUCKY BLUEGRASS 100 LBS/ACRE

- PERENNIAL RY GRASS 50 LBS/ACRE IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.
- 3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL): A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS.
- APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

# **CONCRETE WASHOUT AREA:**

- THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
- A. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FACILITY; B. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND
- DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER; C. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM
- DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS; D. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN

# **ALLOWABLE NON-STORMWATER DISCHARGES:**

- FIRE-FIGHTING ACTIVITIES; FIRE HYDRANT FLUSHING;
- WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;

MATERIALS NEED TO BE REMOVED.

- WATER USED TO CONTROL DUST;
- POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING; ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
- 7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED 8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
- UNCONTAMINATED GROUND WATER OR SPRING WATER;
- 10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
- 11. UNCONTAMINATED EXCAVATION DEWATERING; 12. LANDSCAPE IRRIGATION.

# WASTE DISPOSAL

- A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED
- B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
- C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT 2. HAZARDOUS WASTE:

A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY

- LOCAL OR STATE REGULATION OR BY THE MANUFACTURER; B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
- 3. SANITARY WASTE: A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE

PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

FOLLOWED ON SITE:

- CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST
- MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW 2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE
- THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
- A. GOOD HOUSEKEEPING THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
- a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE; b. ALL MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR
- c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE
- d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL
- e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
- f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
- B. HAZARDOUS PRODUCTS THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
- g. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE; h. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT
- PRODUCT INFORMATION; SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE
- MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE
- a. PETROLEUM PRODUCTS: ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR
- PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE; PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED
- ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY
- THE SPECIFICATIONS; ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO
- STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
- ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR
- EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
- EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
- D. SPILL CONTROL PRACTICES IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP: a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY
- POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES; b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER,
- SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
- d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
- e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED; f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
- E. VEHICLE FUELING AND MAINTENANCE PRACTICE: a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPTMENT/VEHICAL FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
- b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY; c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
- d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA; e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE; f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN

# EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

REPLACING SPENT FLUID.

THIS PROJECT (DOES NOT) EXCEED(S) ONE (1) ACRE OF DISTURBANCE AND THUS (DOES NOT) REQUIRE(S) A SWPPP. THE SWPPP SHALL BE PREPARED BY THE ENGINEER (CONTRACTOR). THE CONTRACTOR SHALL BE FAMILIAR WITH THE SWPPP AND KEEP AN UPDATED COPY OF THE SWPPP ONSITE AT ALL TIMES.

THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL

- BE FOLLOWED AS PART OF THIS PROJECT: OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE ENGINEER (CONTRACTOR) AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25
- INCHES OR GREATER; 2. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
- 3. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
- 4. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.

- IF MORE THAN 5000 CUBIC YARDS ARE TO BE BLASTED A BLASTING PLAN SHALL BE PROVIDED. THE BLASTING PLAN SHALL INCLUDE: A. LOCATION AND IDENTIFICATION OF DRINKING WATER WELLS LOCATED WITHIN 2000 FEET OF
- THE PROPOSED BLASTING ACTIVITIES; B. A GROUNDWATER QUALITY SAMPLING PROGRAM, APPROVED BY NHDES PRIOR TO INITIATING BLASTING, TO MONITOR FOR NITRATE AND NITRITE EITHER IN THE DRINKING WATER SUPPLY WELLS OR IN OTHER WELLS THAT ARE REPRESENTATIVE OF THE DRINKING WATER SUPPLY
- WELLS IN THE AREA. a. THE GROUNDWATER SAMPLING PROGRAM MUST BE IMPLEMENTED ONCE APPROVED BY
- 2. THE FOLLOWING BEST MANAGEMENT PROCEDURES FOR BLASTING SHALL BE COMPLIED WITH: A. LOADING PRACTICES - THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
- a. DRILLING LOGS SHALL BE MAINTAINED BY THE DRILLER AND COMMUNICATED DIRECTLY TO THE BLASTER. THE LOGS SHALL INDICATE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED AS WELL AS GROUNDWATER
- b. EXPLOSIVE PRODUCTS SHALL BE MANAGED ON-SITE SO THAT THEY ARE EITHER USED IN THE BOREHOLE, RETURNED TO THE DELIVERY VEHICLE, OR PLACED IN SECURE CONTAINERS FOR OFF-SITE DISPOSAL; c. SPILLAGE AROUND THE BOREHOLE SHALL EITHER BE PLACED IN THE BOREHOLE OR
- IN SECURED CONTAINERS FOR OFF-SITE DISPOSAL; d. LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND SHALL NOT BE LEFT IN THE BLASTHOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED;

e. LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE

PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF

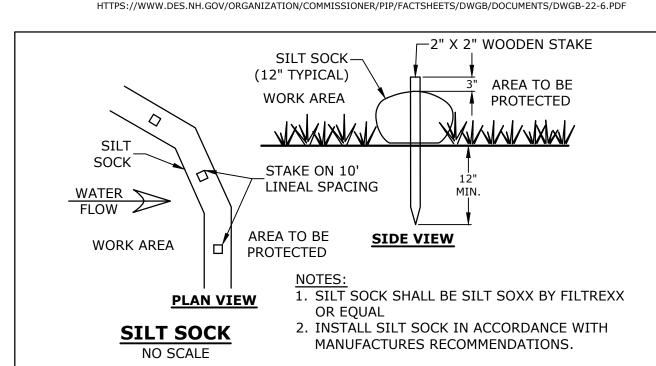
CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT

- CONTAMINANTS TO THE ENVIRONMENT;
- f. EXPLOSIVES SHALL BE LOADED TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD T PROMOTE COMPLETE DETONATION. INDUSTRY ACCEPTED LOADING PRACTICES FOR
- PRIMING, STEMMING, DECKING AND COLUMN RISE NEED TO BE ATTENDED TO. EXPLOSIVE SELECTION - THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE
- POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED: a. EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS
- AND SAFE BLAST EXECUTION;
- b. EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT HAVE THE APPROPRIATE WATER RESISTANCE FOR THE SITE CONDITIONS PRESENT TO MINIMIZE THE POTENTIAL FOR
- HAZARDOUS EFFECT OF THE PRODUCT UPON GROUNDWATER C. PREVENTION OF MISFIRES. APPROPRIATE PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED
- MUCK PILES MANAGEMENT MUCK PILES (THE BLASTED PIECES OF ROCK) AND ROCK PILES SHALL BE MANAGED IN A MANNER TO REDUCE THE POTENTIAL FOR CONTAMINATION BY
- IMPLEMENTING THE FOLLOWING MEASURES: c. REMOVE THE MUCK PILE FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE; d. MANAGE THE INTERACTION OF BLASTED ROCK PILES AND STORMWATER TO PREVENT
- CONTAMINATION OF WATER SUPPLY WELLS OR SURFACE WATER. SPILL PREVENTION MEASURES AND SPILL MITIGATION - SPILL PREVENTION AND SPILL MITIGATION MEASURES SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF FUEL AND OTHER RELATED SUBSTANCES TO THE ENVIRONMENT. THE MEASURES SHALL INCLUDE AT A
- a. THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE:
- STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE;
- SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
- LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY; INSPECT STORAGE AREAS WEEKLY;
- COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS; WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE
- WELLS, AND 400 FEET FROM PUBLIC WELLS; SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS,
- OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED. b. THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
- EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED; PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS;
- HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES;
- INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED d. FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT SHALL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF

EXCAVATION AND EARTHMOVING EQUIPMENT, OR ITS SUCCESSOR DOCUMENT.

PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.

c. THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE



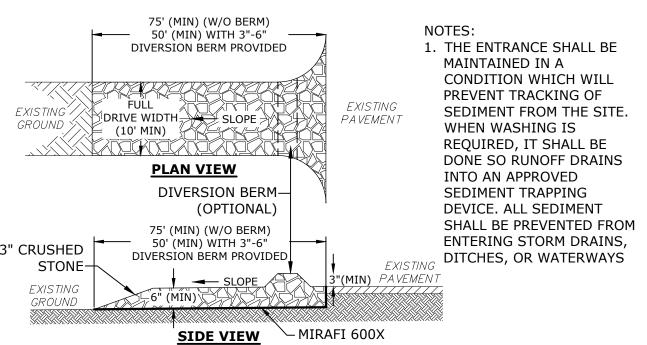
# Proposed **Subdivision Road** & Office Building Development

PATRICK

CRIMMINS,

No. 12378

Engineers | Environmental Specialists

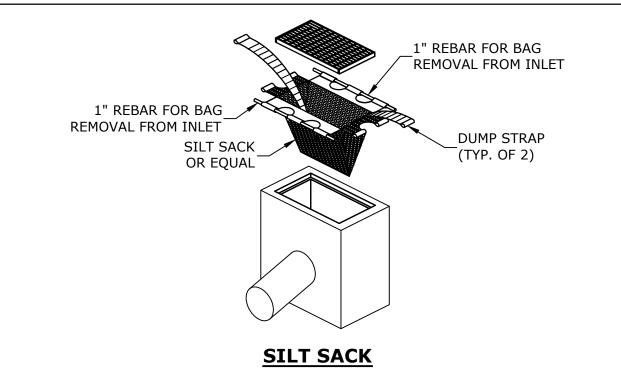


Borthwick Forest, LLC

Portsmouth, New Hampshire

STABILIZED CONSTRUCTION EXIT

OR EQUAL



F 2/6/2018 Planning Board Submission E 1/12/2018 GMP Submission D 6/2/2017 AoT Submission

C 5/11/2017 Planning Board Submission B 4/24/2017 TAC & ConCom Submission A 3/20/2017 TAC Submission MARK DATE DESCRIPTION PROJECT NO: K0076-13 3/20/2017 K0076-13\_DTLS.DWG DRAWN BY CML CHECKED: PMC

> APPROVED BLM **EROSION CONTROL NOTES**

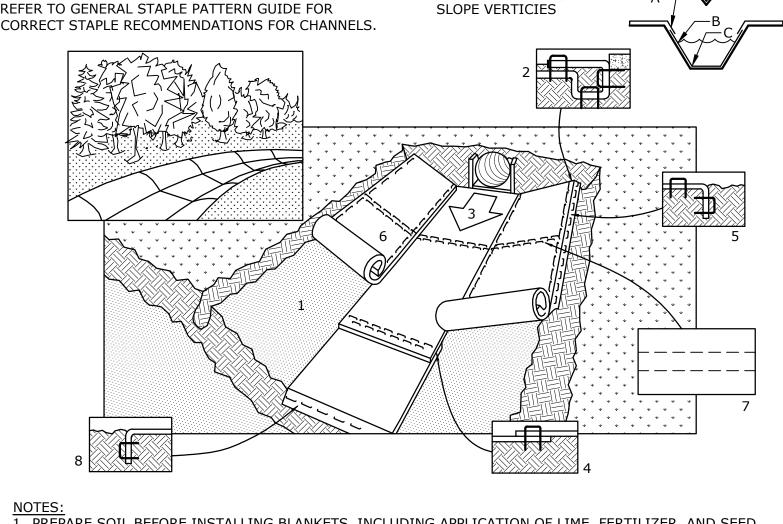
> > SHEET

SCALE: AS SHOWN

C-501

- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
- BEGIN AT THE TOP OF THE SLOPE, 36" OVER THE GRADE BREAK, BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UPSLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF TAPLES/STAKES 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES SPACED 12" APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL THE BLANKETS DOWN THE SLOPE. ALL BLANKETS MUST BE SECURELY FASTENED TO THE SOIL SURFACE BY PLACING STAPLES IN APPROPRIATE LOCATIONS AS SHOWN ON THE STAPLE PATTERN GUIDE
- STAPLE LENGTHS SHALL BE A MINIMUM OF 8 INCHES.
- EROSION CONTROL BLANKETS SHALL BE BORTH AMERICAN GREEN C125 BN OR EQUAL.

# **EROSION CONTROL BLANKET INSTALLATION** FOR STEEP SLOPES



OVERLAPS AND SEAMS

PROJECTED WATER LINE

CHANNEL BOTTOM/SIDE

HORIZONTAL STAPLE SPACING SHOULE BE ALTERED

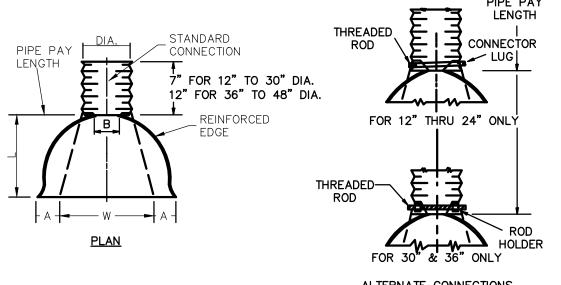
IF NECESSARY TO ALLOW STAPLES TO SECURE THE

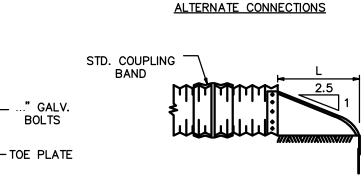
CRITICAL POINTS ALONG THE CHANNEL SURFACE

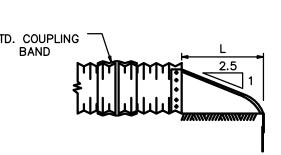
- NOTES:

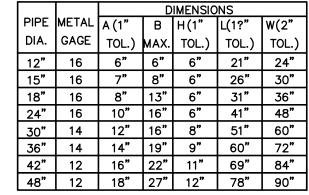
  1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED. 2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING
- 3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW ON BOTTOM OF CHANNEL.
- 4. PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH A 6" OVERLAP. USE A DOUBLE ROW OF STAGGERED STAPLES 4" APART TO SECURE BLANKETS
- 5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- 6. BLANKETS ON SIDE SLOPES MUST BE OVERLAPPED 4" OVER THE CENTER BLANKET AND STAPLED. 7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT
- INTERVALS. USE A ROW OF STAPLES 4' APART OVER THE ENTIRE WIDTH OF THE CHANNEL. PLACE A SECOND ROW 4" BELOW THE FIRST ROW IN A STAGGERED PATTERN.
- 8. TERMINAL END OF THE BLANKETS MUST BE ANCHORED IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- 9. EROSION CONTROL BLANKETS SHALL BE BORTH AMERICAN GREEN C125 BN OR EQUAL

# **EROSION CONTROL BLANKET INSTALLATION**





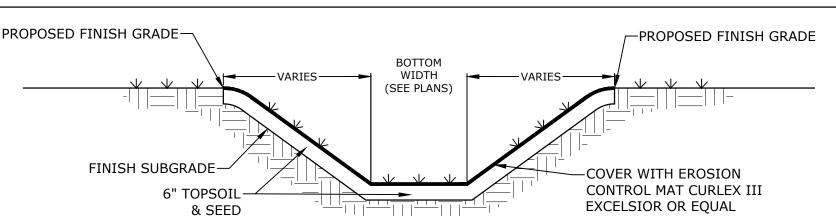




- 1. END SECTION FOR 12" TO 30" DIA. PIPE IN ONE PIECE, FOR 36" TO 48" DIA. PIPE TO BE MADE FROM TWO SHEETS JOINED BY RIVETING OR BOLTING ON CENTER LINE.
- CONNECTOR SECTION, CORNER PLATE 2. AND TOE PLATE TO BE SAME THICKNESS AS END SECTION AND EACH TO BE GALVANIZED.

# **METAL FLARED END SECTION**

TYPICAL CROSS-SECTION



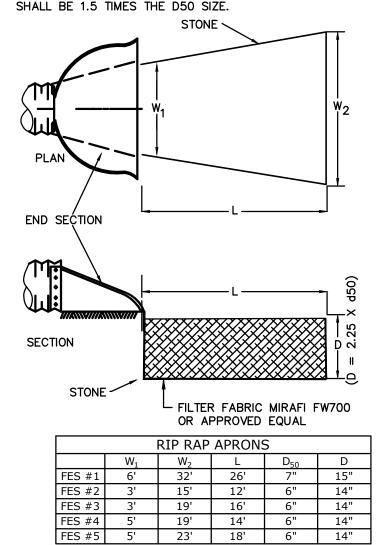
- 1. THE FOUNDATION AREA OF THE WATERWAY SHALL BE CLEARED AND GRUBBED OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL. MATERIALS REMOVED SHALL BE DISPOSED OF SO THEY WILL NOT INTERFERE WITH THE CONSTRUCTION OR PROPER FUNCTIONING
- 2. THE WATERWAY SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS-SECTION AS REQUIRED TO MEET THE DESIGN CRITERIA. THE WATERWAY SHALL BE FREE OF IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW. 3. EARTH FILLS REQUIRED TO MEET SUBGRADE REQUIREMENTS BECAUSE OF OVER EXCAVATION OR TOPOGRAPHY SHALL BE COMPACTED TO THE SAME DENSITY AS THE SURROUNDING SOIL TO PREVENT UNEQUAL SETTLEMENT THAT COULD CAUSE DAMAGE TO THE COMPLETED WATERWAY.
- EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE WATERWAY. 4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER AS TO MINIMIZE EROSION AND AIR AND WATER POLLUTION. ALL
- APPROPRIATE STATE AND LOCAL LAWS AND REGULATIONS SHALL BE COMPLIED WITH FOR INSTALLATION. 5. VEGETATION SHALL BE ESTABLISHED IN THE SWALE PRIOR TO ALLOWING STORMWATER RUNOFF TO FLOW THROUGH THE SWALE.
- 6. MAINTENANCE OF THE VEGETATION IN THE GRASSED WATERWAY IS EXTREMELY IMPORTANT IN ORDER TO PREVENT RILLING, EROSION, AND FAILURE OF THE WATERWAY. MOWING SHOULD BE DONE FREQUENTLY ENOUGH TO CONTROL ENCROACHMENT OF WEEDS AND WOODY VEGETATION AND TO KEEP THE GRASSES IN A VIGOROUS CONDITION. THE VEGETATION SHOULD NOT BE MOWED TOO CLOSELY SO AS TO
- REDUCE THE EROSION RESISTANCE IN THE WATERWAY. 7. THE WATERWAY SHOULD BE INSPECTED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE THE CONDITION OF THE WATERWAY. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND REVEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.

# **GRASSED LINED SWALE**

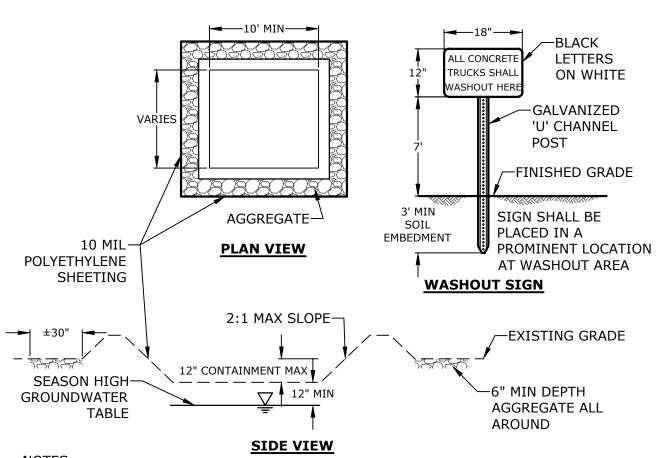
NOTES:

1. STONE SIZE AND MAT DIMENSIONS DETAILED ON TABLE BELOW. 2. STONE SHALL CONSIST OF SUB-ANGULAR FIELD STONE OR ROUGH UNHEWN QUARRY STONE OF APPROXIMATELY RECTANGULAR SHAPE. FLAT OR ROUND ROCKS ARE NOT ACCEPTABLE. THE STONE SHALL BE HARD AND OF SUCH QUALITY THAT IT WILL NOT DISINTEGRATE ON EXPOSURE TO WATER OR WEATHERING, BE CHEMICALLY STABLE AND IT SHALL BE SUITABLE IN ALL OTHER RESPECTS FOR THE PURPOSE INTENDED. THE BULK SPECIFIC GRAVITY (SATURATED SURFACE-DRY BASIS) OF THE INDIVIDUAL STONES SHALL BE AT LEAST 2.5.

3. THE STONE SHALL BE COMPOSED OF A WELL-GRADED MIXTURE DOWN TO THE ONE-INCH SIZE PARTICLE SUCH THAT 50 PERCEN OF THE MIXTURE BY WEIGHT SHALL BE LARGER THAN THE D50 SIZE SPECIFIED. A WELL-GRADED MIXTURE IS DEFINED AS A MIXTURE COMPOSED PRIMARILY OF THE LARGER STONE SIZE BUT WITH A SUFFICIENT MIXTURE OF OTHER SIZES TO FILL THE PROGRESSIVELY SMALLER VOIDS BETWEEN THE STONES. THE DIAMETER OF THE LARGEST STONE SIZE IN SUCH A MIXTURE



RIP-RAP APRON NO SCALE



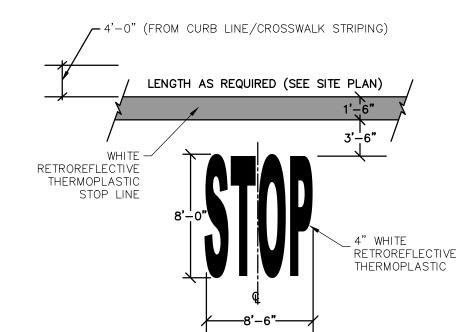
- 1. CONTAINMENT SHALL BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
- 2. CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
- 3. WASHOUT SHALL BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75% FULL.
- 5. ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE

4. WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY

RELOCATED AS CONSTRUCTION PROGRESSES. 6. AT LEAST WEEKLY, REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE

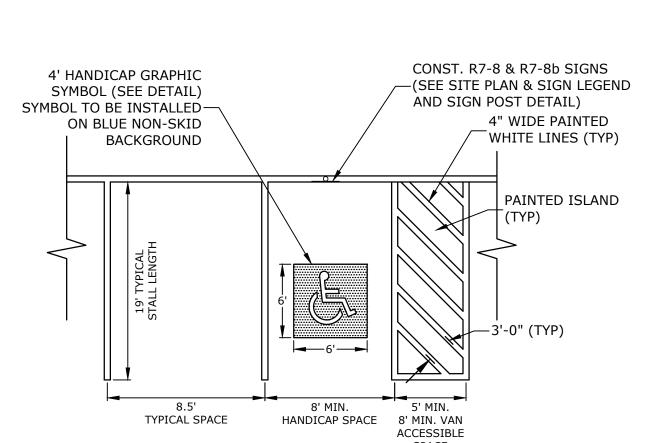
# OF PROPERLY.

**CONCRETE WASHOUT AREA** NO SCALE



PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.

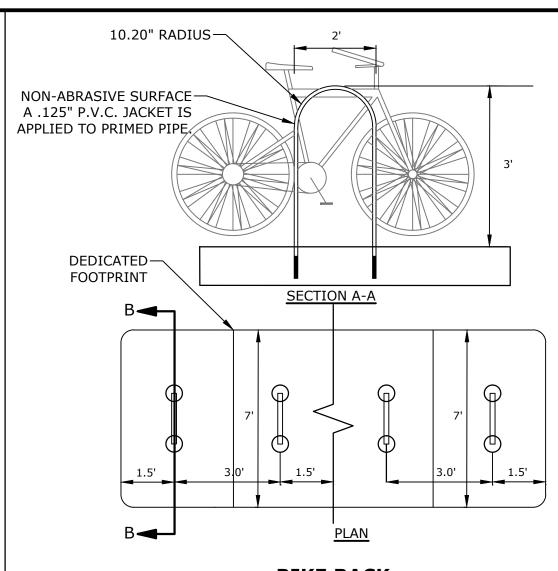
STOP BAR & LEGEND



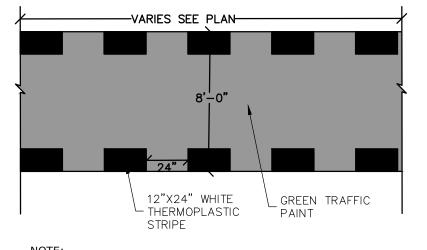
. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.

2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS. 3. FINISH PAVEMENT GRADES AT ALL HANDICAP ACCESSIBLE STALLS AND PAINTED ACCESS

AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION. STALL STRIPING-SINGLE STRIPE



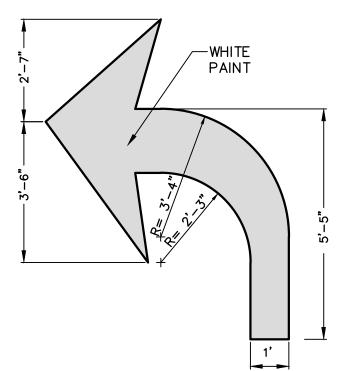
# **BIKE RACK**



NOTE:
1. STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505.

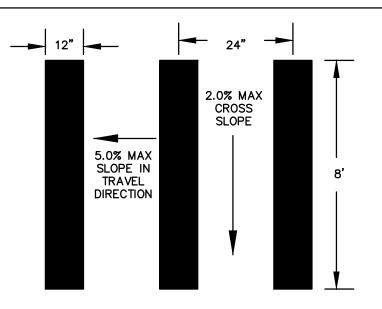
2. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY THE MANUFACTURER.

# **BIKE CROSSING BOX**



ALL FLOW ARROWS TO BE SOLID WHITE THERMOPLASTIC STRIPING AS PER DIMENSIONS ABOVE. ALL MARKINGS MUST CONFORM TO THE LATEST EDITION OF THE MUTCD.

# TRAFFIC DIRECTIONAL MARKINGS NO SCALE



STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVMENT MARKING MATERIAL MEETING THE

CROSSWALK STRIPING

Tighe&Bond





Proposed **Subdivision Road** & Office Building **Development** 

Borthwick Forest, LLC

Portsmouth, New Hampshire

F	2/6/2018	Planning Board Submission			
Е	1/12/2018	GMP Submission			
D	6/2/2017	AoT Submission  Planning Board Submission  TAC & ConCom Submission			
С	5/11/2017				
В	4/24/2017				
Α	3/20/2017	TAC Submission			
MARK	DATE	DESCRIPTION			
PROJE	CT NO:	K0076-13			
DATE:		3/20/2017			
FILE:	K	0076-13_DTLS.DWG			
DRAWI	N BY:	CML			

REQUIREMENTS OF ASTM D 4505

SCALE: AS SHOWN

CHECKED:

APPROVED:

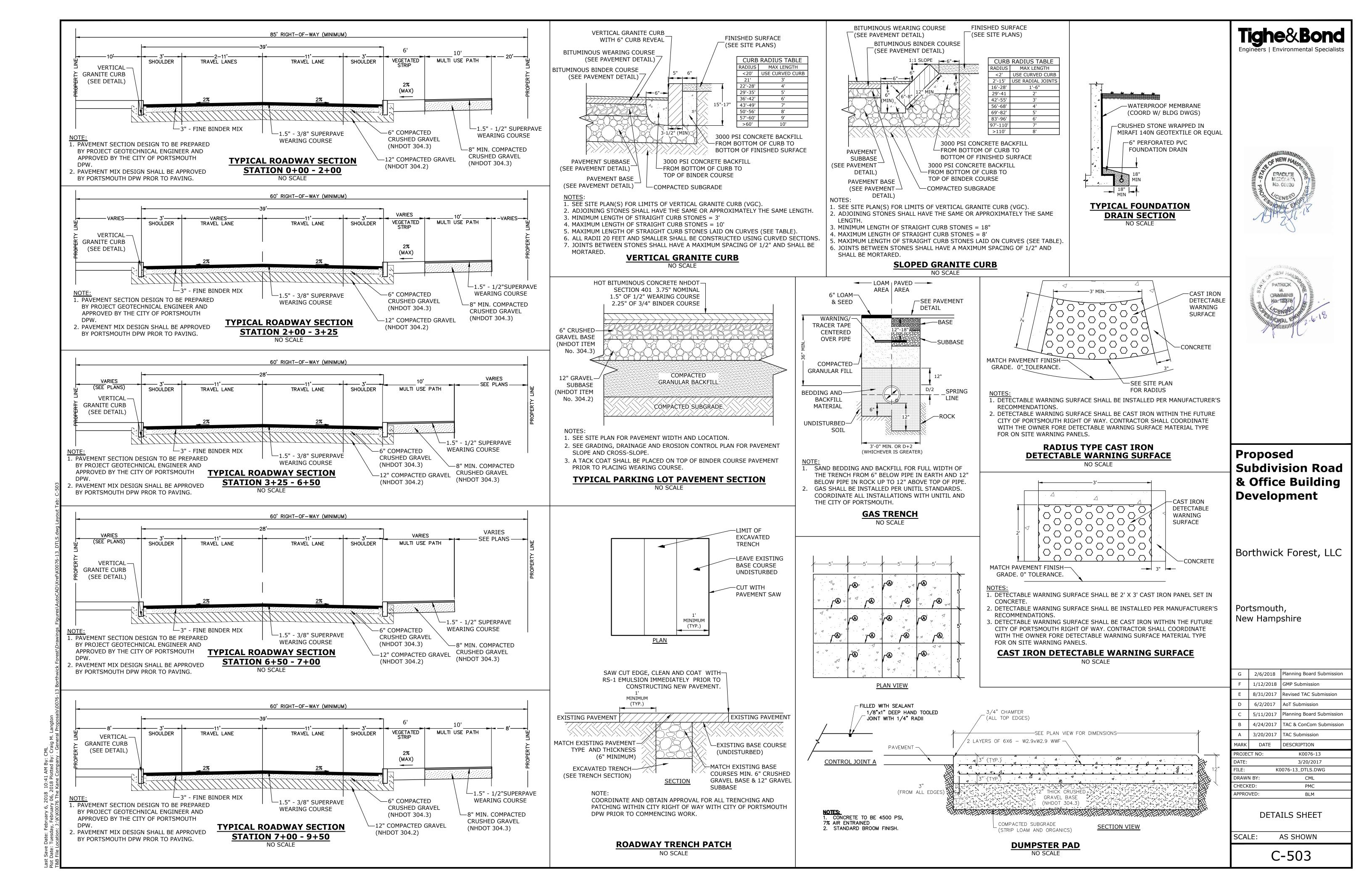
**ELEVATION** 

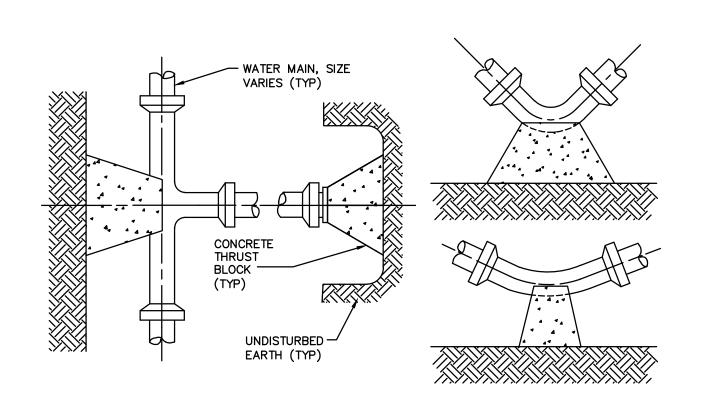
C-502

**DETAILS SHEET** 

PMC

BLM





GRATE TO BE CAST IRON

(NHDOT TYPE B ALTERNATE 1)

SECTION A-A

RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.

ON SITE

THRUST BLOCKING DETAIL

NOT TO SCALE

3/8" MOTAR

JOINTS\_ | 🖒 |

PRECAST

CIRCULAR

200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL						
"	RI	EACTION	PIPE SIZE				
닕		TYPE	4"	6"	8"	10"	12"
Test pressure	ABCDE	90° 180° 45° 22-1/2° 11-1/4°	0.89 0.65 0.48 0.25 0.13	2.19 1.55 1.19 0.60 0.30	3.82 2.78 2.12 1.06 0.54	11.14 8.38 6.02 3.08 1.54	17.24 12.00 9.32 4.74 2.38

NOTES:

1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE. 2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING. 3. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS. 4. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS. 5. INSTALLATION AND STANDARD DIMENSIONAL REQUIREMENTS SHALL BE WITH CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS.

-CAST IRON FRAME

CONCRETE

BLOCKS

GRATE & FRAME DETAIL

NOTE:

1. FRAME AND GRATE TO BE

MANUFACTURED IN THE USA

# HYDRANT-12" SAND 6" D.I. CLASS 52 CRUSHED STONE -THRUST BLOCK -- 6" MJ GATE VALVE CONFORMING TO THE CITY REQUIREMENTS NOTES:

. HYDRANT TO BE KENNEDY TYPE K-81, RIGHT OPEN (NO EQUAL). COORDINATE WITH CITY OF PORTSMOUTH WATER DEPARTMENT AND CITY OF PORTSMOUTH FIRE DEPARTMENT. 2. PAINT HYDRANT IN ACCORDANCE WITH CITY STANDARD SPECIFICATIONS

AFTER INSTALLATION. OF PIPE. WATER MAIN SHALL BE INSTALLED PER **FIRE HYDRANT DETAIL** CITY OF PORTSMOUTH STANDARDS.

CRUSHED STONE

BEDDING AND

**BACKFILL FOR FULL** 

WIDTH OF THE TRENCH

FROM 6" BELOW PIPE IN

EARTH AND 12" BELOW

PIPE IN ROCK UP TO 6"

ALL UTILITIES SHALL BE

ABOVE TOP OF PIPE.

INSTALLED PER THE

INDIVIDUAL UTILITY

COORDINATE ALL

**COMPANY STANDARDS** 

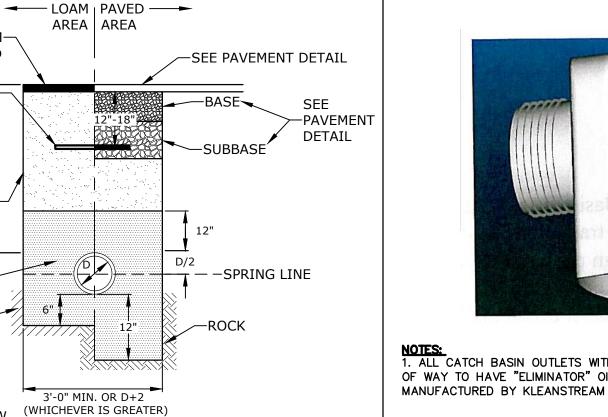
**INSTALLATIONS WITH** 

INDIVIDUAL UTILITY

COMPANIES AND THE

CITY OF PORTSMOUTH.

MANHOLE FRAME AND COVER



**WATER TRENCH** 

-SEE PAVEMENT DETAII

SEE

-PAVEMENT

SILICONE SEALANT

(SEE NOTE 2)

POLYETHYLENE SHEET,

FRAME AND CURB)

1-1/2"

VARIES

THE DOWNSPOUT IN ANY DIRECTION.

DETAILS", FOR ADDITIONAL INFORMATION.

GRATE COVER

(SEE NOTES 1 & 5)

20" O.D. POLYETHYLENE \_\

DOWNSPOUT 12" LONG

604.0007) BETWEEN FRAME AND POLYETHYLENE SHEET.

USE ON DRAINAGE STRUCTURES 4' MIN. DIAMETER ONLY

DETAIL

-BASE√

NO SCALE

. ALL CATCH BASIN OUTLETS WITHIN CITY OF PORTSMOUTH RIGHT OF WAY TO HAVE "ELIMINATOR" OIL AND FLOATING DEBRIS TRAP MANUFACTURED BY KLEANSTREAM (NO EQUAL)

# "ELIMINATOR" OIL & **FLOATING DEBRIS TRAP**

1/4" POLYETHYLENE SHEET

(SEE NOTES 1 & 5)

20" O.D. POLYETHYLENE

WEARING COURSE

TACK COAT

STRUCTURE)

(SEE NOTE 3)

ADJUST GRATE ELEVATION WITH

— CONCRETE ADJUSTING RING OR CLAY

BRICK (SEE NHDOT SPEC. 604.2.4)

EMULSIFIED ASPHALT FOR

(SUBSIDIARY TO DRAINAGE

CONCRETE SLAB

CONCRETE CLASS AA

DOWNSPOUT

NOT TO SCALE

3'-1"±

<u>PLAN</u>

4' SQUARE (MIN.)

FRAME & GRATE -

SECTION A-A

POLYETHYLENE LINER (NHDOT ITEM 604.0007) SHALL BE FABRICATED AT THE SHOP.

DOWNSPOUT SHALL BE EXTRUSION FILLET WELDED TO THE POLYETHYLENE SHEET.

PLACE CLASS AA CONCRETE TO 2" BELOW THE TOP OF THE GRATE ELEVATION

2. PLACE A CONTINUOUS BEAD OF AN APPROVED SILICONE SEALANT (SUBSIDIARY TO NHDOT ITEM

5. TRIM POLYETHYLENE SHEET A MAXIMUM OF 4" OUTSIDE THE FLANGE ON THE FRAME FOR THE

CATCH BASIN BEFORE PLACING CONCRETE (EXCEPT AS SHOWN WHEN USED WITH 3-FLANGE

6. THE CENTER OF THE GRATE & FRAME MAY BE SHIFTED A MAXIMUM OF 6" FROM THE CENTER OF

**POLYETHYLENE LINER** 

NO SCALE

NOT TO SCALE

7. PLACED ONLY IN DRAINAGE STRUCTURES IN PAVEMENT WITHIN THE CITY OF PORTSMOUTH

8. SEE NHDOT DR-04, "DI-DB, UNDERDRAIN FLUSHING BASIN AND POLYETHYLENE LINER



Engineers | Environmental Specialist





# Proposed **Subdivision Road** & Office Building **Development**

Borthwick Forest, LLC

Portsmouth, New Hampshire

F	2/6/2018	Planning Board Submission			
Е	1/12/2018	GMP Submission			
D	6/2/2017	AoT Submission			
С	5/11/2017	Planning Board Submission			
В	4/24/2017	TAC & ConCom Submission			
Α	3/20/2017	TAC Submission			
MARK	DATE	DESCRIPTION			
PROJE	CT NO:	K0076-13			
DATE:		3/20/2017			
FILE:	KO	0076-13_DTLS.DWG			
DRAWN BY: CML					
CHECK	ED:	PMC			
	· ·	•			

**DETAILS SHEET** 

BLM

SCALE: AS SHOWN

C-504

NOT TO SCALE SEE NOTE 1 1" PVC CONDUIT SLEEVE THROUGH FOUNDATION FOR GROUNDING

ALL REBAR TO BE #5. TOP OF FOUNDATION SHOULD BE EXPOSED 3 TO 6 INCHES ABOVE

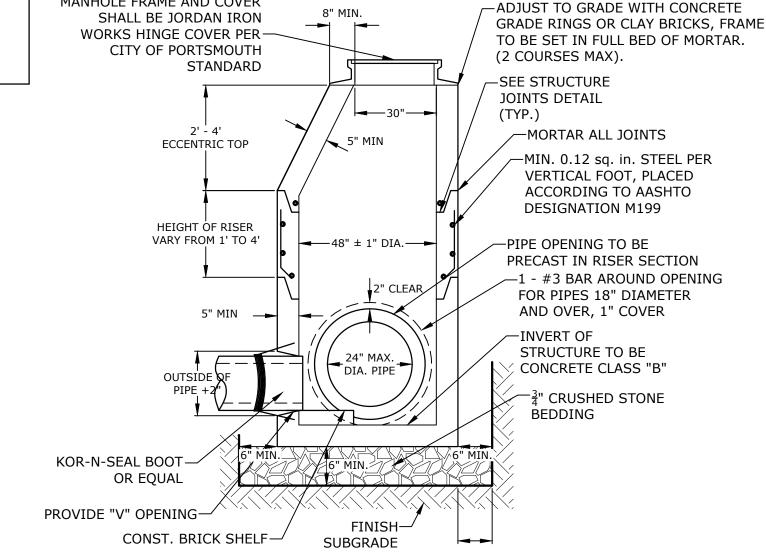
GROUND LEVEL. CONCRETE SHALL HAVE A MINIMUM COMPRESSION STRENGTH OF 3500 PSI.

ALL REINFORCING SHALL BE TIED AS ONE UNIT. CHAMFER ALL EXPOSED CONCRETE EDGES 1 INCH.

REMOVE ALL ORGANIC MATERIAL UNDER FOUNDATION. MINIMUM OF 3 INCHES OF CONCRETE OVER REINFORCING STEEL. SECTOR CABINET LOCATIONS AND DETAILS SHALL BE APPROVED BY EVERSOURCE PRIOR TO CONSTRUCTION

# TYPICAL THREE PHASE SECTOR **CABINET FOUNDATION DETAIL**

NOT TO SCALE



6" LOAM-& SEED

WARNING

CENTERED

OVER PIPE

COMPACTED-GRANULAR FILL

■ LOAM | PAVED ■ ■

AREA AREA

3'-0" MIN. OR D+2

(WHICHEVER IS GREATER)

TRACER TAPE

5'-0" MIN.

BEDDING AND

BACKFILL MATERIAL

UNDISTURBED.

SAND BEDDING AND BACKFILL FOR

COORDINATE ALL INSTALLATIONS

WITH THE CITY OF PORTSMOUTH.

6" LOAM-

& SEED

WARNING/

CENTERED

OVER PIPE

COMPACTED-

COMMON FILL

4'-0" MIN.

**BACKFILL MATERIAL** 

UNDISTURBED-

**STORM DRAIN TRENCH** 

NO SCALE

TRACER TAPE

FULL WIDTH OF THE TRENCH FROM 6"

BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP

- 3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF
- 4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
- 5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
- 7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING. 8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF

# NO SCALE

# **CATCHBASIN FRAME & GRATE** NOT TO SCALE FLAT SLAB TOP SECTION B-B -POLYETHYLENE SEE NOTE LINER (SEE TOP OF GRATE NO. 6 DETAIL) SEE NOTE-NO. 7 POLYETHYLENE LINER KOR-N-SEAL — RISER BOOT HOLE CAST-2 1/8" TO PLAN SEE DETAIL A-**ALL OUTLETS** TO HAVE SEE NOTE 12 "ELIMINATOR" BASE OIL/WATER **SEPARATOR** -CRUSHED STONE (OR EQUAL) BEDDING (TONGUE AND GROOVE JOINT) **SECTION A-A**

. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi). CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE

THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.). CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE

THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.

CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.

OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE. 10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS. 11. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT

12. "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASINS WITHIN THE FUTURE CITY OF PORTSMOUTH RIGHT

13. SUMP FOR CATCH BASINS WITHIN THE FUTURE CITY OF PORTSMOUTH RIGHT OF WAY SHALL BE 4'. THERE SHALL BE NO SUMPS FOR CATCH BASINS

4' DIAMETER CATCHBASIN

/**├**──30"─**>** ECCENTRIC TOP HEIGHT OF RISER VARY FROM 1' - 4' → 48"± 1" DIAMETER → 48"x60" TRANSITION ← 60" ± 1" DIAMETER — KOR-N-SEAL BOOT-OR EQUAL PROVIDE "V" OPENING-

> CONST. BRICK SHELF 5' DIAMETER DRAIN MANHOLE

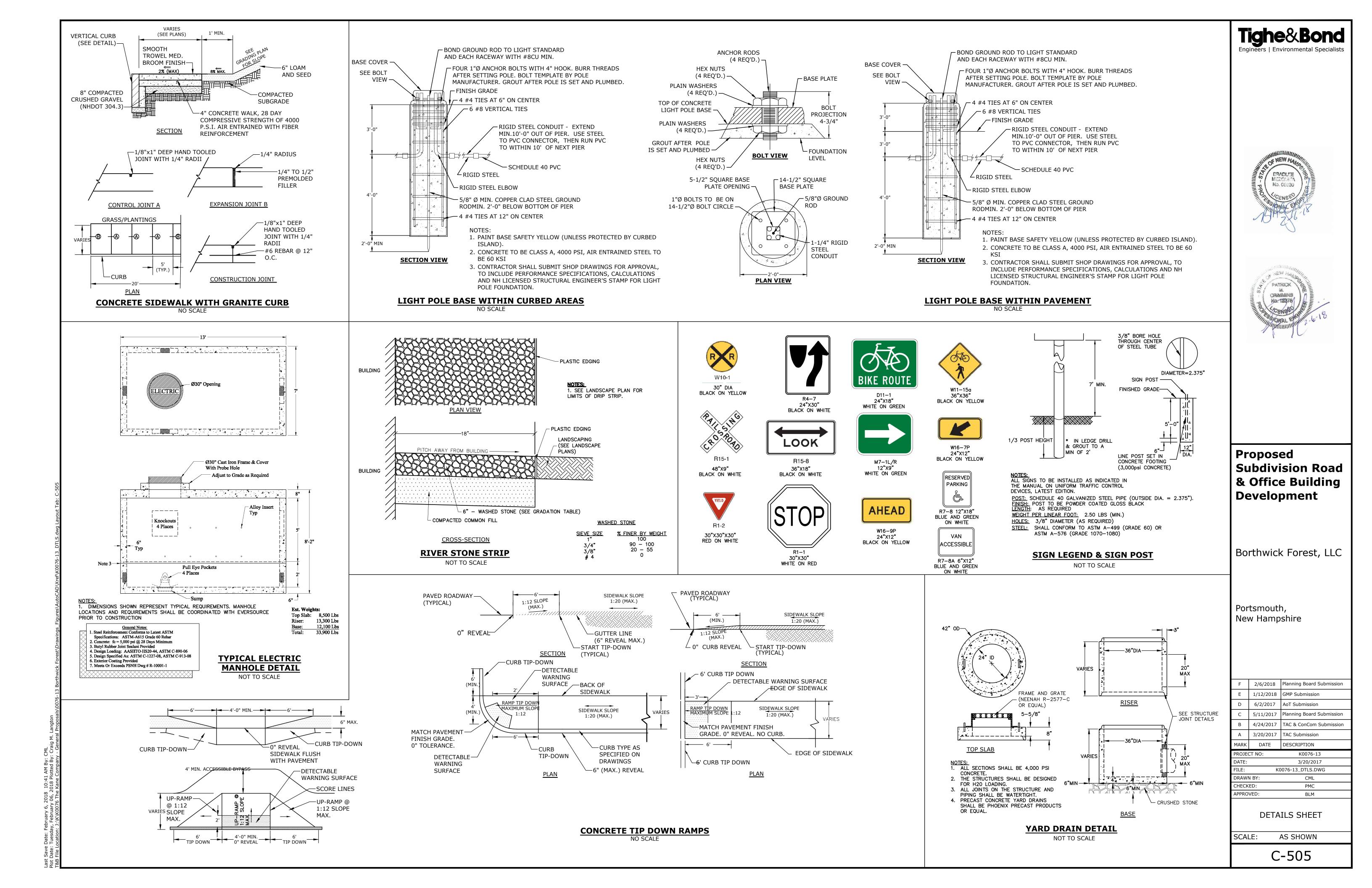
> > NO SCALE

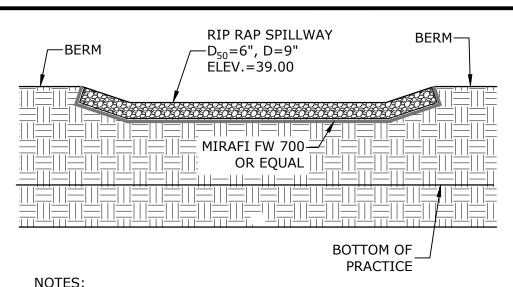
- 2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL

- 9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED
- 10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZNTAL CROSS SECTION SHALL BE HOLES,

# **DRAIN MANHOLE**

6" TYP. 4 4 4 CONCRETE CHANNEL 4' DIAMETER DRAIN MANHOLE GRATE COVER -ALL SECTIONS SHALL BE 4,000 PSI CONCRETE. ELEV = 41.65SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL. CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT. FLOW TO ∠ S = 0.0056. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER \_ 10" DI PIPE STUB CAST IN CONCRETE CHANNEL TYPICAL TRENCH DRAIN PROFILE NOT TO SCALE FLEXIBLE SEALANT IN JOINTS. TRENCH DRAIN FRAME AND GRATE SHALL BE MULTIDRAIN ECONODRAIN SERIES #12 OR EQUAL WITH ADA COMPLIANT GRATE. 2. CONCRETE CHANNEL TO BE CAST AS PART OF SLAB (COORDINATE WITH AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS. BUILDING DRAWINGS). TRENCH DRAIN DETAIL





1. SEE GRADING & DRAINAGE PLAN(S) FOR LOCATION(S) AND

# **RIP RAP SPILLWAY** NO SCALE

**OUTLET STRUCTURE** (SEE PLANS)\_ (SEE DETAIL) **BOTTOM OF** PRACTICE NATIVE SOIL

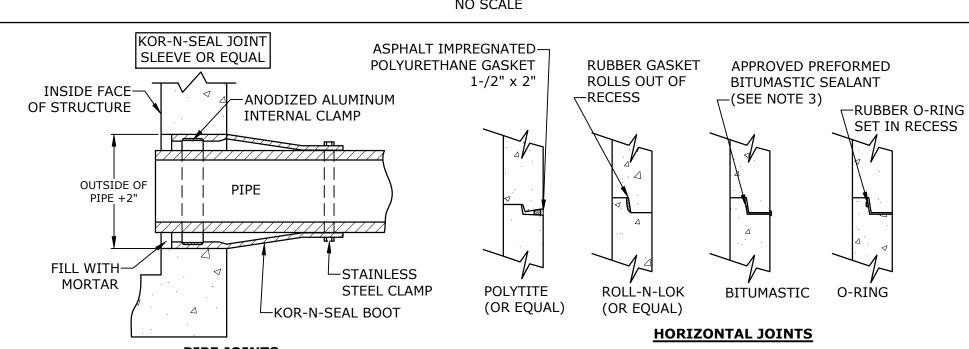
1. CORE MATERIAL SHALL MEET USGS CLASSIFICATION SC, SM, CL OR ML AND HAVE A MAXIMUM PARTICLE SIZE OF 3" AND A PERMEABILITY LESS THAN 0.000005 CM/S, AND

MEET THE FOLLOWING GRADATION: SIEVE SIZE PERCENT FINER BY WEIGHT

3 INCH # 200 50 -100.

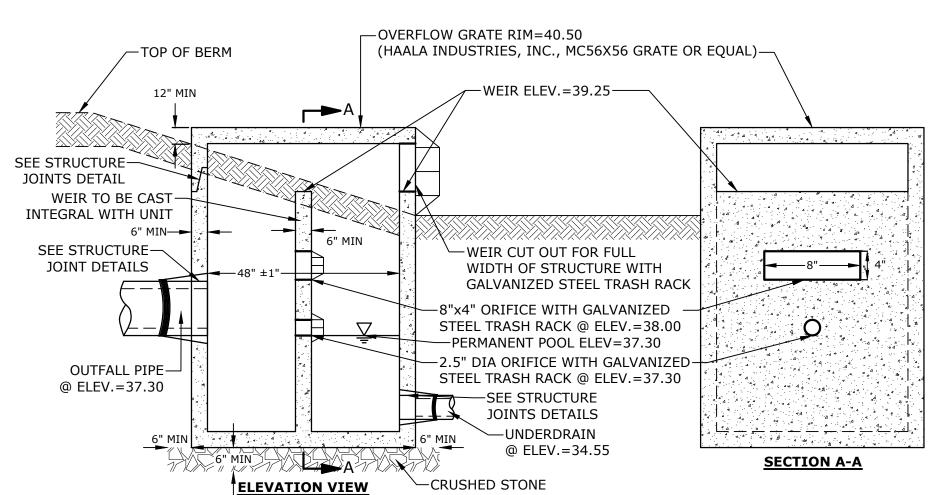
2. PIPE SHALL BE FULLY EMBEDDED IN CORE TO ELIMINATE SEEPAGE

# **CLAY CORE BERM**



- HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER CITY OF PORTSMOUTH DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
- PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.
- FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY. 4. ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

# **STRUCTURE JOINTS**



**OUTLET STRUCTURE** 

NO SCALE

- ALL SECTIONS SHALL BE 4,000 PSI CONCRETE (TYPE II CEMENT)
- CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER OF THE THIRDE WALL.
- 3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF
- CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
- 4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING. 5. ALL JOINTS ON THE STRUCTURE AND PIPING SHALL BE WATERTIGHT.

GRATE IN

BELL OF PIPE

1. 8" GRAVEL WETLAND GRATES SHALL

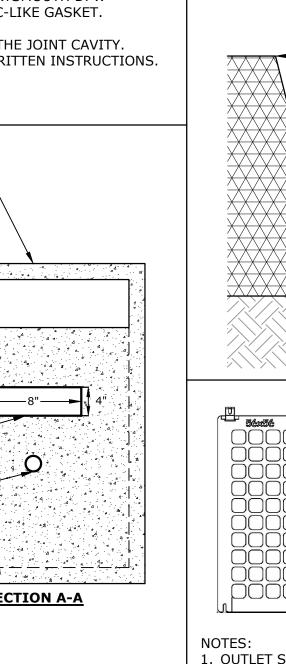
NEENAH R-4350-1 GRATE OR EQUAL.

NEENAH R-4350-E GRATE OR EQUAL.

**NEENAH R-4350 SERIES GRATE** 

SEDIMENTATION FOREBAY-

2. 24" GRAVEL WETLAND GRATES SHALL



# . OUTLET STRUCTURE GRATE SHALL BE HAALA INDUSTRIES INC. MC56X56 TOP MOUNT GRATE OR EQUAL.

. GRATE TO BE SECURED TO CONCRETE STRUCTURE.

HAALA MC56X56 GRATE

NO SCALE

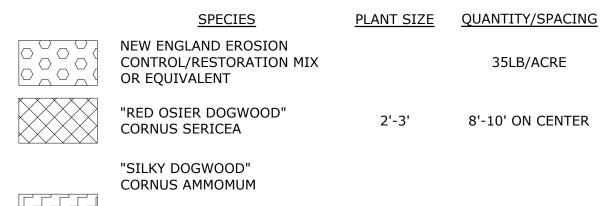
- 1. WETLAND SOIL SHALL BE A SANDY CLAY LOAM WITH A HYDRAULIC CONDUCTIVITY OF 0.1-0.01 FT/DAY. ORGANIC CONTENT SHALL BE GREATER THAN 15% BY VOLUME. CLAY CONTENT SHALL BE LESS THAN 15% BY VOLUME.
- 2. INFILTRATION TESTING OF THE NATIVE SOILS AT THE SUBGRADE AND WITHIN THE VICINITY OF THE PROPOSED GRAVEL WETLAND SHALL OCCUR PRIOR TO THE INSTALLATION OF THE GRAVEL WETLAND AND SHALL BE COORDINATED WITH THE ENGINEER. IF THE NATIVE SOILS EXCEED A PERMEABILITY RATE OF 0.03 FT/DAY OR IF EXCESSIVELY FRACTURED BEDROCK IS ENCOUNTERED THE SOILS SHOULD AMENDED OR LINER ADDED AS DETERMINED BY THE ENGINEER.

3. PERFORATED PVC RISERS SHALL HAVE VERTICAL SLOTS CUT INTO PVC RISERS ABOVE GRADE MEASURING 3"x1/8".

TYPICAL GRAVEL WETLAND NO SCALE

**TYPICAL SECTION A-A VIEW** 





**GRAVEL WETLAND PLANTING PLAN** 

8'-10' ON CENTER 2'-3' 'HIGHBUSH BLUEBERRY" VACCINUM CORYBOSSUSUM

-OUTLET STRUCTURE

TOP OF BERM-

PVC RISER PIPE

AASHTO #57 STONE

(#4 to 1")

95-100

25-60

0-10

0-5

SIEVE SIZE % PASSING

AASHTO #8 STONE

(#8 to 3/8")

IEVE SIZE % PASSING

85-100

10-30

0-10

3/8"

#4

#8

#16

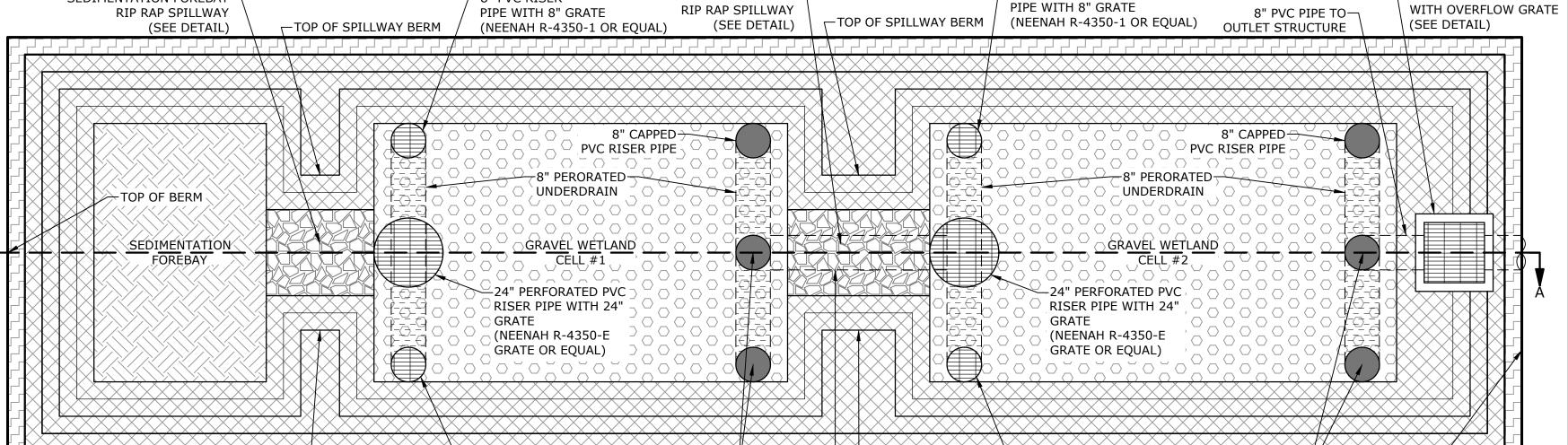
-8" PVC RISER

-8" PVC RISER

(NEENAH R-4350-1 OR EQUAL)

LTOP OF SPILLWAY BERM PIPE WITH 8" GRATE





GRAVEL WETLAND INSPECTION / MAINTENANCE REQUIREMENTS

OUR (4) TIMES ANNUALLY

(QUARTÉRLY) AND AFTER

ANNUALLY

NNUALLY

-8" PVC RISER

TOP OF SPILLWAY BERM PIPE WITH 8" GRATE PVC RISER PIPE 8" PVC PIPE

(NEENAH R-4350-1 OR EQUAL)

ANY REQUIRED MAINTENANCE SHALL BE

ESPECIALLY ON SLOPES.

WETLAND VEGETATION

PRUNE BACK OVERGROWTH REPLACE DEAD VEGETATION

REMOVE ANY INVASIVE SPECIES

INSPECT SOIL AND REPAIR ERODED AREAS,

CHECK INLETS, OUTLETS, AND OVERFLOW

INSPECT THE CONDITION OF ALL GRAVE

FOR FURTHER VEGETATION MANAGEMENT

SPILLWAY FOR BLOCKAGE, STRUCTURAL INTEGRIT

COORDINATE WITH UNH STORMWATER CENTER

HIRE QUALIFIED PROFESSIONAL TO ASSESS AND

DETERMINE MEASURES REQUIRED TO RESTORE THE

DIMENTS OR RECONSTRUCTION OF THE FILTER.

IMPLEMENT THE CONDITION OF THE FACILITY TO

FILTRATION FUNCTION, INCLUDING BUT NOT

GRAVEL WETLAND-

LIMITED TO REMOVAL OF ACCUMULATED

INSPECTION / MAINTENANCE FREQUENCY

GRAVEL WETLAND FUNCTIONS ANY RAINFALL EVENT

EFFECTIVELY AFTER STORMS EXCEEDING 2.5" IN A

MONITOR TO ENSURE THAT

INSPECT VEGETATION

- THE SYSTEM SHALL

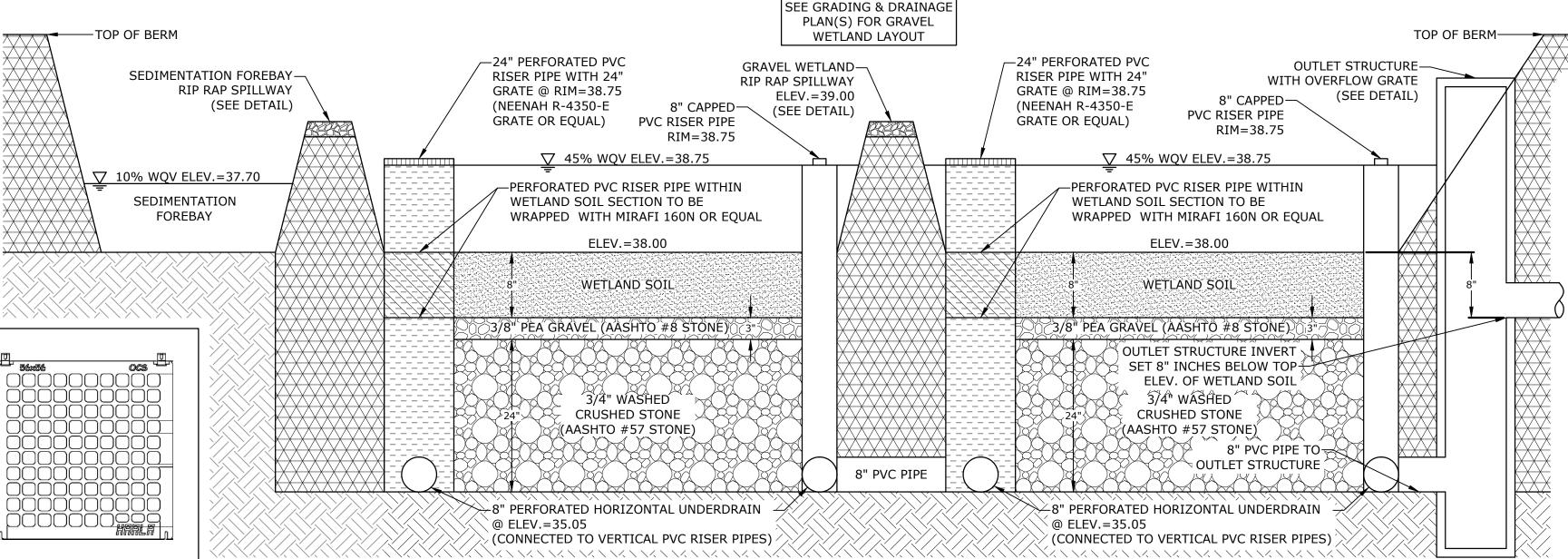
DRAWDOWN WITHIN

RAINFALL EVENT.

INSPECT DRAWDOWN TIME

48-HOURS FOLLOWING A

Proposed **Subdivision Road** & Office Building **Development** 



TYPICAL PLAN VIEW

Borthwick Forest, LLC

Portsmouth, New Hampshire

Н	2/6/2018	Planning Board Submission
G	1/12/2018	GMP Submission
F	8/21/2017	Revised TAC Submission
Е	8/3/2017	Per AoT Comments
D	6/2/2017	AoT Submission
С	5/11/2017	Planning Board Submission
В	4/24/2017	TAC & ConCom Submission
Α	3/20/2017	TAC Submission
MARK	DATE	DESCRIPTION
PROJE	CT NO:	K0076-13
DATE:		3/20/2017

K0076-13\_DTLS.DWG DRAWN BY HECKED: PPROVED:

SCALE:

**DETAILS SHEET** 

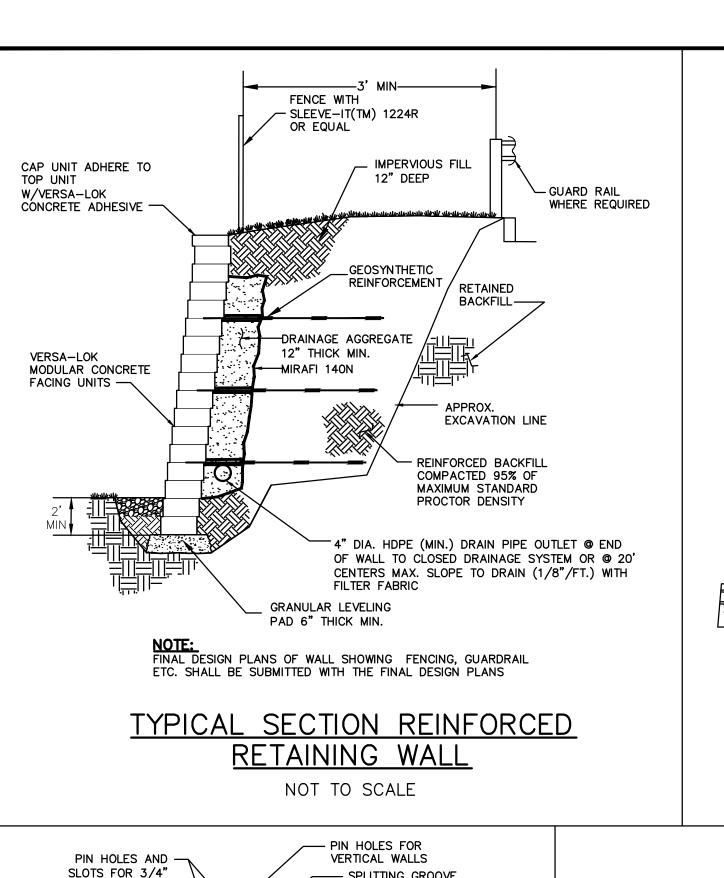
CML

PMC

BLM

C-506

AS SHOWN



- SPLITTING GROOVE

PINNING SLOT FOR FREESTANDING WALLS

SPLITTING GROOVE FOR

FOLLOW GEOGRID MANUFACTURER'S INSTRUCTIONS

3. PROVIDE 3" (MIN.) OF SOIL BETWEEN OVERLAPPING LAYERS.

NOTES:

1. FOLLOW GOEGRID MANUFACTURER'S INSTRUCTIONS FOR REINFORCEMENT PLACEMENT AT CURVES AND CORNERS.

CURVE DETAIL

DO NOT PLACE OVERLAPPING GEOSYNTHETIC LAYERS DIRECTLY ON TOP OF EACH OTHER.

FOR REINFORCEMENT PLACEMENT AT CURVES

AND CORNERS.

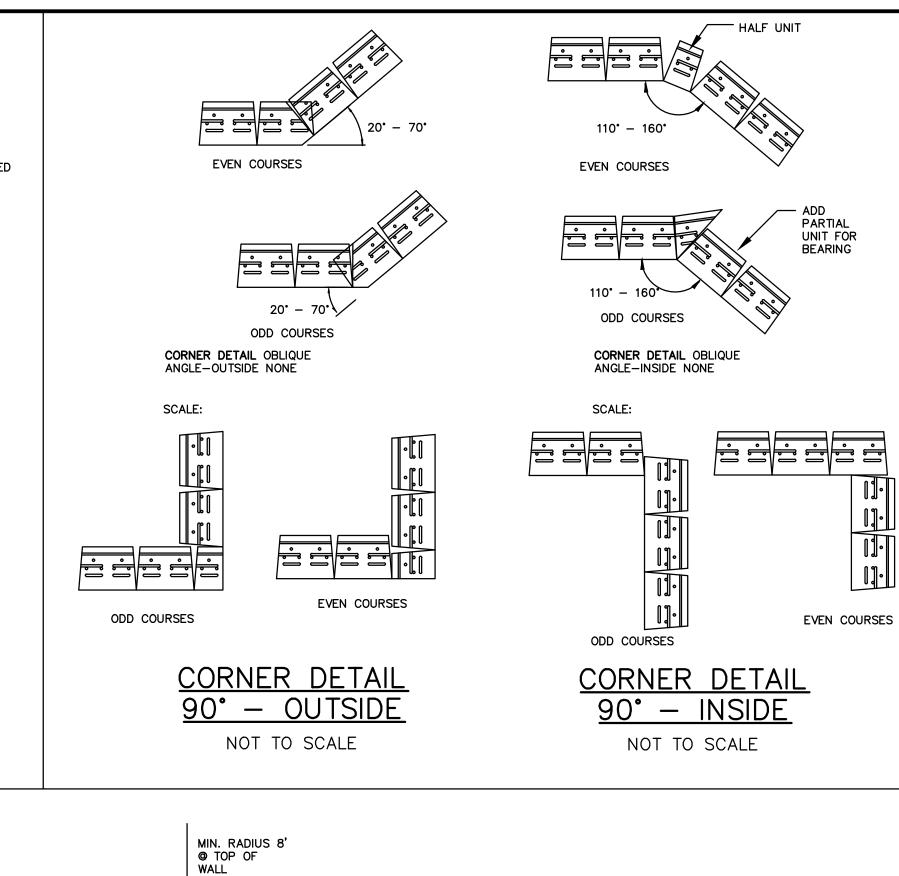
FREESTANDING WALLS

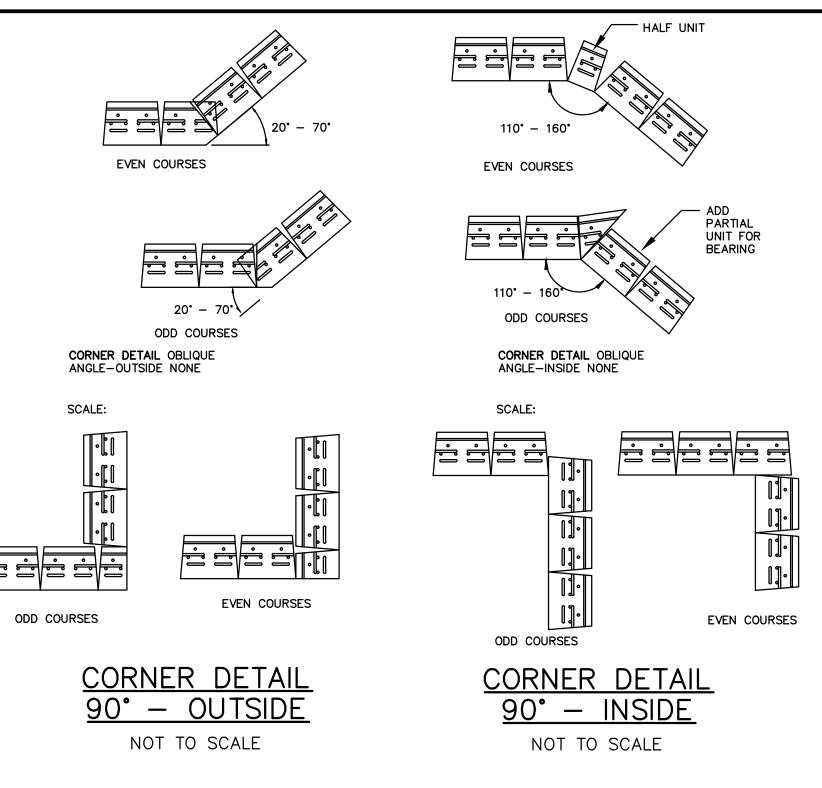
FOR HALF UNIT

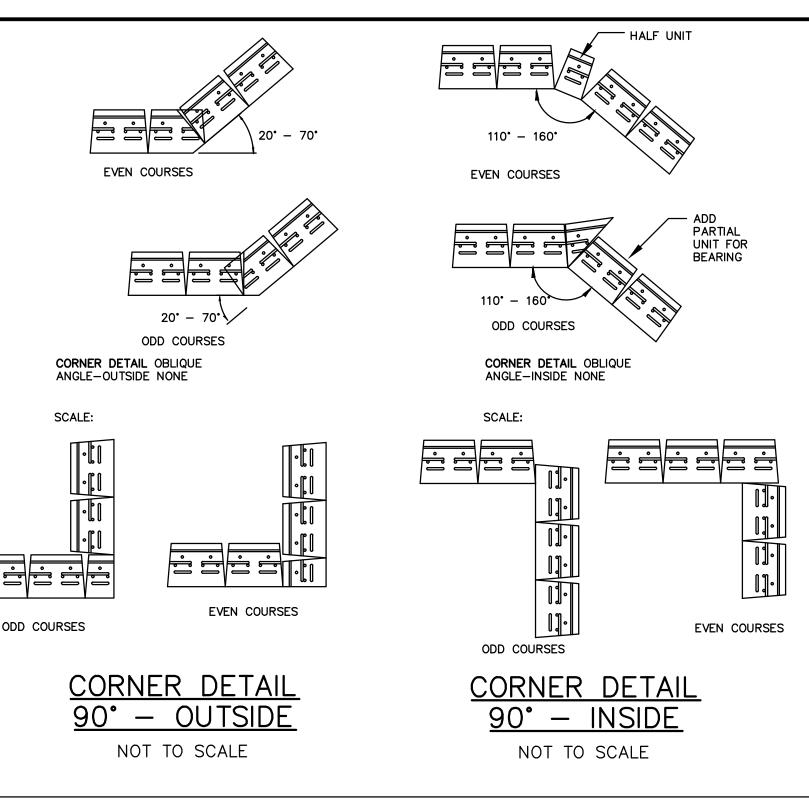
SETBACK WALL

CONSTRUCTION

STRAIGHT SPLIT FACE-



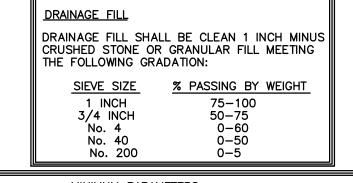




RECOMMEND MIN.

RADIUS 6'-0" @

BOTTOM OF WALL



# MINIMUM PARAMETERS SOIL UNIT WEIGHT FOUNDATION SOIL

APPLIED SURCHARGE LOADING = 0.31 TIMES THE VERTICAL SURCHARGE LOAD UNIFORMLY DISTRIBUTED OVER THE HEIGHT OF THE WALL STATIC ACTIVE LATERAL EARTH PRESSURE = 40 PSF/FT

OVERTURNING F.S. = 2.0SLIDING F.S. = 1.5

# MANUFACTURER'S DESIGN: CONCRETE UNIT RETAINING WALL SHALL BE BY VERSA-LOK

- OR APPROVED EQUAL DESIGN SHALL BE FROM THE WALL MANUFACTURER AND SHALL INCLUDE A GLOBAL STABILITY ANALYSIS. MANUFACTURER DESIGN ENGINEER SHALL BE LICENSED II
- THE STATE OF NEW HAMPSHIRE DESIGN CALCULATIONS AND PLANS SHALL BE SUBMITTED THE WALL DESIGN ENGINEER SHALL COMPLETE SUFFICIENT INSPECTIONS DURING CONSTRUCTION TO CERTIFY WORK IS
- COMPLETE IN ACCORDANCE WITH DESIGN. SUBMIT AS-BUILT DRAWINGS OF WALL WITH WALL DESIGNER'S CERTIFICATION TO OWNER.

LEVELING PAD LEVELING PAD MATERIAL SHALL CONSIST OF HARD DURABLE PARTICLES OR FRAGMENTS OF STONE OR GRAVEL. FINE PARTICLES SHALL CONSIST OF NATURAL OR PROCESSED SAND. THE MATERIAL SHALL MEET THE FOLLOWING GRADATION:

SIEVE SIZE % PASSING BY WEIGHT 3 INCH 1 INCH No. 200\*

REINFORCED BACKFILL IMPORTED REINFORCED BACKFILL MATERIAL SHALL BE CLEAN, FREE-DRAINING WELL GRADED GRANULAR SOIL WITH A MAXIMUM PARTICLE SIZE OF 4" AND NOT MORE THAN 12% BY WEIGHT PASSING THE #200 SIEVE.

\* FRACTION PASSING THE No. 4 SIEVE

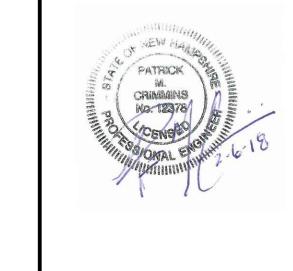
ON-SITE MATERIAL SHALL NOT BE USED FOR REINFORCED BACKFILL MATERIAL. UNLESS IT MEETS THE ABOVE NOTED REQUIREMENTS.

# DRAINAGE NOTES:

- 1. CONTRACTOR SHALL DIRECT SURFACE RUNOFF AWAY FROM THE WALL DURING CONSTRUCTION.
- 2. ANY SURFACE DRAINAGE FEATURES, FINISH GRADING, PAVEMENT OR OTHER SURFACE TREATMENT SHALL BE INSTALLED IN THE AREA OF THE WALL IMMEDIATELY AFTER THE WALL IS COMPLETE. OR OTHER MEASURES SHALL BE TAKE TO PROTECT THE WALL FROM RUNOFF.

# **GENERAL NOTES:**

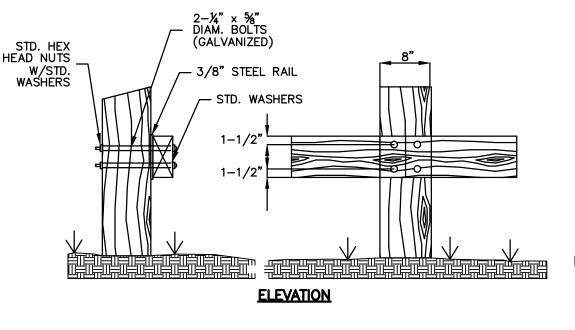
- ALL INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION "DESIGN & INSTALLATION GUIDELINES", BY VERSA-LOK. WHERE INFORMATION ON THESE PLANS CONFLICTS WITH THE GUIDELINES, THE PLANS SHALL SUPERSEDE.
- 2. STRIP ORGANIC SOILS FROM THE WALL AND GRID ALIGNMENT AREA.
- 3. BENCH CUT ALL EXCAVATED SLOPES.
- 4. DO NOT OVER EXCAVATE UNLESS DIRECTED TO DO SO BY THE GEOTECHNICAL ENGINEER. 5. GEOTECHNICAL ENGINEER SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT PER THE DESIGN STANDARDS AND PARAMETERS.
- 6. MINIMUM EMBEDMENT OF WALL BELOW FINISH GRADE SHALL BE INDICATED ON THE WALL DESIGN DRAWINGS.
- 7. FOLLOW APPLICABLE PROVISIONS OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS, ESPECIALLY WITH REGARDS TO LEVELING OF BLOCKS AND BASE (SEE
- WHERE PERFORATED DRAINS ARE USED, PROVIDE OUTLETS AT THE ENDS OF THE WALL TO CLOSED DRAINAGE SYSTEM OR AT 20' INTERVALS, SEE DETAILS.
- . BACKFILL AND COMPACT THE FILL MATERIAL BEHIND THE WALL IN 12 INCH MAXIMUM LIFTS AS THE WALL IS
- 10. COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED. EACH LIFT SHALL BE TESTED AT INTERVALS NOT EXCEEDING 100 FEET OF WALL LENGTH.
- 11. COMPACTION SHALL BE TO 95% OF MAXIMUM MODIFIED PROCTOR DENSITY OF THE FILL MATERIAL (ASTM D-1557).
- 12. PULL GEOGRID TIGHT PRIOR TO BACKFILLING.
- 13. SEE PROFILE FOR FINISH GRADE AT TOP AND ENDS OF WALL.
- 14. SEE PROFILE FOR WALL LAYOUT INFORMATION. 15. COMPACTION OF AREAS LOCATED WITHIN 15 FEET OF THE TOP OF THE WALL SHALL BE PERFORMED WITH
- NON- VIBRATORY ROLLING EQUIPMENT. PLATE VIBRATORY TAMPERS SHALL BE USED IN AREAS WITHIN 5
- 16. GEOGRID CUT LENGTHS ARE MEASURED FROM THE FACE OF THE RETAINING WALL.
- 17. GEOSYNTHETIC SHALL BE PLACED WITH STRONGER DIRECTION PERPENDICULAR TO WALL FACE.
- 18. WHERE GUARDRAIL OR FENCE POSTS ARE INSTALLED SUCH THAT THEY WILL PENETRATE A GEOGRID LAYER, THE GEOGRID SHALL BE PRE-CUT AND SLEEVED SO AS NOT TO DISTURB THE GEOGRID WITH THE INSERTION OF THE POST. THE POST SHALL NOT BE FORCED THROUGH ANY LAYER OF GEOGRID. FORCING A POST THROUGH A GEOGRID LAYER WOULD COMPROMISE THE STRUCTURAL INTEGRITY OF THE GEOGRID AND, HENCE, THE RETAINING WALL SYSTEM.
- 19. ANY PLANTINGS SET BEHIND THE WALLS SHALL BE PLACED WITHOUT CUTTING OF THE GEOGRID REINFORCING LAYERS. THIS CAN BE ACCOMPLISHED BY SETTING PLANTINGS ABOVE THE GEOGRID LAYERS OR BEYOND THE LIMITS OF THE GEOGRID LAYERS.
- 20. INSTALLATION OF A VERTICAL SEGMENTAL RETAINING WALL REQUIRES THAT EXTRA ATTENTION BE GIVEN TO LEVELING OF THE BLOCK, AT ALL ELEVATIONS AND IN ALL DIRECTIONS.
- 21. IF CONDITIONS ARE DIFFERENT THAN THOSE STATED IN THESE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR MUST CONTACT THE DESIGN ENGINEER PRIOR TO PROCEEDING WITH THE CONSTRUCTION OF THE WALL.
- 22. WALL DESIGNS SHALL CONSIDER EFFECTS OF SLOPE, TRAFFIC LOADS, AND/OR BUILDING LOADS AS REQUIRED.
- 23. ALL WALLS 4' OR GREATER REQUIRE INSTALLATION OF A SAFETY RAIL.



**Proposed** 

Portsmouth,

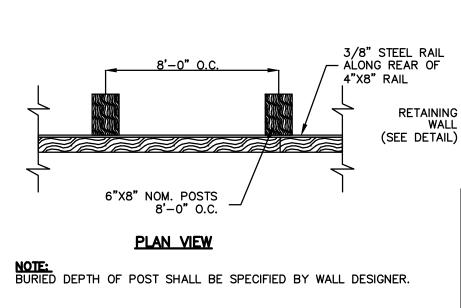
New Hampshire

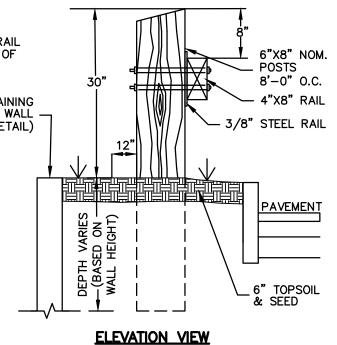


A-CAP

B-CAP

FOR STRAIGHT WALLS, ALTERNATE A-CAP AND





B-CAP

Borthwick Forest, LLC

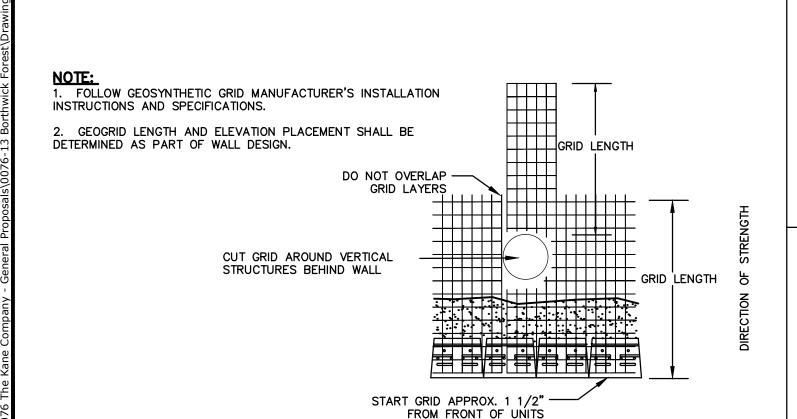
**Subdivision Road** 

& Office Building

**Development** 

# STEEL-BACKED TIMBER GUIDERAIL

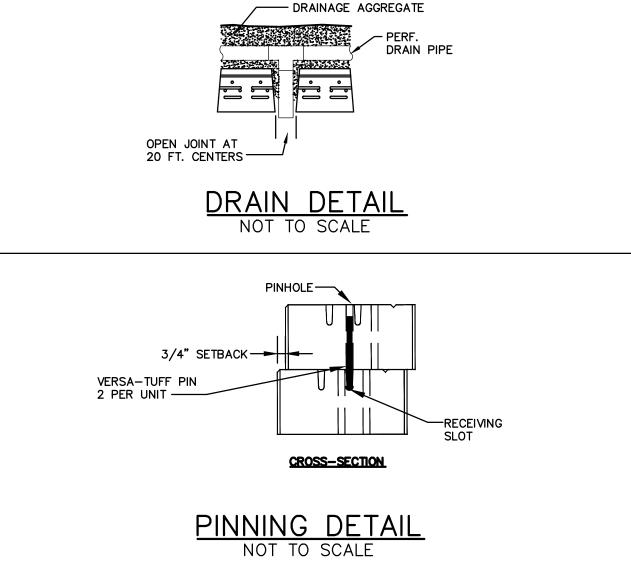
NOT TO SCALE

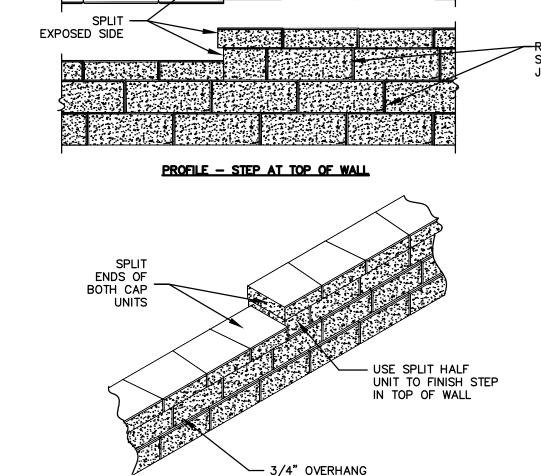


VERSA-LOK UNIT

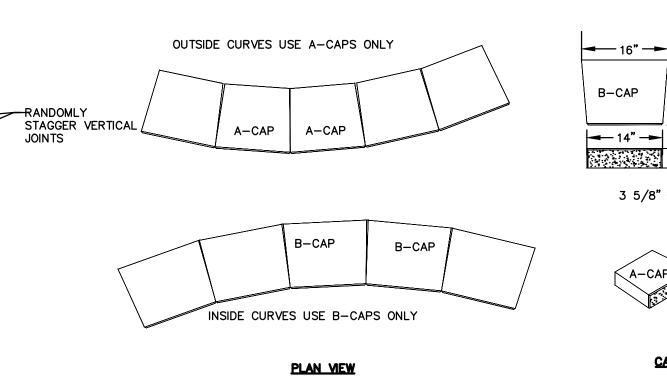
(OR APPROVED EQUAL)

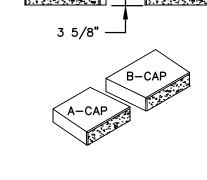






PLAN VIEW





A-CAP

14" -

CAP UNITS

**GENERAL NOTES FOR CAPPING:** 1. CAPS SHALL BE ADHERED TO WALL USING VERSA-LOK CONCRETE ADHESIVE 2. CAPS MAY BE PLACED WITH A 1/2" TO 3/4" OVERHANG OF TOP COURSE

3. WHEN SPLITTING CAP UNIT FOR WALL END DO NOT USE A CAP SECTION LESS THAN 6" WIDE 4. DO NOT OVERHANG CAP AT END OF COURSE MORE THAN 1".

CAPPING DETAIL

D 6/2/2017 AoT Submission C 5/11/2017 Planning Board Submission B 4/24/2017 TAC & ConCom Submission A 3/20/2017 TAC Submission MARK DATE DESCRIPTION PROJECT NO: K0076-13 DATE: 3/20/2017 K0076-13\_DTLS.DWG DRAWN BY: CML

F 2/6/2018 Planning Board Submission

E 1/12/2018 GMP Submission

**DETAILS SHEET** 

PMC

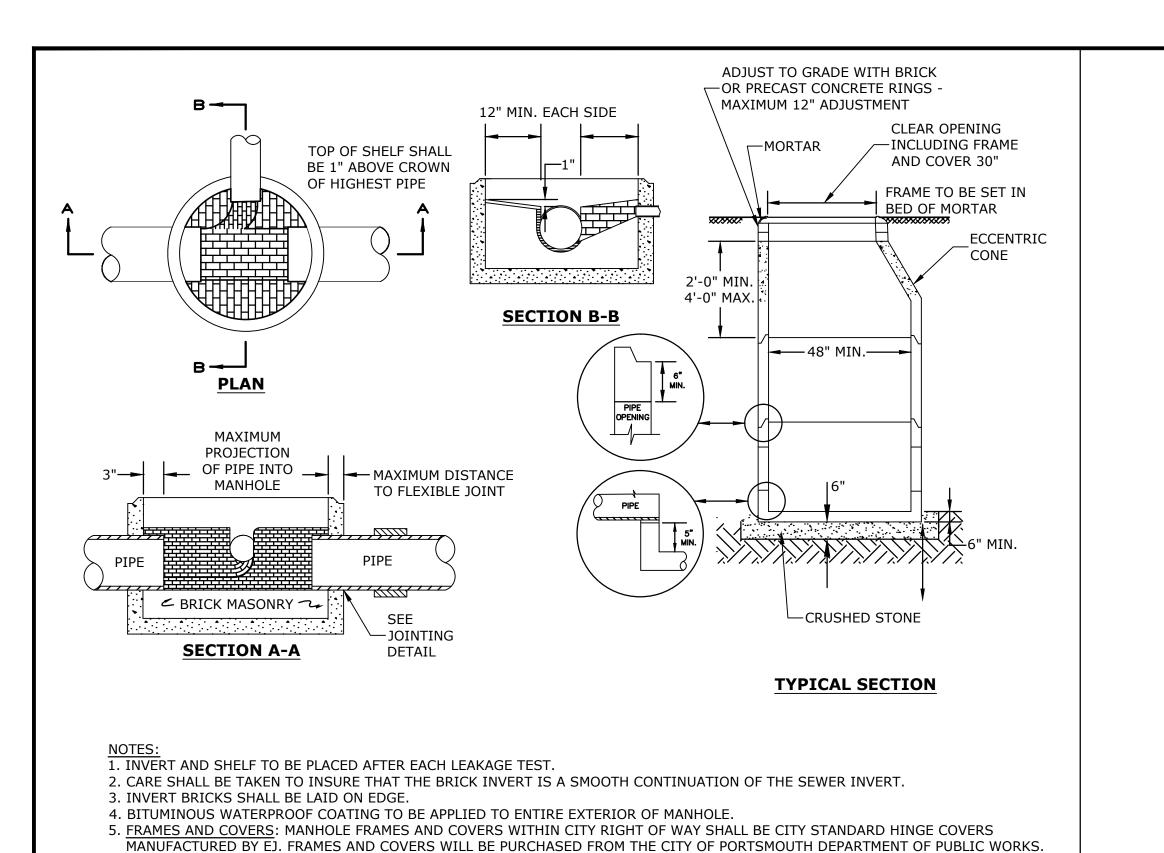
BLM

SCALE: AS SHOWN

CHECKED:

APPROVED:

C-507

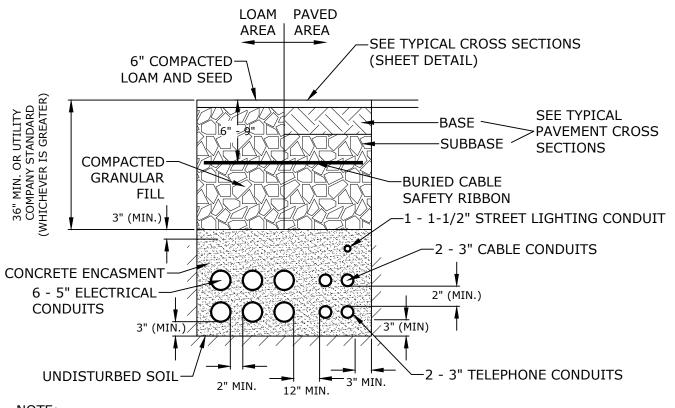


6. HORIZONTAL JOINTS SHALL BE SEALED FOR WATER TIGHTNESS USING A DOUBLE ROW OF ELASTOMERIC OR MASTIC-LIKE SEALANT.

**SEWER MANHOLE** 

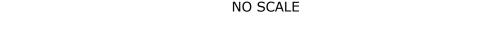
C478-06.

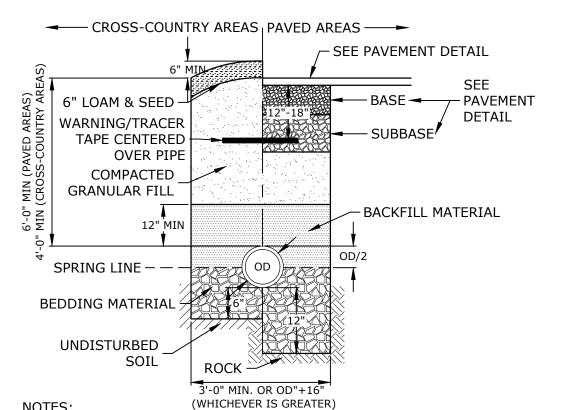
7. BARREL AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE DESIGNED FOR H20 LOADING, AND CONFORMING TO ASTM



- NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED BY LOCAL
- UTILITY OR AS SHOWN ON CONDUIT PLAN (SHEET C-104.1 & C-104.2). DIMENSIONS SHOWN REPRESENT OWNERS MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY COMPANY STANDARDS, BUT SHALL NOT BE LESS THAN THOSE SHOWN.
- NO CONDUIT RUN SHALL EXCEED 360 DEGREES IN TOTAL BENDS. A SUITABLE PULLING STRING, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED
- IN THE CONDUIT BEFORE UTILITY COMPANY IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT.
- UTILITY COMPANY MUST BE GIVEN THE OPPORTUNITY TO INSPECT THE CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD THE UTILITY COMPANY BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE
- NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND, WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE
- ALL 90° SWEEPS WILL BE MADE USING RIGID GALVANIZED STEEL. SWEEPS WITH A 36 TO 48 INCH RADIUS

# **ELECTRICAL AND COMMUNICATION CONDUIT**





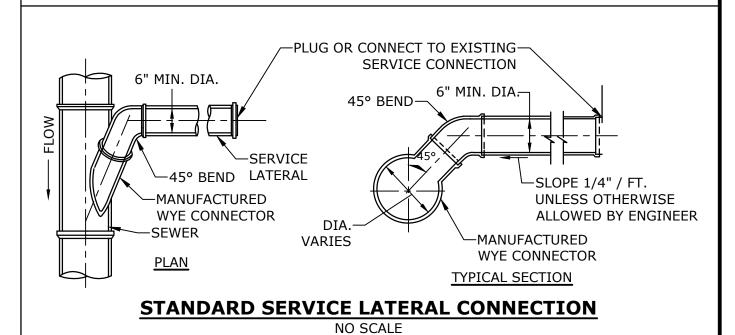
 CRUSHED STONE BEDDING FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO SPRING LINE.

LINE UP TO 12" ABOVE TOP OF PIPE. SANITARY SEWER SHALL BE INSTALLED PER THE CITY OF PORTSMOUTH

2. SAND BLANKET BACKFILL FOR FULL WIDTH OF THE TRENCH FROM SPRING

DEPARTMENT OF PUBLIC WORKS STANDARDS. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH

# **SEWER TRENCH** NO SCALE



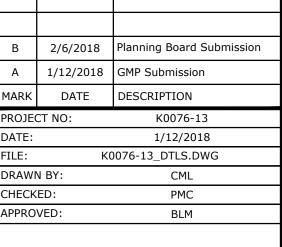
Proposed **Subdivision Road** & Office Building **Development** 

PATRICK

No. 12378

Borthwick Forest, LLC

Portsmouth, New Hampshire

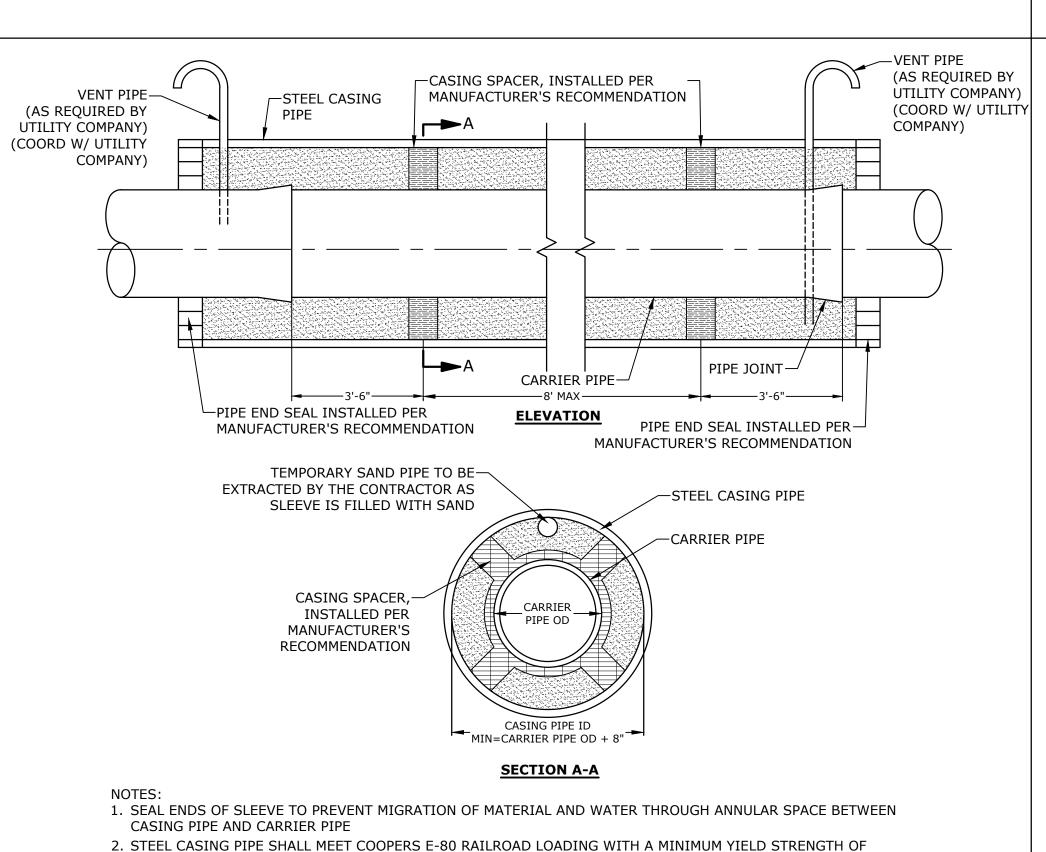


**DETAILS SHEET** 

SCALE:

C-508

AS SHOWN



35,000 PSI AND SHALL CONFORM TO THE LATEST REVISIONS OF THE REQUIREMENTS OF A.W.A. STANDARDS FOR

4. CONTRACTOR SHALL COORDINATE ALL UTILITY AND CARRIER PIPE WORK WITHIN THE RAIL ROAD RIGHT OF WAY

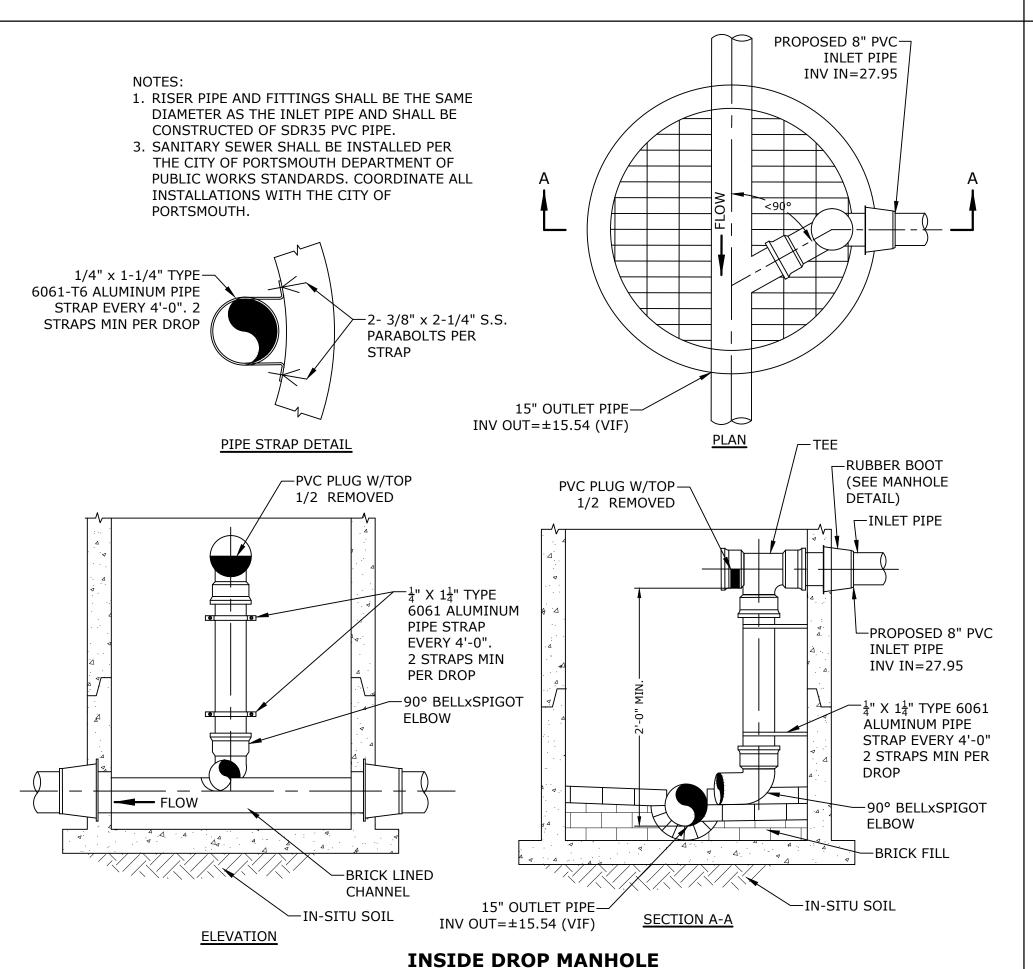
3. STEEL CASING PIPE JOINTS SHALL BE FULLY WELDED AROUND THE COMPLETE CIRCUMFERENCE OF THE PIPE.

WITH PAN-AM, EVERSOURCE, UNITIL, & AND THE CITY PORTSMOUTH DPW PRIOR TO CONSTRUCTION.

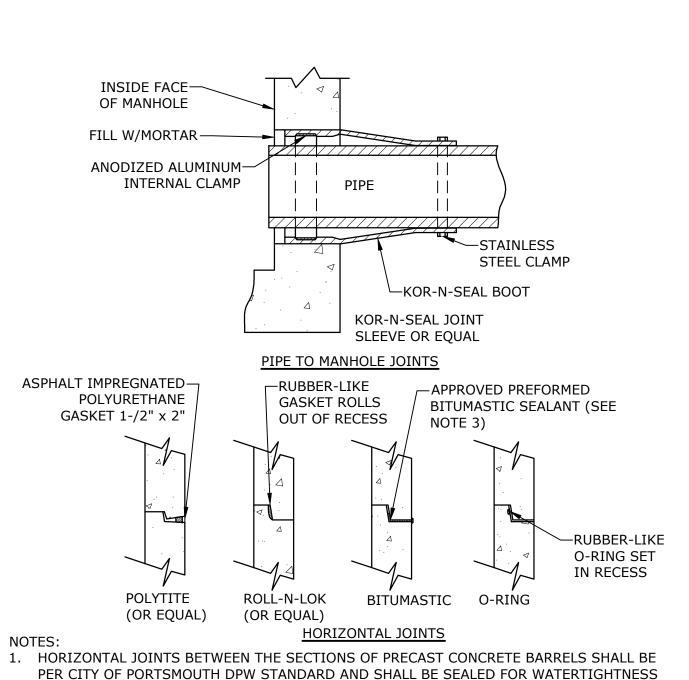
**UTILITY PIPELINE SLEEVE DETAIL (CARRIER PIPE)** 

NO SCALE

FABRICATING ELECTRICALLY WELDED STEEL WATER PIPES OR ITS EQUIVALENT.



NO SCALE



USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.

LEAST 75% OF THE JOINT CAVITY.

MANUFACTURERS' WRITTEN INSTRUCTIONS.

PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.

FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT

4. ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH

**MANHOLE JOINTS** 

NO SCALE



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0.1 '0.1 '0.6 '0.7 '0.8 '1.1 '1.0 0.9 '0.9 '0.8 '0.8 '0.7   0.6   0.5 '0.4 '0.4 '0.3 '0.3 '0.2	3-STORY BUILDING    0.4   07   0.9   07   0.9   0.5   0.7   0.9   1.3   1.7   2.0   2.2   2.3   2.2   2.1   2.1   2.0   2.2   2.3   2.2   2.1   1.8   1.3   1.0   0.7   0.5   0.3   0.2   0.2   0.1   0.1
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0.1   0.1   0.2   0.3   0.8   0.9   1.0   1.3   1.5   1.6   1.6   1.5   1.2   0.9   0.7   0.5   0.4   0.4   0.3   0.8   0.2   0.2   0.3   0.8   0.2   0.2   0.3   0.8   0.2   0.3   0.8   0.2   0.3   0.8   0.2   0.3   0.8   0.2   0.3   0.8   0.2   0.3   0.8   0.2   0.3   0.8   0.2   0.3   0.8   0.2   0.3   0.8   0.2   0.3   0.8   0.3   0.8   0.3   0.3   0.8   0.3   0.8   0.3   0.3   0.8   0.3   0.3   0.8   0.3   0.3   0.8   0.3   0.3   0.8   0.3   0	1.3 '3.5 '5.8 2.6 '0.5 '0.3 '0.5 '0.6 '0.7 '0.8 '0.9 '0.9 '1.0 '1.0 '0.9 '1.0 '1.0 '0.9 '0.8 '0.7 '0.6 '0.5 '0.3 '0.2 '0.1 '0.1 '0.1 '0.1 '0.9 '1.0 '1.0 '1.0 '1.0 '1.0 '1.0 '1.0 '1.0
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0.1 0.1 0.2 0.4 0.7 1.5 20 2.1 2.3 2.1 2.0 1.9 1.8 1.6 1.4 1.2 1.0 0.9 1.0 1.4 1.7 1.5 1.2 0.8	0.8 1.9 2.7 1.4 0.4 0.3 0.5 0.6 0.7 0.8 0.9 0.9 1.0 1.0 0.9 1.0 1.0 0.9 0.9 0.9 0.8 0.7 0.6 0.4 0.3 0.2 0.1 0.1
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0.1 0.1 0.2 0.3 0.5 1.2 1 4 1.6 2.1 2.4 2.5 2.5 2.4 2.3 2.1 1.7 1.5 1.4 1.7 5.4 22 6.8 2.7 1.1 0.3	1.2 3.2 5.2 2.4 0.5 0.4 0.6 0.8 1.1 1.4 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.6 1.7 1.7 1.7 1.6 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7
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0.3 D-1	1 B-1 6.4 '6.0 '5.5 '4.9 '4.0 '32 '0.1 '0.1 '0.2 '1.7 '4.2 '4.5 '1.9 '0.9 '2.8 '4.7 '2.6 '0.7 '2.2 '5.1 '3.5 '1.4 '1.3 '3.4 '5.5 '2.6 '0.6 '0.6 '0.8 '1.1 '1.5 '2.0 '2.5 '2.9 '3.2 '3.8 '3.8 '3.8 '3.8 '3.8 '3.8 '3.8 '3.8
	7 5.5 5.1 4.6 4.0 3.6 33 0.1 0.1 0.2 2.7 6.5 62 3.1 1.3 4.9 0.2 1.0 3.9 1.6 64 2.1 1.9 5.1 4.6 4.5 0.8 0.6 0.8 1.1 1.5 2.0 2.4 2.7 3.6 4.2 4.4 4.6 4.6 4.3 4.3 3.6 2.7 2.3 1.9 1.5 1.1 0.7 0.5 0/3 0.2 0.2 0.1 0.1
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/0.3	4.7 4.3 3.9 3.5 3.4 3 0.2 0.2 0.2 0.1 6 3.7 3.0 1.7 0.9 2.5 4.4 2.3 0.7 2.0 4.4 3.2 1.3 1.3 3.2 4.8 2.3 0.7 0.6 0.8 1.1 1.4 1.7 2.1 2.4 3.0 3.9 4.6 5 5.3 4.5 3.8 3.0 2.3 2.0 1.7 1.3 1.0 0.7 0.4 0.3 0.2 0.2 0.1 0.1
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0.1   0.1   0.2   0.3   0.5   1.2   1.5   1.7   2.3   2.6   2.7   2.7   2.4   2.4   2.6   3.1   3.0   2.6   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   2.5   2.4   2.4   2.6   2.8   2.4   2.3   2.3   2.5   2.3   2.5   2.3   2.5   2.5   2.4   2.4   2.6   2.8   2.4   2.3   2.3   2.5   2.3   2.5   2.3   2.5	4.7 4.3 3.9 3.5 3.4 31 0.3 2 0.2 1.6 3.7 3.0 1.7 0.9 2.5 4.4 2.3 0.7 0.0 4.4 3.2 1.3 1.3 3.2 4.8 2.3 0.7 0.6 0.8 1.1 1.4 1.7 2.1 2.4 3.0 3.9 4.6 5 1.5 3.4 5.8 3.0 2.3 2.0 1.7 1.3 1.0 0.7 0.4 0.3 0.2 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1
0.1   0.1   0.2   0.3   0.5   1.2   1.5   1.7   2.3   2.6   2.7   2.7   2.4   2.4   2.6   3.1   3.0   2.6   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   0.1   0.1   0.2   0.4   0.6   1.4   1.9   2.0   2.6   2.6   2.5   2.4   2.4   2.6   2.8   2.4   2.3   2.3   2.5   2.3   1.9   1.7   1.7   1.7   1.7   1.7   1.7   0.1   0.1   0.2   0.4   0.7   1.6   2.1   2.2   2.4   2.3   2.2   2.2   2.3   2.3   2.4   2.3   2.0   1.9   1.8   1.9   2.0   1.8   1.6   1.4   1.3   1.2   1.2   0.1   0.1   0.2   0.3   0.4   0.4   0.9   22   2.3   2.3   2.2   2.2   2.3   2.4   2.3   2.0   1.7   1.6   1.6   1.6   1.7   1.7   1.5   1.3   1.1   0.9   0.8   0.8   0.8   0.1   0.1   0.2   0.3   0.4   0.4   0.9   22   2.3   2.2   2.2   2.3   2.4   2.3   2.0   1.7   1.6   1.6   1.6   1.7   1.7   1.5   1.3   1.1   0.9   0.8   0.8   0.1   0.1   0.2   0.3   0.4   0.4   0.9   22   2.3   2.4   2.3   2.2   2.2   2.3   2.4   2.3   2.0   1.7   1.6   1.6   1.6   1.7   1.7   1.5   1.3   1.1   0.9   0.8   0.8   0.1   0.1   0.2   0.3   0.4   0.4   0.9   22   2.3   2.4   2.3   2.2   2.3   2.4   2.3   2.0   1.7   1.6   1.6   1.6   1.7   1.7   1.5   1.3   1.1   0.9   0.8   0.8   0.1   0.1   0.2   0.3   0.4   0.4   0.9   2.7   2.7   2.7   2.7   2.7   2.7   2.7   2.7   2.7   2.4   2.4   2.8   3.1   3.0   2.6   2.9   2.9   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   2.3   2.5   2.5   2.8   2.4   2.8   2.4   2.3   2.3   2.3   2.5   2.3   2.5   2.8   2.4   2.8   2.4   2.3   2.3   2.3   2.5   2.3   2.5   2.8   2.4   2.3   2.3   2.5   2.3   2.3   2.5   2.3   2.0   2.8   2.8   2.4   2.3   2.3   2.3   2.5   2.3   2.0   2.8   2.8   2.4   2.3   2.0   2.8   2.8   2.4   2.3   2.0   2.8   2.8   2.4   2.3   2.0   2.8   2.8   2.4   2.3   2.0   2.8	4.7 4.3 3.9 3.5 3.4 3 0.3 2 0.2 1.6 3.7 3.0 1.7 0.9 2.5 4.4 2.3 0.7 0.0 4.4 3.2 1.3 1.3 3.2 4.8 2.3 0.7 0.6 0.8 1.1 1.4 1.7 2.1 2.4 3.0 3.0 3.0 4.8 5.3 4.5 3.8 3.0 2.3 2.0 1.7 1.3 1.0 0.7 0.4 0.3 0.2 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1
0.1   0.1   0.2   0.3   0.5   1.2   1.5   1.7   2.3   2.6   2.7   2.7   2.4   2.4   2.6   3.1   3.0   2.6   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   2.5   2.1   2.1   2.2   2.2   2.5   2.4   2.4   2.6   2.8   2.4   2.3   2.3   2.5   2.3   3.9   1.7	4.7 4.3 3.9 3.5 3.4 3 3 3 1 0.3 0.3 0.5 0.7 0.7 0.5 0.4 0.6 0.6 0.5 0.3 0.5 0.7 0.7 0.5 0.6 0.8 0.9 0.8 0.9 0.8 0.8 0.9 1.0 1.1 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3
0.1   0.1   0.2   0.3   0.5   1.2   1   5   1.7   2.3   2.6   2.7   2.7   2.4   2.4   2.6   3.1   3.0   2.6   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   0.1   0.1   0.2   0.4   0.6   1.4   1.9   2.0   2.6   2.6   2.5   2.4   2.4   2.6   2.8   2.4   2.3   2.3   2.5   2.3   1.9   1.7   1.7   1.7   1.7   1.7   1.7   0.1   0.1   0.2   0.4   0.7   1.6   2.1   2.2   2.4   2.3   2.2   2.2   2.3   2.3   2.4   2.3   2.0   1.9   1.8   1.9   2.0   1.8   1.6   1.4   1.3   1.2   1.2   0.1   0.1   0.2   0.3   0.4   0.4   0.9   2.7   2.3   2.2   2.2   2.3   2.3   2.4   2.3   2.0   1.7   1.6   1.6   1.6   1.7   1.7   1.5   1.3   1.1   0.9   0.8   0.8   0.1   0.1   0.2   0.3   0.6   1.2   1.6   1.7   2.4   2.5   2.3   2.3   2.3   2.3   2.2   1.9   1.6   1.4   1.2   1.1   1.0   1.0   1.1   1.1   1.0   0.8   0.6   0.8   0.1   0.1   0.2   0.3   0.6   1.2   1.6   1.7   2.4   2.5   2.3   2.3   2.3   2.3   2.2   1.9   1.6   1.4   1.2   1.1   1.0   1.0   1.1   1.1   1.0   0.8   0.6   0.6   0.1   0.1   0.2   0.3   0.6   1.2   1.6   1.7   2.4   2.5   2.3   2.3   2.3   2.2   2.9   1.9   1.6   1.4   1.2   1.1   1.0   1.0   1.1   1.1   1.0   0.8   0.6   0.8   0.1   0.1   0.2   0.3   0.6   1.2   1.6   1.7   2.4   2.5   2.3   2.3   2.3   2.3   2.2   2.9   1.9   1.6   1.4   1.2   1.1   1.0   1.0   1.1   1.1   1.0   0.8   0.6   0.8   0.1   0.1   0.2   0.3   0.6   1.2   1.6   1.7   2.4   2.5   2.3   2.3   2.3   2.3   2.2   1.9   1.6   1.4   1.2   1.1   1.0   1.0   1.1   1.1   1.0   0.8   0.6   0.6   0.1   0.1   0.2   0.3   0.6   1.2   1.6   1.7   2.4   2.5   2.3	4.7 4.3 3.9 3.5 3.4 3.1 3.2 0.2 1.6 3.7 3.0 1.7 0.0 2.6 4.4 23 0.7 20 4.4 3.2 1.3 1.3 3.2 4.8 23 0.7 0.6 0.8 1.1 1.4 1.7 2.1 2.4 3.0 3.9 4.5 4.5 3.5 3.4 5.3 8.8 30 2.3 20 1.7 1.3 10 0.7 0.4 0.3 0.2 0.2 0.1 0.1 3.6 3.6 3.6 3.4 3.3 3.1 0.3 0.3 0.5 0.7 0.7 0.5 0.4 0.6 0.6 0.5 0.3 0.5 0.7 0.7 0.5 0.6 0.8 0.9 0.8 0.6 0.7 0.7 0.9 1.1 1.3 1.5 1.5 1.2 0.9 0.8 0.4 0.3 0.2 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1
0.1   0.1   0.2   0.3   0.5   1.2   1   5   1.7   2.3   2.6   2.7   2.7   2.4   2.4   2.6   3.1   3.0   2.6   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   2.1   0.1   0.1   0.2   0.4   0.6   1.4   1.9   2.0   2.6   2.6   2.5   2.4   2.4   2.6   2.8   2.4   2.3   2.3   2.5   2.3   1.9   1.7	4.7 4.3 3.9 3.5 3.4 3 3 3 1 0.3 0.3 0.5 0.7 0.7 0.5 0.4 0.6 0.6 0.5 0.3 0.5 0.7 0.7 0.5 0.6 0.8 0.9 0.8 0.9 0.8 0.8 0.9 1.0 1.1 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3
0.1   0.1   0.2   0.3   0.5   1.2   1.5   1.7   2.3   2.6   2.7   2.7   2.4   2.4   2.6   3.1   3.0   2.6   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   2.1   0.1   0.1   0.2   0.4   0.6   1.4   1.9   2.0   2.6   2.6   2.5   2.4   2.4   2.6   2.8   2.4   2.3   2.3   2.5   2.3   1.9   1.7   1.7   1.7   1.7   1.7   1.7   1.7   1.7   1.0   0.1   0.1   0.2   0.4   0.7   1.6   2.1   2.2   2.4   2.3   2.2   2.2   2.3   2.3   2.4   2.3   2.0   1.9   1.8   1.9   2.0   1.8   1.6   1.4   1.3   1.2   1.2   1.2   1.2   1.1	47 '43 '39 '35 '34   10 02 '02   16 '37 '30 '17 '09 '25 '44 '23 '07 '20 '44 '32 '17 '20 '44 '32 '18 '13 '12 '18 '18 '18 '18 '18 '18 '18 '18 '18 '18
0.1   0.1   0.2   0.3   0.5   1.2   1.5   1.7   2.3   2.6   2.7   2.7   2.4   2.4   2.6   3.1   3.0   2.6   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   2.1   0.1   0.1   0.2   0.4   0.6   1.4   1.9   2.0   2.6   2.6   2.5   2.4   2.4   2.6   2.8   2.4   2.3   2.3   2.5   2.3   1.9   1.7	47 '43 '39 '35 '34   10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0.1   0.1   0.2   0.3   0.5   1.2   1.5   1.7   2.3   2.6   2.7   2.7   2.4   2.4   2.6   3.1   3.0   2.6   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   0.1   0.1   0.2   0.4   0.6   1.4   1.9   2.0   2.6   2.6   2.5   2.4   2.4   2.6   2.8   2.4   2.3   2.3   2.5   2.3   1.9   1.7   1.7   1.7   1.7   1.7   1.7   0.1   0.1   0.2   0.4   0.7   1.6   2.1   2.2   2.4   2.3   2.2   2.2   2.3   2.3   2.4   2.3   2.0   1.9   1.8   1.9   2.0   1.8   1.6   1.4   1.3   1.2   1.2   0.1   0.1   0.2   0.3   0.4   0.4   0.9   2.2   2.4   2.3   2.2   2.2   2.3   2.4   2.4   2.3   2.0   1.7   1.6   1.6   1.6   1.6   1.7   1.7   1.5   1.3   1.1   0.9   0.8   0.8   0.1   0.1   0.2   0.3   0.6   1.2   1.6   1.7   2.4   2.5   2.3   2.3   2.3   2.3   2.3   2.3   2.3   2.3   2.3   2.3   2.3   2.3   0.1   0.1   0.2   0.3   0.4   1.0   1.3   1.5   1.9   2.2   2.3   2.3   2.3   2.3   2.3   2.1   1.9   1.6   1.3   1.2   1.0   0.3   0.3   0.3   0.3   0.4   0.5   0.6   0.7   0.7   0.8   0.9   1.1   0.1   0.1   0.2   0.3   0.8   0.9   1.1   1.5   1.7   1.9   2.1   2.2   2.2   2.2   2.1   1.7   1.3   1.1   0.9   0.8   0.5   0.4   0.4   0.5   0.6   0.8   1.0   1.2   0.1   0.1   0.2   0.3   0.8   0.9   1.1   1.5   1.6   1.8   1.9   2.1   2.2   2.2   2.1   1.7   1.3   1.1   0.8   0.7   0.4   0.4   0.4   0.5   0.6   0.8   1.0   1.2   0.1   0.1   0.1   0.2   0.3   0.8   0.9   1.1   1.5   1.6   1.8   1.9   2.1   2.2   2.2   2.1   1.7   1.3   1.1   0.8   0.7   0.4   0.4   0.4   0.5   0.6   0.8   1.0   1.2   0.1   0.1   0.1   0.2   0.3   0.8   0.9   1.1   1.5   1.6   1.8   1.9   2.1   2.2   2.1   1.7   1.3   1.1   0.8   0.7   0.4   0.4   0.5   0.6   0.8   0.9   1.1   1.3   0.1   0.1   0.1   0.2   0.3   0.8   0.9   1.1   1.5   1.6   1.8   1.9   2.1   2.2   2.1   1.7   1.3   1.1   0.8   0.7   0.4   0.4   0.5   0.6   0.8   0.9   1.1   1.3   0.1   0.1   0.1   0.2   0.3   0.8   0.9   0.1	47 43 39 35 34 8 30 3 3 3 1
0.1 0.1 0.2 0.3 0.5 1.2 15 1.7 2.3 2.6 2.7 2.7 2.4 2.4 2.6 3.1 3.0 2.6 2.9 2.9 2.4 2.0 1.9 2.0 2.1 2.2 2.3 2.5 0.1 0.1 0.2 0.4 0.6 1.4 1.9 2.0 2.6 2.6 2.5 2.4 2.4 2.4 2.6 2.8 2.4 2.3 2.3 2.5 2.3 1.9 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.1 0.1 0.1 0.2 0.4 0.7 1.6 2.1 2.2 2.4 2.3 2.2 2.2 2.3 2.3 2.4 2.4 2.3 2.0 1.9 1.8 1.9 2.0 1.8 1.6 1.4 1.3 1.2 1.2 1.2 1.2 1.1 0.1 0.1 0.2 0.3 0.4 0.4 0.9 2.2 2.2 2.3 2.2 2.2 2.3 2.4 2.4 2.3 2.0 1.7 1.6 1.6 1.6 1.7 1.7 1.5 1.3 1.1 0.9 0.8 0.8 0.8 0.1 0.1 0.1 0.2 0.3 0.4 1.0 1.3 1.5 1.9 2.2 2.2 2.3 2.3 2.3 2.3 2.0 1.7 1.5 1.4 1.3 1.3 1.3 1.4 1.4 1.2 0.9 0.7 0.6 0.6 0.1 0.1 0.2 0.3 0.4 1.0 1.3 1.5 1.9 2.2 2.3 2.4 2.3 2.3 2.1 1.9 1.6 1.3 1.2 1.0 0.3 0.3 0.3 0.3 0.4 0.4 0.5 0.6 0.9 1.1 0.1 0.1 0.2 0.3 0.8 0.9 1.1 1.5 1.7 1.9 2.1 2.2 2.2 2.0 1.7 1.3 1.1 0.9 0.8 0.5 0.4 0.4 0.4 0.5 0.6 0.8 1.0 1.2 1.6 1.9 2.1 2.2 2.2 2.1 1.7 1.3 1.1 0.9 0.8 0.5 0.4 0.4 0.4 0.5 0.6 0.8 1.0 1.2 0.1 0.1 0.1 0.2 0.3 0.4 0.6 0.6 0.7 0.9 1.3 1.5 1.7 1.8 1.9 2.1 2.1 2.1 1.7 1.3 1.1 0.9 0.8 0.5 0.4 0.5 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.3 0.4 0.6 0.8 1.0 1.3 1.5 1.7 1.8 1.9 2.1 2.1 2.1 1.7 1.3 1.1 0.9 0.8 0.5 0.4 0.5 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.1 0.2 0.6 0.7 0.9 1.3 1.5 1.7 1.8 1.9 2.1 2.1 2.1 1.7 1.3 1.1 0.9 0.8 0.5 0.4 0.5 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	47 '43 '39 '35 '34   6   9   9   9   9   05   07   07   05   04   08   08   08   07   08   08   08   08
0.1 0.1 0.2 0.3 0.5 1.2 1.5 1.7 2.3 2.6 2.7 2.7 2.4 2.4 2.6 3.1 3.0 2.6 2.9 2.9 2.4 2.0 1.9 2.0 2.1 2.2 2.3 2.5 0.1 0.1 0.2 0.4 0.6 1.4 1.9 2.0 2.6 2.6 2.5 2.4 2.4 2.4 2.6 2.8 2.4 2.3 2.3 2.5 2.3 1.9 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.1 0.1 0.1 0.2 0.4 0.7 1.6 2.1 2.2 2.4 2.3 2.2 2.2 2.3 2.3 2.4 2.4 2.3 2.0 1.9 1.8 1.9 2.0 1.8 1.6 1.4 1.3 1.2 1.2 1.2 1.2 1.1 0.1 0.1 0.2 0.3 0.4 0.4 0.9 2.2 2.2 2.3 2.2 2.2 2.3 2.3 2.4 2.4 2.3 2.0 1.7 1.6 1.6 1.6 1.6 1.7 1.7 1.5 1.3 1.1 0.9 0.8 0.8 0.1 0.1 0.1 0.2 0.3 0.4 0.4 0.9 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.0 1.7 1.5 1.4 1.3 1.3 1.3 1.4 1.4 1.2 0.9 0.7 0.8 0.8 0.1 0.1 0.1 0.2 0.3 0.8 1.2 1.6 1.7 2.4 2.5 2.3 2.3 2.3 2.3 2.3 2.0 1.7 1.5 1.4 1.3 1.3 1.3 1.4 1.4 1.2 0.9 0.7 0.8 0.6 0.1 0.1 0.1 0.2 0.3 0.8 0.4 1.0 1.3 1.5 1.9 2.2 2.3 2.4 2.3 2.3 2.1 1.9 1.6 1.3 1.1 0.9 0.4 0.3 0.3 0.3 0.3 0.4 0.5 0.8 1.1 0.1 0.1 0.2 0.3 0.8 0.9 1.1 1.5 1.7 1.9 2.1 2.2 2.2 2.0 1.7 1.3 1.1 0.9 0.4 0.3 0.3 0.3 0.4 0.4 0.5 0.6 0.8 1.1 0.1 0.1 0.2 0.7 0.8 0.1 1.5 1.6 1.8 1.9 2.1 2.2 2.2 2.0 1.7 1.3 1.1 0.9 0.8 0.6 0.6 0.6 0.5 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.6 0.7 0.9 1.3 1.5 1.6 1.8 1.9 2.1 2.2 2.1 1.7 1.3 1.1 0.9 0.8 0.6 0.6 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.6 0.7 0.9 1.3 1.5 1.6 1.8 1.9 2.1 2.1 2.1 1.7 1.3 1.1 0.9 0.8 0.6 0.6 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.6 0.7 0.9 1.3 1.5 1.7 1.8 1.9 2.1 2.2 1.1 1.7 1.3 1.1 0.9 0.8 0.6 0.6 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.6 0.7 0.9 1.3 1.5 1.7 1.8 1.9 2.1 2.2 1.1 1.7 1.3 1.1 0.9 0.8 0.6 0.6 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.6 0.7 0.9 1.3 1.5 1.7 1.8 1.9 2.1 2.1 2.1 1.7 1.3 1.1 0.9 0.8 0.6 0.6 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.6 0.7 0.9 1.3 1.5 1.7 1.8 1.9 2.1 2.1 2.1 1.7 1.3 1.1 0.9 0.8 0.6 0.6 0.6 0.7 0.9 1.2 1.3 0.1 0.1 0.1 0.1 0.2 0.6 0.7 0.9 1.3 1.5 1.7 1.8 1.9 2.1 2.2 1.2 1.1 1.7 1.3 1.1 0.9 0.8 0.6 0.6 0.6 0.7 0.9 1.2 1.3 0.1 0.1 0.1 0.1 0.2 0.6 0.7 0.9 1.0 1.2 1.4 1.8 1.8 2.0 1.6 1.8 1.2 1.0 0.9 0.7 0.7 0.7 0.6 0.7 0.8 0.9 1.2 1.3 0.1 0.1 0.1 0.1 0.1 0.2 0.6 0.7 0.9 1.0 1.2 1.4 1.8 1.8 2.0 1.6 1.8 1.8 2.	47 43 39 35 38 4
0.1   0.1   0.2   0.3   0.5   1.2   1.5   1.7   2.3   2.6   2.7   2.7   2.4   2.4   2.6   3.1   3.0   2.6   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   2.5   2.4   2.4   2.6   2.8   2.4   2.3   2.3   2.5   2.3   3.9   1.7	47 '43 '39 '35 '35 '45 '35 '35 '45 '35 '35 '45 '35 '35 '45 '35 '35 '45 '35 '35 '45 '35 '35 '45 '35 '35 '45 '35 '35 '45 '35 '35 '35 '45 '35 '35 '45 '35 '35 '45 '35 '35 '45 '35 '35 '35 '45 '35 '35 '45 '35 '35 '45 '35 '35 '45 '35 '35 '35 '45 '35 '35 '35 '35 '35 '35 '35 '35 '35 '3
0.1 0.1 0.2 0.3 0.5 1.2 15 1.7 2.3 2.6 2.7 2.7 2.4 2.4 2.6 3.1 3.0 2.6 2.9 2.9 2.4 2.0 1.9 2.0 2.1 2.2 2.3 2.5 0.1 10.1 0.2 0.4 0.6 1.4 1.9 2.0 2.6 2.6 2.5 2.4 2.4 2.4 2.6 2.8 2.4 2.3 2.3 2.5 2.3 1.9 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7	47 '43 '89 '35 '35   6   6   6   7   7   7   7   7   7   7
0.1 0.1 0.2 0.3 0.5 1.2 1.5 1.7 2.3 2.6 2.7 2.7 2.4 2.4 2.6 3.1 3.0 2.6 2.9 2.9 2.4 2.0 1.9 2.0 2.1 2.2 2.3 2.5 1.1 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7	47 '43 '89 '85 '84   63   92   16   87 '80 '80 '80 '80 '80 '80 '80 '80 '80 '80
0.1 0.1 0.2 0.3 0.5 12 15 1.7 23 2.6 2.7 2.7 2.4 2.4 2.6 3.1 3.0 2.6 2.9 2.9 2.4 2.0 1.9 2.0 2.1 2.2 2.3 2.5 0.1 0.1 0.1 0.2 0.4 0.6 1.4 1.3 2.0 2.6 2.6 2.5 2.4 2.4 2.4 2.4 2.6 2.8 2.4 2.3 2.3 2.5 2.3 1.9 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7	47 '43 '38 '38 '34 \ 38 '38 \ 4 \ 38 '38 '38 \ 4 \ 38 '38 '38 \ 4 \ 38 '38 '38 \ 4 \ 38 '38 \ 5 \ 38 \ 4 \ 38 '38 \ 5 \ 38 \ 4 \ 38 '38 \ 5 \ 38 \ 38 \ 4 \ 38 '38 \ 5 \ 38 \ 38 \ 38 \ 38 \ 38 \ 38 \ 3
0.1 0.1 0.2 0.3 0.5 1.2 1.5 1.7 2.3 2.6 2.7 2.7 2.4 2.4 2.6 3.1 3.0 2.6 2.9 2.9 2.4 2.0 1.9 2.0 2.1 2.2 2.3 2.5 2.5 0.1 0.1 0.1 0.2 0.4 0.6 1.4 1.9 2.0 2.6 2.6 2.5 2.4 2.4 2.4 2.6 2.8 2.4 2.3 2.3 2.5 2.3 1.9 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7	47 '43 '89 '85 '44   60
0.1 0.1 0.2 0.3 0.5 1.2 15 1.7 2.3 2.6 2.7 2.7 2.4 2.4 2.6 3.1 3.0 2.6 2.9 2.9 2.4 2.0 1.9 2.0 2.1 2.2 2.3 2.5 0.1 0.1 0.1 0.2 0.4 0.6 1.4 1.9 2.0 2.6 2.6 2.5 2.4 2.4 2.4 2.4 2.6 2.8 2.4 2.3 2.3 2.5 2.3 1.9 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7	47 (x3 38 38 58 46 62 12 14 15 15 16 62 16 16 16 16 16 16 16 16 16 16 16 16 16
0.1 0.1 0.1 0.2 0.3 0.5 1.2 15 1.7 23 26 2.7 2.7 24 24 26 3.1 3.0 26 29 29 24 20 1.9 1.0 12 0.2 1.1 22 23 25 25 0.1 0.1 0.1 0.2 0.4 0.6 1.4 10 20 26 26 2.5 24 24 24 22 26 28 24 23 23 25 23 1.9 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.1 0.1 0.1 0.2 0.4 0.7 1.6 21 22 24 2.3 22 22 23 23 24 2.3 20 1.9 1.8 1.9 20 1.8 1.6 1.4 1.3 1.2 1.2 1.2 1.2 1.2 1.1 0.1 0.1 0.2 0.3 0.4 0.4 0.9 22 22 24 23 22 22 23 24 24 23 20 1.7 1.6 1.6 1.6 1.6 1.7 1.7 1.5 1.3 1.1 0.9 0.8 0.8 0.1 0.1 0.1 0.2 0.3 0.7 1.5 20 21 24 2.5 23 23 23 22 1.9 1.6 1.4 1.3 1.3 1.3 1.3 1.3 1.4 1.4 1.2 0.9 0.7 0.8 0.8 0.1 0.1 0.1 0.2 0.3 0.6 1.2 1.6 1.7 24 2.5 23 2.3 2.3 2.2 1.9 1.6 1.4 1.2 1.1 1.0 0.9 0.8 0.8 0.1 0.1 0.1 0.2 0.3 0.6 1.2 1.6 1.7 24 2.5 2.3 2.3 2.3 2.2 1.9 1.6 1.4 1.2 1.1 1.0 0.9 0.8 0.8 0.8 0.1 0.1 0.1 0.2 0.3 0.8 1.0 1.2 1.8 1.9 2.1 2.3 2.3 2.2 1.9 1.6 1.3 1.1 0.9 0.4 0.3 0.3 0.3 0.4 0.5 0.8 0.1 1.1 0.1 0.2 0.3 0.8 0.9 1.1 1.5 1.7 1.9 2.1 2.2 2.2 2.0 1.7 1.3 1.1 0.9 0.8 0.7 0.3 0.3 0.4 0.5 0.8 0.9 1.1 0.1 0.1 0.2 0.3 0.8 0.9 1.1 1.5 1.7 1.9 2.1 2.2 2.2 2.0 1.7 1.3 1.1 0.9 0.8 0.7 0.3 0.3 0.4 0.5 0.8 0.9 1.1 0.1 0.1 0.2 0.3 0.3 0.3 0.8 0.9 1.1 1.5 1.7 1.9 2.1 2.2 2.2 2.0 1.7 1.3 1.1 0.9 0.8 0.5 0.4 0.5 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.3 0.3 0.3 0.8 0.9 1.0 1.2 1.4 1.6 1.7 1.9 2.1 1.2 1.2 1.1 1.0 0.9 0.8 0.5 0.4 0.5 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.1 0.2 0.3 0.3 0.3 0.8 0.9 1.0 1.2 1.4 1.6 1.8 1.9 2.1 1.7 1.5 1.3 1.1 0.9 0.8 0.5 0.4 0.5 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.3 0.3 0.3 0.8 0.9 1.0 1.2 1.4 1.6 1.8 2.0 1.5 1.3 1.1 0.9 0.8 0.5 0.4 0.5 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.3 0.3 0.3 0.8 0.9 1.0 1.2 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.4 1.4 1.3 1.1 0.9 0.8 0.5 0.4 0.5 0.6 0.7 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.3 0.3 0.3 0.8 0.9 1.0 1.2 1.5 1.5 1.5 1.1 1.7 1.5 1.3 1.3 1.1 1.0 0.9 0.7 0.7 0.8 0.7 0.8 0.9 1.1 1.3 0.1 0.1 0.1 0.1 0.2 0.3 0.3 0.3 0.8 0.9 1.0 1.2 1.5 1.5 1.1 1.7 1.5 1.3 1.3 1.1 1.0 0.9 0.7 0.7 0.8 0.7 0.8 0.9 1.1 1.3 1.3 1.1 1.3 1.1 0.1 0.9 0.7 0.8 0.8 0.7 0.8 0.9 1.1 1.3 1.3 1.1 1.3 1.1 0.1 0.9 0.7 0.8 0.8 0.7	47 '43 '39 '38 '38 '48 '49 '49 '49 '49 '49 '49 '49 '49 '49 '49
0.1   0.1   0.2   0.3   0.5   1.2   1.5   1.7   2.3   2.6   2.7   2.7   2.4   2.4   2.6   3.1   3.0   2.6   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   2.1   0.1   0.1   0.1   0.2   0.4   0.6   1.4   1.9   2.0   2.6   2.6   2.5   2.4   2.4   2.6   2.8   2.4   2.3   2.3   2.5   2.3   1.9   1.7	47 (x3 38 38 58 46 62 12 14 15 15 16 62 16 16 16 16 16 16 16 16 16 16 16 16 16
0.1   0.1   0.2   0.3   0.5   1.2   15   1.7   2.3   2.6   2.7   2.7   2.4   2.4   2.6   3.1   3.0   2.6   2.9   2.9   2.4   2.0   1.9   2.0   2.1   2.2   2.3   2.5   2.5   2.1   2	4x 4x 12x 2x 12x 2x 12x 12x 12x 12x 12x 12x
0.1 0.1 0.2 0.3 0.5 12 15 1.7 23 26 2.7 2.7 24 24 28 3.1 3.0 25 29 29 24 20 19 20 21 22 23 25 10.1 0.1 0.2 0.4 0.6 1.4 19 20 2.6 2.6 2.5 2.4 24 24 2.4 2.6 2.8 2.4 2.3 2.3 2.5 2.3 1.9 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.0 1 0.1 0.1 0.2 0.4 0.7 1.6 2.1 2.2 2.4 2.3 2.2 2.2 2.3 2.3 2.4 2.3 2.0 1.9 1.8 1.9 2.0 1.8 1.6 1.6 1.4 1.3 1.2 1.2 1.2 1.2 1.2 1.1 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	4x 4x 12x 2x 12x 2x 12x 12x 12x 12x 12x 12x

Luminaire Locations										
			Location						Aim	
No.	Label	X	Y	z	МН	Orientation	Tilt	X	Y	Z
1	А	-193.79	-75.92	19.50	19.50	90.00	0.00	-192.54	-75.92	0.00
2	Α	-193.79	-7.95	19.50	19.50	90.00	0.00	-192.54	-7.95	0.00
3	А	-193.79	145.07	19.50	19.50	90.00	0.00	-192.54	145.07	0.00
4	А	-157.73	-145.89	19.50	19.50	44.07	0.00	-156.86	-145.00	0.00
5	А	82.25	143.17	19.50	19.50	250.20	0.00	81.08	142.75	0.00
6	А	-166.19	199.89	19.50	19.50	113.69	0.00	-165.04	199.39	0.00
7	А	-193.79	76.99	19.50	19.50	90.00	0.00	-192.54	76.99	0.00
8	А	-58.51	-116.56	19.50	19.50	360.00	0.00	-58.51	-115.31	0.00
9	А	-58.51	-116.56	19.50	19.50	180.00	0.00	-58.51	-117.81	0.00
10	Α	56.22	-116.56	19.50	19.50	360.00	0.00	56.22	-115.31	0.00
11	А	56.22	-116.56	19.50	19.50	180.00	0.00	56.22	-117.81	0.00
12	А	104.99	-57.79	19.50	19.50	270.00	0.00	103.74	-57.79	0.00
13	Α	104.99	-57.78	19.50	19.50	90.00	0.00	106.24	-57.78	0.00
14	Α	104.97	-57.79	19.50	19.50	360.00	0.00	104.97	-56.54	0.00
15	Α	153.87	-130.31	19.50	19.50	270.00	0.00	152.62	-130.31	0.00
16	Α	56.21	-116.57	19.50	19.50	270.00	0.00	54.96	-116.57	0.00
17	А	-58.51	-116.57	19.50	19.50	90.00	0.00	-57.26	-116.57	0.00
18	А	104.99	58.83	19.50	19.50	270.00	0.00	103.74	58.83	0.00
19	А	104.99	58.83	19.50	19.50	90.00	0.00	106.24	58.83	0.00
20	Α	104.96	58.82	19.50	19.50	180.00	0.00	104.96	57.57	0.00
21	Α	-137.28	-50.72	19.50	19.50	360.00	0.00	-137.28	-49.47	0.00
22	Α	-137.28	-50.72	19.50	19.50	180.00	0.00	-137.28	-51.97	0.00
1	В	-71.16	-36.91	18.00	18.00	180.00	15.00	-71.16	-42.25	0.00
1	С	35.84	39.57	3.50	3.50	0.00	0.00	35.84	39.57	0.00
2	С	35.84	17.48	3.50	3.50	0.00	0.00	35.84	17.48	0.00
3	С	35.84	-46.32	3.50	3.50	0.00	0.00	35.84	-46.32	0.00
4	С	-30.14	-46.32	3.50	3.50	0.00	0.00	-30.14	-46.32	0.00
5	С	35.84	-4.52	3.50	3.50	0.00	0.00	35.84	-4.52	0.00
6	С	35.84	-26.50	3.50	3.50	0.00	0.00	35.84	-26.50	0.00
7	С	35.84	61.55	3.50	3.50	0.00	0.00	35.84	61.55	0.00
8	С	35.84	83.60	3.50	3.50	0.00	0.00	35.84	83.60	0.00
9	С	13.82	-46.32	3.50	3.50	0.00	0.00	13.82	-46.32	0.00
10	С	-8.16	-46.32	3.50	3.50	0.00	0.00	-8.16	-46.32	0.00
11	С	-121.79	-1.89	3.50	3.50	0.00	0.00	-121.79	-1.89	0.00
12	С	-121.79	-23.88	3.50	3.50	0.00	0.00	-121.79	-23.88	0.00
13	С	-121.79	-45.89	3.50	3.50	0.00	0.00	-121.79	-45.89	0.00
14	С	-121.79	59.13	3.50	3.50	0.00	0.00	-121.79	59.13	0.00
15	С	-121.79	81.14	3.50	3.50	0.00	0.00	-121.79	81.14	0.00
16	С	-121.79	103.14	3.50	3.50	0.00	0.00	-121.79	103.14	0.00
17	С	-121.79	125.16	3.50	3.50	0.00	0.00	-121.79	125.16	0.00
1	D	-89.15	-37.81	12.00	12.00	180.00	15.00	-89.15	-41.03	0.00
2	D	-106.45	76.58	12.00	12.00	270.00	15.00	-109.67	76.58	0.00

 Statistics

 Description
 Symbol
 Avg
 Max
 Min
 Max/Min
 Avg/Min

 Calc Zone
 +
 0.4 fc
 9.6 fc
 0.0 fc
 N/A
 N/A

 PARKING
 +
 1.5 fc
 7.0 fc
 0.2 fc
 35.0:1
 7.5:1

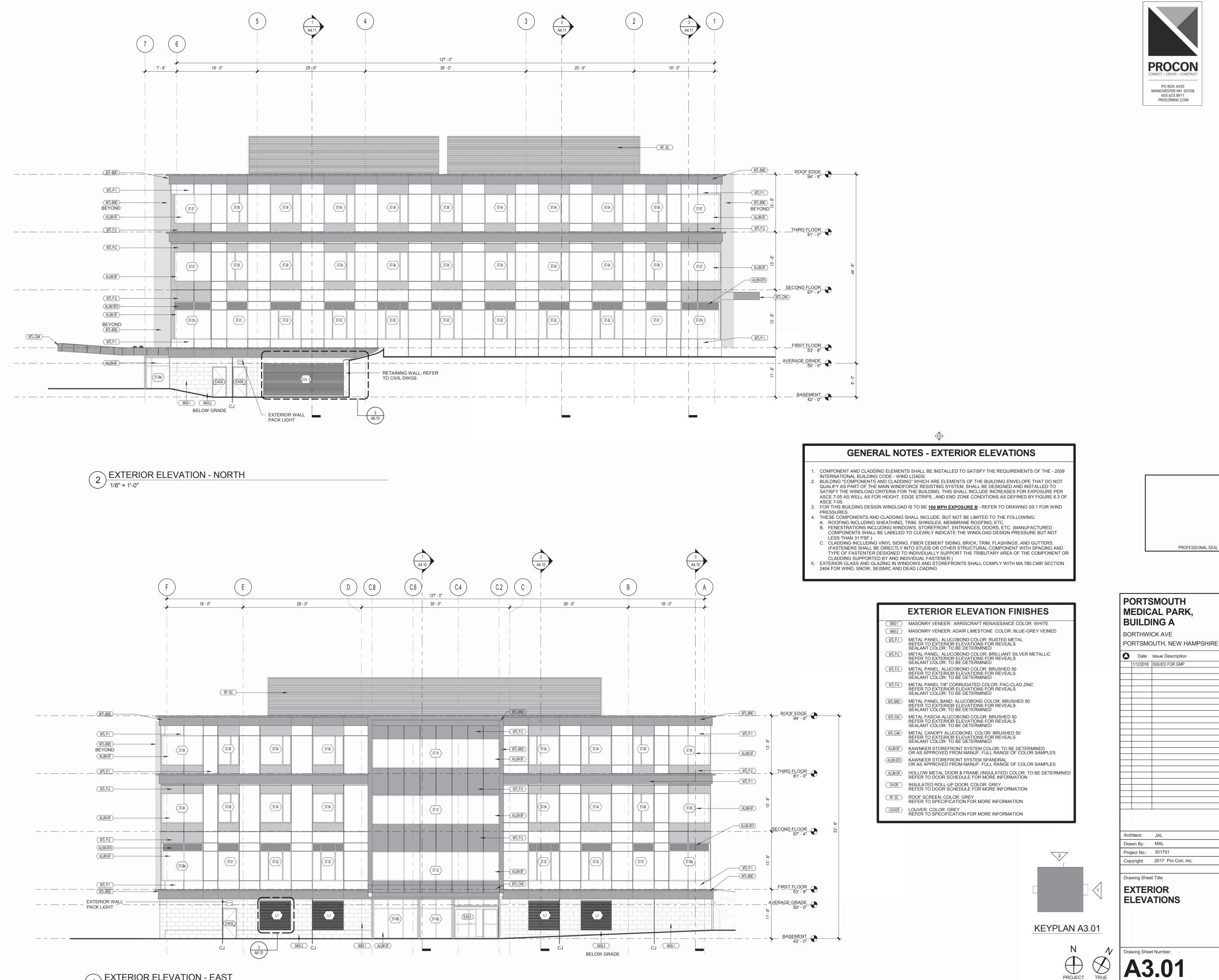
 SIDEWALK #1
 ♦
 2.4 fc
 9.1 fc
 0.1 fc
 91.0:1
 24.0:1

 SIDEWALK #2
 □
 2.4 fc
 8.2 fc
 0.3 fc
 27.3:1
 8.0:1

Schedule											
Symbol	Label	Quantity	Manufacturer	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage	Catalog Number
	A	22	Eye Lighting International of North America	Cast white enamel aluminum housing, white plastic reflecto r, clear plastic enclosure	10 white LEDs with clear plastic optics below each	1	kiaroLED-SA-L7-Type- IV-4000K.IES	5769	1	69.51	A-L740-47-UY-XT-XXX
	В	1	EYE LIGHTING INTERNATIONAL OF NORTH AMERICA	Aluminum housing, no enclosure	32 white LED with clear optics below each	1	Aphos-L7-4000K-Type- -IIA-70-CRI- Photometric-IES.IES	8135	1	74.92	APHOS XX-L740-2A7-UX-XXX
	С	17	Lithonia Lighting	KBA8 WITH 4 LIGHT BOARDS (16 LEDs), 350mA DRIVER, 4000K COLOR TEMP, AND SYMMETRIC OPTIC	LED	1	KBA8_LED_16C_350_ 40K_SYM_MVOLT.ies	1116	1	20	KBA8 LED 16C 350 40K SYM MVOLT
	D	2	EYE LIGHTING INTERNATIONAL OF NORTH AMERICA	Aluminum housing, no enclosure	16 white LED with clear optics below each	1	Aphos-Wall-Area-Mini- L3-4000K-Type-II-70- CRI-Photometric- IES.IES	4047	1	38.15	APHOS WAM-L340-27-UX-XXX



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1 of 1



EXTERIOR ELEVATION - EAST 1/8" = 1'-0"

