JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

February 11, 2020

Portsmouth Planning Board
Attn: Dexter Legg
1 Junkins Avenue, Suite 3rd Floor
Portsmouth, NH 03801

RE: Response Letter 3 – TAC Comments
3110 Lafayette Road & 65 Ocean Road, Portsmouth, NH
Tax Map 292, Lots 151-1 & 151-2
JBE Project No. 18165

Dear Mr. Legg,

We are in receipt of comments from Jillian Harris dated February 3, 2020 from the Technical Advisory Committee members. Review comments are listed below with our responses in bold.

1. *Based on the recent email from the DOT, the driveway location is fine as proposed.*
   RESPONSE: No response needed.

2. *Design of drainage systems shall be subject to final review by the third party reviewer and approval by DPW prior to Planning Board review.*
   RESPONSE: This review is underway and we will work with Underwood and DPW if they have any comments.

3. *The truck turning plan appears as though some parked vehicles could be impacted, please clarify.*
   RESPONSE: This has been adjusted on the plans and no conflict exists.

4. *The turnaround should be a minimum of 20' in width and 47'10" in length, does it meet the minimum turning radius?*
   RESPONSE: This has been addressed on the plans. The turn around has been adjusted to meet the 20' width and 48' long. The turning radius has been labeled on Sheet T1.

5. *It is not clear what the maintenance schedule is for the stormwater systems on site. Please provide annual maintenance and inspection report with reporting going to Planning and DPW annually.*
   RESPONSE: Note 22, Page C2. This has been provided.

6. *Efforts should be made to protect the mature trees on the site that are adjacent the limit of work. Snow fencing should be installed along the dripline prior to construction.*
   RESPONSE: This has been addressed on the plans. Note 12 on Sheet L1 addresses this comment.

7. *If not already completed, demolition of the existing structure may require review by the Demolition Review Committee.*
   RESPONSE: Review by the Planning Board constitutes necessary review of the existing structure.

8. *The proposed sidewalk connection to Lafayette Road should be extended around the radius to directly align with the opposite sidewalk to Ocean Road.*
   RESPONSE: This has been addressed on the plans.

9. *The three parallel spaces should be posted as visitor spaces.*
   RESPONSE: This has been addressed on the plans.

10. *Is any fencing proposed along the perimeter? If so, a fence detail should be included.*
    RESPONSE: Fencing areas and types have been clarified on Sheet L1 and detail added to D3.

Included with this response letter are the following:

1. Three (3) Revised Full Size Plan Set Folded.
2. Seven (7) Revised Half Size Plan Set Folded.

Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

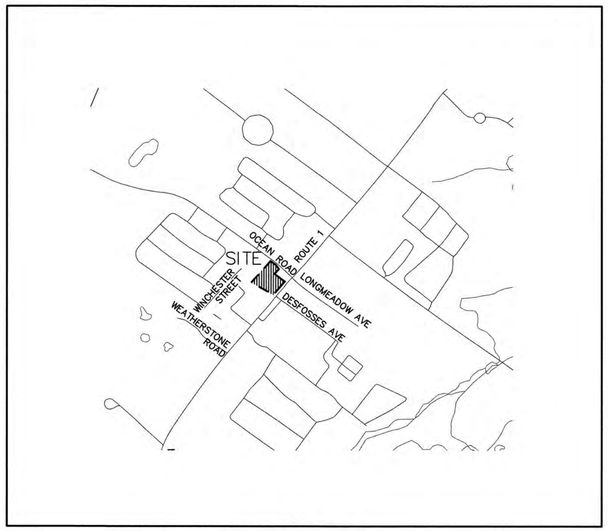
Joseph Coronati
Vice President

cc: Tuck Realty Corp., Applicant (letter and plans via email)
Tim Phoenix (letter and plans via email)
Mike Keane (letter and plans via email)

CONDOMINIUM SITE PLAN
OCEAN ROAD CONDOS
TAX MAP 292, LOTS 151-1, 151-2 & 153
65 OCEAN ROAD & 3110 LAFAYETTE ROAD
PORTSMOUTH, NH 03801

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		CENTERLINE
		FRESHWATER WETLANDS LINE
		TIDAL WETLANDS LINE
		STREAM CHANNEL
		TREE LINE
		STONEWALL
		BARBED WIRE
		FENCE
		STOCKADE FENCE
		SOIL BOUNDARY
		AQUIFER PROTECTION LINE
		FLOOD PLAIN LINE
		ZONELINE
		EASEMENT
100	100	MAJOR CONTOUR
98	98	MINOR CONTOUR
VGC	VGC	EDGE OF PAVEMENT
SGC	SGC	VERTICAL GRANITE CURB
CCB	CCB	SLOPE GRANITE CURB
PCC	PCC	CAPE COD BERM
X	X	POURED CONCRETE CURB
D		SILT FENCE
S		DRAINAGE LINE
FM	FM	SEWER LINE
G	G	SEWER FORCE MAIN
W	W	GAS LINE
WS	WS	WATER LINE
OHE	OHE	WATER SERVICE
UGE	UGE	OVERHEAD ELECTRIC
		UNDERGROUND ELECTRIC
UD	UD	GUARDRAIL
F	F	UNDERDRAIN
	W	FIRE PROTECTION LINE
		THRUST BLOCK
		IRON PIPE/IRON ROD
		DRILL HOLE
		IRON ROD/DRILL HOLE
		STONE/GRANITE BOUND
100x0	100x0	SPOT GRADE
100.00	100.00	PAVEMENT SPOT GRADE
100.00 / 99.50	100.00 / 99.50	CURB SPOT GRADE
		BENCHMARK (TBM)
		DOUBLE POST SIGN
		SINGLE POST SIGN
TP1		WELL
TP1		TEST PIT
		FAILED TEST PIT
P1		MONITORING WELL
1		PERC TEST
		PHOTO LOCATION
		TREES AND BUSHES
		UTILITY POLE
		LIGHT POLES
		DRAIN MANHOLE
		SEWER MANHOLE
		HYDRANT
		WATER GATE
		WATER SHUT OFF
		REDUCER
		SINGLE GRATE CATCH BASIN
		DOUBLE GRATE CATCH BASIN
		TRANSFORMER
		CULVERT W/WINGWALLS
		CULVERT W/FLARED END SECTION
		CULVERT W/STRAIGHT HEADWALL
		STONE CHECK DAM
		DRAINAGE FLOW DIRECTION
		4K SEPTIC AREA
		WETLAND IMPACT
		VEGETATED FILTER STRIP
		RIPRAP
		OPEN WATER
		FRESHWATER WETLANDS
		TIDAL WETLANDS
		STABILIZED CONSTRUCTION ENTRANCE
		CONCRETE
		GRAVEL
		SNOW STORAGE
		RETAINING WALL



LOCUS MAP
SCALE 1" = 1000'

SHEET INDEX

CIVIL ENGINEER / SURVEYOR
JONES & BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
PO BOX 219
STRATHAM, NH 03885
(603) 772-4746
CONTACT: JOSEPH CORONATI
EMAIL: JCORONATI@JONESANDBEACH.COM

TRAFFIC ENGINEER
STEPHEN G. PERNAW AND COMPANY, INC.
P.O. BOX 1721
CONCORD, NH 03302
CONTACT: STEPHEN G. PERNAW

LANDSCAPE DESIGNER
LM LAND DESIGN, LLC
11 SOUTH ROAD
BRENTWOOD, NH 03833
603-770-7728
CONTACT: LISE McNAUGHTON

ARCHITECT:
MICHAEL J. KEANE ARCHITECTS, PLLC
101 KENT PLACE
NEWMARKET, NH 03857
(603) 292-1400 EXT. 102
CONTACT: MICHAEL KEANE

ELECTRIC
EVERSOURCE ENERGY
74 OLD DOVER ROAD
ROCHESTER, NH 03867
(603) 555-5334
CONTACT: NICHOLAI KOSKO

TELEPHONE
FAIRPOINT COMMUNICATIONS
1575 GREENLAND ROAD
GREENLAND, NH 03840
(603) 427-5525
CONTACT: JOE CONSIDINE

CABLE TV
COMCAST COMMUNICATION CORPORATION
334-B CALEF HIGHWAY
EPPING, NH 03042-2325
(603) 679-5695

APPLICANT
TUCK REALTY CORP.
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA
80,266 SQ. FT.
1.84 ACRES

APPROVED - PORTSMOUTH, NH
PLANNING BOARD

DATE:

Design: JAC	Draft: LAZ	Date: 9/17/19
Checked: JAC	Scale: AS NOTED	Project No.: 18165
Drawing Name: 18165-PLAN.dwg		

STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9946 – LICENSED PROFESSIONAL ENGINEER – 2/12/20

REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
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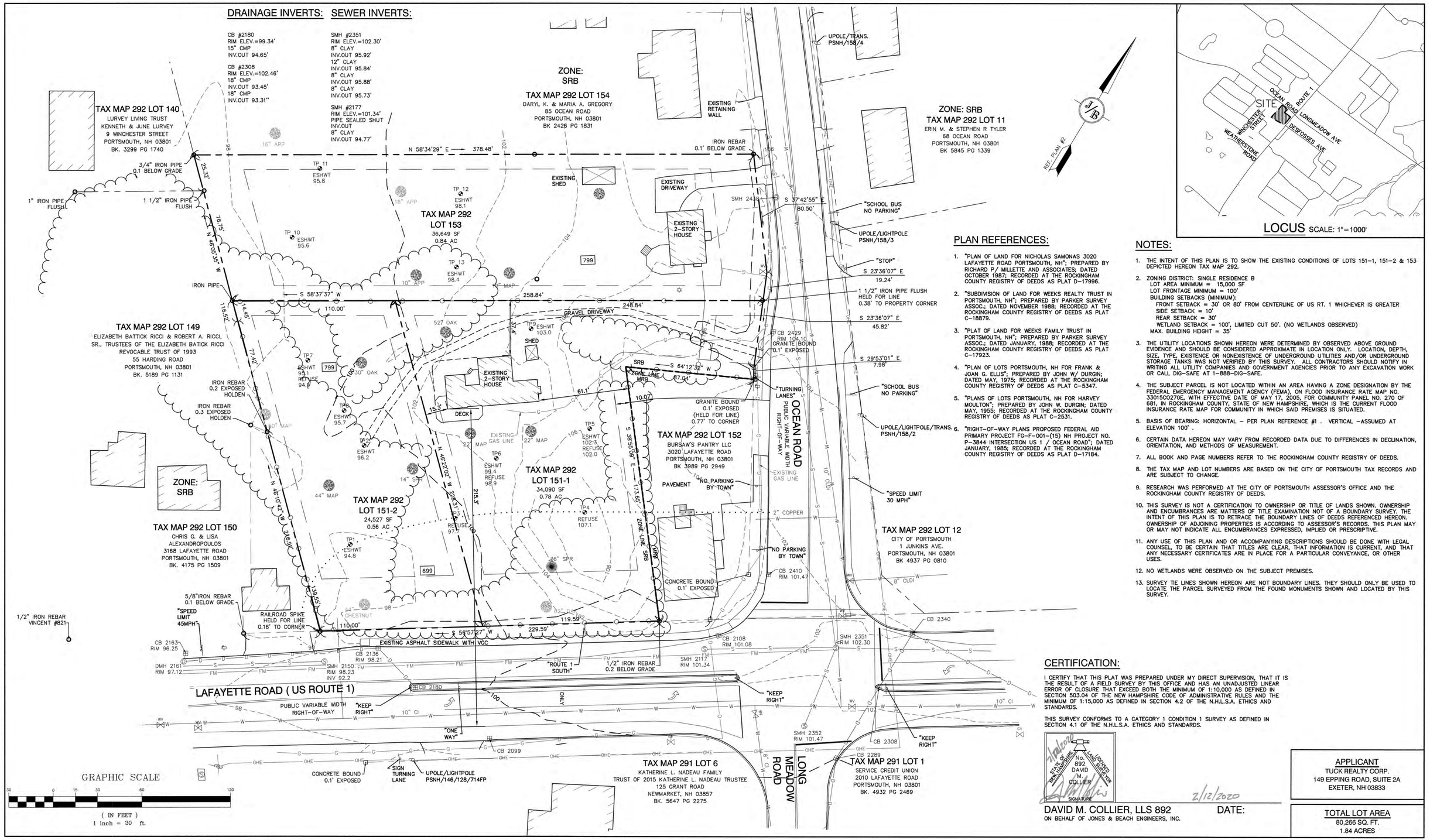
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	COVER SHEET
Project:	3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record:	CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801 WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.
CS
SHEET 1 OF 17
JBE PROJECT NO. 18165

PROJECT NAME AND LOCATION
JBE # 18165 REVISION: 2/12/20

W:\18165 PORTSMOUTH-3110 LAFAYETTE RD-PORTER\DWG\18165-PLAN2.dwg, 2/12/2020 1:41:15 PM



LOCUS SCALE: 1"=1000'

PLAN REFERENCES:

1. "PLAN OF LAND FOR NICHOLAS SAMONAS 3020 LAFAYETTE ROAD PORTSMOUTH, NH"; PREPARED BY RICHARD P./ MILLETTE AND ASSOCIATES; DATED OCTOBER 1987; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D–17996.
2. "SUBDIVISION OF LAND FOR WEEKS REALTY TRUST IN PORTSMOUTH, NH"; PREPARED BY PARKER SURVEY ASSOC.; DATED NOVEMBER 1988; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT C–18879.
3. "PLAT OF LAND FOR WEEKS FAMILY TRUST IN PORTSMOUTH, NH"; PREPARED BY PARKER SURVEY ASSOC.; DATED JANUARY, 1988; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT C–17923.
4. "PLAN OF LOTS PORTSMOUTH, NH FOR FRANK & JOAN G. ELLIS"; PREPARED BY JOHN W/ DURGIN; DATED MAY, 1975; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT C–5347.
5. "PLANS OF LOTS PORTSMOUTH, NH FOR HARVEY MOULTON"; PREPARED BY JOHN W. DURGIN; DATED MAY, 1955; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT C–2531.
6. "RIGHT–OF–WAY PLANS PROPOSED FEDERAL AID PRIMARY PROJECT FG–F–001–(15) NH PROJECT NO. P–3844 INTERSECTION US 1 / OCEAN ROAD"; DATED JANUARY, 1985; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D–17184.

NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS OF LOTS 151–1, 151–2 & 153 DEPICTED HEREON TAX MAP 292.
2. ZONING DISTRICT: SINGLE RESIDENCE B
   LOT AREA MINIMUM = 15,000 SF
   LOT FRONTAGE MINIMUM = 100'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 30' OR 80' FROM CENTERLINE OF US RT. 1 WHICHEVER IS GREATER
   SIDE SETBACK = 10'
   REAR SETBACK = 30'
   WETLAND SETBACK = 100', LIMITED CUT 50'. (NO WETLANDS OBSERVED)
   MAX. BUILDING HEIGHT = 35'
3. THE UTILITY LOCATIONS SHOWN HEREON WERE DETERMINED BY OBSERVED ABOVE GROUND EVIDENCE AND SHOULD BE CONSIDERED APPROXIMATE IN LOCATION ONLY. LOCATION, DEPTH, SIZE, TYPE, EXISTENCE OR NONEXISTENCE OF UNDERGROUND UTILITIES AND/OR UNDERGROUND STORAGE TANKS WAS NOT VERIFIED BY THIS SURVEY. ALL CONTRACTORS SHOULD NOTIFY IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO ANY EXCAVATION WORK OR CALL DIG–SAFE AT 1–888–DIG–SAFE.
4. THE SUBJECT PARCEL IS NOT LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0270E, WITH EFFECTIVE DATE OF MAY 17, 2005, FOR COMMUNITY PANEL NO. 270 OF 681, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
5. BASIS OF BEARING: HORIZONTAL – PER PLAN REFERENCE #1 . VERTICAL –ASSUMED AT ELEVATION 100' .
6. CERTAIN DATA HEREON MAY VARY FROM RECORDED DATA DUE TO DIFFERENCES IN DECLINATION, ORIENTATION, AND METHODS OF MEASUREMENT.
7. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
8. THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
9. RESEARCH WAS PERFORMED AT THE CITY OF PORTSMOUTH ASSESSOR'S OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
10. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESCRIPTIVE.
11. ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL, TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.
12. NO WETLANDS WERE OBSERVED ON THE SUBJECT PREMISES.
13. SURVEY TIE LINES SHOWN HEREON ARE NOT BOUNDARY LINES. THEY SHOULD ONLY BE USED TO LOCATE THE PARCEL SURVEYED FROM THE FOUND MONUMENTS SHOWN AND LOCATED BY THIS SURVEY.

CERTIFICATION:

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR

SIGNATURE 2/12/2020

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

APPLICANT
TUCK REALTY CORP.
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA
80,266 SQ. FT.
1.84 ACRES

Design: JAC	Draft: LAZ	Date: 9/17/19
Checked: JAC	Scale: 1" = 30'	Project No.: 18165
Drawing Name: 18165-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 2/12/2020

REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
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PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EXISTING CONDITIONS PLAN
Project: 3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record: CARTER CHAD, WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE
65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801 PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No. C1
SHEET 2 OF 17
JBE PROJECT NO. 18165

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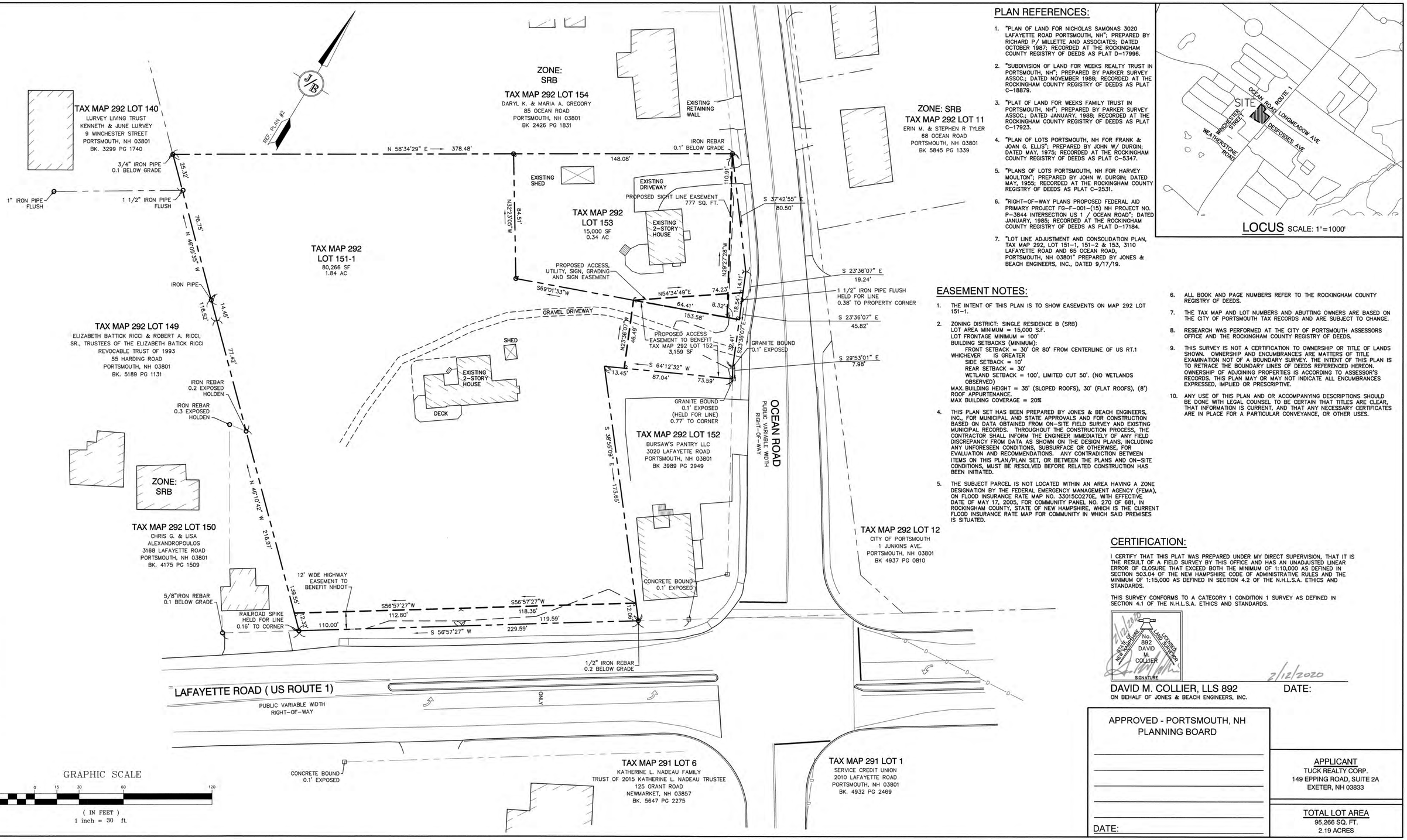

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7. "LOT LINE ADJUSTMENT AND CONSOLIDATION PLAN, TAX MAP 292, LOT 151-1, 151-2 & 153, 3110 LAFAYETTE ROAD AND 65 OCEAN ROAD, PORTSMOUTH, NH 03801" PREPARED BY JONES & BEACH ENGINEERS, INC., DATED 9/17/19.

LOCUS SCALE: 1"=1000'

EASEMENT NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW EASEMENTS ON MAP 292 LOT 151-1.
2. ZONING DISTRICT: SINGLE RESIDENCE B (SRB)
   LOT AREA MINIMUM = 15,000 S.F.
   LOT FRONTAGE MINIMUM = 100'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 30' OR 80' FROM CENTERLINE OF US RT.1 WHICHEVER IS GREATER
   SIDE SETBACK = 10'
   REAR SETBACK = 30'
   WETLAND SETBACK = 100', LIMITED CUT 50'. (NO WETLANDS OBSERVED)
   MAX. BUILDING HEIGHT = 35' (SLOPED ROOFS), 30' (FLAT ROOFS), (8') ROOF APPURTENANCE.
   MAX BUILDING COVERAGE = 20%
4. THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
5. THE SUBJECT PARCEL IS NOT LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0270E, WITH EFFECTIVE DATE OF MAY 17, 2005, FOR COMMUNITY PANEL NO. 270 OF 681, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
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APPROVED - PORTSMOUTH, NH
PLANNING BOARD

DATE:

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Drawing Name: 18165-PLAN.dwg		

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DRAWING No.
A2
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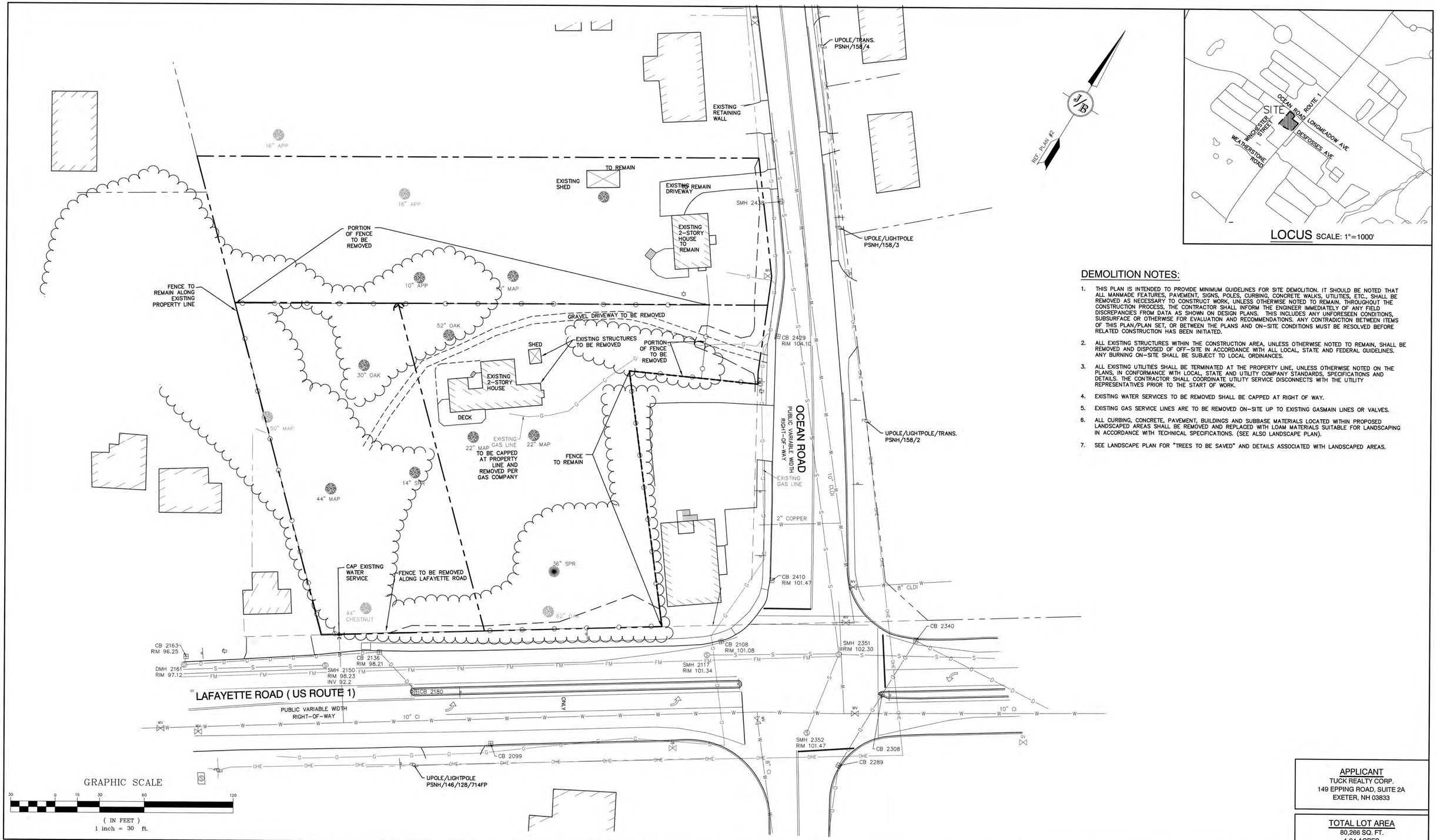


DEMOLITION NOTES:

1. THIS PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR SITE DEMOLITION. IT SHOULD BE NOTED THAT ALL MANMADE FEATURES, PAVEMENT, SIGNS, POLES, CURBING, CONCRETE WALKS, UTILITIES, ETC., SHALL BE REMOVED AS NECESSARY TO CONSTRUCT WORK, UNLESS OTHERWISE NOTED TO REMAIN. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCIES FROM DATA AS SHOWN ON DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
2. ALL EXISTING STRUCTURES WITHIN THE CONSTRUCTION AREA, UNLESS OTHERWISE NOTED TO REMAIN, SHALL BE REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL GUIDELINES. ANY BURNING ON-SITE SHALL BE SUBJECT TO LOCAL ORDINANCES.
3. ALL EXISTING UTILITIES SHALL BE TERMINATED AT THE PROPERTY LINE, UNLESS OTHERWISE NOTED ON THE PLANS, IN CONFORMANCE WITH LOCAL, STATE AND UTILITY COMPANY STANDARDS, SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES PRIOR TO THE START OF WORK.
4. EXISTING WATER SERVICES TO BE REMOVED SHALL BE CAPPED AT RIGHT OF WAY.
5. EXISTING GAS SERVICE LINES ARE TO BE REMOVED ON-SITE UP TO EXISTING GASMAIN LINES OR VALVES.
6. ALL CURBING, CONCRETE, PAVEMENT, BUILDINGS AND SUBBASE MATERIALS LOCATED WITHIN PROPOSED LANDSCAPED AREAS SHALL BE REMOVED AND REPLACED WITH LOAM MATERIALS SUITABLE FOR LANDSCAPING IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS. (SEE ALSO LANDSCAPE PLAN).
7. SEE LANDSCAPE PLAN FOR "TREES TO BE SAVED" AND DETAILS ASSOCIATED WITH LANDSCAPED AREAS.

APPLICANT
TUCK REALTY CORP.
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA
80,266 SQ. FT.
1.84 ACRES

Design: JAC	Draft: LAZ	Date: 9/17/19
Checked: JAC	Scale: 1" = 30'	Project No.: 18165
Drawing Name: 18165-PLAN.dwg		

STATE OF NEW HAMPSHIRE — MICHAEL J. KERIVAN No. 9949 — LICENSED PROFESSIONAL ENGINEER — 12/2/2020

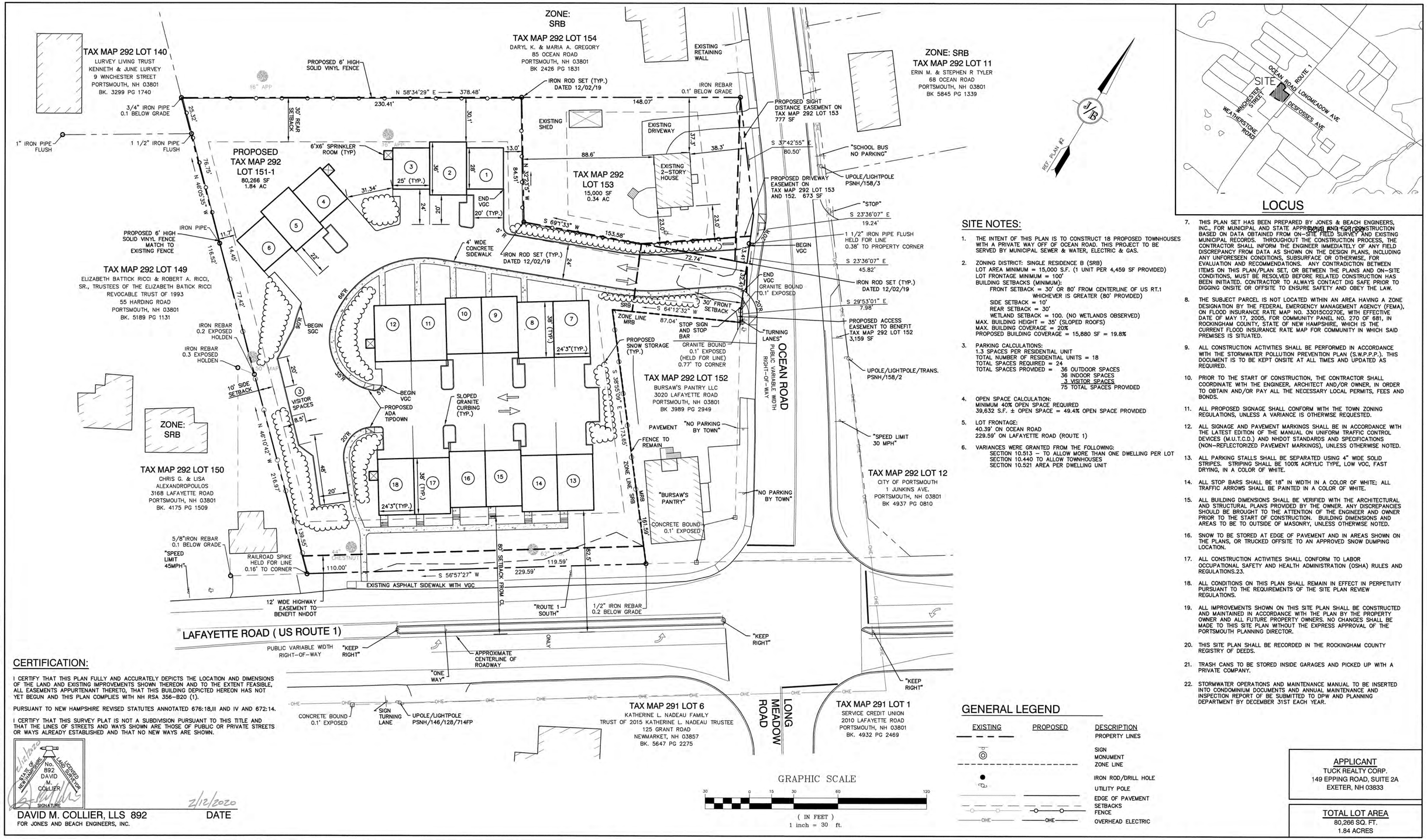
REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: DEMOLITION PLAN
Project: 3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record: CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No. DM-1
SHEET 4 OF 17
JBE PROJECT NO. 18165

W:\18165_PORTSMOUTH-3110_LAFAYETTE_RD-PORTER\DWG\18165-PLAN2.dwg, 2/12/2020 11:41:30 PM



SITE NOTES:

1. THE INTENT OF THIS PLAN IS TO CONSTRUCT 18 PROPOSED TOWNHOUSES WITH A PRIVATE WAY OFF OF OCEAN ROAD. THIS PROJECT TO BE SERVED BY MUNICIPAL SEWER & WATER, ELECTRIC & GAS.

2. ZONING DISTRICT: SINGLE RESIDENCE B (SRB)
LOT AREA MINIMUM = 15,000 S.F. (1 UNIT PER 4,459 SF PROVIDED)
LOT FRONTAGE MINIMUM = 100'
BUILDING SETBACKS (MINIMUM):
FRONT SETBACK = 30' OR 80' FROM CENTERLINE OF US RT.1 WHICHEVER IS GREATER (80' PROVIDED)
SIDE SETBACK = 10'
REAR SETBACK = 30'
WETLAND SETBACK = 100. (NO WETLANDS OBSERVED)
MAX. BUILDING HEIGHT = 35' (SLOPED ROOFS)
MAX. BUILDING COVERAGE = 20%
PROPOSED BUILDING COVERAGE = 15,880 SF = 19.8%

3. PARKING CALCULATIONS:
1.3 SPACES PER RESIDENTIAL UNIT
TOTAL NUMBER OF RESIDENTIAL UNITS = 18
TOTAL SPACES REQUIRED = 24
TOTAL SPACES PROVIDED = 36 OUTDOOR SPACES
36 INDOOR SPACES
3 VISITOR SPACES
75 TOTAL SPACES PROVIDED

4. OPEN SPACE CALCULATION:
MINIMUM 40% OPEN SPACE REQUIRED
39,632 S.F. ± OPEN SPACE = 49.4% OPEN SPACE PROVIDED

5. LOT FRONTAGE:
40.39' ON OCEAN ROAD
229.59' ON LAFAYETTE ROAD (ROUTE 1)

6. VARIANCES WERE GRANTED FROM THE FOLLOWING:
SECTION 10.513 – TO ALLOW MORE THAN ONE DWELLING PER LOT
SECTION 10.440 TO ALLOW TOWNHOUSES
SECTION 10.521 AREA PER DWELLING UNIT

7. THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVING AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED. CONTRACTOR TO ALWAYS CONTACT DIG SAFE PRIOR TO DIGGING ONSITE OR OFFSITE TO ENSURE SAFETY AND OBEY THE LAW.

8. THE SUBJECT PARCEL IS NOT LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0270E, WITH EFFECTIVE DATE OF MAY 17, 2005, FOR COMMUNITY PANEL NO. 270 OF 681, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.

9. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.P.). THIS DOCUMENT IS TO BE KEPT ONSITE AT ALL TIMES AND UPDATED AS REQUIRED.

10. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.

11. ALL PROPOSED SIGNAGE SHALL CONFORM WITH THE TOWN ZONING REGULATIONS, UNLESS A VARIANCE IS OTHERWISE REQUESTED.

12. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND NHDOT STANDARDS AND SPECIFICATIONS (NON-REFLECTORIZED PAVEMENT MARKINGS), UNLESS OTHERWISE NOTED.

13. ALL PARKING STALLS SHALL BE SEPARATED USING 4" WIDE SOLID STRIPES. STRIPING SHALL BE 100% ACRYLIC TYPE, LOW VOC, FAST DRYING, IN A COLOR OF WHITE.

14. ALL STOP BARS SHALL BE 18" IN WIDTH IN A COLOR OF WHITE; ALL TRAFFIC ARROWS SHALL BE PAINTED IN A COLOR OF WHITE.

15. ALL BUILDING DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PROVIDED BY THE OWNER. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO THE START OF CONSTRUCTION. BUILDING DIMENSIONS AND AREAS TO BE TO OUTSIDE OF MASONRY, UNLESS OTHERWISE NOTED.

16. SNOW TO BE STORED AT EDGE OF PAVEMENT AND IN AREAS SHOWN ON THE PLANS, OR TRUCKED OFFSITE TO AN APPROVED SNOW DUMPING LOCATION.

17. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.23.

18. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.

19. ALL IMPROVEMENTS SHOWN ON THIS 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.

20. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

21. TRASH CANS TO BE STORED INSIDE GARAGES AND PICKED UP WITH A PRIVATE COMPANY.

22. STORMWATER OPERATIONS AND MAINTENANCE MANUAL TO BE INSERTED INTO CONDOMINIUM DOCUMENTS AND ANNUAL MAINTENANCE AND INSPECTION REPORT OF BE SUBMITTED TO DPW AND PLANNING DEPARTMENT BY DECEMBER 31ST EACH YEAR.

CERTIFICATION:

I CERTIFY THAT THIS PLAN FULLY AND ACCURATELY DEPICTS THE LOCATION AND DIMENSIONS OF THE LAND AND EXISTING IMPROVEMENTS SHOWN THEREON AND TO THE EXTENT FEASIBLE, ALL EASEMENTS APPURTENANT THERETO, THAT THIS BUILDING DEPICTED HEREON HAS NOT YET BEGUN AND THIS PLAN COMPLIES WITH NH RSA 356-B20 (1).

PURSUANT TO NEW HAMPSHIRE REVISED STATUTES ANNOTATED 676:18,III AND IV AND 672:14.

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

STATE OF NEW HAMPSHIRE — No. 892 — DAVID M. COLLIER — LICENSED LAND SURVEYOR — SIGNATURE

DAVID M. COLLIER, LLS 892 — DATE 2/12/2020
FOR JONES AND BEACH ENGINEERS, INC.

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
⊙		SIGN
◎		MONUMENT
		ZONE LINE
●		IRON ROD/DRILL HOLE
○		UTILITY POLE
		EDGE OF PAVEMENT
		SETBACKS
		FENCE
OHE	OHE	OVERHEAD ELECTRIC

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

APPLICANT
TUCK REALTY CORP.
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA
80,266 SQ. FT.
1.84 ACRES

JAC	LAZ	Date: 9/17/19
Checked: JAC	Scale: 1" = 30'	Project No.: 18165
Drawing Name: 18165-PLAN.dwg		

STATE OF NEW HAMPSHIRE — MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER — 2/12/2020

REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
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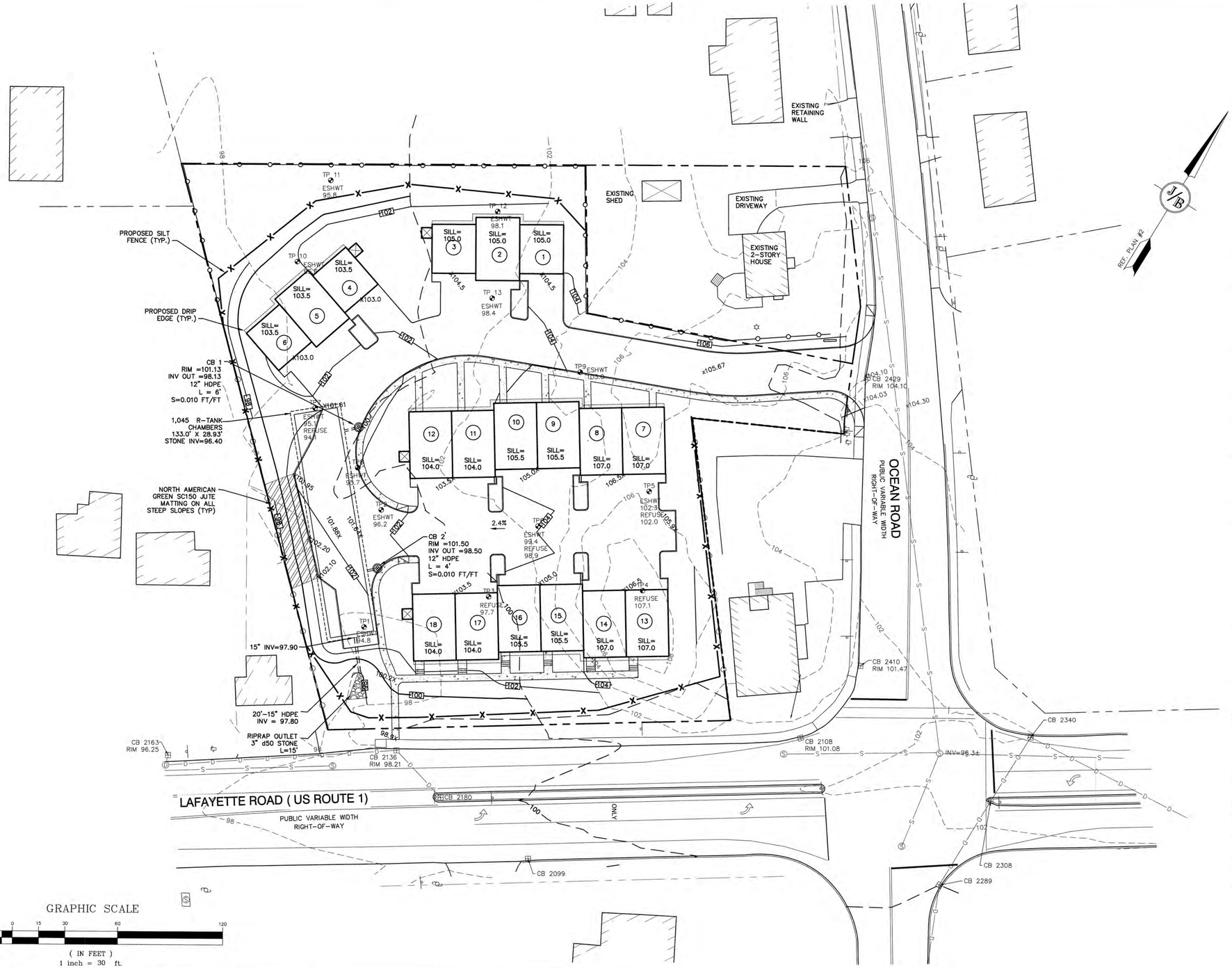
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: SITE PLAN
TAX MAP 292, LOT 151-1, 151-2 & 153
Project: 3110 LAFAYETTE ROAD AND 65 OCEAN ROAD
PORTSMOUTH, NH 03801
Owner of Record: CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No. C2
SHEET 5 OF 17
JBE PROJECT NO. 18165



GRADING AND DRAINAGE NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
3. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
3. ALL SWALES AND DETENTION PONDS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
4. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
6. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
7. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS. CATCH BASINS SHALL HAVE 3' DEEP SUMPS WITH GREASE HOODS, UNLESS OTHERWISE NOTED.
8. ALL DRAINAGE STRUCTURES SHALL BE PRECAST, UNLESS OTHERWISE SPECIFIED. 10. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
9. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
10. ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL. 14. STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
11. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
12. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
13. SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
14. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
15. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
16. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
17. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
18. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
19. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
20. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
21. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
22. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1.
23. THIS SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE CONSTRUCTION SITE. THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH SHALL REMAIN ON SITE AND BE MADE ACCESSIBLE TO THE PUBLIC. THE CONSTRUCTION SITE OPERATOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA REGIONAL OFFICE SEVEN DAYS PRIOR TO COMMENCEMENT OF ANY WORK ON SITE. EPA WILL POST THE NOI AT HTTP://CFPUB1.EPA.GOV/NPDES/STORMWATER/NOI/NOISEARCH.CFM. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE" STATUS ON THIS WEBSITE. A COMPLETED NOTICE OF TERMINATION SHALL BE SUBMITTED TO THE NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET:
    A. FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR
    B. ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED. PROVIDE DPW WITH A COPY OF THE NOTICE OF TERMINATION (NOT).
24. ALL ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR THE TOWN, AND NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
25. DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
26. CONTRACTOR TO COORDINATE AND COMPLETE ALL WORK REQUIRED FOR THE RELOCATION AND/OR INSTALLATION OF ELECTRIC, CATV, TELEPHONE, AND FIRE ALARM PER UTILITY DESIGN AND STANDARDS. LOCATIONS SHOWN ARE APPROXIMATE. LOW PROFILE STRUCTURES SHALL BE USED TO THE GREATEST EXTENT POSSIBLE.
27. THIS PLAN HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC. FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
28. SILTATION AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN UNTIL SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION. SEE DETAIL SHEET E1 FOR ADDITIONAL NOTES ON EROSION CONTROL.
29. FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
30. CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
31. ROADWAY INTERSECTIONS WITH SLOPE GRANITE CURB SHALL EXTEND AROUND RADIUS WITH 6' STRAIGHT PIECE ALONG TANGENT.
32. COMPACTION TESTING SERVICES (I.E. NUCLEAR DENSITY TESTS) ARE TO BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE CONTRACTOR FOR ROADWAY CONSTRUCTION, AND ON THE FOUNDATION OF THE BERM AND ON EVERY LIFT OF NEWLY PLACED MATERIAL.
33. SEE P1 FOR DRAINAGE DESIGN INFORMATION

Design: JAC	Draft: LAZ
Checked: JAC	Scale: 1" = 30'
Drawing Name: 18165-PLAN.dwg	

Date: 9/17/19
Project No.: 18165

STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9648
LICENSED PROFESSIONAL ENGINEER
12/12/20

REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
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PO Box 219
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Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: GRADING AND DRAINAGE PLAN
Project: 3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record: CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.
C3
SHEET 6 OF 17
JBE PROJECT NO. 18165

W:\18165-PORTSMOUTH-3110 LAFAYETTE RD-PORTE\DWG\18165-PLAN2.dwg, 2/12/2020 1:41:40 PM

EXISTING DRAINAGE INVERTS:

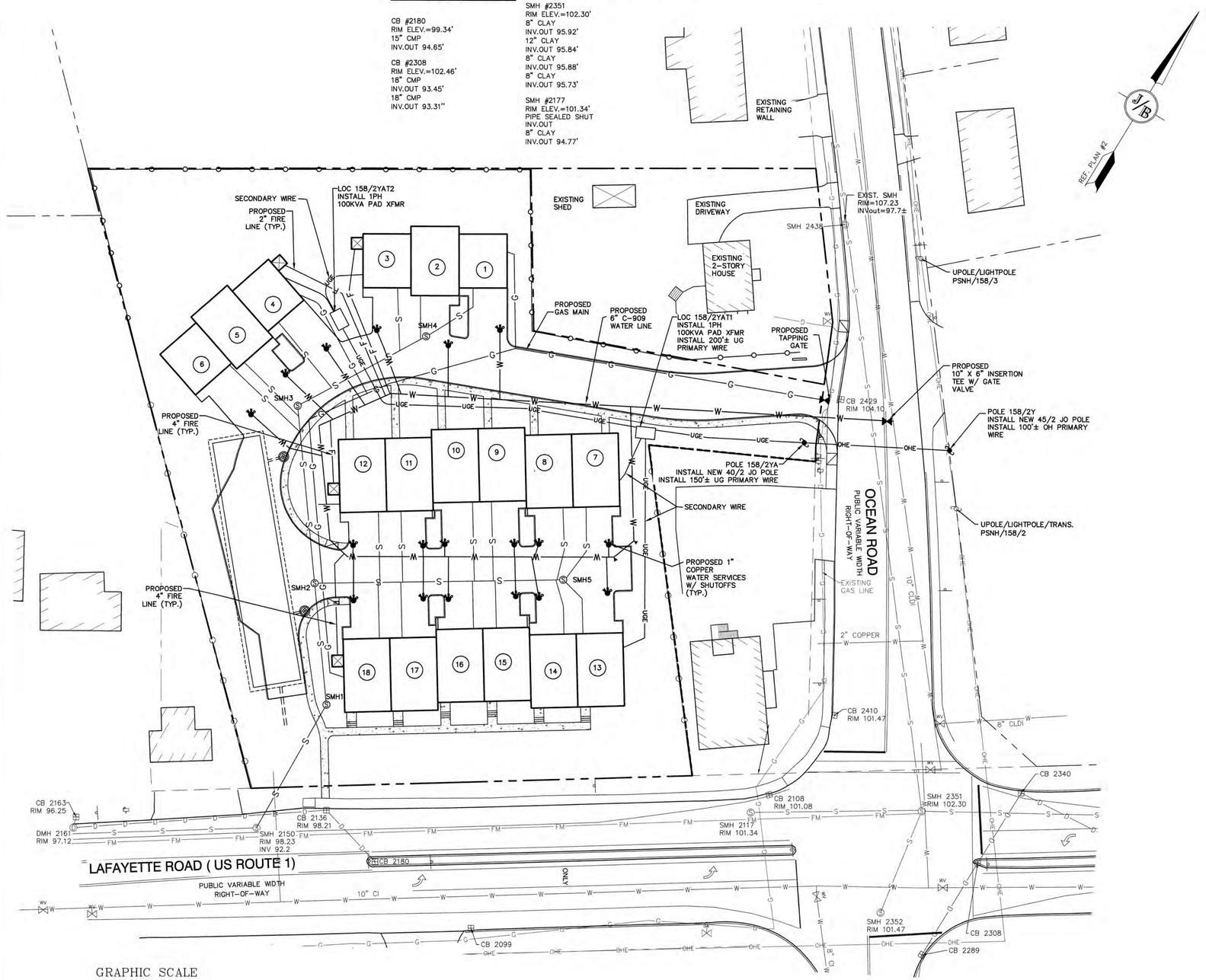
CB #2180
RIM ELEV.=99.34'
15" CMP
INV.OUT 94.65'

CB #2308
RIM ELEV.=102.46'
18" CMP
INV.OUT 93.45'
18" CMP
INV.OUT 93.31''

EXISTING SEWER INVERTS:

SMH #2351
RIM ELEV.=102.30'
8" CLAY
INV.OUT 95.92'
12" CLAY
INV.OUT 95.84'
8" CLAY
INV.OUT 95.88'
8" CLAY
INV.OUT 95.73'

SMH #2177
RIM ELEV.=101.34'
PIPE SEALED SHUT
INV.OUT
8" CLAY
INV.OUT 94.77'



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

UTILITY NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, CONNECTION FEES AND BONDS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF FOURTEEN (14) DAYS TO ALL CORPORATIONS, COMPANIES AND/OR LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
3. THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY (ELECTRIC, TELEPHONE, CABLE TELEVISION, FIRE ALARM, GAS, WATER, AND SEWER).
4. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, ARCHITECT, CONTRACTOR, LOCAL OFFICIALS, AND ALL PROJECT-RELATED UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
5. ALL CONSTRUCTION SHALL CONFORM TO THE CITY STANDARDS AND REGULATIONS, AND NHDES STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE STRINGENT, UNLESS OTHERWISE SPECIFIED. 6. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
7. BUILDING TO BE SERVICED BY UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED.
8. THE CONTRACTOR IS TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITY STUBS PRIOR TO CONSTRUCTION AND DISCONNECT ALL EXISTING SERVICE CONNECTIONS AT THEIR RESPECTIVE MAINS IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY'S STANDARDS AND SPECIFICATIONS. ENGINEER TO BE NOTIFIED.
9. AS-BUILT PLANS SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
10. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE THROUGH CHANNEL UNDERLAYMENT OF INVERT, AND SHELF SHALL CONSIST OF BRICK MASONRY.
11. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30 INCH DIA, CLEAR OPENING. THE WORD "SEWER" OR DRAIN" SHALL BE CAST INTO THE CENTER OF THE UPPER FACE OF EACH COVER WITH RAISED, 3" LETTERS.
12. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H20 LOADS.
13. CONTRACTOR SHALL PLACE 2" WIDE METAL WIRE IMPREGNATED RED PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS, SERVICES, AND FORCE MAINS.
14. SANITARY SEWER FLOW CALCULATIONS:
    18 – TWO BEDROOM UNITS @ 150 GPD/BEDROOM =
    TOTAL FLOW = 5,400 GPD
15. ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
16. PROPOSED RIM ELEVATIONS OF DRAINAGE AND SANITARY MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE AS SHOWN ON THE GRADING AND DRAINAGE PLAN.
17. ALL WATER MAINS AND SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL BOARD INSULATION FOR FREEZING PROTECTION.
18. WATER MAINS SHALL BE HYDROSTATICALLY PRESSURE TESTED FOR LEAKAGE PRIOR TO ACCEPTANCE. WATERMAINS SHALL BE TESTED AT 1.5 TIMES THE WORKING PRESSURE OR 150 PSI, WHICH EVER IS GREATER. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 4 OF AWWA STANDARD C 600. WATERMAINS SHALL BE DISINFECTED AFTER THE ACCEPTANCE OF THE PRESSURE AND LEAKAGE TESTS ACCORDING TO AWWA STANDARD C 651.
19. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
20. IF THE BUILDING IS REQUIRED TO HAVE A SPRINKLER SYSTEM, A PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN THE CONTRACTOR, OWNER, ARCHITECT AND THE LOCAL FIRE DEPARTMENT PRIOR TO THE INSTALLATION.
21. THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS, TEES, MECHANICAL JOINTS AND FIRE HYDRANTS.
22. DIMENSIONS ARE SHOWN TO CENTERLINE OF PIPE OR FITTING.
23. THE CONTRACTOR SHALL HAVE THE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER FIRE PROTECTION SYSTEM PRIOR TO INSTALLATION.
24. CONTRACTOR TO FURNISH SHOP DRAWINGS FOR UTILITY RELATED ITEMS TO ENSURE CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. SHOP DRAWINGS SHOULD BE SENT IN TRIPLICATE TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
25. EXISTING UTILITIES SHALL BE DIGSAFED BEFORE CONSTRUCTION.
26. ALL WATER LINES SHOULD HAVE TESTABLE BACKFLOW PREVENTERS AT THE ENTRANCE TO EACH BUILDING IF REQUIRED BY THE PUBLIC WORKS.
27. ALL GRAVITY SEWER PIPE, MANHOLES, AND FORCE MAINS SHALL BE TESTED ACCORDING TO NHDES STANDARDS OF DESIGN AND CONSTRUCTION FOR SEWAGE AND WASTEWATER TREATMENT FACILITIES, CHAPTER ENV-WQ 700. ADOPTED ON 10-15-14. ALL TESTING SHALL BE WITNESSED IN COORDINATION WITH PORTSMOUTH CITY STAFF.
28. ENV-WQ 704.06 GRAVITY SEWER PIPE TESTING: GRAVITY SEWERS SHALL BE TESTED FOR WATER TIGHTNESS BY USE OF LOW-PRESSURE AIR TESTS CONFORMING WITH ASTM F1417-92(2005) OR UNI-BELL PVC PIPE ASSOCIATION UNI-B-6. LINES SHALL BE CLEANED AND VISUALLY INSPECTED AND TRUE TO LINE AND GRADE. DEFLECTION TESTS SHALL TAKE PLACE AFTER 30 DAYS FOLLOWING INSTALLATION AND THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5% OF AVERAGE INSIDE DIAMETER. A RIGID BALL OR MANDREL WITH A DIAMETER OF AT LEAST 95% OF THE AVERAGE INSIDE PIPE DIAMETER SHALL BE USED FOR TESTING PIPE DEFLECTION. THE DEFLECTION TEST SHALL BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES.
29. ENV-WQ 704.17 SEWER MANHOLE TESTING: SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST PRIOR TO BACKFILLING AND PLACEMENT OF SHELVES AND INVERTS.
30. SANITARY SEWER LINES SHALL BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM AN EXISTING OR PROPOSED WATER LINE. WHEN A SEWER LINE CROSSES UNDER A WATER LINE, THE SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATERMAIN. THE SEWER LINE SHALL ALSO MAINTAIN A VERTICAL SEPARATION OF NOT LESS THAN 18 INCHES.
31. ALL WATER MAINS AND SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL 4" RIGID FOAM INSULATION IN 2" LIFTS FOR FREEZING PROTECTION.
32. SEWERS SHALL BE BURIED TO A MINIMUM DEPTH OF 6 FEET BELOW GRADE IN ALL ROADWAY LOCATIONS, AND TO A MINIMUM DEPTH OF 4 FEET BELOW GRADE IN ALL CROSS-COUNTRY LOCATIONS. PROVIDE TWO-INCHES OF R-10 FOAM BOARD INSULATION 2-FOOT WIDE TO BE INSTALLED 6-INCHES OVER SEWER PIPE IN AREAS WHERE DEPTH IS NOT ACHIEVED. A WAIVER FROM THE DEPARTMENT OF ENVIRONMENTAL SERVICES WASTEWATER ENGINEERING BUREAU IS REQUIRED PRIOR TO INSTALLING SEWER AT LESS THAN MINIMUM COVER.
33. SHOP DRAWINGS TO BE SUBMITTED TO CITY OF PORTSMOUTH FOR REVIEW AND APPROVAL.
34. FINAL DESIGN OF WATER MAIN SHALL BE REVIEWED AND APPROVED BY DPW.
35. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END AT RIGHT OF WAY AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
36. THE CONTRACTOR SHALL MINIMIZE THE DISRUPTIONS TO THE EXISTING SEWER FLOWS AND THOSE INTERRUPTIONS SHALL BE LIMITED TO FOUR (4) HOURS OR LESS AS DESIGNATED BY THE TOWN SEWER DEPARTMENT.
37. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
38. SEE SHEET P2 FOR SEWER DESIGN DETAILS
39. DISINFECTION OF WATER MAINS SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH AWWA STANDARD C651, LATEST EDITION. THE BASIC PROCEDURE TO BE FOLLOWED FOR DISINFECTING WATER MAINS IS AS FOLLOWS:
    a. PREVENT CONTAMINATING MATERIALS FROM ENTERING THE WATER MAIN DURING STORAGE, CONSTRUCTION, OR REPAIR.
    b. REMOVE, BY FLUSHING OR OTHER MEANS, THOSE MATERIALS THAT MAY HAVE ENTERED THE WATER MAINS.
    c. CHLORINATE ANY RESIDUAL CONTAMINATION THAT MAY REMAIN, AND FLUSH THE CHLORINATED WATER FROM THE MAIN.
    d. PROTECT THE EXISTING DISTRIBUTION SYSTEM FROM BACKFLOW DUE TO HYDROSTATIC PRESSURE TEST AND DISINFECTION PROCEDURES.
    e. DETERMINE THE BACTERIOLOGICAL QUALITY BY LABORATORY TEST AFTER DISINFECTION.
    f. MAKE FINAL CONNECTION OF THE APPROVED NEW WATER MAIN TO THE ACTIVE DISTRIBUTION SYSTEM
40. SEWER SERVICES AND WATER SERVICES UNDER SLAB TO BE SLEEVED WITH PVC PIPE.
41. FIRE SERVICE LINE SIZE TO BE DETERMINED BY MECHANICAL, SPRINKLER OR FIRE ENGINEER AND SIZES SHOWN TO BE CONSIDERED APPROXIMATE FOR PRICING PURPOSES.
42. ALL UTILITIES TO BE SLEEVED UNDER BUILDING SLABS.

Design: JAC	Draft: LAZ	Date: 9/17/19
Checked: JAC	Scale: 1" = 30'	Project No.: 18165
Drawing Name: 18165-PLAN.dwg		

STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9648 LICENSED PROFESSIONAL ENGINEER – 9/23/19

REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
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PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	UTILITY PLAN
Project:	3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record:	CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.
C4
SHEET 7 OF 17
JBE PROJECT NO. 18165

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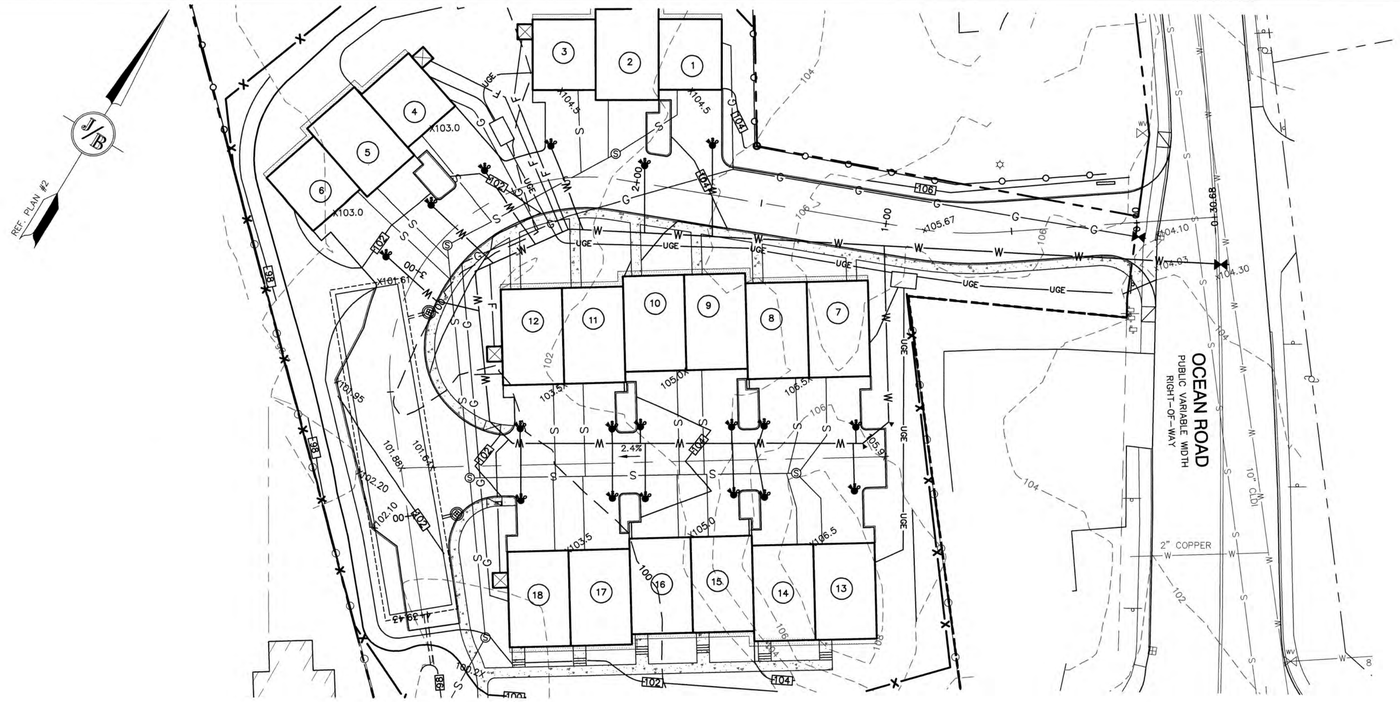

GRAPHIC SCALE

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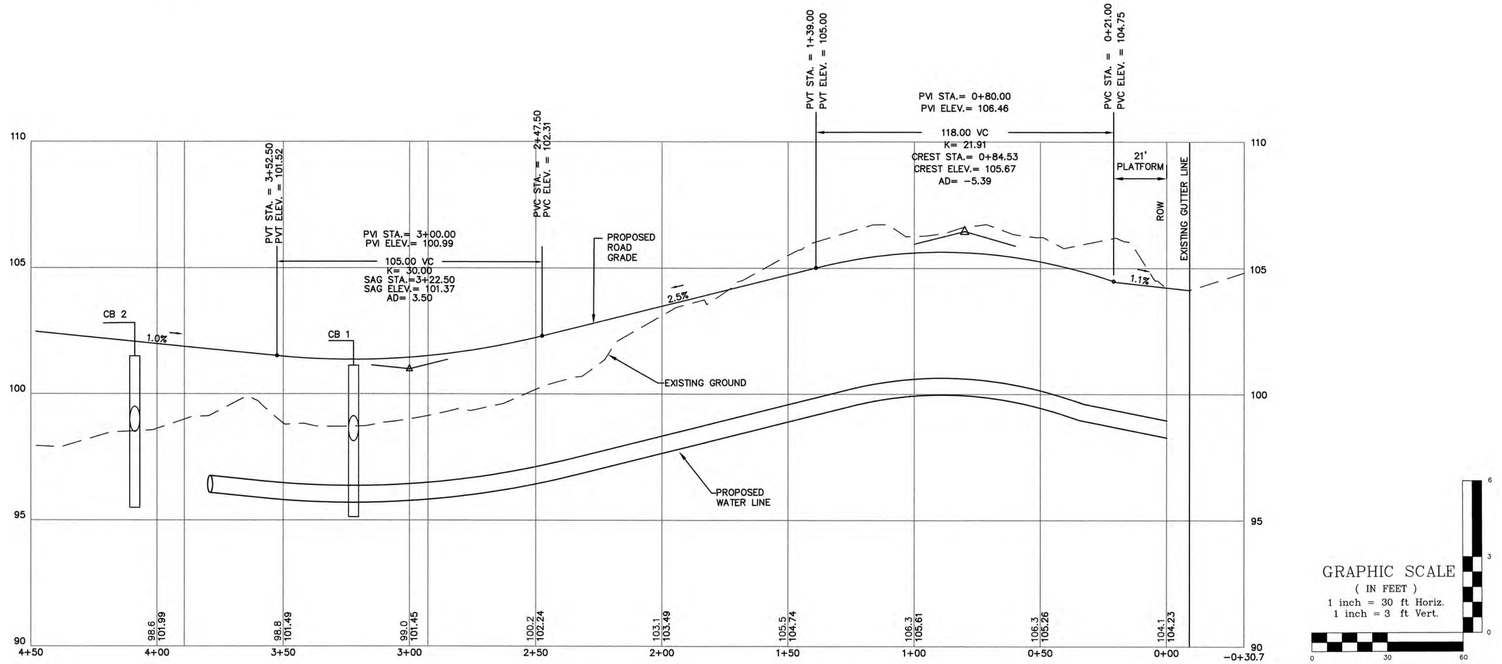
(IN FEET)
1 inch = 30 ft.



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(IN FEET)
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1 inch = 3 ft Vert.

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0 30 60

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Design: JAC	Draft: LAZ	Date: 9/17/19
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Drawing Name: 18165-PLAN.dwg		

STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9848 LICENSED PROFESSIONAL ENGINEER – 02/12/20

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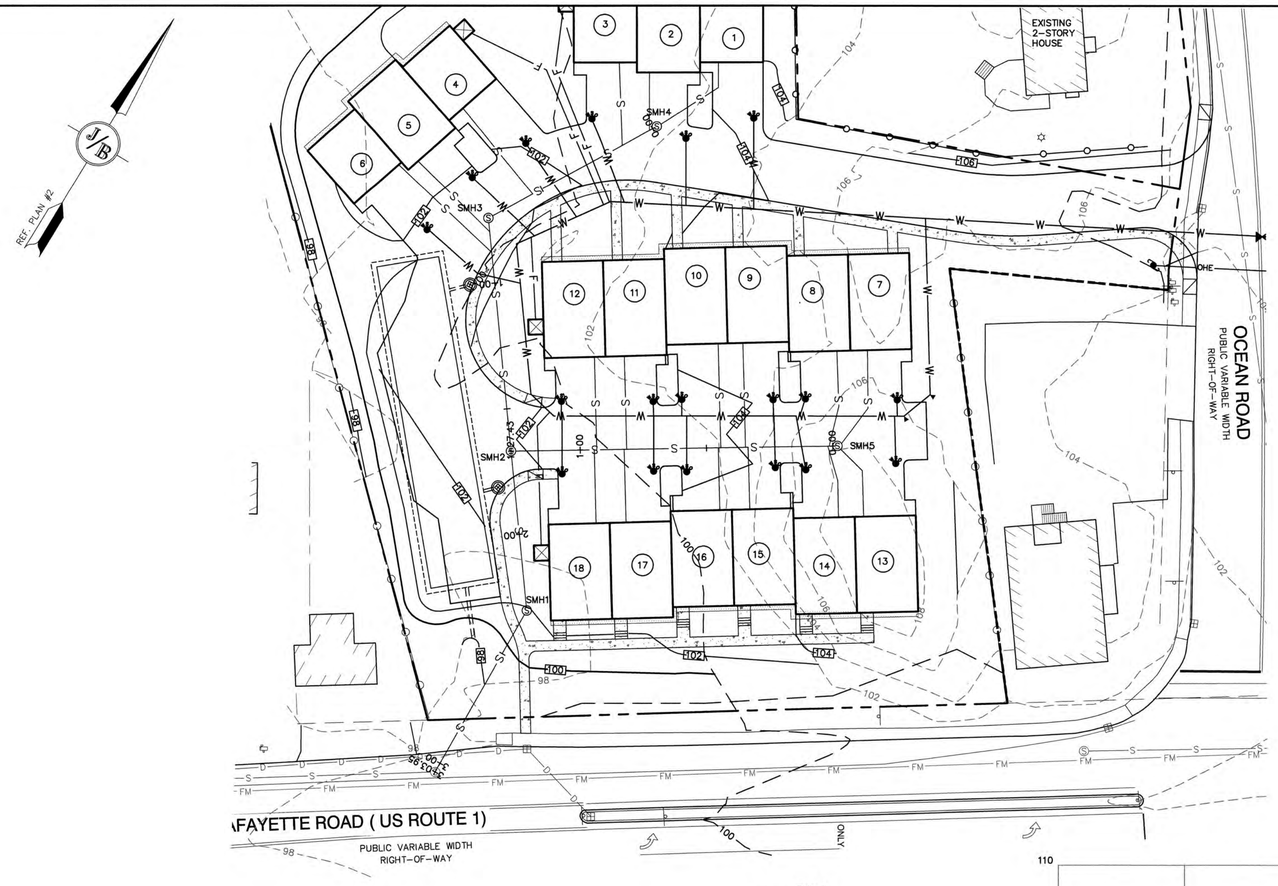
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PLAN AND ROAD PROFILE
Project:	3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record:	CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801 — WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.

P1

SHEET 8 OF 17
JBE PROJECT NO. 18165



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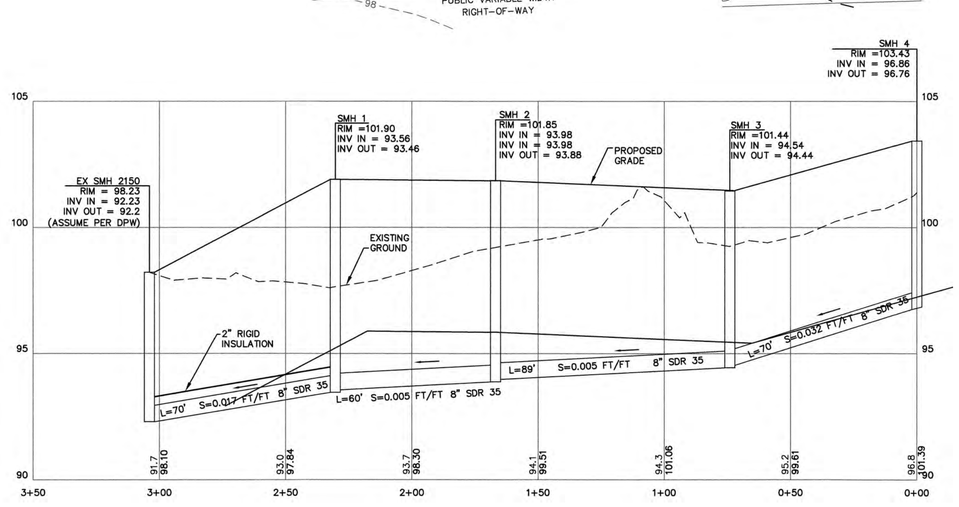
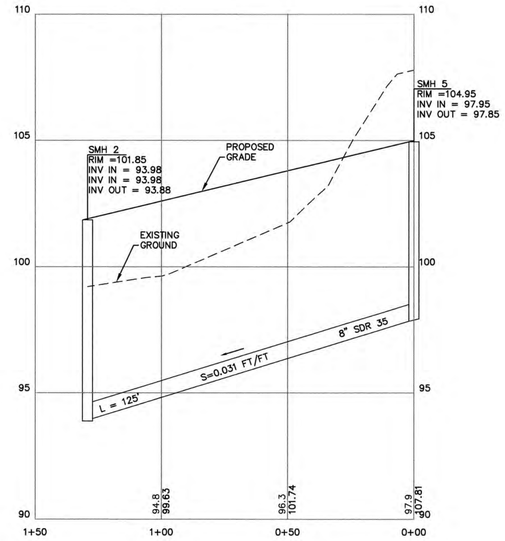
(IN FEET)
1 inch = 30 ft.





GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft Horiz.
1 inch = 3 ft Vert.

6 3 0
0 30 60

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Checked: JAC	Scale: 1" = 30'	Project No.:18165
Drawing Name: 18165-PLAN.dwg		

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1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
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Civil Engineering Services

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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: PLAN AND SEWER PROFILE

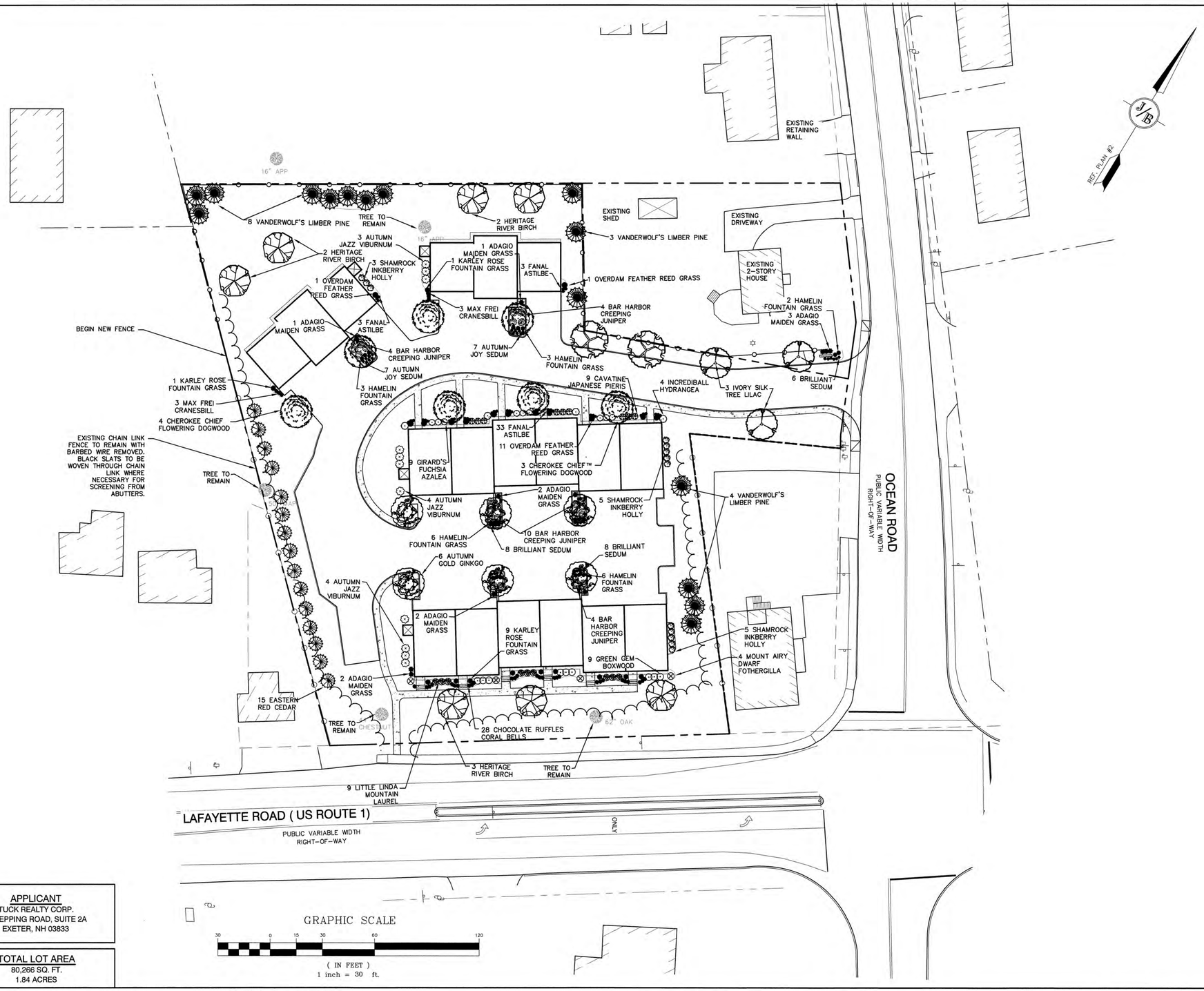
Project: 3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801

Owner of Record: CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.

P2

SHEET 9 OF 17
JBE PROJECT NO. 18165



LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING FOR CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
5. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
6. 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.
7. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NOT LESS THAN ONE FULL YEAR FROM THE TIME OF PROVISIONAL ACCEPTANCE.
8. BY THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAS DIED, LOST NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESSIVE PRUNING OR INADEQUATE OR IMPROPER CARE, OR THAT IS, IN THE OPINION OF THE LANDSCAPE ARCHITECT, IN UNHEALTHY OR UNSIGHTLY CONDITION.
9. THE CONTRACTOR SHALL REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC. FROM ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE. GRASS SEED OR PINE BARK MULCH SHALL BE APPLIED AS DEPICTED ON PLANS.
10. FINISHED GRADES IN LANDSCAPED ISLANDS SHALL BE INSTALLED SO THAT THEY ARE 1" HIGHER THAN THE TOP OF THE SURROUNDING CURB.
11. ALL LANDSCAPING SHALL MEET THE CITY STANDARDS AND REGULATIONS.
12. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE DRIPLINE OF THE TREE. THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
13. ALL MULCH AREAS SHALL RECEIVE A 3" LAYER OF SHREDDED PINE BARK MULCH OVER A 10 MIL WEED MAT EQUAL TO 'WEEDBLOCK' BY EASY GARDENER OR DEWITT WEED BARRIER.
14. ALL LANDSCAPED AREAS SHALL HAVE SELECT MATERIALS REMOVED TO A DEPTH OF AT LEAST 9" BELOW FINISH GRADE. THE RESULTING VOID IS TO BE FILLED WITH A MINIMUM OF 9" HIGH-QUALITY SCREENED LOAM AMENDED WITH 3" OF AGED ORGANIC COMPOST.
15. THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO CIVIL/SITE DRAWINGS FOR OTHER SITE CONSTRUCTION INFORMATION.
16. IRRIGATION PIPING SYSTEM SHALL BE REVIEWED AND APPROVED BY OWNER AND ENGINEER PRIOR TO INSTALLATION.
17. THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS SHALL BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR AND REPLACEMENT OF ALL REQUIRED SCREENING AND LANDSCAPE MATERIALS.
18. ALL REQUIRED PLANT MATERIAL SHALL BE TENDED AND MAINTAINED IN A HEALTHY GROWING CONDITIONS, REPLACED WHEN NECESSARY, AND KEPT FREE OF REFUSE AND DEBRIS. ALL REQUIRED FENCES AND WALLS SHALL BE MAINTAINED IN GOOD REPAIR.
19. 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.

APPLICANT
TUCK REALTY CORP.
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA
80,266 SQ. FT.
1.84 ACRES

Design: JAC	Draft: LAZ	Date: 9/17/19
Checked: JAC	Scale: 1" = 30'	Project No.: 18165
Drawing Name: 18165-PLAN.dwg		

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STATE OF NEW HAMPSHIRE - MICHAEL J. KERIVAN No. 9946 LICENSED PROFESSIONAL ENGINEER - 2/12/20

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2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: LANDSCAPE PLAN
Project: 3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record: CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.
L1
SHEET 10 OF 17
JBE PROJECT NO. 18165

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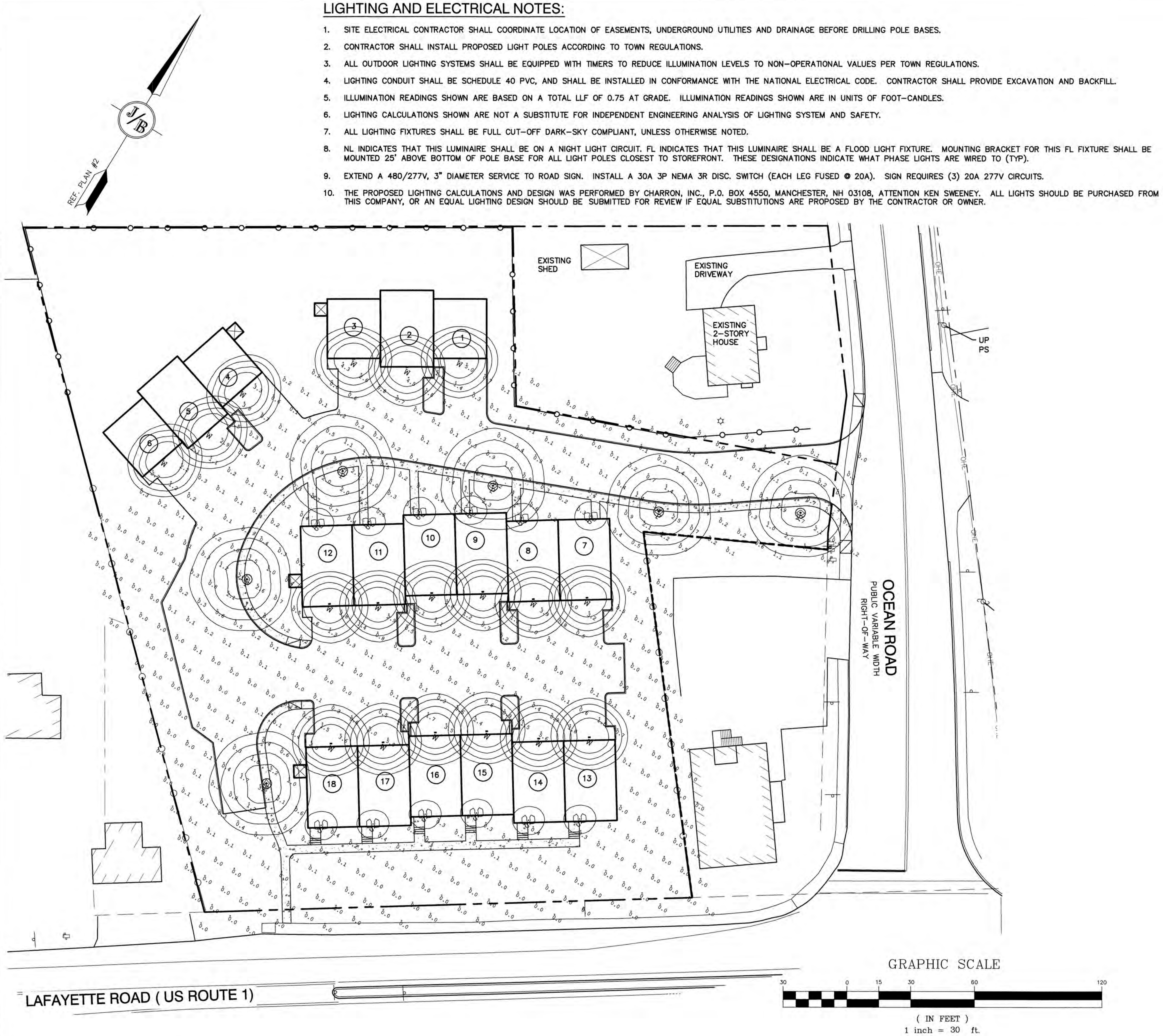
LIGHTING AND ELECTRICAL NOTES:

1. SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
2. CONTRACTOR SHALL INSTALL PROPOSED LIGHT POLES ACCORDING TO TOWN REGULATIONS.
3. ALL OUTDOOR LIGHTING SYSTEMS SHALL BE EQUIPPED WITH TIMERS TO REDUCE ILLUMINATION LEVELS TO NON-OPERATIONAL VALUES PER TOWN REGULATIONS.
4. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
5. ILLUMINATION READINGS SHOWN ARE BASED ON A TOTAL LLF OF 0.75 AT GRADE. ILLUMINATION READINGS SHOWN ARE IN UNITS OF FOOT-CANDLES.
6. LIGHTING CALCULATIONS SHOWN ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM AND SAFETY.
7. ALL LIGHTING FIXTURES SHALL BE FULL CUT-OFF DARK-SKY COMPLIANT, UNLESS OTHERWISE NOTED.
8. NL INDICATES THAT THIS LUMINAIRE SHALL BE ON A NIGHT LIGHT CIRCUIT. FL INDICATES THAT THIS LUMINAIRE SHALL BE A FLOOD LIGHT FIXTURE. MOUNTING BRACKET FOR THIS FL FIXTURE SHALL BE MOUNTED 25' ABOVE BOTTOM OF POLE BASE FOR ALL LIGHT POLES CLOSEST TO STOREFRONT. THESE DESIGNATIONS INDICATE WHAT PHASE LIGHTS ARE WIRED TO (TYP).
9. EXTEND A 480/277V, 3" DIAMETER SERVICE TO ROAD SIGN. INSTALL A 30A 3P NEMA 3R DISC. SWITCH (EACH LEG FUSED @ 20A). SIGN REQUIRES (3) 20A 277V CIRCUITS.
10. THE PROPOSED LIGHTING CALCULATIONS AND DESIGN WAS PERFORMED BY CHARRON, INC., P.O. BOX 4550, MANCHESTER, NH 03108, ATTENTION KEN SWEENEY. ALL LIGHTS SHOULD BE PURCHASED FROM THIS COMPANY, OR AN EQUAL LIGHTING DESIGN SHOULD BE SUBMITTED FOR REVIEW IF EQUAL SUBSTITUTIONS ARE PROPOSED BY THE CONTRACTOR OR OWNER.



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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Type:
Project:
Options:
Modified:
Luminaire:
Fixture EPA:
Optional Tenon: ❑ 2⅜"ϕ x 3½" H
GCO: ❑
GFI: ❑

Approval:

906HR 5" Straight round hinged pole

Shaft: Extruded from all new seemless 6063 aluminum alloy tubing, heat treated to a T-6 condition.

Anchor base: Round cast aluminum A356 alloy, heat treated to a T-6 condition. Anchor base and shaft continuously welded at the outside top and inside bottom of the anchor base casting. Pole base to be round hinged two piece casting. Hinge Pole shaft to be welded to upper base casting which is secured to lower base casting by three (3) stainless steel bolts. Bolts to be fastened to cast-in stainless threaded inserts in lower casting. Cast round two piece base cover supplied with pole.

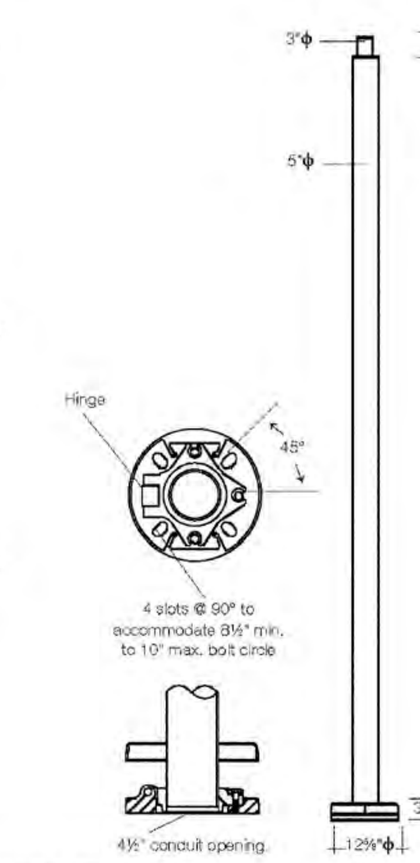
Anchor bolts: Four (4) ¾" x 17" galvanized steel anchor bolts supplied with double nuts and flat washers. Maximum bolt projection 3½".

GCO/GFI: Standard location is opposite the hinge. Height above base for ballast in luminaires is 18". For single luminaires with a pole base mounted (PBM) ballast the minimum height is 24" and 42" minimum for double PBM luminaires.

Weight: 52.0 lbs.

Disclaimer

BEGA-US warrants the specific anchor bolts and pole combination according to the product number(s) and description(s) indicated on this submittal sheet. Structural changes to the pole requested by the customer, including changes to pole length, may affect the compatibility of the anchor bolts and corresponding poles. BEGA-US is not responsible for the incompatibility of the anchor bolts and poles resulting from such structural changes without review by the BEGA-US engineering department. This includes, but is not limited to, any labor charges, charges for replacement materials and shipping.



Pole wind load rating:

MPH:	70	80	90	100	120
EPA:	14.4	10.5	8.2	6.5	4.4

Note: Data above assumes grade level installation and a maximum luminaire weight of 50 lbs.

BEGA-US 1000 BEGA Way, Carpinteria, CA 93013 [P] 805-684-0533 [F] 805-684-6682
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LED pole-top luminaires with asymmetrical light distribution

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:

Housing/fitter: Die-cast aluminum construction. The luminaire slip fits a 3" O.D. pole top or tenon and is secured by six (6) socket head stainless steel screws threaded into stainless steel inserts. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.

Enclosure: Clear acrylic diffuser held in place by die-cast aluminum frame. Fully gasketed for weather tight operation using a molded silicone gasket.

Electrical: 23.6W LED luminaire, 28 total system watts, -30°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 4000K with a >80 CRI. Available in 3000K (>80 CRI); add suffix K3 to order.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: 21.4 lbs.

EPA (Effective projection area): 0.73 sq. ft.

Luminaire Lumens: 2297

Pole-top luminaires

	LED	A	B
84121	23.6W	20⅛	22¼

*Recommended for use with 12' to 18' poles

BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 FAX (805) 566-9474 www.bega-us.com
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STADLER M LED

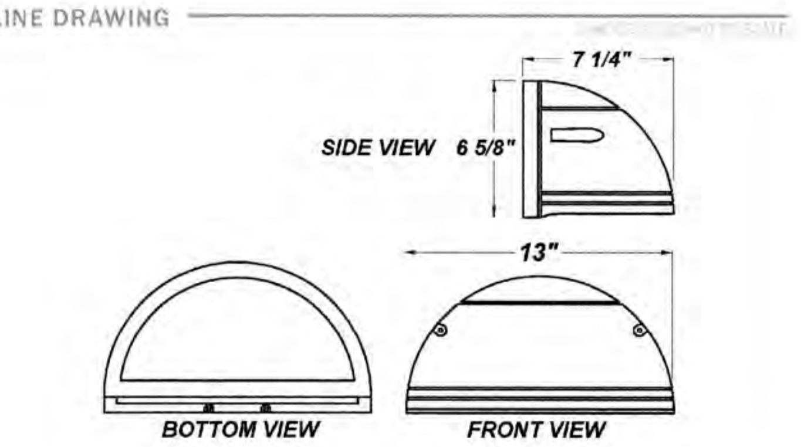
Architectural Outdoor

PROJECT:
TYPE:
PO#: QTY:
COMMENTS:

FEATURES

- Die-Cast Aluminum Housing w/ Textured Bronze Polyester Powder Coat Finish
- Clear Tempered Glass Diffuser
- Aluminum Heat-Sink Plate
- Mounts Over 4" Junction Box w/ Easy-hang Wall Mounting Plate (Included)
- Thermal Compensation Technology Ensures Longer LED Lifetime, Which is Ideal For Fixtures Being Placed in Area w/ Fluctuating or Higher Ambient Temperatures
- 100V - 277V
- 40W Driver
- Surge Protector
- CSA Approved Wet Location For Wall Mounting
- Dark Sky Compliant
- LED Light Fixture

LINE DRAWING



FINISHES

Antique Copper, Antique Silver, Bronze Mist, Matte Silver, Metallic Black, Sand, Swedish Steel, Textured Black, Textured Bronze, Textured White

For RAL Colors & Custom Match - Contact Teron Lighting Inc.

TERON LIGHTING
TERONLIGHTING.COM
33 DONALD DR, FAIRFIELD, OH 45014
P: 513.858.6004 F: 513.858.6038
E: SALES@TERONLIGHT.COM

BUY AMERICAN SINCE 1979

SEND CUT-SHEET

We reserve the right to revise the design components of any product due to parts availability or change in UL standards, without assuming any obligation or liability to modify any products previously manufactured, and without notice. 1

GINTY LED

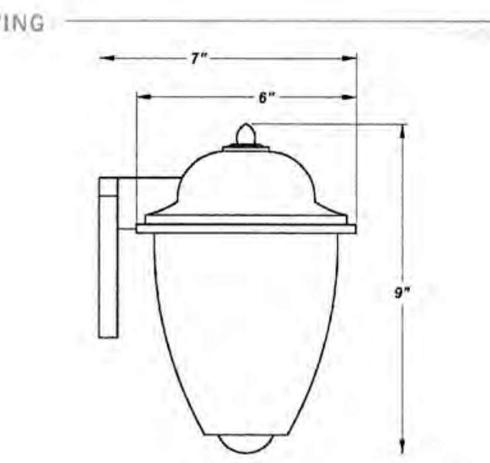
Architectural Outdoor

PROJECT:
TYPE:
PO#: QTY:
COMMENTS:

FEATURES

- Black or White Polycarbonate Housing
- Frosted White Polycarbonate Lens
- Ambient Operating Temperature -40° C (-40° F) to 40° C (105° F)
- Thermal Protected LED Array
- Constant Current at 700 Milliamps
- UL Class 2 Driver - Power Factor >.90
- Estimated 50,000 Hours Life (L70)
- Mounts Directly to 4" Junction Box (By Others)
- LED Light Fixture
- Mounting Hardware Included
- UL Listed Wet Location

LINE DRAWING



FINISHES

For RAL Colors & Custom Match - Contact Teron Lighting Inc.

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APPLICANT
TUCK REALTY CORP.
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA
80,266 SQ. FT.
1.84 ACRES

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description
⊙	6	P	SINGLE	84121 / 906HR (12' POLE)
▣	12	S	SINGLE	GY-L10.0-BK-40K
▯	18	W	SINGLE	SDM-L12.0-LT350-BZ-30K-CGL

Design: JAC	Draft: LAZ	Date: 9/17/19
Checked: JAC	Scale: 1" = 30'	Project No.: 18165
Drawing Name: 18165-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

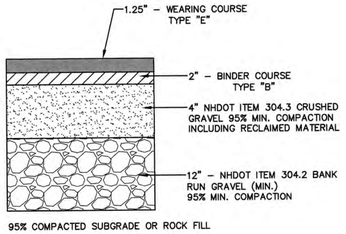
STATE OF NEW HAMPSHIRE - MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 2/12/2020

REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

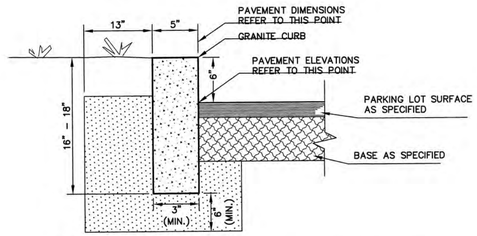
Plan Name: LANDSCAPE AND LIGHTING PLAN
Project: 3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record: CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.
L2
SHEET 11 OF 17
JBE PROJECT NO. 18165



TYPICAL BITUMINOUS PAVEMENT

NOT TO SCALE

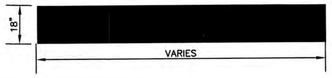


NOTES:

1. EDGING TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

VERTICAL GRANITE CURB

NOT TO SCALE

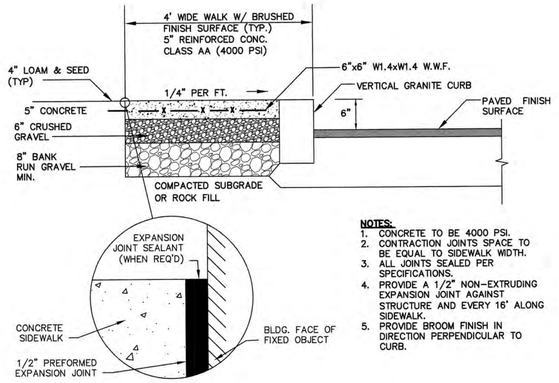


NOTES:

1. ALL STOP BARS TO BE SOLID WHITE REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE.

STOP BAR

NOT TO SCALE



NOTES:

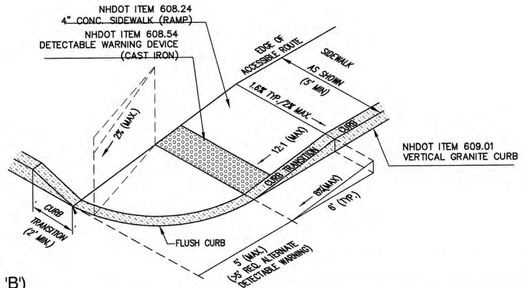
1. CONCRETE TO BE 4000 PSI.
2. CONTRACTION JOINTS SPACE TO BE EQUAL TO SIDEWALK WIDTH.
3. ALL JOINTS SEALED PER SPECIFICATIONS.
4. PROVIDE A 1/2" NON–EXTRUDING EXPANSION JOINT AGAINST STRUCTURE AND EVERY 16' ALONG SIDEWALK.
5. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.

CONCRETE SIDEWALK W/ VERTICAL GRANITE CURB

NOT TO SCALE

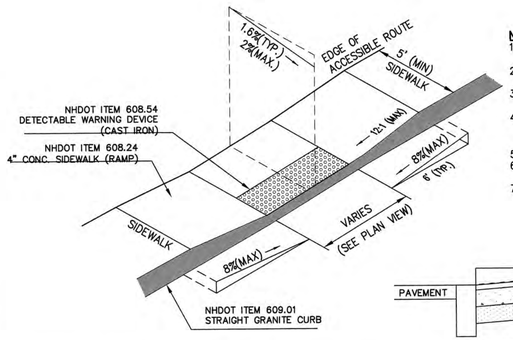
NOTES:

1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8%.
4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.



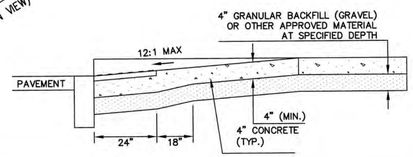
ACCESSIBLE CURB RAMP (TYPE 'B')

NOT TO SCALE



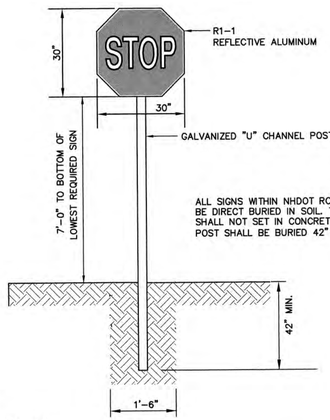
NOTES:

1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8%.
4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.



ACCESSIBLE CURB RAMP (TYPE `A')

NOT TO SCALE

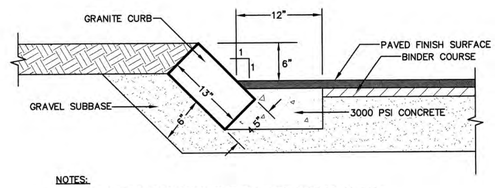


STOP SIGN (R1-1)

NOT TO SCALE

NOTES:

1. ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND NHDOT STANDARDS.
2. SIGN, HARDWARE, AND INSTALLATION TO CONFORM TO 2016 NHDOT STANDARD SPECIFICATION, SECTION 615 – TRAFFIC SIGNS.
3. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/CATALOG CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.
4. THE LOCATION OF THE SIGNS SHALL BE AS INDICATED ON THE DRAWINGS AND/OR AS DIRECTED BY THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.



NOTES:

1. CURB TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

SLOPED GRANITE CURB

NOT TO SCALE

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 18165-PLAN.dwg	

Date: 9/17/19
Project No.: 18165

STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9946 LICENSED PROFESSIONAL ENGINEER – 2/12/20

REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

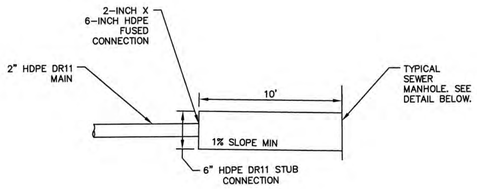
Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

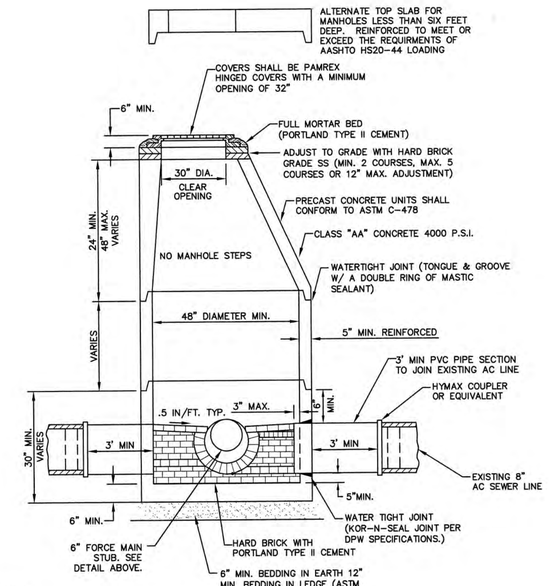
Plan Name: DETAIL SHEET

Project: 3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801

Owner of Record: CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.
D1
SHEET 12 OF 17
JBE PROJECT NO. 18165



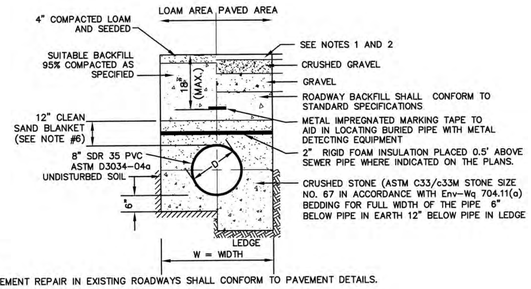


NOTES:

1. PER NHDES ENV-WQ 704.13(C), THE MORTAR SPECIFICATION SHALL BE AS FOLLOWS:
   1. MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT AND SAND WITH OR WITHOUT HYDRATED LIME ADDITION;
   2. PROPORTIONS IN MORTAR OF PARTS BY VOLUMES SHALL BE:
      A. 4.5 PARTS SAND AND 1.5 PARTS CEMENT; OR
      B. 4.5 PARTS SAND, ONE PART CEMENT AND 0.5 PART HYDRATED LIME;
   3. CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150-05;
   4. HYDRATED LIME SHALL BE TYPE S CONFORMING TO THE ASTM C207-06 'STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES';
   5. SAND SHALL CONSIST OF INERT NATURAL SAND CONFORMING TO THE ASTM C33-03 'STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES';
2. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPED TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL IN ACCORDANCE WITH ENV-WQ 704.12 (K).
3. ALL MANHOLES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH ENV-WQ 704.17 (a) THROUGH (e).
4. SEWER MANHOLE COVERS SHALL CONFORM TO ASTM A48 WITH A CASTING EQUAL TO CLASS 30 IN ACCORDANCE WITH ENV-WQ 704.13 (a).
5. ALL ASBESTOS CONTAINING WASTE MATERIALS MUST BE PROPERLY IDENTIFIED, PACKAGED AND DELIVERED TO A LANDFILL LICENCED BY THE NHDES SOLID WASTE MANAGEMENT PROGRAM FOR DISPOSAL. CALL (603) 271-2925 FOR MORE INFORMATION.
6. PORTSMOUTH STANDARD SEWER MANHOLE SHALL BE USED.
7. CONTRACTOR TO PURCHASE SEWER MANHOLE COVERS FROM THE CITY OF PORTSMOUTH DIRECTLY.
8. MANHOLE BASE SECTIONS SHALL BE MONOLITHIC TO A POINT AT LEAST 6" ABOVE THE HIGHEST INCOMING SEWER PIPE PER ENV-WQ 704.12 (e).
9. MANHOLE CASTINGS SHALL CONFORM TO ASTM A48 PER ENV-WQ 704.13 (a) (8).

PORTSMOUTH SEWER MANHOLE

NOT TO SCALE

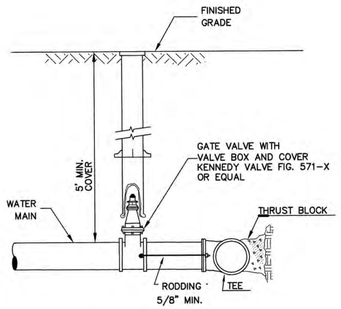


NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO PAVEMENT DETAILS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPECIFICATIONS.
3. TRENCH BACKFILL SHALL CONFORM WITH ENV. Wq 704.11(h) AND BE FREE OF DEBRIS, PAVEMENT, ORGANIC MATTER, TOP SOIL, WET OR SOFT MUCK, PEAT OR CLAY, EXCAVATED LEDGE OR ROCKS OVER SIX INCHES.
4. W= MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12" INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, WIDTH SHALL BE NO MORE THAN 36"; FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, WIDTH SHALL BE 24 INCHES PLUS PIPE O.D. WIDTH SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
5. RIGID FOAM INSULATION TO BE PROVIDED WHERE COVER IN THE ROADWAY IS LESS THAN 6' AND CROSS COUNTRY IS LESS THAN 4', PURSUANT TO DES WAIVER BEING ISSUED.
6. PIPE SAND BLANKET MATERIAL SHALL BE GRADED SAND, FREE FROM ORGANIC MATERIALS, GRADED SUCH THAT 100% PASSES A 1/2 " SIEVE AND A MAXIMUM OF 15% PASSES A #200 SIEVE IN ACCORDANCE WITH Env-Wq 704.11(b).
7. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL AND CERTIFIED BY THE MANUFACTURER AS CONFORMING TO THE ASTM D3212 STANDARD IN EFFECT WHEN THE JOINT SEALS WERE MANUFACTURED, AND SHALL BE PUSH-ON, BELL-AND-SPIGOT TYPE PER Env-Wq 704.05 (e).

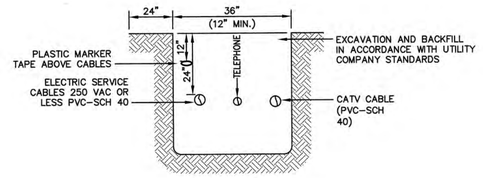
SEWER TRENCH

NOT TO SCALE



BURIED GATE VALVE DETAIL

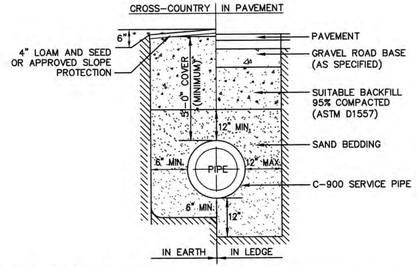
NOT TO SCALE



NOTE: ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.

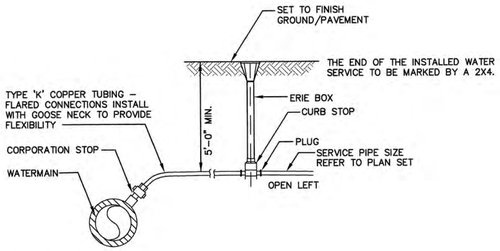
UTILITY TRENCH

NOT TO SCALE



WATER SYSTEM TRENCH

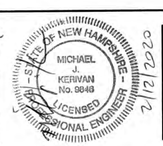
NOT TO SCALE



WATER SERVICE CONNECTION-COPPER PIPE

NOT TO SCALE

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 18165-PLAN.dwg	Date: 9/17/19 Project No.: 18165



REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
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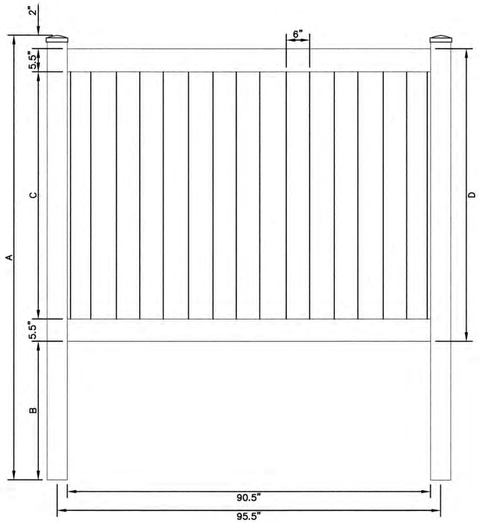
Plan Name:	DETAIL SHEET
Project:	3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record:	CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.

D2

SHEET 13 OF 17
JBE PROJECT NO. 18165



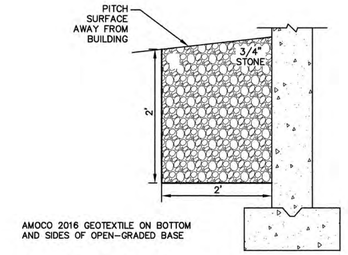
FRONT ELEVATION

A		B		C		D	
H(FT)	INCHES	H(FT)	INCHES	H(FT)	INCHES	H(FT)	INCHES
3	60	3	22	3	25	3	36
4	84	4	34	4	37	4	48
5	96	5	34	5	49	5	60
6	108	6	34	6	61	6	72

NOTES:
1. CONTRACTOR TO PROVIDE FENCE SPEC TO ENGINEER FOR REVIEW PRIOR TO INSTALLATION.
2. VINYL FENCE SHALL MEET ASTM F964-09 STANDARDS.

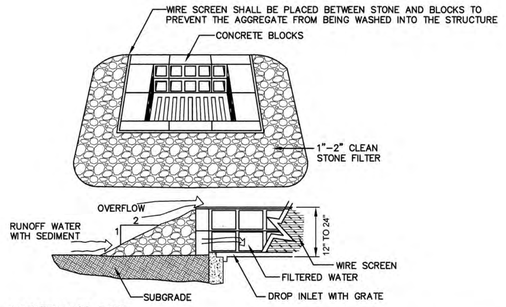
6' VINYL STOCKADE FENCE

NOT TO SCALE



DRIP EDGE INFILTRATION DETAIL

NOT TO SCALE

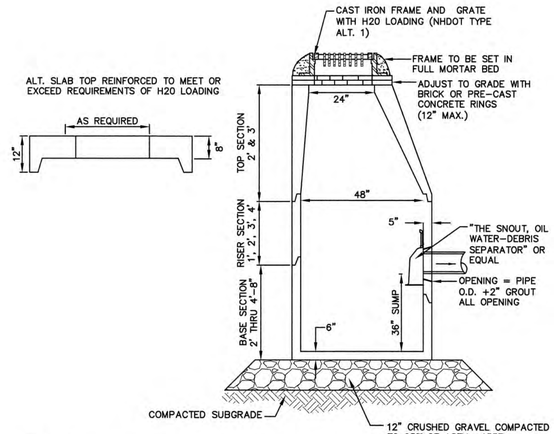


MAINTENANCE NOTE:

1. ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED IN A SUITABLE UPLAND AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURE OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

TEMPORARY CATCH BASIN INLET PROTECTION
(Block and Gravel Drop Inlet Sediment Filter)

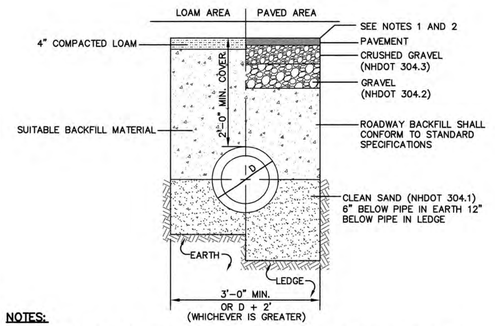
NOT TO SCALE



NOTES:
1. BASE SECTION SHALL BE MONOLITHIC WITH 48" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H20 LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H20 LOADING
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL CATCH BASIN FRAMES AND GRATES SHALL BE NHDOT CATCH BASIN TYPE ALTERNATE 1 OR NEENAH R-3570 OR APPROVED EQUAL (24"x24" TYPICAL).
8. STANDARD CATCH BASIN FRAME AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.
9. ALL CATCH BASINS ARE TO BE FITTED WITH GREASE HOODS.

CATCH BASIN WITH GREASE HOOD

NOT TO SCALE



NOTES:
1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM WITH PROJECT AND TOWN SPECIFICATIONS.
3. ALL MATERIALS ARE TO BE COMPACTED TO 95% OF ASTM D-1557.

DRAINAGE TRENCH

NOT TO SCALE

W:\18165 PORTSMOUTH-3110 LAFAYETTE RD-PORTER\DWG\18165-PLAN2.dwg, 2/12/2020 1:42:20 PM

Design: JAC	Draft: LAZ	Date: 9/17/19
Checked: JAC	Scale: AS NOTED	Project No.: 18165
Drawing Name: 18165-PLAN.dwg		

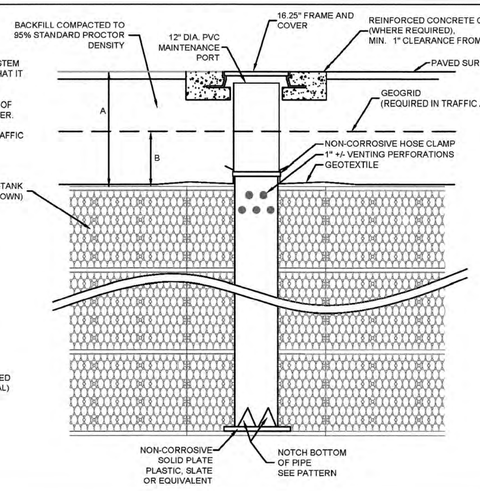
STATE OF NEW HAMPSHIRE - MICHAEL J. KERWAN No. 9948 - LICENSED PROFESSIONAL ENGINEER - 2/12/20

REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record:	CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.
D3
SHEET 14 OF 17
JBE PROJECT NO. 18165

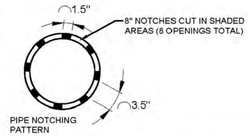


NOTES

- THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT IT MAY BE PUMPED OUT.
- MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
- ONLY R-TANK^{LD} AND R-TANK^{SD} MAY BE USED IN TRAFFIC APPLICATIONS.

DEPTH SUMMARY

TYPE	A	B
R-TANK^{LD}	12" MIN - 36" MAX	AS SHOWN ON PLANS
R-TANK^{HD}	20" MIN - 6.99' MAX	12"
R-TANK^{SD}	18" MIN - 9.99' MAX	12"



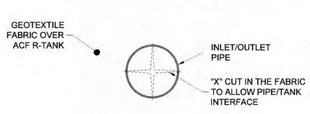
02/06/19

ENVIRONMENTAL LET'S GET IT DONE

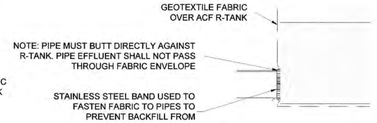
MAINTENANCE PORT
FOR R-TANK^{LD}, R-TANK^{HD}, AND R-TANK^{SD}

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

CUT AN "X" IN THE FABRIC ENVELOPE THAT IS SLIGHTLY LARGER THAN THE PIPE. PULL THE FABRIC FLAPS AROUND THE PIPE, AND SEAL WITH A STAINLESS STEEL BAND.

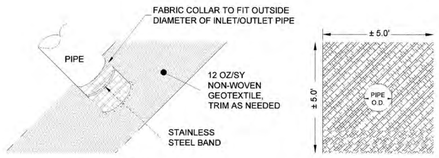


END VIEW OF PIPE/FABRIC CONNECTION



SIDE VIEW OF PIPE/FABRIC CONNECTION

AFTER TANK WRAP IS SECURED TO PIPE, SLIDE BOOT AGAINST R-TANK AND SECURE WITH SECOND STAINLESS STEEL BAND, THEN ATTACH BOOT FLAP TO TANK ENVELOPE FABRIC WITH DUCT TAPE OR OTHER ADHESIVE.



GEOTEXTILE BOOT | FRONT VIEW OF GEOTEXTILE BOOT | SIDE VIEW OF GEOTEXTILE BOOT

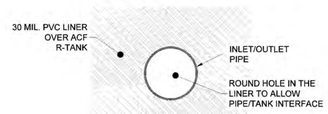
07/26/19

ENVIRONMENTAL LET'S GET IT DONE

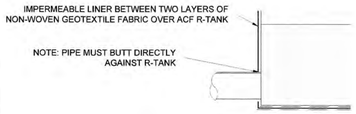
R-TANK TYPICAL INLET/OUTLET
W/ GEOTEXTILE BOOT

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

CUT A ROUND HOLE IN THE LINER ENVELOPE AND GEOTEXTILE PROTECTION FABRIC THAT IS SLIGHTLY LARGER THAN THE PIPE.

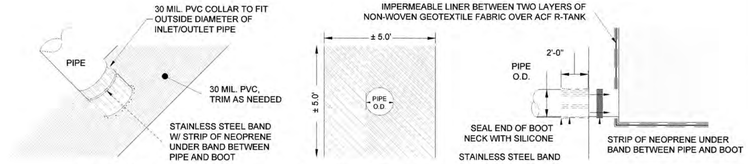


END VIEW OF PIPE/LINER CONNECTION



SIDE VIEW OF PIPE/LINER CONNECTION

AFTER LINER IS CUT AND PIPE INSTALED, SLIDE BOOT AGAINST TANK AND SECURE WITH STAINLESS STEEL BAND, THEN BOND BOOT TO TANK LINER AND SEAL END OF BOOT WITH SILICONE. REPLACE ANY GEOTEXTILE PROTECTION FABRIC REMOVED DURING BOOT INSTALLATION PROCESS.



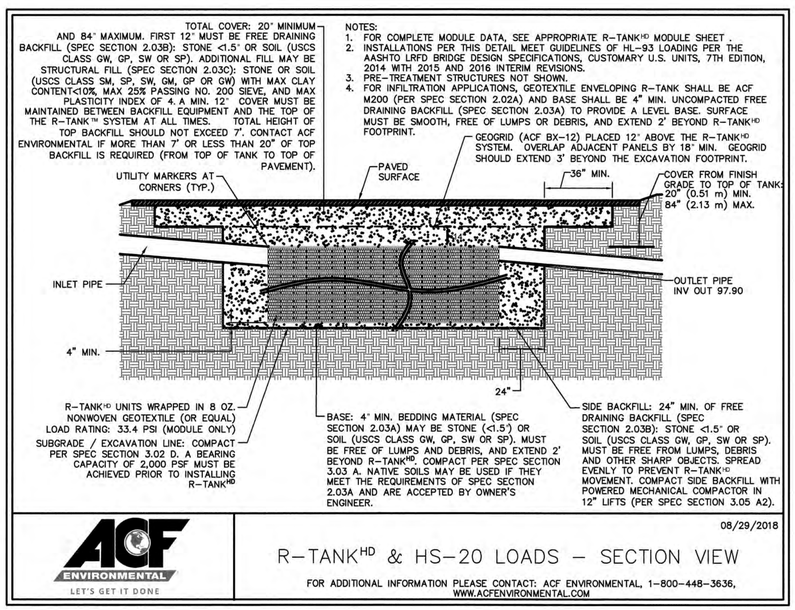
30 MIL. PVC BOOT | FRONT VIEW OF 30 MIL. PVC BOOT | SIDE VIEW OF 30 MIL PVC BOOT

07/26/19

ENVIRONMENTAL LET'S GET IT DONE

R-TANK TYPICAL INLET/OUTLET
W/ 30 MIL PVC BOOT

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

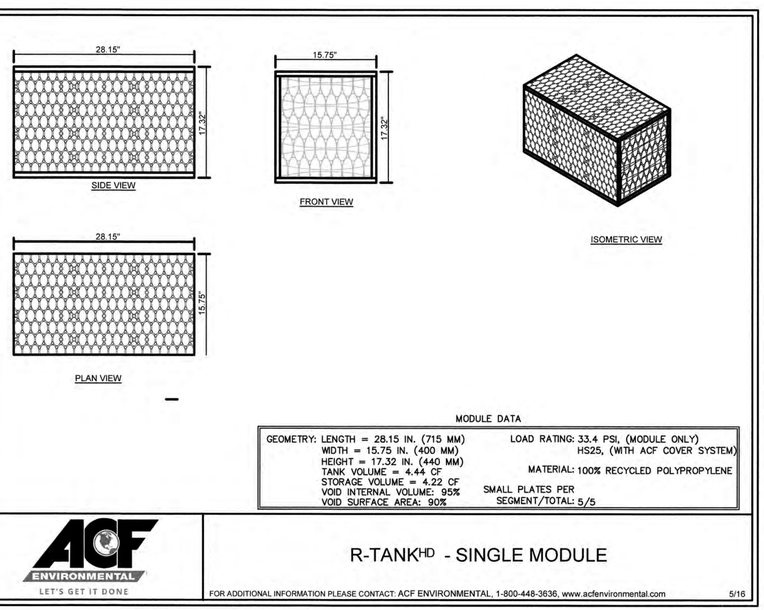


08/29/2018

ENVIRONMENTAL LET'S GET IT DONE

R-TANK^{HD} & HS-20 LOADS - SECTION VIEW

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, WWW.ACFENVIRONMENTAL.COM



MODULE DATA

GEOMETRY: LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 17.32 IN. (440 MM)
TANK VOLUME = 4.44 CF
STORAGE VOLUME = 4.22 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

LOAD RATING: 33.4 PSI, (MODULE ONLY) HS25, (WITH ACF COVER SYSTEM)
MATERIAL: 100% RECYCLED POLYPROPYLENE
SMALL PLATES PER SEGMENT/TOTAL: 5/5

ENVIRONMENTAL LET'S GET IT DONE

R-TANK^{HD} - SINGLE MODULE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com 5/16

Design: JAC	Draft: LAZ	Date: 9/17/19
Checked: JAC	Scale: AS NOTED	Project No.: 18165
Drawing Name: 18165-PLAN.dwg		

STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9948 LICENSED PROFESSIONAL ENGINEER — 12/3/20

REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

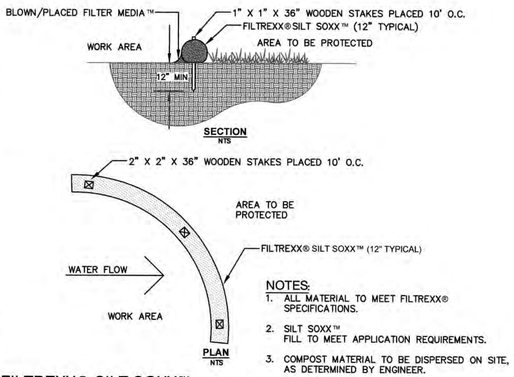
Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record:	CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801 — WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No. D4
SHEET 15 OF 17
JBE PROJECT NO. 18165

TEMPORARY EROSION CONTROL NOTES

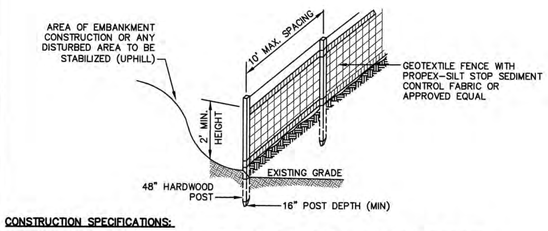
1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF 5 ACRES BE EXPOSED AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE 'C' AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
4. SILT FENCES AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.5" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
5. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
6. AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
7. 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 NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) 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.
8. 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.
9. AFTER NOVEMBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
10. AN AREA SHALL BE CONSIDERED STABLE IF 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 STONE OR RIPRAP HAS BEEN INSTALLED; OR
    d. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
11. FUGITIVE DUST CONTROL IS REQUIRED TO BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000, AND THE PROJECT IS TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
12. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR'S NAME, ADDRESS, AND PHONE NUMBER SHALL BE SUBMITTED TO DES VIA EMAIL (SEE BELOW).
13. PRIOR TO CONSTRUCTION, A PHASING PLAN THAT DELINEATES EACH PHASE OF THE PROJECT SHALL BE SUBMITTED. ALL TEMPORARY SEDIMENT BASINS THAT WILL BE NEEDED FOR DEWATERING WORK AREAS SHALL BE LOCATED AND IDENTIFIED ON THIS PLAN.
14. IN ORDER TO ENSURE THE STABILITY OF THE SITE AND EFFECTIVE IMPLEMENTATION OF THE SEDIMENT AND EROSION CONTROL MEASURES SPECIFIED IN THE PLANS FOR THE DURATION OF CONSTRUCTION, THE CONTRACTOR SHALL BE IN STRICT COMPLIANCE WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS IN ADDITION TO THOSE CALLED FOR IN THE SWPPP:
    a. A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL OR A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE ("MONITOR") SHALL BE EMPLOYED TO INSPECT THE SITE FROM THE START OF ALTERATION OF TERRAIN ACTIVITIES UNTIL THE SITE IS IN FULL COMPLIANCE WITH THE SITE SPECIFIC PERMIT ("PERMIT").
    b. DURING THIS PERIOD, THE MONITOR SHALL INSPECT THE SUBJECT SITE AT LEAST ONCE A WEEK, AND IF POSSIBLE, DURING ANY ½ INCH OR GREATER RAIN EVENT (I.E. ½ INCH OF PRECIPITATION OR MORE WITHIN A 24 HOUR PERIOD). IF UNABLE TO BE PRESENT DURING SUCH A STORM, THE MONITOR SHALL INSPECT THE SITE WITHIN 24 HOURS OF THIS EVENT.
    c. THE MONITOR SHALL PROVIDE TECHNICAL ASSISTANCE AND RECOMMENDATIONS TO THE CONTRACTOR ON THE APPROPRIATE BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROLS REQUIRED TO MEET THE REQUIREMENTS OF RSA 485 A:17 AND ALL APPLICABLE DES PERMIT CONDITIONS.
    d. WITHIN 24 HOURS OF EACH INSPECTION, THE MONITOR SHALL SUBMIT A REPORT TO DES VIA EMAIL (RIDGELY MAUCK AT: RIDGELY.MAUCK@DES.NH.GOV).
    e. THE MONITOR SHALL MEET WITH DES TO DECIDE UPON A REPORT FORMAT. THE REPORT FORMAT SHALL BE REVIEWED AND APPROVED BY DES PRIOR TO THE START OF CONSTRUCTION.

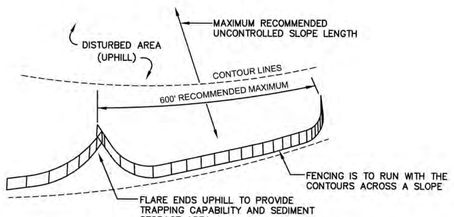


NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

FILTREXX® SILT SOXX™

NOT TO SCALE





CONSTRUCTION SPECIFICATIONS:

1. WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
2. THE FENCE POSTS SHALL BE A MINIMUM OF 48" LONG, SPACED A MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
5. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
6. SILT FENCE SHALL REMAIN IN PLACE FOR 24 MONTHS.
7. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND REVEGETATED.

MAINTENANCE:

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE DONE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
4. SEDIMENT DEPOSITS THAT ARE REMOVED, OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED, SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

SILT FENCE

NOT TO SCALE

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (3:1 SLOPES OR FLATTER ARE PREFERRED).
   B. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. TYPES AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
      AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ.FT.
      NITROGEN(N), 50 LBS. PER ACRE OR 1.1 LBS. PER 1,000 SQ.FT.
      PHOSPHATE(P2O5), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      POTASH(K2O), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      (NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10.)
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. REFER TO THE 'SEEDING GUIDE' AND 'SEEDING RATES' TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT, TREFOIL AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 S.F.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

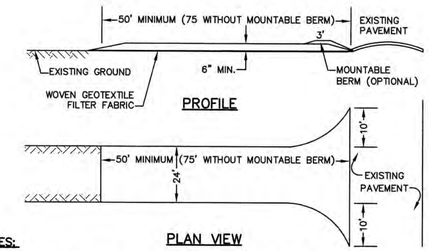
NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

SEEDING GUIDE

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
* C. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
BIRDS FOOT TREFOIL	8	0.20
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING RATES



NOTES:

1. STONE FOR STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, 75' WITHOUT A MOUNTABLE BERM, AND EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS, OR 10 FEET, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER FABRIC IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENTIAL LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A STONE BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

CONSTRUCTION SEQUENCE

1. PRIOR TO THE START OF ANY ACTIVITY, IT IS THE RESPONSIBILITY OF THE SITE'S SITE DEVELOPER (OR OWNER) TO FILE A NOTICE OF INTENT (NOI) FORM WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) IN ORDER TO GAIN COVERAGE UNDER THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES. A PRE CONSTRUCTION MEETING IS TO BE HELD WITH ALL DEPARTMENT HEADS PRIOR TO THE START OF CONSTRUCTION.
2. CUT AND REMOVE TREES IN CONSTRUCTION AREA AS REQUIRED OR DIRECTED.
3. INSTALL SILT FENCING, HAY BALES AND CONSTRUCTION ENTRANCES PRIOR TO THE START OF CONSTRUCTION. THESE ARE TO BE MAINTAINED UNTIL THE FINAL PAVEMENT SURFACING AND LANDSCAPING AREAS ARE ESTABLISHED.
4. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. THIS INCLUDES ANY REQUIRED DEMOLITION OF EXISTING STRUCTURES, UTILITIES, ETC.
5. CONSTRUCT AND/OR INSTALL TEMPORARY OR PERMANENT SEDIMENT AND/OR DETENTION BASIN(S) AS REQUIRED. THESE FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING RUN-OFF TO THEM.
6. STRIP LOAM AND PAVEMENT, OR RECLAIM EXISTING PAVEMENT WITHIN LIMITS OF WORK PER THE RECOMMENDATIONS OF THE PROJECT ENGINEER AND STOCKPILE EXCESS MATERIAL. STABILIZE STOCKPILE AS NECESSARY.
7. PERFORM PRELIMINARY SITE GRADING IN ACCORDANCE WITH THE PLANS, INCLUDING THE CONSTRUCTION OF ANY RETAINING WALLS AND SOUND WALLS.
8. PREPARE BUILDING PAD(S) TO ENABLE BUILDING CONSTRUCTION TO BEGIN.
9. INSTALL THE SEWER AND DRAINAGE SYSTEMS FIRST, THEN ANY OTHER UTILITIES IN ACCORDANCE WITH THE PLAN AND DETAILS. ANY CONFLICTS BETWEEN UTILITIES ARE TO BE RESOLVED WITH THE INVOLVEMENT AND APPROVAL OF THE ENGINEER.
10. INSTALL INLET PROTECTION AT ALL CATCH BASINS AS THEY ARE CONSTRUCTED IN ACCORDANCE WITH DETAILS.
11. ALL SWALES AND DRAINAGE STRUCTURES ARE TO BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
12. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE DITCHES, CHECK DAMS, SEDIMENT TRAPS, ETC., TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS AND/OR PROPERTY.
13. PERFORM FINAL FINE GRADING, INCLUDING PLACEMENT OF 'SELECT' SUBGRADE MATERIALS.
14. PAVE ALL PARKING LOTS AND ROADWAYS WITH INITIAL 'BASE COURSE'.
15. PERFORM ALL REMAINING SITE CONSTRUCTION (i.e. BUILDING, CURBING, UTILITY CONNECTIONS, ETC.).
16. LOAM AND SEED ALL DISTURBED AREAS AND INSTALL ANY REQUIRED SEDIMENT AND EROSION CONTROL FACILITIES (i.e. RIP RAP, EROSION CONTROL BLANKETS, ETC.).
17. FINISH PAVING ALL ROADWAYS AND PARKING AREAS WITH 'FINISH' COURSE.
18. ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
19. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
20. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
21. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE BEEN 75%-85% ESTABLISHED AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND RE-VEGETATE ALL DISTURBED AREAS.
22. CLEAN SITE AND ALL DRAINAGE STRUCTURES, PIPES AND SUMPS OF ALL SILT AND DEBRIS.
23. INSTALL ALL PAINTED PAVEMENT MARKINGS AND SIGNAGE PER THE PLANS AND DETAILS.
24. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
25. UPON COMPLETION OF CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ANY RELEVANT PERMITTING AGENCIES THAT THE CONSTRUCTION HAS BEEN FINISHED IN A SATISFACTORY MANNER.

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Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 18165-PLAN.dwg	Project No.: 18165

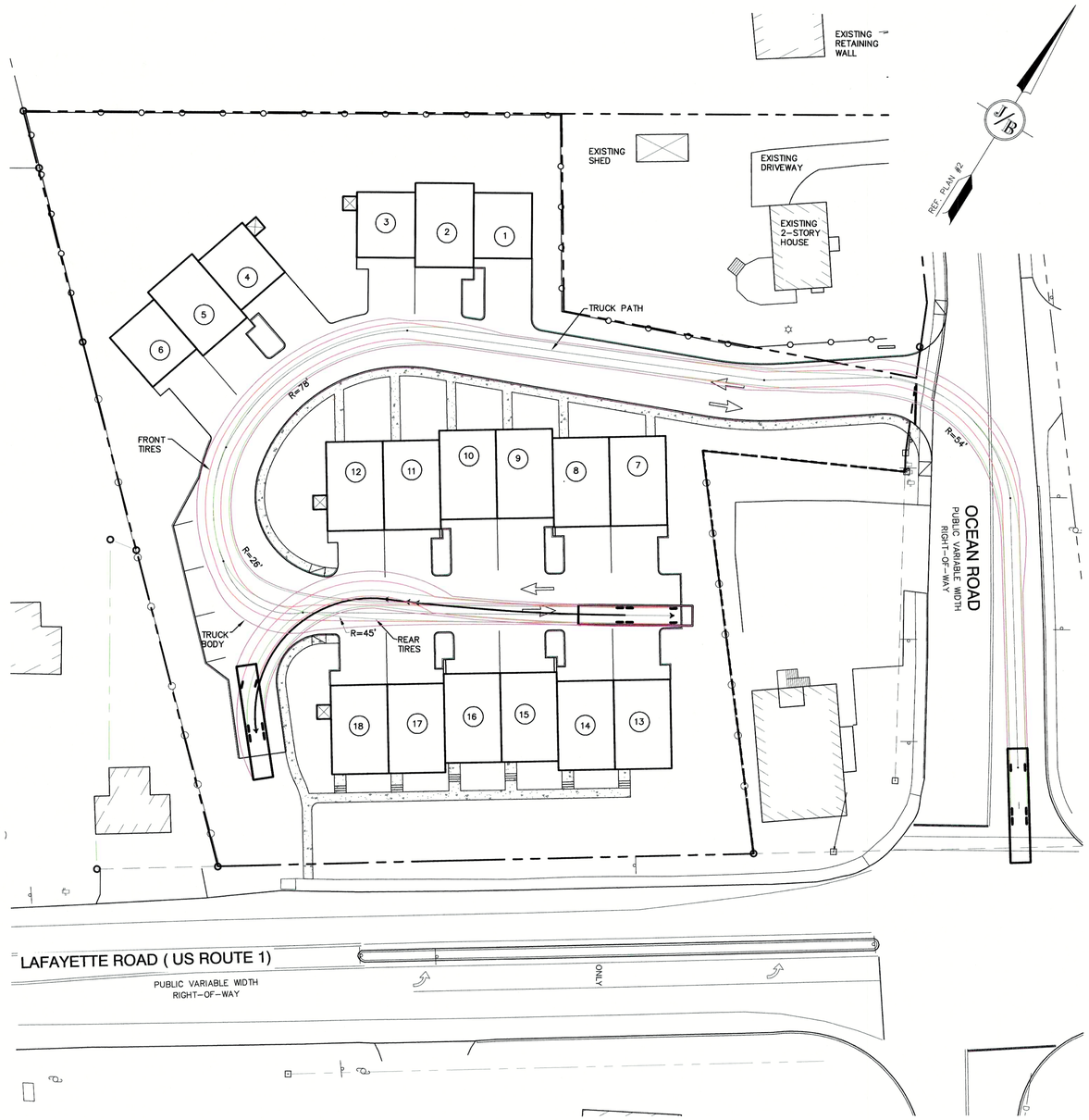
STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9348 LICENSED PROFESSIONAL ENGINEER – 2/12/20

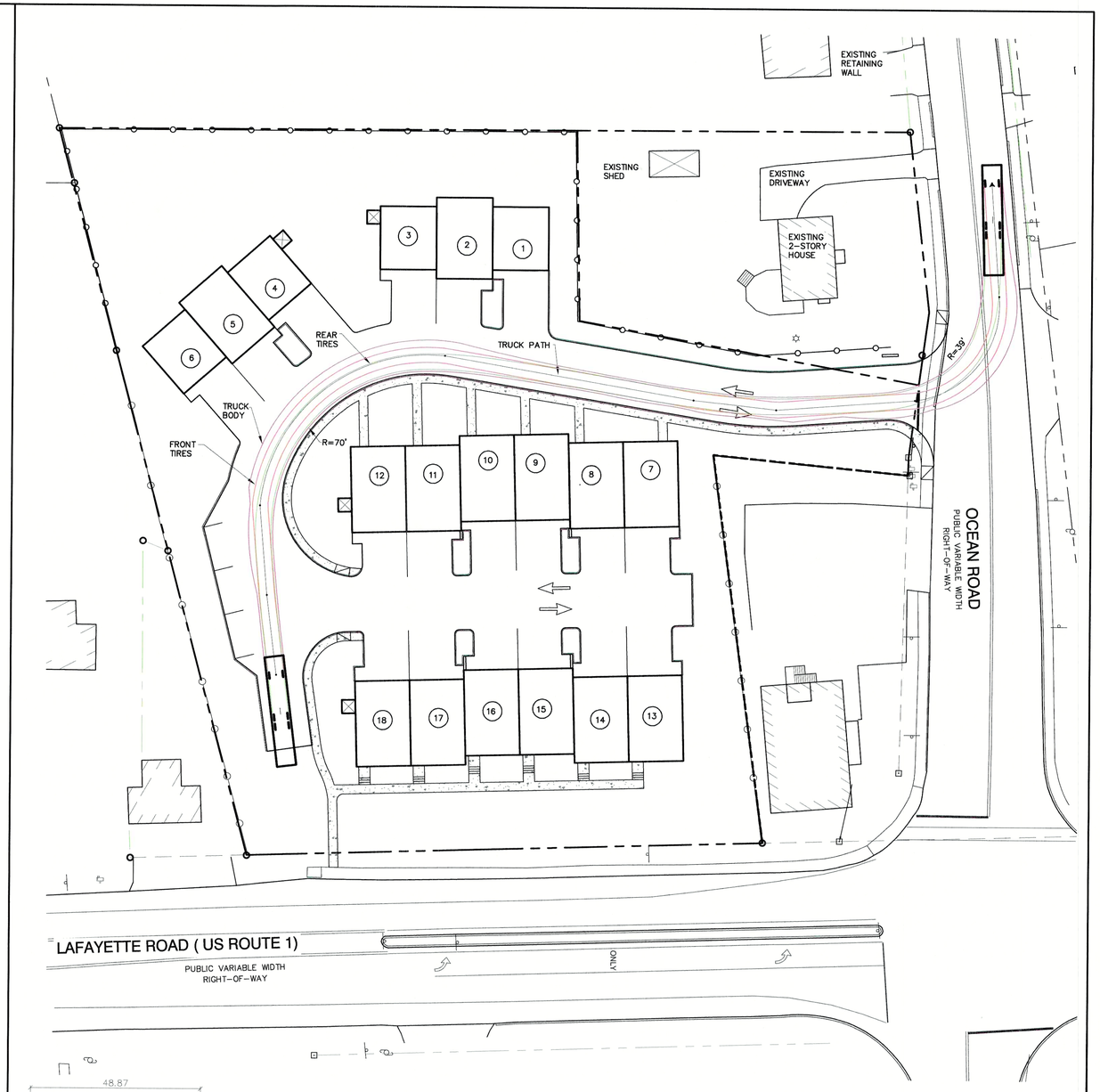
REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

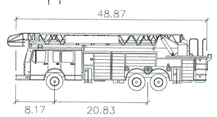
Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EROSION AND SEDIMENT CONTROL DETAILS
Project:	3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record:	CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.
E1
SHEET 16 OF 17
JBE PROJECT NO. 18165







Portsmouth Fire Truck

	feet
Width	: 8.50
Track	: 6.91
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

Design: JAC	Draft: LAZ
Checked: JAC	Scale: 1" = 30'
Drawing Name: 18165-PLAN.dwg	Date: 9/17/19
	Project No.: 18165

STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN No. 9849 LICENSED PROFESSIONAL ENGINEER
2/12/2020

REV.	DATE	REVISION	BY
3	02/12/20	REVISED PER TOWN COMMENTS	LAZ
2	01/22/20	REVISED PER TOWN COMMENTS	LAZ
1	12/20/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	TRUCK TURNING PLAN TAX MAP 292, LOT 151-1, 151-2 & 153
Project:	3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record:	CARTER CHAD 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801 WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.

T1

SHEET 17 OF 17
JBE PROJECT NO. 18165

UNITS 7-12 NORTH ELEVATION

UNITS 13-21 SOUTH ELEVATION

UNITS 13-21 NORTH ELEVATION

UNITS 7-12 SOUTH ELEVATION

BUILDING A UNITS 7-12 3 STORIES	GROSS FLOOR AREA	16,486 +/- S.F. RESIDENTIAL
BUILDING A UNITS 13-18 3 STORIES	GROSS FLOOR AREA	16,486 +/- S.F. RESIDENTIAL
BUILDING B UNITS 1-3 3 STORIES	GROSS FLOOR AREA	7,140+/- S.F. RESIDENTIAL
BUILDING B UNITS 3-6 3 STORIES	GROSS FLOOR AREA	7,140 +/- S.F. RESIDENTIAL
PROJECT TOTAL GROSS FLOOR AREA		47,252 +/- S.F. RESIDENTIAL USE

TYPICAL EAST AND WEST ELEVATIONS

TYPICAL EAST AND WEST ELEVATIONS

TYPICAL EAST AND WEST ELEVATIONS

mjk
Michael J. Keane
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ARCHITECTURE
PLANNING
DESIGN
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CONSULTANTS

REVISIONS

01.13.2020	AWNING ROOF BRACKETS ADDED
12.19.19	REAR ELEVATION AWNINGS

APPROVALS

PLANNING BOARD
APPLICATION
12/19/2019

Accept: only original stamp and signature
copies may contain unauthorized modifications

PROJECT

3110 LAFAYETTE ROAD AND
65 OCEAN ROAD
PORTSMOUTH, NH

FOR TUCK REALTY CORP

1149 EPPING ROAD, SUITE 2A
EXETER NH 03833

TITLE

CONCEPT ELEVATIONS A

DRAWN BY: MJK
CHECKED BY: mjk
DATE: 1/13/2020
SCALE:

DRAWING NO.

A-1

DO NOT SCALE PRINTS

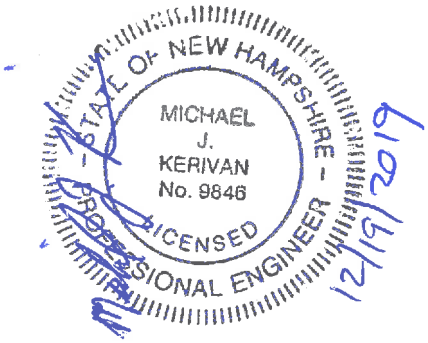
DRAINAGE ANALYSIS

SEDIMENT AND EROSION CONTROL PLAN

3110 Lafayette Road & 65 Ocean Road
Portsmouth, NH 03801
Tax Map 292, Lots 151-1, 151-2 & 153

Prepared for:

Tuck Realty Corp.
149 Epping Road, Suite 2A
Exeter, NH 03833



Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
October 29, 2019
Revised December 18, 2019
JBE Project No. 18165

TABLE OF CONTENTS

EXECUTIVE SUMMARY

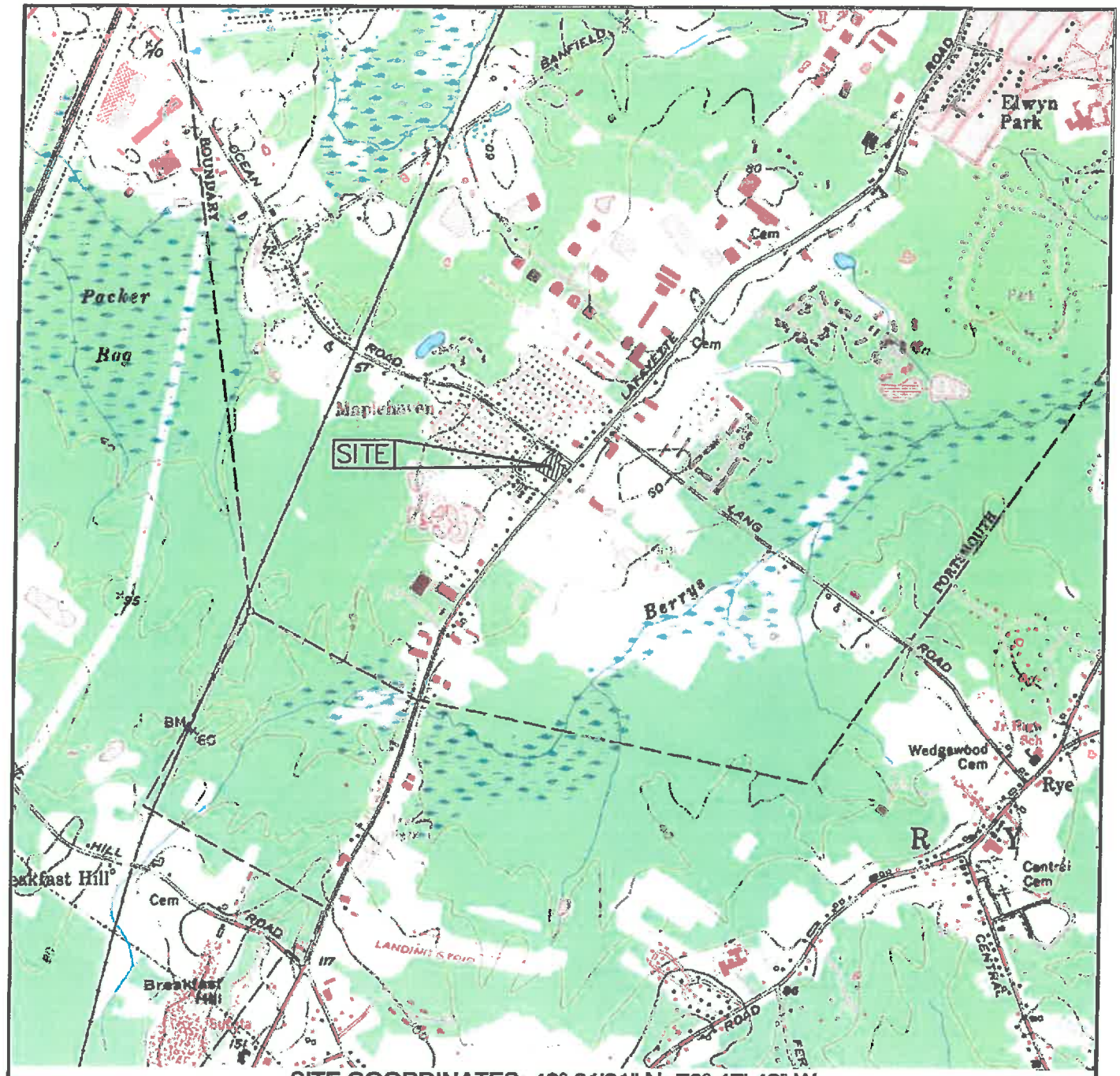
Tuck Realty Corporation proposes to construct 18 single family townhouses on a 2.19-acre parcel of land located on Lafayette Road and Ocean Road in Portsmouth, NH. This parcel of land is currently 3 parcels with 2 single-family homes. Two of the parcels will be consolidated and a lot line adjustment will be performed to create this 2.19-acre parcel for this development. A drainage analysis of the entire site was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. The analysis was conducted using data for the 2 Year – 24 Hour (3.24"), 10 Year – 24 Hour (4.92"), 25 Year – 24 Hour (6.24"), and 50 Year – 24 Hour (7.48") storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. A summary of the existing and proposed conditions peak rates of runoff is as follows:

Analysis Point	2 Year		10 Year		25 Year		50 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	0.40	0.15	1.49	0.59	2.54	1.03	3.63	1.49
Analysis Point #2	0.22	0.16	0.98	0.52	1.74	0.94	2.53	2.53
Analysis Point #3	0.07	0.19	0.36	0.51	0.65	0.79	0.95	1.07
Analysis Point #4	0.17	0.17	0.40	0.40	0.61	0.61	0.80	0.80

The project site is located in the Single Residence B Zoning District. The subject parcel consists of two single family homes with associated parking and lawn areas. There is a wooded tree buffer along Lafayette Road and along both easterly and westerly property lines. Both homes are serviced by City water and sewer along with underground electric and natural gas. The existing topography shows a hill located on the southeast corner of the property which allows stormwater runoff to flow in all directions off of the property. The existing site has been broken down into 4 Analysis Points. Subcatchment 1 flows east to west to the abutting property to the west. Subcatchment 2 flows southerly to the city storm drainage system located in Lafayette Road. Subcatchment 3 flows easterly to a city storm drainage system located in Ocean Road. Subcatchment 4 flows northerly to the abutting property.

The proposed site development consists of the aforementioned 18 single family townhouses with associated parking and the construction of approximately 450 feet of roadway. The same 4 Analysis Points were used in the Post Development Analysis. The runoff from the majority of the developed area will be stored and infiltrated into the surrounding soil. Runoff from the periphery of the site will still flow in the original direction.

The use of Best Management Practices per the NHDES Stormwater Manual have been applied to the design of this drainage system and will be observed during all stages of construction. All land disturbed during construction will be stabilized within thirty days of groundbreaking and abutting property owners will suffer minimal adversity resultant of this development.



SITE COORDINATES: 43° 01'31" N, 70° 47' 43" W

GRAPHIC SCALE

2000 0 1000 2000 4000 8000

(IN FEET)

1 inch = 2000ft.

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
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Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@jonesandbeach.com

Drawing Name:	USGS MAP
Project:	LAFAYETTE ROAD & OCEAN ROAD PORTSMOUTH, NH
Owner of Record:	TUCK REAALTY TRUST 149 EPPING ROAD, EXETER, NH

DRAWING No.
USGS1
SHEET 1 OF 1
JBE PROJECT
No. 18165

1.0 RAINFALL CHARACTERISTICS

This drainage report includes an existing conditions analysis of the area involved in the proposed development, as well as a proposed condition, or post-construction analysis, of the same location. These analyses were accomplished using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. The curve numbers were developed using the SCS TR-55 Runoff Curve numbers for Urban Areas. A Type III SCS 24-hour rainfall distribution was utilized in analyzing the data for the 2 Year – 24 Hour (3.24"), 10 Year – 24 Hour (4.92"), 25 Year – 24 Hour (6.24"), and 50 Year – 24 Hour (7.48") storm events.

As the table in the Executive Summary demonstrates, the proposed peak rates of runoff will be reduced from the existing conditions of the site in most locations, thereby minimizing any potential for a negative impact on abutting properties or infrastructure by allowing for better control of peak rates of stormwater runoff. There will be a small increase in peak runoff from Subcatchment 3, which flows to the City Storm Drainage system in Ocean Road.

2.0 EXISTING CONDITIONS ANALYSIS

The subject parcel consists of two single family homes with associated parking and lawn areas. There is a wooded tree buffer along Lafayette Road and along both easterly and westerly property lines. Both homes are serviced by City water and sewer along with underground electric and natural gas. The existing topography shows a hill located on the southeast corner of the property which allows stormwater runoff to flow in all directions off of the property with generally flat slopes.

The existing site has been broken down into 4 Subcatchment areas. Subcatchment 1 consists of mostly lawn area along with a portion of the existing structure and driveway that flows generally westerly onto the abutting property. Subcatchment 2 consists of lawn and forested buffer areas along with a portion of the house and driveway that flows southerly to the City drainage system in Lafayette Road. Subcatchment 3 consists of mostly forested buffer area that flows easterly to abutting property and out to the City drainage system in Ocean Road. Finally, Subcatchment 4 consists of an existing structure and driveway and flows northerly to the abutting property.

Classified through the use of a Natural Resources Conservation Services (NRCS) Web Sol Survey, the land of the site is composed of two soil types. The in-situ soils are categorized into Hydrologic Soil Group (HSG) B. The infiltration rate, or saturated hydraulic conductivity (Ksat) value was determined using the 'Ksat Values for New Hampshire Soils', SSSNNE Special Publication No. 5, September, 2009. The in-situ soil in the area of infiltration is Urban Land-Canton Complex which has a minimum Ksat value of 6.0 inches/hour. A factor of safety of 2 was applied and a Ksat value of 3.0 inches/hour was used in the analysis.

3.0 PROPOSED CONDITIONS ANALYSIS

The addition of the proposed impervious paved areas and homes causes an increase in the curve number (C_n) while maintain a minimum time of concentration (T_c), the net result being a potential increase in peak rates of runoff from the site. The proposed site development consists of the aforementioned 18 single family townhouses. The construction of approximately 450 feet of roadway, townhouses, driveways, along with the use of drip edges and catch basins, split the site into 9 subcatchments. The runoff from the developed area will be directed via site grading and drainage systems to a subsurface infiltration system consisting of R-Tanks located under the pavement on the southwesterly portion of the site. All of the water from the paved area and portions of the roofs is being directed to the subsurface infiltration system and is being infiltrated at the Ksat value mentioned above (3 in/hr), resulting in a decrease in offsite runoff at both Analysis Point 1 and 2. There is a small increase in runoff at Analysis Point 3, which flows to the City drainage system in Ocean Road. Analysis Point 4 is unchanged between predevelopment and post development but has been included as it is part of the overall project area.

4.0 SEDIMENT & EROSION CONTROL BEST MANAGEMENT PRACTICES

The proposed site development is protected from erosion and the roadways and abutting properties are protected from sediment by the use of Best Management Practices as outlined in the NHDES Stormwater Manual. Any area disturbed by construction will be re-stabilized within 30 days and abutting properties will suffer minimal adversity resultant of this development. All swales and drainage structures will be constructed and stabilized prior to having runoff directed to them.

4.1 Silt Soxx / Construction Fence

The plan set demonstrates the location of silt Soxx for sediment control. Sheet E1 – Erosion and Sediment Control Details, has the specifications for installation and maintenance of the Silt Soxx. In areas where the limits of construction need to be emphasized to operators, construction fence for added visibility will be installed. Orange construction fence will be VISI Perimeter Fence by Conwed Plastic Fencing, or equal. The four-foot fencing to be installed using six foot posts at least two feet in the ground at a spacing of six to eight feet.

4.2 Stabilized Construction Entrance

A temporary gravel construction entrance provides an area where mud can be dislodged from tires before the vehicle leaves the construction site to reduce the amount of mud and sediment transported onto paved municipal and state roads. The stone size for the pad should be between 1 to 2 inch coarse aggregate, and the pad itself constructed to a minimum length of 50 feet for the full width of the access road. The aggregate should be placed at least six inches thick. A plan view and profile are shown on Sheet E1.

4.3 Environmental Dust Control

Dust will be controlled on the site by the use of multiple Best Management Practices. Mulching and temporary seeding will be the first line of protection to be utilized where problems occur. If dust problems are not solved by these applications, the use of water can be applied. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

4.4 Vegetated Stabilization

All areas that are disturbed during construction will be stabilized with vegetated material within 30 days of breaking ground. Construction will be managed in such a manner that erosion is prevented and that no abutting property will be subjected to any siltation, unless otherwise permitted. All areas to be planted with grass for long-term cover will follow the specification on Sheet E1 using seeding mixture C.

4.5 Temporary Sediment Traps

Temporary Sediment Traps are small temporary ponding areas that are formed by excavation or by constructing an earthen embankment across a drainage way and providing a stabilized outlet. These structures intercept sediment-laden runoff from small, disturbed areas and detain it long enough for the majority of the sediment to settle out into the sump of the trap.

4.6 Riprap Outlet Protection

Riprap Outlet Protection will be provided at the outlet of all culverts that discharge runoff into the environment (as opposed to a catch basin). The riprap outlet protection has been designed with the equations provided in the NHDES Stormwater Manual depending on inlet or outlet control. Details of the protection design can be found on Sheet E1 – Erosion & Sediment Control Details.

4.7 Catch Basins

A catch basin is a pre-cast concrete structure intended for the capture of stormwater utilized in streets and parking areas. All catch basins are to be equipped with three-foot sedimentation sumps in order to provide an area for sediment to settle out of runoff prior to its discharge from the structure. Grease hoods attached to the outlet pipe of the structures allow for the capture of grease, oils, and other floatable solids from runoff, thereby minimizing their presence in the subsequent discharge.

4.8 Construction Sequence

1. Prior to the start of *any* activity, it is the responsibility of the site's Developer (or Owner) to file a Notice of Intent (NOI) form and a copy of one (shared) Stormwater Pollution Prevention Plan (SWPPP) with the U.S. Environmental Protection Agency (EPA) in order to gain coverage under the NPDES General Permit for Stormwater Discharges from Construction Activities. A pre-construction meeting shall be held prior to the start of construction to discuss the SWPPP and all associated responsibilities. Participants shall include the developer (or owner), the General Contractor, the Site Contractor, and the Engineer.

2. Cut and remove trees in construction area as required or directed.

3. Install silt fencing, and construction entrances prior to the start of earthwork. These shall be maintained until the final pavement surfacing and landscaping areas are established.

4. Clear, cut, grub, and dispose of debris in approved facilities. This includes any required demolition of existing structures, utilities, etc.

5. Construct and/or install temporary sediment basin(s) as required. These facilities shall be installed and stabilized prior to directing runoff to them.

6. Strip loam and pavement, or reclaim existing pavement within limits of work per the recommendations of the project engineer and stockpile excess material. Stabilize stockpile as necessary.

7. Perform preliminary site grading in accordance with the plans, including the construction of any stormwater detention/retention ponds, drainage swales, retaining walls, and sound walls.

8. Prepare building pad(s) to enable building construction to begin.

9. Install the sewer and drainage systems first, then any other utilities in accordance with the plans and details. Any conflicts between utilities are to be resolved with the involvement and approval of the engineer.

10. Install inlet protection at all catch basins as they are constructed, in accordance with the details.

11. All swales and drainage structures are to be constructed and stabilized prior to having runoff directed to them.

12. Daily, or as required, construct temporary berms, drainage ditches, check dams, sediment traps, etc., to prevent erosion on the site and prevent any siltation of abutting waters and/or property.

13. Perform final fine grading, including placement of any "select" subgrade materials.

14. Pave all parking lots and roadways with initial base course.

15. Perform all remaining site construction (i.e. building, curbing, utility connections, etc.).

16. Loam and seed all disturbed areas and install any required sediment and erosion control facilities (i.e. riprap, erosion control blankets, etc.).

17. Finish paving all roadways and parking areas with finish course.

18. Complete permanent seeding and landscaping.

19. Remove temporary erosion control measures after seeding areas have been 85% established and site improvements are complete. Smooth and re-vegetate all disturbed areas.

20. Clean site and all drainage structures, pipes, and sumps of all silt and debris.

21. Install all painted pavement markings and signage per the plans and details.

22. Upon completion of construction, it is the responsibility of the contractor to notify any relevant permitting agencies that the construction has been finished in a satisfactory manner.

4.9 Temporary Erosion Control Measures

1. The smallest practical area of land shall be exposed at any one time. At no time shall an area in excess of that required for construction be exposed.

2. Erosion, sediment and detention measures shall be installed as shown on the plans and at locations as required, or directed by the engineer.

3. All disturbed areas (including pond areas below the proposed waterline) shall be returned to proposed grades and elevations. Disturbed areas shall be loamed with a minimum of 6" of loam and seeded with seed mixture "C" at a rate not less than 1.10 pounds of seed per 1,000 square feet of area (48 lbs. per acre).

4. Silt fences and other barriers shall be inspected every seven days and within 24 hours of a rainfall of 0.5" or greater. All damaged areas shall be repaired, and sediment deposits shall periodically be removed and properly disposed of.

5. After all disturbed areas have been stabilized, the temporary erosion control measures are to be removed and the area disturbed by the removal smoothed and revegetated.

6. Areas must be seeded and mulched within 3 days of final grading, or temporarily stabilized within 14 days of initial disturbance of soil.

7. All proposed vegetated areas not stabilized by or are disturbed after October 15th must be protected with North American Green S75 erosion control blankets (or an equivalent approved in writing by the engineer) and seeded with winter rye or oats at a rate of 2.50 pounds per 1,000 square feet of area (108.90 lbs. per acre). Unstabilized swales shall be protected with erosion control blankets appropriate to the design flow conditions and seeded to the same specification. Placement of blankets shall not occur over accumulated snow.

8. An area shall be considered stable if 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" or non-erosive material such as stone or riprap has been installed; or
   d. Erosion control blankets have been properly installed.

9. After November 15th where work has stopped for the season, incomplete roadway or parking surfaces shall be protected with a minimum of 3" of crushed gravel meeting NHDOT Item 304.3.

10. In order to ensure the stability of the site and effective implementation of the sediment and erosion control measures specified in the plans for the duration of construction, the contractor shall be in strict compliance with the inspection and maintenance requirements to those called for in the SWPPP.

4.10 Inspection and Maintenance Schedule

4.26.1 Temporary Best Management Practices

Silt Fencing

During the construction process, all silt fencing will be inspected during and after storm events to ensure that the fence still has integrity and is not allowing sediment to pass. Any section of fence that has failed or is failing is to be replaced immediately, overlapping adjacent fence sections by at least one foot. If the problem persists, measures such as additional fencing (i.e. double) or the addition of hay-bales on the project side of the fence line should be considered. Sediment is to be removed from behind the fencing if found to be deeper than six inches and disposed of properly.

Swales

Sediment build-up in swales will be removed if it is deeper than six inches and disposed of properly.

Sediment Traps

Sediment traps are to be inspected once per week and after every precipitation event. Sediment is to be removed from the traps if it is deeper than six inches and disposed of properly. The lip of the outlet crest should be maintained so as to provide an even, level edge so as to promote sheet flow out of the structure so as to minimize the potential for erosion downstream form the structure. Any erosion must be repaired and stabilized immediately.

4.26.2 Permanent Best Management Practices

Catch Basins

Sediment and debris is to be removed from catch basin sumps semi-annually (as well as from sumps below the inlet of culverts). Grease hoods are to be wiped clean and the rags disposed of properly. Debris obscuring the grate inlet should also be removed.

Drainage Swales

Sediment build-up in swales is to be removed if it is deeper than six inches, and any debris also removed. Areas where vegetation has not become established or has died should be reseeded. If this fails, additional loam and seed may be required. *Fertilizers should be utilized only as a last resort.* Mowing should be performed at least once a year, but not shorter than four inches, and all grass clippings removed.

5.0 CONCLUSION

This proposed site development located on Lafayette Road and Ocean Road in Portsmouth, NH will have minimal adverse effect on abutting infrastructures or properties by way of stormwater runoff or siltation. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of site grading, curbing, catch basins with sedimentation sumps and subsurface detention. The use of Best Management Practices developed by the State of New Hampshire have been utilized in the design of this system and their application will be enforced throughout the construction process.

A site specific, terrain alteration permit (RSA 485:A-17) is not required for this site plan due to the area of disturbance being less than 100,000 square-feet.

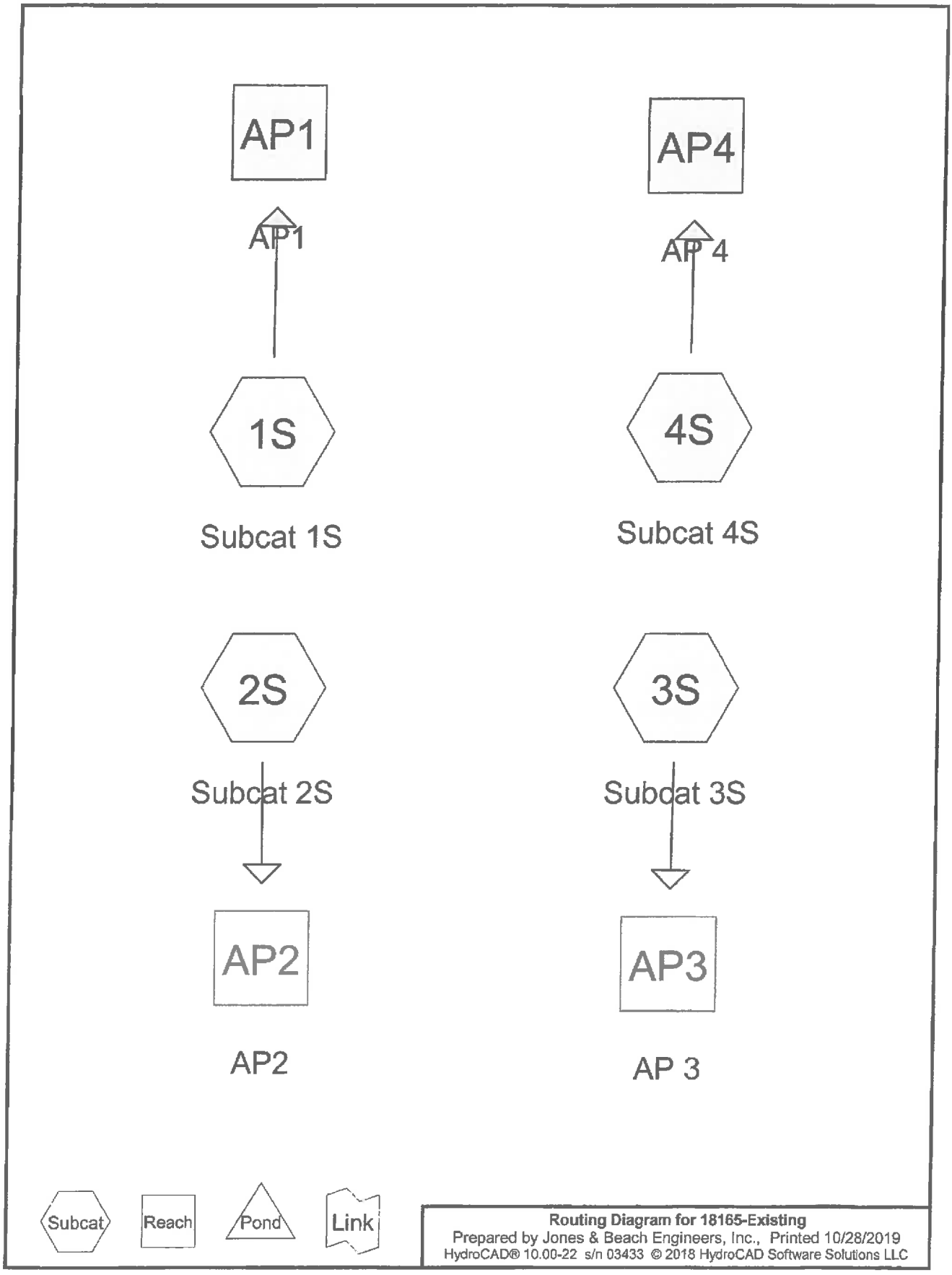
Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

Michael J. Kerivan, P.E.
Project Engineer

APPENDIX I

EXISTING CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Summary 25 YEAR
Complete 50 YEAR



Routing Diagram for 18165-Existing
Prepared by Jones & Beach Engineers, Inc., Printed 10/28/2019

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.290	61	>75% Grass cover, Good, HSG B (1S, 2S, 3S, 4S)
0.146	98	Roofs, HSG B (1S, 2S, 3S, 4S)
0.756	55	Woods, Good, HSG B (1S, 2S, 3S)
2.191	**61**	**TOTAL AREA**

Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcat 1S Runoff Area=43,278 sf 5.49% Impervious Runoff Depth=0.50"
Tc=6.0 min CN=62 Runoff=0.40 cfs 0.041 af

Subcatchment 2S: Subcat 2S Runoff Area=32,596 sf 4.01% Impervious Runoff Depth=0.42"
Tc=6.0 min CN=60 Runoff=0.22 cfs 0.026 af

Subcatchment 3S: Subcat 3S Runoff Area=12,721 sf 3.03% Impervious Runoff Depth=0.39"
Tc=6.0 min CN=59 Runoff=0.07 cfs 0.009 af

Subcatchment 4S: Subcat 4S Runoff Area=6,836 sf 33.32% Impervious Runoff Depth=1.01"
Tc=6.0 min CN=73 Runoff=0.17 cfs 0.013 af

Reach AP1: AP1 Inflow=0.40 cfs 0.041 af
Outflow=0.40 cfs 0.041 af

Reach AP2: AP2 Inflow=0.22 cfs 0.026 af
Outflow=0.22 cfs 0.026 af

Reach AP3: AP 3 Inflow=0.07 cfs 0.009 af
Outflow=0.07 cfs 0.009 af

Reach AP4: AP 4 Inflow=0.17 cfs 0.013 af
Outflow=0.17 cfs 0.013 af

Total Runoff Area = 2.191 ac Runoff Volume = 0.090 af Average Runoff Depth = 0.49"
93.35% Pervious = 2.045 ac 6.65% Impervious = 0.146 ac

Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcat 1S Runoff Area=43,278 sf 5.49% Impervious Runoff Depth=1.39"
Tc=6.0 min CN=62 Runoff=1.49 cfs 0.115 af

Subcatchment 2S: Subcat 2S Runoff Area=32,596 sf 4.01% Impervious Runoff Depth=1.25"
Tc=6.0 min CN=60 Runoff=0.98 cfs 0.078 af

Subcatchment 3S: Subcat 3S Runoff Area=12,721 sf 3.03% Impervious Runoff Depth=1.19"
Tc=6.0 min CN=59 Runoff=0.36 cfs 0.029 af

Subcatchment 4S: Subcat 4S Runoff Area=6,836 sf 33.32% Impervious Runoff Depth=2.22"
Tc=6.0 min CN=73 Runoff=0.40 cfs 0.029 af

Reach AP1: AP1 Inflow=1.49 cfs 0.115 af
Outflow=1.49 cfs 0.115 af

Reach AP2: AP2 Inflow=0.98 cfs 0.078 af
Outflow=0.98 cfs 0.078 af

Reach AP3: AP 3 Inflow=0.36 cfs 0.029 af
Outflow=0.36 cfs 0.029 af

Reach AP4: AP 4 Inflow=0.40 cfs 0.029 af
Outflow=0.40 cfs 0.029 af

Total Runoff Area = 2.191 ac Runoff Volume = 0.251 af Average Runoff Depth = 1.38"
93.35% Pervious = 2.045 ac 6.65% Impervious = 0.146 ac

Summary for Subcatchment 1S: Subcat 1S

Runoff = 1.49 cfs @ 12.10 hrs, Volume= 0.115 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
10,937	55	Woods, Good, HSG B
29,965	61	>75% Grass cover, Good, HSG B
2,376	98	Roofs, HSG B
43,278	62	Weighted Average
40,902		94.51% Pervious Area
2,376		5.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 2S: Subcat 2S

Runoff = 0.98 cfs @ 12.10 hrs, Volume= 0.078 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
15,521	55	Woods, Good, HSG B
15,768	61	>75% Grass cover, Good, HSG B
1,307	98	Roofs, HSG B
32,596	60	Weighted Average
31,289		95.99% Pervious Area
1,307		4.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3S: Subcat 3S

Runoff = 0.36 cfs @ 12.10 hrs, Volume= 0.029 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
6,453	55	Woods, Good, HSG B
5,882	61	>75% Grass cover, Good, HSG B
386	98	Roofs, HSG B
12,721	59	Weighted Average
12,335		96.97% Pervious Area
386		3.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 4S: Subcat 4S

Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af, Depth= 2.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
4,558	61	>75% Grass cover, Good, HSG B
2,278	98	Roofs, HSG B
6,836	73	Weighted Average
4,558		66.68% Pervious Area
2,278		33.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach AP1: AP1

Inflow Area = 0.994 ac, 5.49% Impervious, Inflow Depth = 1.39" for 10-YR STORM event
Inflow = 1.49 cfs @ 12.10 hrs, Volume= 0.115 af
Outflow = 1.49 cfs @ 12.10 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP2: AP2

Inflow Area = 0.748 ac, 4.01% Impervious, Inflow Depth = 1.25" for 10-YR STORM event
Inflow = 0.98 cfs @ 12.10 hrs, Volume= 0.078 af
Outflow = 0.98 cfs @ 12.10 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP3: AP 3

Inflow Area = 0.292 ac, 3.03% Impervious, Inflow Depth = 1.19" for 10-YR STORM event
Inflow = 0.36 cfs @ 12.10 hrs, Volume= 0.029 af
Outflow = 0.36 cfs @ 12.10 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP4: AP 4

Inflow Area = 0.157 ac, 33.32% Impervious, Inflow Depth = 2.22" for 10-YR STORM event
Inflow = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af
Outflow = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcat 1S Runoff Area=43,278 sf 5.49% Impervious Runoff Depth=2.26"
Tc=6.0 min CN=62 Runoff=2.54 cfs 0.187 af

Subcatchment 2S: Subcat 2S Runoff Area=32,596 sf 4.01% Impervious Runoff Depth=2.08"
Tc=6.0 min CN=60 Runoff=1.74 cfs 0.130 af

Subcatchment 3S: Subcat 3S Runoff Area=12,721 sf 3.03% Impervious Runoff Depth=1.99"
Tc=6.0 min CN=59 Runoff=0.65 cfs 0.049 af

Subcatchment 4S: Subcat 4S Runoff Area=6,836 sf 33.32% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=73 Runoff=0.61 cfs 0.043 af

Reach AP1: AP1 Inflow=2.54 cfs 0.187 af
Outflow=2.54 cfs 0.187 af

Reach AP2: AP2 Inflow=1.74 cfs 0.130 af
Outflow=1.74 cfs 0.130 af

Reach AP3: AP 3 Inflow=0.65 cfs 0.049 af
Outflow=0.65 cfs 0.049 af

Reach AP4: AP 4 Inflow=0.61 cfs 0.043 af
Outflow=0.61 cfs 0.043 af

Total Runoff Area = 2.191 ac Runoff Volume = 0.408 af Average Runoff Depth = 2.24"
93.35% Pervious = 2.045 ac 6.65% Impervious = 0.146 ac

Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcat 1S Runoff Area=43,278 sf 5.49% Impervious Runoff Depth=3.16"
Tc=6.0 min CN=62 Runoff=3.63 cfs 0.262 af

Subcatchment 2S: Subcat 2S Runoff Area=32,596 sf 4.01% Impervious Runoff Depth=2.95"
Tc=6.0 min CN=60 Runoff=2.53 cfs 0.184 af

Subcatchment 3S: Subcat 3S Runoff Area=12,721 sf 3.03% Impervious Runoff Depth=2.84"
Tc=6.0 min CN=59 Runoff=0.95 cfs 0.069 af

Subcatchment 4S: Subcat 4S Runoff Area=6,836 sf 33.32% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=73 Runoff=0.80 cfs 0.057 af

Reach AP1: AP1 Inflow=3.63 cfs 0.262 af
Outflow=3.63 cfs 0.262 af

Reach AP2: AP2 Inflow=2.53 cfs 0.184 af
Outflow=2.53 cfs 0.184 af

Reach AP3: AP 3 Inflow=0.95 cfs 0.069 af
Outflow=0.95 cfs 0.069 af

Reach AP4: AP 4 Inflow=0.80 cfs 0.057 af
Outflow=0.80 cfs 0.057 af

Total Runoff Area = 2.191 ac Runoff Volume = 0.572 af Average Runoff Depth = 3.13"
93.35% Pervious = 2.045 ac 6.65% Impervious = 0.146 ac

Summary for Subcatchment 1S: Subcat 1S

Runoff = 3.63 cfs @ 12.09 hrs, Volume= 0.262 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
10,937	55	Woods, Good, HSG B
29,965	61	>75% Grass cover, Good, HSG B
2,376	98	Roofs, HSG B
43,278	62	Weighted Average
40,902		94.51% Pervious Area
2,376		5.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 2S: Subcat 2S

Runoff = 2.53 cfs @ 12.09 hrs, Volume= 0.184 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
15,521	55	Woods, Good, HSG B
15,768	61	>75% Grass cover, Good, HSG B
1,307	98	Roofs, HSG B
32,596	60	Weighted Average
31,289		95.99% Pervious Area
1,307		4.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3S: Subcat 3S

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
6,453	55	Woods, Good, HSG B
5,882	61	>75% Grass cover, Good, HSG B
386	98	Roofs, HSG B
12,721	59	Weighted Average
12,335		96.97% Pervious Area
386		3.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 4S: Subcat 4S

Runoff = 0.80 cfs @ 12.09 hrs, Volume= 0.057 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
4,558	61	>75% Grass cover, Good, HSG B
2,278	98	Roofs, HSG B
6,836	73	Weighted Average
4,558		66.68% Pervious Area
2,278		33.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach AP1: AP1

Inflow Area = 0.994 ac, 5.49% Impervious, Inflow Depth = 3.16" for 50-YR STORM event
Inflow = 3.63 cfs @ 12.09 hrs, Volume= 0.262 af
Outflow = 3.63 cfs @ 12.09 hrs, Volume= 0.262 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP2: AP2

Inflow Area = 0.748 ac, 4.01% Impervious, Inflow Depth = 2.95" for 50-YR STORM event
Inflow = 2.53 cfs @ 12.09 hrs, Volume= 0.184 af
Outflow = 2.53 cfs @ 12.09 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP3: AP 3

Inflow Area = 0.292 ac, 3.03% Impervious, Inflow Depth = 2.84" for 50-YR STORM event
Inflow = 0.95 cfs @ 12.09 hrs, Volume= 0.069 af
Outflow = 0.95 cfs @ 12.09 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP4: AP 4

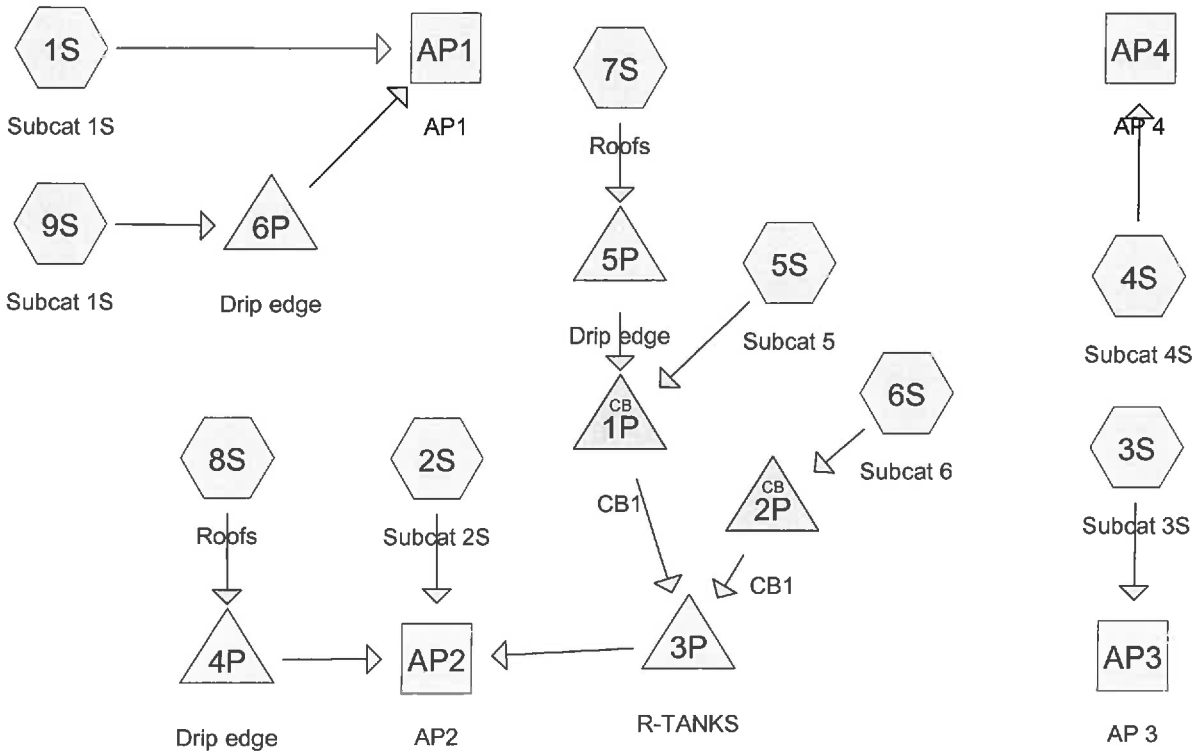
Inflow Area = 0.157 ac, 33.32% Impervious, Inflow Depth = 4.35" for 50-YR STORM event
Inflow = 0.80 cfs @ 12.09 hrs, Volume= 0.057 af
Outflow = 0.80 cfs @ 12.09 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

APPENDIX II

PROPOSED CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Summary 25 YEAR
Complete 50 YEAR



Subcat Reach Pond Link

Routing Diagram for 18165-PROPOSED
Prepared by Jones & Beach Engineers, Inc., Printed 12/18/2019

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.123	61	>75% Grass cover, Good, HSG B (1S, 2S, 3S, 4S, 5S, 6S)
0.558	98	Paved parking, HSG B (2S, 3S, 5S, 6S)
0.488	98	Roofs, HSG B (4S, 5S, 6S, 7S, 8S, 9S)
0.022	98	Water Surface, HSG B (7S, 8S, 9S)
2.191	**79**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.191	HSG B	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.191		**TOTAL AREA**

Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcat 1S Runoff Area=18,392 sf 0.00% Impervious Runoff Depth=0.46"
Tc=6.0 min CN=61 Runoff=0.15 cfs 0.016 af

Subcatchment 2S: Subcat 2S Runoff Area=13,474 sf 8.18% Impervious Runoff Depth=0.58"
Tc=6.0 min CN=64 Runoff=0.16 cfs 0.015 af

Subcatchment 3S: Subcat 3S Runoff Area=10,210 sf 22.11% Impervious Runoff Depth=0.80"
Tc=6.0 min CN=69 Runoff=0.19 cfs 0.016 af

Subcatchment 4S: Subcat 4S Runoff Area=6,836 sf 33.32% Impervious Runoff Depth=1.01"
Tc=6.0 min CN=73 Runoff=0.17 cfs 0.013 af

Subcatchment 5S: Subcat 5 Runoff Area=28,003 sf 80.63% Impervious Runoff Depth=2.30"
Tc=6.0 min CN=91 Runoff=1.70 cfs 0.123 af

Subcatchment 6S: Subcat 6 Runoff Area=9,418 sf 97.45% Impervious Runoff Depth=2.90"
Tc=6.0 min CN=97 Runoff=0.67 cfs 0.052 af

Subcatchment 7S: Roofs Runoff Area=3,267 sf 100.00% Impervious Runoff Depth=3.01"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.019 af

Subcatchment 8S: Roofs Runoff Area=2,878 sf 100.00% Impervious Runoff Depth=3.01"
Tc=6.0 min CN=98 Runoff=0.21 cfs 0.017 af

Subcatchment 9S: Subcat 1S Runoff Area=2,961 sf 100.00% Impervious Runoff Depth=3.01"
Tc=6.0 min CN=98 Runoff=0.21 cfs 0.017 af

Reach AP1: AP1 Inflow=0.15 cfs 0.016 af
Outflow=0.15 cfs 0.016 af

Reach AP2: AP2 Inflow=0.16 cfs 0.015 af
Outflow=0.16 cfs 0.015 af

Reach AP3: AP 3 Inflow=0.19 cfs 0.016 af
Outflow=0.19 cfs 0.016 af

Reach AP4: AP 4 Inflow=0.17 cfs 0.013 af
Outflow=0.17 cfs 0.013 af

Pond 1P: CB1 Peak Elev=99.04' Inflow=1.70 cfs 0.123 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0100 '/' Outflow=1.70 cfs 0.123 af

Pond 2P: CB1 Peak Elev=99.03' Inflow=0.67 cfs 0.052 af
12.0" Round Culvert n=0.013 L=4.0' S=0.0100 '/' Outflow=0.67 cfs 0.052 af

Pond 3P: R-TANKS Peak Elev=97.26' Storage=0.052 af Inflow=2.37 cfs 0.175 af
Discarded=0.41 cfs 0.175 af Primary=0.00 cfs 0.000 af Outflow=0.41 cfs 0.175 af

Pond 4P: Drip edge Peak Elev=101.73' Storage=225 cf Inflow=0.21 cfs 0.017 af
Discarded=0.03 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.017 af

Pond 5P: Drip edge Peak Elev=101.87' Storage=268 cf Inflow=0.24 cfs 0.019 af
Discarded=0.03 cfs 0.019 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.019 af

Pond 6P: Drip edge Peak Elev=101.18' Storage=225 cf Inflow=0.21 cfs 0.017 af
Discarded=0.03 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.017 af

Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcat 1S Runoff Area=18,392 sf 0.00% Impervious Runoff Depth=1.32"
Tc=6.0 min CN=61 Runoff=0.59 cfs 0.046 af

Subcatchment 2S: Subcat 2S Runoff Area=13,474 sf 8.18% Impervious Runoff Depth=1.53"
Tc=6.0 min CN=64 Runoff=0.52 cfs 0.039 af

Subcatchment 3S: Subcat 3S Runoff Area=10,210 sf 22.11% Impervious Runoff Depth=1.90"
Tc=6.0 min CN=69 Runoff=0.51 cfs 0.037 af

Subcatchment 4S: Subcat 4S Runoff Area=6,836 sf 33.32% Impervious Runoff Depth=2.22"
Tc=6.0 min CN=73 Runoff=0.40 cfs 0.029 af

Subcatchment 5S: Subcat 5 Runoff Area=28,003 sf 80.63% Impervious Runoff Depth=3.90"
Tc=6.0 min CN=91 Runoff=2.82 cfs 0.209 af

Subcatchment 6S: Subcat 6 Runoff Area=9,418 sf 97.45% Impervious Runoff Depth=4.57"
Tc=6.0 min CN=97 Runoff=1.03 cfs 0.082 af

Subcatchment 7S: Roofs Runoff Area=3,267 sf 100.00% Impervious Runoff Depth>4.68"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.029 af

Subcatchment 8S: Roofs Runoff Area=2,878 sf 100.00% Impervious Runoff Depth>4.68"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.026 af

Subcatchment 9S: Subcat 1S Runoff Area=2,961 sf 100.00% Impervious Runoff Depth>4.68"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Reach AP1: AP1 Inflow=0.59 cfs 0.046 af
Outflow=0.59 cfs 0.046 af

Reach AP2: AP2 Inflow=0.52 cfs 0.039 af
Outflow=0.52 cfs 0.039 af

Reach AP3: AP 3 Inflow=0.51 cfs 0.037 af
Outflow=0.51 cfs 0.037 af

Reach AP4: AP 4 Inflow=0.40 cfs 0.029 af
Outflow=0.40 cfs 0.029 af

Pond 1P: CB1 Peak Elev=99.52' Inflow=2.82 cfs 0.209 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0100 '/' Outflow=2.82 cfs 0.209 af

Pond 2P: CB1 Peak Elev=99.18' Inflow=1.03 cfs 0.082 af
12.0" Round Culvert n=0.013 L=4.0' S=0.0100 '/' Outflow=1.03 cfs 0.082 af

Pond 3P: R-TANKS Peak Elev=97.89' Storage=0.100 af Inflow=3.85 cfs 0.291 af
Discarded=0.52 cfs 0.291 af Primary=0.00 cfs 0.000 af Outflow=0.52 cfs 0.291 af

Pond 4P: Drip edge Peak Elev=102.31' Storage=403 cf Inflow=0.32 cfs 0.026 af
Discarded=0.03 cfs 0.026 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.026 af

Pond 5P: Drip edge Peak Elev=102.56' Storage=479 cf Inflow=0.36 cfs 0.029 af
Discarded=0.03 cfs 0.029 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.029 af

Pond 6P: Drip edge Peak Elev=101.73' Storage=404 cf Inflow=0.33 cfs 0.027 af
Discarded=0.03 cfs 0.027 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.027 af

Summary for Subcatchment 1S: Subcat 1S

Runoff = 0.59 cfs @ 12.10 hrs, Volume= 0.046 af, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
18,392	61	>75% Grass cover, Good, HSG B
18,392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 2S: Subcat 2S

Runoff = 0.52 cfs @ 12.10 hrs, Volume= 0.039 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
12,372	61	>75% Grass cover, Good, HSG B
1,102	98	Paved parking, HSG B
13,474	64	Weighted Average
12,372		91.82% Pervious Area
1,102		8.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3S: Subcat 3S

Runoff = 0.51 cfs @ 12.09 hrs, Volume= 0.037 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
7,953	61	>75% Grass cover, Good, HSG B
2,257	98	Paved parking, HSG B
10,210	69	Weighted Average
7,953		77.89% Pervious Area
2,257		22.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 4S: Subcat 4S

Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af, Depth= 2.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
4,558	61	>75% Grass cover, Good, HSG B
2,278	98	Roofs, HSG B
6,836	73	Weighted Average
4,558		66.68% Pervious Area
2,278		33.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 5S: Subcat 5

Runoff = 2.82 cfs @ 12.08 hrs, Volume= 0.209 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
13,303	98	Paved parking, HSG B
7,865	98	Roofs, HSG B
5,424	61	>75% Grass cover, Good, HSG B
1,411	98	Paved parking, HSG B
28,003	91	Weighted Average
5,424		19.37% Pervious Area
22,579		80.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 6S: Subcat 6

Runoff = 1.03 cfs @ 12.08 hrs, Volume= 0.082 af, Depth= 4.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
6,219	98	Paved parking, HSG B
240	61	>75% Grass cover, Good, HSG B
2,959	98	Roofs, HSG B
9,418	97	Weighted Average
240		2.55% Pervious Area
9,178		97.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 7S: Roofs

Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.029 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
2,960	98	Roofs, HSG B
307	98	Water Surface, HSG B
3,267	98	Weighted Average
3,267		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 8S: Roofs

Runoff = 0.32 cfs @ 12.08 hrs, Volume= 0.026 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
2,571	98	Roofs, HSG B
307	98	Water Surface, HSG B
2,878	98	Weighted Average
2,878		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 9S: Subcat 1S

Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.027 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR STORM Rainfall=4.92"

Area (sf)	CN	Description
2,631	98	Roofs, HSG B
330	98	Water Surface, HSG B
2,961	98	Weighted Average
2,961		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach AP1: AP1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.490 ac, 13.87% Impervious, Inflow Depth = 1.14" for 10-YR STORM event
Inflow = 0.59 cfs @ 12.10 hrs, Volume= 0.046 af
Outflow = 0.59 cfs @ 12.10 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP2: AP2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.309 ac, 68.38% Impervious, Inflow Depth = 0.36" for 10-YR STORM event
Inflow = 0.52 cfs @ 12.10 hrs, Volume= 0.039 af
Outflow = 0.52 cfs @ 12.10 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP3: AP 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.234 ac, 22.11% Impervious, Inflow Depth = 1.90" for 10-YR STORM event
Inflow = 0.51 cfs @ 12.09 hrs, Volume= 0.037 af
Outflow = 0.51 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP4: AP 4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.157 ac, 33.32% Impervious, Inflow Depth = 2.22" for 10-YR STORM event
Inflow = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af
Outflow = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 1P: CB1

Inflow Area = 0.718 ac, 82.65% Impervious, Inflow Depth = 3.50" for 10-YR STORM event
Inflow = 2.82 cfs @ 12.08 hrs, Volume= 0.209 af
Outflow = 2.82 cfs @ 12.08 hrs, Volume= 0.209 af, Atten= 0%, Lag= 0.0 min
Primary = 2.82 cfs @ 12.08 hrs, Volume= 0.209 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 99.52' @ 12.08 hrs
Flood Elev= 101.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.13'	**12.0" Round Culvert** L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.13' / 98.07' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.82 cfs @ 12.08 hrs HW=99.52' TW=97.25' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.82 cfs @ 3.58 fps)

Summary for Pond 2P: CB1

Inflow Area = 0.216 ac, 97.45% Impervious, Inflow Depth = 4.57" for 10-YR STORM event
Inflow = 1.03 cfs @ 12.08 hrs, Volume= 0.082 af
Outflow = 1.03 cfs @ 12.08 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min
Primary = 1.03 cfs @ 12.08 hrs, Volume= 0.082 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 99.18' @ 12.08 hrs
Flood Elev= 101.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.50' / 98.46' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.03 cfs @ 12.08 hrs HW=99.18' TW=97.25' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 1.03 cfs @ 2.58 fps)

Summary for Pond 3P: R-TANKS

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=319)

Inflow Area = 0.934 ac, 86.08% Impervious, Inflow Depth = 3.74" for 10-YR STORM event
Inflow = 3.85 cfs @ 12.08 hrs, Volume= 0.291 af
Outflow = 0.52 cfs @ 12.61 hrs, Volume= 0.291 af, Atten= 87%, Lag= 31.5 min
Discarded = 0.52 cfs @ 12.61 hrs, Volume= 0.291 af
Primary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 97.89' @ 12.61 hrs Surf.Area= 0.088 ac Storage= 0.100 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 66.1 min (844.7 - 778.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	96.40'	0.061 af	**28.93'W x 133.02'L x 2.94'H Field A** 0.260 af Overall - 0.107 af Embedded = 0.153 af x 40.0% Voids
#2A	96.73'	0.101 af	**ACF R-Tank HD 1** x 1045 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 19 Rows of 55 Chambers
		0.163 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	96.40'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 94.80'
#2	Primary	97.90'	**15.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 97.90' / 97.80' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Discarded OutFlow Max=0.52 cfs @ 12.61 hrs HW=97.89' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.52 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=96.40' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Controls 0.00 cfs)

Summary for Pond 4P: Drip edge

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=208)

Inflow Area = 0.066 ac,100.00% Impervious, Inflow Depth > 4.68" for 10-YR STORM event
Inflow = 0.32 cfs @ 12.08 hrs, Volume= 0.026 af
Outflow = 0.03 cfs @ 12.89 hrs, Volume= 0.026 af, Atten= 91%, Lag= 48.7 min
Discarded = 0.03 cfs @ 12.89 hrs, Volume= 0.026 af
Primary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.31' @ 12.89 hrs Surf.Area= 307 sf Storage= 403 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 102.7 min (851.0 - 748.3)

Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	617 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	307	0	0
102.00	307	307	307
103.00	307	307	614
103.01	307	3	617

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 97.70'
#2	Primary	103.00'	**153.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.03 cfs @ 12.89 hrs HW=102.31' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=101.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: Drip edge

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=153)

Inflow Area =	0.075 ac,100.00% Impervious,	Inflow Depth >	4.68"	for 10-YR STORM event
Inflow =	0.36 cfs @	12.08 hrs, Volume=	0.029 af	
Outflow =	0.03 cfs @	12.97 hrs, Volume=	0.029 af,	Atten= 91%, Lag= 53.0 min
Discarded =	0.03 cfs @	12.97 hrs, Volume=	0.029 af	
Primary =	0.00 cfs @	1.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.56' @ 12.97 hrs Surf.Area= 307 sf Storage= 479 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 121.5 min (869.8 - 748.3)

Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	617 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	307	0	0
102.00	307	307	307
103.00	307	307	614
103.01	307	3	617

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 97.70'
#2	Primary	103.00'	**153.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.03 cfs @ 12.97 hrs HW=102.56' (Free Discharge)
↑**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=101.00' TW=98.13' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Drip edge

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=239)

Inflow Area =	0.068 ac,100.00% Impervious,	Inflow Depth >	4.68"	for 10-YR STORM event
Inflow =	0.33 cfs @	12.08 hrs, Volume=	0.027 af	
Outflow =	0.03 cfs @	12.82 hrs, Volume=	0.027 af,	Atten= 90%, Lag= 44.3 min
Discarded =	0.03 cfs @	12.82 hrs, Volume=	0.027 af	
Primary =	0.00 cfs @	1.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 101.73' @ 12.82 hrs Surf.Area= 330 sf Storage= 404 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 91.7 min (840.0 - 748.3)

Volume	Invert	Avail.Storage	Storage Description
#1	100.50'	663 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.50	330	0	0
101.50	330	330	330
102.50	330	330	660
102.51	330	3	663

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.50'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 97.70'
#2	Primary	102.50'	**166.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00

Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.03 cfs @ 12.82 hrs HW=101.73' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=100.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcat 1S Runoff Area=18,392 sf 0.00% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=61 Runoff=1.03 cfs 0.076 af

Subcatchment 2S: Subcat 2S Runoff Area=13,474 sf 8.18% Impervious Runoff Depth=2.44"
Tc=6.0 min CN=64 Runoff=0.86 cfs 0.063 af

Subcatchment 3S: Subcat 3S Runoff Area=10,210 sf 22.11% Impervious Runoff Depth=2.90"
Tc=6.0 min CN=69 Runoff=0.79 cfs 0.057 af

Subcatchment 4S: Subcat 4S Runoff Area=6,836 sf 33.32% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=73 Runoff=0.61 cfs 0.043 af

Subcatchment 5S: Subcat 5 Runoff Area=28,003 sf 80.63% Impervious Runoff Depth=5.19"
Tc=6.0 min CN=91 Runoff=3.69 cfs 0.278 af

Subcatchment 6S: Subcat 6 Runoff Area=9,418 sf 97.45% Impervious Runoff Depth=5.88"
Tc=6.0 min CN=97 Runoff=1.32 cfs 0.106 af

Subcatchment 7S: Roofs Runoff Area=3,267 sf 100.00% Impervious Runoff Depth>6.00"
Tc=6.0 min CN=98 Runoff=0.46 cfs 0.038 af

Subcatchment 8S: Roofs Runoff Area=2,878 sf 100.00% Impervious Runoff Depth>6.00"
Tc=6.0 min CN=98 Runoff=0.40 cfs 0.033 af

Subcatchment 9S: Subcat 1S Runoff Area=2,961 sf 100.00% Impervious Runoff Depth>6.00"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.034 af

Reach AP1: AP1 Inflow=1.03 cfs 0.076 af
Outflow=1.03 cfs 0.076 af

Reach AP2: AP2 Inflow=0.94 cfs 0.090 af
Outflow=0.94 cfs 0.090 af

Reach AP3: AP 3 Inflow=0.79 cfs 0.057 af
Outflow=0.79 cfs 0.057 af

Reach AP4: AP 4 Inflow=0.61 cfs 0.043 af
Outflow=0.61 cfs 0.043 af

Pond 1P: CB1 Peak Elev=100.16' Inflow=3.69 cfs 0.279 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0100 '/' Outflow=3.69 cfs 0.279 af

Pond 2P: CB1 Peak Elev=99.28' Inflow=1.32 cfs 0.106 af
12.0" Round Culvert n=0.013 L=4.0' S=0.0100 '/' Outflow=1.32 cfs 0.106 af

Pond 3P: R-TANKS Peak Elev=98.38' Storage=0.129 af Inflow=5.01 cfs 0.385 af
Discarded=0.60 cfs 0.359 af Primary=0.66 cfs 0.027 af Outflow=1.26 cfs 0.385 af

Pond 4P: Drip edge Peak Elev=102.82' Storage=560 cf Inflow=0.40 cfs 0.033 af
Discarded=0.03 cfs 0.033 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.033 af

Pond 5P: Drip edge Peak Elev=103.00' Storage=615 cf Inflow=0.46 cfs 0.038 af
Discarded=0.03 cfs 0.036 af Primary=0.11 cfs 0.001 af Outflow=0.14 cfs 0.038 af

Pond 6P: Drip edge Peak Elev=102.20' Storage=560 cf Inflow=0.42 cfs 0.034 af
Discarded=0.04 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.034 af

Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcat 1S Runoff Area=18,392 sf 0.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=61 Runoff=1.49 cfs 0.107 af

Subcatchment 2S: Subcat 2S Runoff Area=13,474 sf 8.18% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=64 Runoff=1.21 cfs 0.087 af

Subcatchment 3S: Subcat 3S Runoff Area=10,210 sf 22.11% Impervious Runoff Depth=3.91"
Tc=6.0 min CN=69 Runoff=1.07 cfs 0.076 af

Subcatchment 4S: Subcat 4S Runoff Area=6,836 sf 33.32% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=73 Runoff=0.80 cfs 0.057 af

Subcatchment 5S: Subcat 5 Runoff Area=28,003 sf 80.63% Impervious Runoff Depth=6.41"
Tc=6.0 min CN=91 Runoff=4.50 cfs 0.343 af

Subcatchment 6S: Subcat 6 Runoff Area=9,418 sf 97.45% Impervious Runoff Depth>7.12"
Tc=6.0 min CN=97 Runoff=1.58 cfs 0.128 af

Subcatchment 7S: Roofs Runoff Area=3,267 sf 100.00% Impervious Runoff Depth>7.24"
Tc=6.0 min CN=98 Runoff=0.55 cfs 0.045 af

Subcatchment 8S: Roofs Runoff Area=2,878 sf 100.00% Impervious Runoff Depth>7.24"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.040 af

Subcatchment 9S: Subcat 1S Runoff Area=2,961 sf 100.00% Impervious Runoff Depth>7.24"
Tc=6.0 min CN=98 Runoff=0.50 cfs 0.041 af

Reach AP1: AP1 Inflow=1.49 cfs 0.109 af
Outflow=1.49 cfs 0.109 af

Reach AP2: AP2 Inflow=2.53 cfs 0.164 af
Outflow=2.53 cfs 0.164 af

Reach AP3: AP 3 Inflow=1.07 cfs 0.076 af
Outflow=1.07 cfs 0.076 af

Reach AP4: AP 4 Inflow=0.80 cfs 0.057 af
Outflow=0.80 cfs 0.057 af

Pond 1P: CB1 Peak Elev=100.90' Inflow=4.50 cfs 0.349 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0100 '/' Outflow=4.50 cfs 0.349 af

Pond 2P: CB1 Peak Elev=99.38' Inflow=1.58 cfs 0.128 af
12.0" Round Culvert n=0.013 L=4.0' S=0.0100 '/' Outflow=1.58 cfs 0.128 af

Pond 3P: R-TANKS Peak Elev=98.76' Storage=0.142 af Inflow=6.08 cfs 0.477 af
Discarded=0.66 cfs 0.403 af Primary=1.86 cfs 0.074 af Outflow=2.52 cfs 0.477 af

Pond 4P: Drip edge Peak Elev=103.01' Storage=616 cf Inflow=0.49 cfs 0.040 af
Discarded=0.03 cfs 0.037 af Primary=0.19 cfs 0.002 af Outflow=0.22 cfs 0.040 af

Pond 5P: Drip edge Peak Elev=103.01' Storage=617 cf Inflow=0.55 cfs 0.045 af
Discarded=0.03 cfs 0.040 af Primary=0.35 cfs 0.006 af Outflow=0.39 cfs 0.045 af

Pond 6P: Drip edge Peak Elev=102.50' Storage=661 cf Inflow=0.50 cfs 0.041 af
Discarded=0.04 cfs 0.040 af Primary=0.12 cfs 0.001 af Outflow=0.16 cfs 0.041 af

Summary for Subcatchment 1S: Subcat 1S

Runoff = 1.49 cfs @ 12.09 hrs, Volume= 0.107 af, Depth= 3.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
18,392	61	>75% Grass cover, Good, HSG B
18,392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 2S: Subcat 2S

Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.087 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
12,372	61	>75% Grass cover, Good, HSG B
1,102	98	Paved parking, HSG B
13,474	64	Weighted Average
12,372		91.82% Pervious Area
1,102		8.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3S: Subcat 3S

Runoff = 1.07 cfs @ 12.09 hrs, Volume= 0.076 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
7,953	61	>75% Grass cover, Good, HSG B
2,257	98	Paved parking, HSG B
10,210	69	Weighted Average
7,953		77.89% Pervious Area
2,257		22.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 4S: Subcat 4S

Runoff = 0.80 cfs @ 12.09 hrs, Volume= 0.057 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
4,558	61	>75% Grass cover, Good, HSG B
2,278	98	Roofs, HSG B
6,836	73	Weighted Average
4,558		66.68% Pervious Area
2,278		33.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 5S: Subcat 5

Runoff = 4.50 cfs @ 12.08 hrs, Volume= 0.343 af, Depth= 6.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
13,303	98	Paved parking, HSG B
7,865	98	Roofs, HSG B
5,424	61	>75% Grass cover, Good, HSG B
1,411	98	Paved parking, HSG B
28,003	91	Weighted Average
5,424		19.37% Pervious Area
22,579		80.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 6S: Subcat 6

Runoff = 1.58 cfs @ 12.08 hrs, Volume= 0.128 af, Depth> 7.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
6,219	98	Paved parking, HSG B
240	61	>75% Grass cover, Good, HSG B
2,959	98	Roofs, HSG B
9,418	97	Weighted Average
240		2.55% Pervious Area
9,178		97.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 7S: Roofs

Runoff = 0.55 cfs @ 12.08 hrs, Volume= 0.045 af, Depth> 7.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
2,960	98	Roofs, HSG B
307	98	Water Surface, HSG B
3,267	98	Weighted Average
3,267		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 8S: Roofs

Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.040 af, Depth> 7.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
2,571	98	Roofs, HSG B
307	98	Water Surface, HSG B
2,878	98	Weighted Average
2,878		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 9S: Subcat 1S

Runoff = 0.50 cfs @ 12.08 hrs, Volume= 0.041 af, Depth> 7.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR STORM Rainfall=7.48"

Area (sf)	CN	Description
2,631	98	Roofs, HSG B
330	98	Water Surface, HSG B
2,961	98	Weighted Average
2,961		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach AP1: AP1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.490 ac, 13.87% Impervious, Inflow Depth = 2.66" for 50-YR STORM event
Inflow = 1.49 cfs @ 12.09 hrs, Volume= 0.109 af
Outflow = 1.49 cfs @ 12.09 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP2: AP2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.309 ac, 68.38% Impervious, Inflow Depth = 1.50" for 50-YR STORM event
Inflow = 2.53 cfs @ 12.34 hrs, Volume= 0.164 af
Outflow = 2.53 cfs @ 12.34 hrs, Volume= 0.164 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP3: AP 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.234 ac, 22.11% Impervious, Inflow Depth = 3.91" for 50-YR STORM event
Inflow = 1.07 cfs @ 12.09 hrs, Volume= 0.076 af
Outflow = 1.07 cfs @ 12.09 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach AP4: AP 4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.157 ac, 33.32% Impervious, Inflow Depth = 4.35" for 50-YR STORM event
Inflow = 0.80 cfs @ 12.09 hrs, Volume= 0.057 af
Outflow = 0.80 cfs @ 12.09 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 1P: CB1

Inflow Area = 0.718 ac, 82.65% Impervious, Inflow Depth = 5.84" for 50-YR STORM event
Inflow = 4.50 cfs @ 12.08 hrs, Volume= 0.349 af
Outflow = 4.50 cfs @ 12.08 hrs, Volume= 0.349 af, Atten= 0%, Lag= 0.0 min
Primary = 4.50 cfs @ 12.08 hrs, Volume= 0.349 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 100.90' @ 12.08 hrs
Flood Elev= 101.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.13'	**12.0" Round Culvert** L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.13' / 98.07' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.49 cfs @ 12.08 hrs HW=100.90' TW=97.88' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 4.49 cfs @ 5.72 fps)

Summary for Pond 2P: CB1

Inflow Area = 0.216 ac, 97.45% Impervious, Inflow Depth > 7.12" for 50-YR STORM event
Inflow = 1.58 cfs @ 12.08 hrs, Volume= 0.128 af
Outflow = 1.58 cfs @ 12.08 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min
Primary = 1.58 cfs @ 12.08 hrs, Volume= 0.128 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 99.38' @ 12.08 hrs
Flood Elev= 101.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.50' / 98.46' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.58 cfs @ 12.08 hrs HW=99.38' TW=97.88' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 1.58 cfs @ 2.89 fps)

Summary for Pond 3P: R-TANKS

Inflow Area = 0.934 ac, 86.08% Impervious, Inflow Depth > 6.13" for 50-YR STORM event
Inflow = 6.08 cfs @ 12.08 hrs, Volume= 0.477 af
Outflow = 2.52 cfs @ 12.31 hrs, Volume= 0.477 af, Atten= 59%, Lag= 13.7 min
Discarded = 0.66 cfs @ 12.31 hrs, Volume= 0.403 af
Primary = 1.86 cfs @ 12.31 hrs, Volume= 0.074 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 98.76' @ 12.31 hrs Surf.Area= 0.088 ac Storage= 0.142 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 65.9 min (833.0 - 767.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	96.40'	0.061 af	**28.93'W x 133.02'L x 2.94'H Field A** 0.260 af Overall - 0.107 af Embedded = 0.153 af x 40.0% Voids
#2A	96.73'	0.101 af	**ACF R-Tank HD 1** x 1045 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 19 Rows of 55 Chambers
		0.163 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	96.40'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 94.80'
#2	Primary	97.90'	**15.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 97.90' / 97.80' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Discarded OutFlow Max=0.66 cfs @ 12.31 hrs HW=98.76' (Free Discharge)
↑**1=Exfiltration** (Controls 0.66 cfs)

Primary OutFlow Max=1.86 cfs @ 12.31 hrs HW=98.76' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Barrel Controls 1.86 cfs @ 2.93 fps)

Summary for Pond 4P: Drip edge

[82] Warning: Early inflow requires earlier time span
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=38)

Inflow Area = 0.066 ac,100.00% Impervious, Inflow Depth > 7.24" for 50-YR STORM event
Inflow = 0.49 cfs @ 12.08 hrs, Volume= 0.040 af
Outflow = 0.22 cfs @ 12.34 hrs, Volume= 0.040 af, Atten= 54%, Lag= 15.5 min
Discarded = 0.03 cfs @ 12.34 hrs, Volume= 0.037 af
Primary = 0.19 cfs @ 12.34 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 103.01' @ 12.34 hrs Surf.Area= 307 sf Storage= 616 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 144.9 min (887.3 - 742.4)

Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	617 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	307	0	0
102.00	307	307	307
103.00	307	307	614
103.01	307	3	617

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 97.70'
#2	Primary	103.00'	**153.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.03 cfs @ 12.34 hrs HW=103.01' (Free Discharge)
↑**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.17 cfs @ 12.34 hrs HW=103.01' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.17 cfs @ 0.20 fps)

Summary for Pond 5P: Drip edge

[82] Warning: Early inflow requires earlier time span
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=11)

Inflow Area =	0.075 ac,100.00% Impervious,	Inflow Depth >	7.24"	for 50-YR STORM event
Inflow =	0.55 cfs @	12.08 hrs, Volume=	0.045 af	
Outflow =	0.39 cfs @	12.20 hrs, Volume=	0.045 af,	Atten= 30%, Lag= 7.1 min
Discarded =	0.03 cfs @	12.20 hrs, Volume=	0.040 af	
Primary =	0.35 cfs @	12.20 hrs, Volume=	0.006 af	

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 103.01' @ 12.20 hrs Surf.Area= 307 sf Storage= 617 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 138.0 min (880.4 - 742.4)

Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	617 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	307	0	0
102.00	307	307	307
103.00	307	307	614
103.01	307	3	617

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 97.70'
#2	Primary	103.00'	**153.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.03 cfs @ 12.20 hrs HW=103.01' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.33 cfs @ 12.20 hrs HW=103.01' TW=99.54' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.33 cfs @ 0.26 fps)

Summary for Pond 6P: Drip edge

[82] Warning: Early inflow requires earlier time span
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=70)

Inflow Area =	0.068 ac,100.00% Impervious,	Inflow Depth >	7.24"	for 50-YR STORM event
Inflow =	0.50 cfs @ 12.08 hrs,	Volume=	0.041 af	
Outflow =	0.16 cfs @ 12.43 hrs,	Volume=	0.041 af,	Atten= 67%, Lag= 21.0 min
Discarded =	0.04 cfs @ 12.43 hrs,	Volume=	0.040 af	
Primary =	0.12 cfs @ 12.43 hrs,	Volume=	0.001 af	

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.50' @ 12.43 hrs Surf.Area= 330 sf Storage= 661 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 139.3 min (881.7 - 742.4)

Volume	Invert	Avail.Storage	Storage Description
#1	100.50'	663 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.50	330	0	0
101.50	330	330	330
102.50	330	330	660
102.51	330	3	663

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.50'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 97.70'
#2	Primary	102.50'	**166.0' long x 0.5' breadth Broad-Crested Rectangular Weir**

Head (feet)	0.20	0.40	0.60	0.80	1.00
Coef. (English)	2.80	2.92	3.08	3.30	3.32

Discarded OutFlow Max=0.04 cfs @ 12.43 hrs HW=102.50' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.11 cfs @ 12.43 hrs HW=102.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.11 cfs @ 0.17 fps)

APPENDIX III

Charts, Graphs, and Calculations

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.795 degrees West
Latitude	43.025 degrees North
Elevation	0 feet
Date/Time	Fri, 18 Oct 2019 12:01:39 **-0400**

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.66	0.82	1.04	1yr	0.71	0.98	1.22	1.57	2.05	2.68	2.95	1yr	2.38	2.84	3.25	3.97	4.60	1yr
2yr	0.32	0.50	0.62	0.82	1.03	1.30	2yr	0.89	1.18	1.52	1.95	2.51	3.24	3.60	2yr	2.87	3.47	3.97	4.72	5.37	2yr
5yr	0.37	0.58	0.73	0.98	1.25	1.61	5yr	1.08	1.47	1.89	2.44	3.16	4.11	4.63	5yr	3.64	4.45	5.10	6.00	6.77	5yr
10yr	0.41	0.65	0.82	1.12	1.46	1.90	10yr	1.26	1.73	2.24	2.91	3.78	4.92	5.59	10yr	4.35	5.38	6.16	7.19	8.06	10yr
25yr	0.48	0.76	0.97	1.34	1.78	2.35	25yr	1.54	2.15	2.79	3.66	4.78	6.24	7.18	25yr	5.53	6.90	7.91	9.14	10.17	25yr
50yr	0.54	0.86	1.11	1.55	2.08	2.77	50yr	1.80	2.54	3.31	4.36	5.72	7.48	8.69	50yr	6.62	8.35	9.56	10.96	12.12	50yr
100yr	0.60	0.97	1.25	1.78	2.43	3.28	100yr	2.10	2.99	3.93	5.20	6.84	8.96	10.51	100yr	7.93	10.10	11.56	13.15	14.46	100yr
200yr	0.68	1.11	1.44	2.06	2.85	3.87	200yr	2.46	3.54	4.66	6.19	8.17	10.75	12.71	200yr	9.51	12.22	13.99	15.79	17.25	200yr
500yr	0.81	1.33	1.73	2.51	3.51	4.81	500yr	3.03	4.41	5.82	7.79	10.34	13.67	16.35	500yr	12.09	15.72	18.00	20.10	21.79	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.72	0.89	1yr	0.63	0.87	0.92	1.33	1.67	2.26	2.58	1yr	2.00	2.48	2.89	3.17	3.93	1yr
2yr	0.32	0.49	0.60	0.81	1.00	1.19	2yr	0.87	1.17	1.37	1.82	2.33	3.09	3.50	2yr	2.73	3.37	3.87	4.60	5.13	2yr
5yr	0.35	0.54	0.67	0.92	1.18	1.41	5yr	1.02	1.38	1.61	2.12	2.73	3.84	4.27	5yr	3.40	4.11	4.78	5.62	6.34	5yr
10yr	0.39	0.60	0.74	1.04	1.34	1.61	10yr	1.15	1.57	1.81	2.39	3.06	4.44	4.97	10yr	3.93	4.78	5.57	6.54	7.33	10yr
25yr	0.44	0.68	0.84	1.20	1.58	1.91	25yr	1.36	1.87	2.11	2.76	3.54	4.78	6.06	25yr	4.23	5.83	6.85	8.00	8.87	25yr
50yr	0.49	0.74	0.93	1.33	1.79	2.18	50yr	1.55	2.13	2.35	3.07	3.94	5.41	7.03	50yr	4.78	6.76	8.02	9.32	10.26	50yr
100yr	0.55	0.83	1.03	1.49	2.05	2.49	100yr	1.77	2.43	2.64	3.41	4.36	6.09	8.15	100yr	5.39	7.83	9.39	10.87	11.87	100yr
200yr	0.61	0.91	1.15	1.67	2.33	2.84	200yr	2.01	2.78	2.95	3.77	4.81	6.84	9.45	200yr	6.05	9.09	11.01	12.70	13.75	200yr
500yr	0.71	1.05	1.35	1.96	2.79	3.40	500yr	2.41	3.33	3.43	4.31	5.49	7.98	11.49	500yr	7.06	11.05	13.58	15.61	16.67	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.44	0.54	0.73	0.89	1.09	1yr	0.77	1.06	1.26	1.74	2.20	3.02	3.17	1yr	2.67	3.05	3.62	4.41	5.10	1yr
2yr	0.34	0.52	0.64	0.87	1.07	1.27	2yr	0.92	1.24	1.48	1.96	2.51	3.46	3.72	2yr	3.06	3.58	4.10	4.87	5.69	2yr
5yr	0.40	0.62	0.77	1.05	1.34	1.62	5yr	1.16	1.59	1.88	2.53	3.24	4.38	4.97	5yr	3.87	4.78	5.42	6.40	7.18	5yr
10yr	0.47	0.72	0.89	1.25	1.61	1.98	10yr	1.39	1.94	2.28	3.10	3.94	5.38	6.20	10yr	4.76	5.96	6.80	7.86	8.77	10yr
25yr	0.58	0.88	1.09	1.56	2.05	2.58	25yr	1.77	2.52	2.95	4.06	5.12	7.86	8.31	25yr	6.96	7.99	9.08	10.35	11.42	25yr
50yr	0.67	1.02	1.28	1.83	2.47	3.14	50yr	2.13	3.07	3.59	4.98	6.28	9.84	10.38	50yr	8.71	9.98	11.31	12.72	13.96	50yr
100yr	0.79	1.20	1.50	2.16	2.97	3.82	100yr	2.56	3.73	4.36	6.13	7.70	12.31	12.97	100yr	10.89	12.47	14.07	15.67	17.06	100yr
200yr	0.93	1.39	1.77	2.56	3.57	4.67	200yr	3.08	4.56	5.32	7.55	9.45	15.44	16.23	200yr	13.66	15.60	17.53	19.28	20.87	200yr
500yr	1.15	1.71	2.20	3.19	4.54	6.06	500yr	3.92	5.92	6.91	9.98	12.41	20.85	21.82	500yr	18.45	20.98	23.44	25.37	27.25	500yr

Powered by ACIS
Northeast Regional Climate Center

Soil Map—Rockingham County, New Hampshire
(18165)

Map Scale: 1:6,200 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 50, 100, 200, 300

Feet: 0, 300, 600, 1200, 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 21, Sep 16, 2019

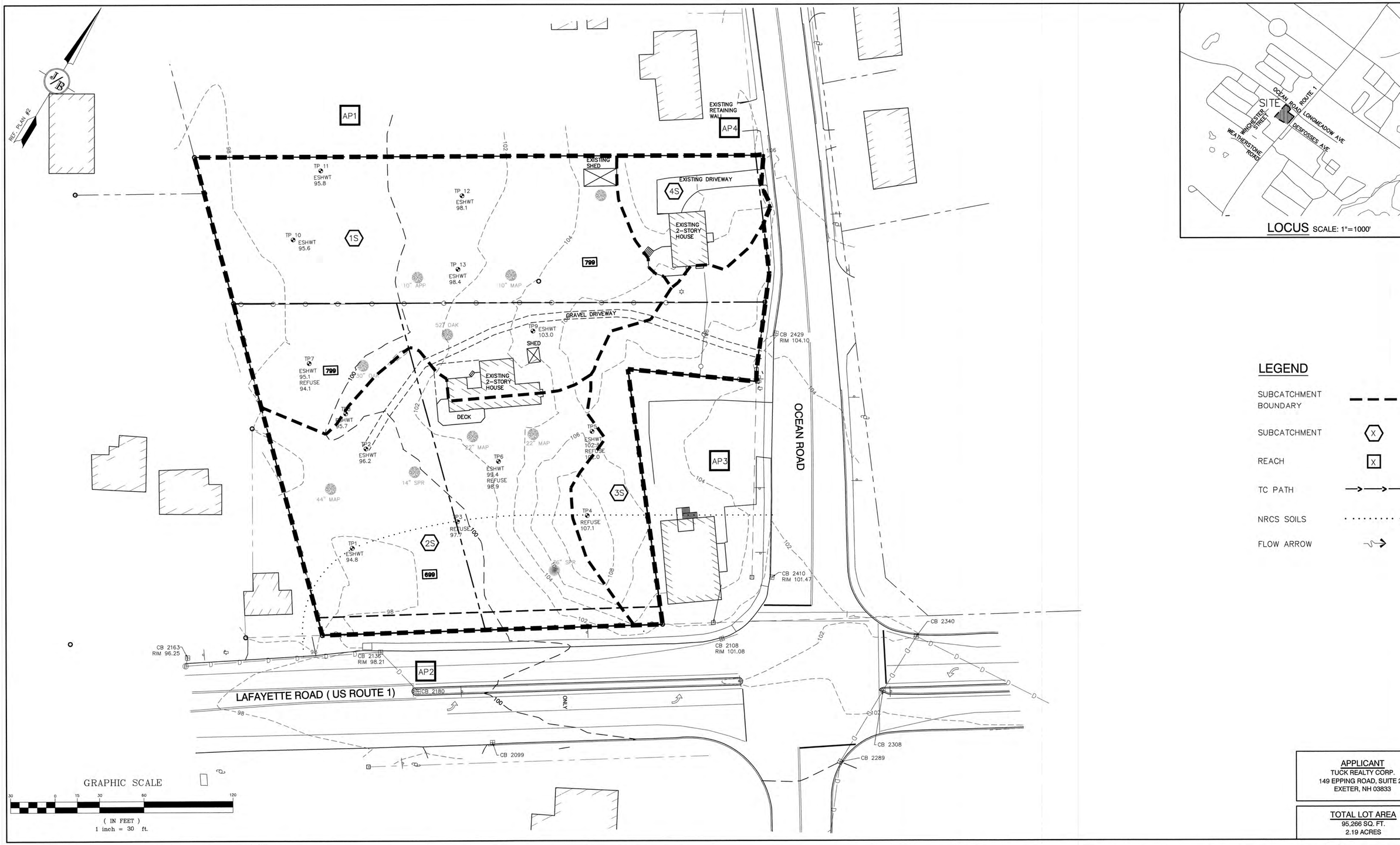
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

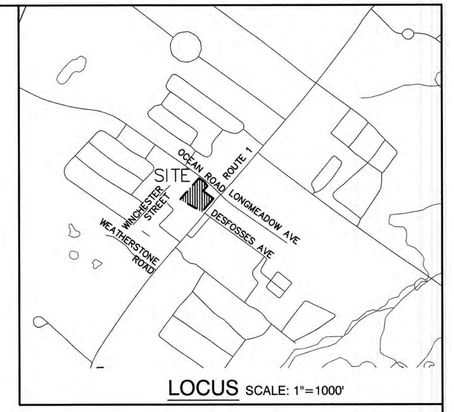
Date(s) aerial images were photographed: Dec 31, 2009—Jun 14, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
26B	Windsor loamy sand, 3 to 8 percent slopes	2.4	1.5%
140B	Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky	1.1	0.7%
140C	Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, rocky	0.8	0.5%
295	Udorthents, smoothed	31.7	20.2%
495	Natchaug mucky peat, 0 to 2 percent slopes	0.3	0.2%
510B	Hoosic gravelly fine sandy loam, 3 to 8 percent slopes	16.7	10.6%
538A	Squamscott fine sandy loam, 0 to 5 percent slopes	8.8	5.6%
699	Urban land	16.3	10.4%
799	Urban land-Canton complex, 3 to 15 percent slopes	79.1	50.4%
Totals for Area of Interest		157.0	100.0%





LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH [X]
- TC PATH
- NRCS SOILS
- FLOW ARROW

APPLICANT
TUCK REALTY CORP.
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA
95,266 SQ. FT.
2.19 ACRES

Design: JAC	Draft: LAZ	Date: 9/17/19
Checked: JAC	Scale: 1" = 30'	Project No.: 18165
Drawing Name: 18165-WATERSHED.dwg		

STATE OF NEW HAMPSHIRE — MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
1	12/18/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING WATERSHED PLAN
Project:	3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record:	CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801; WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.
W1
SHEET 1 OF 2
JBE PROJECT NO. 18165

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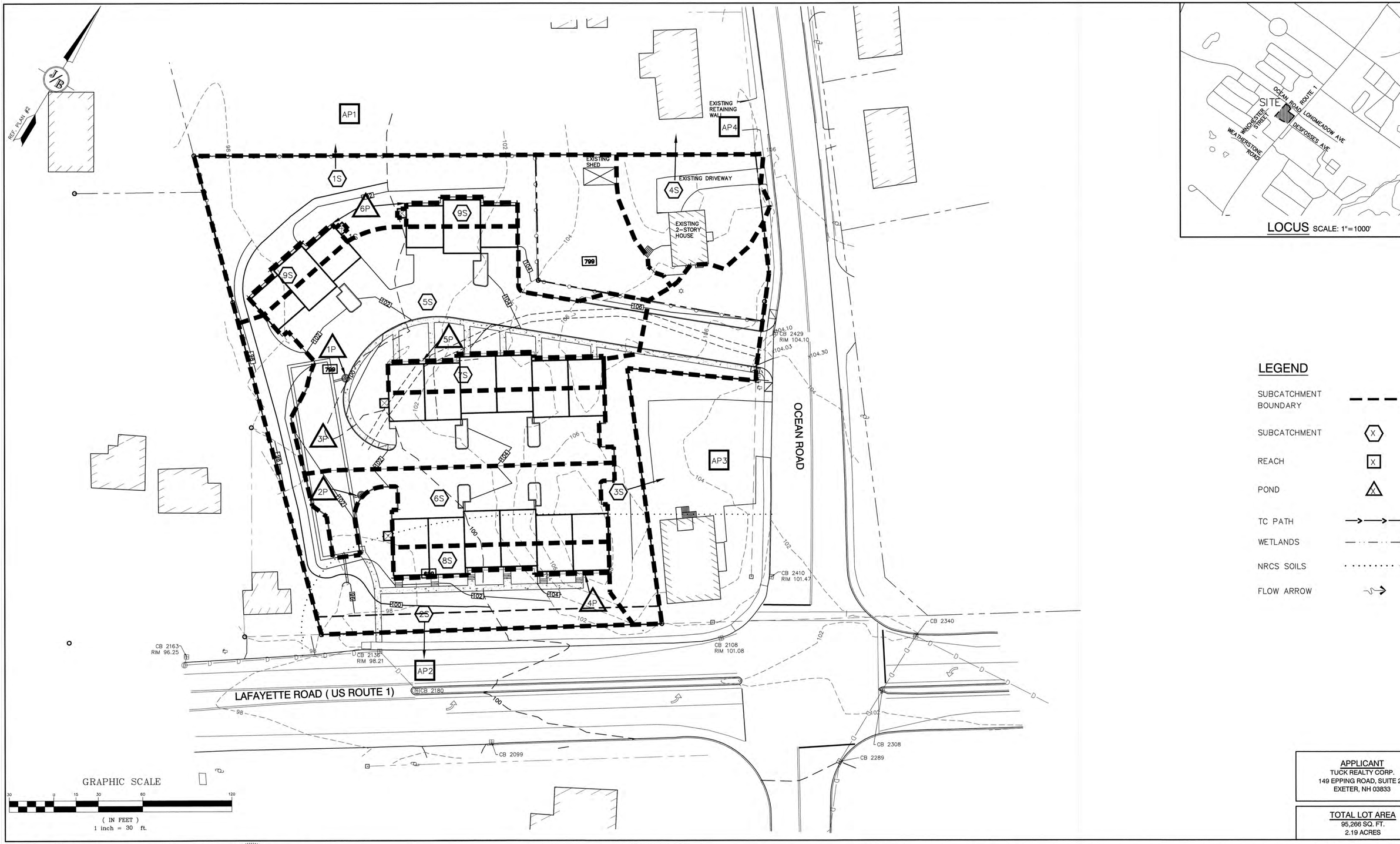

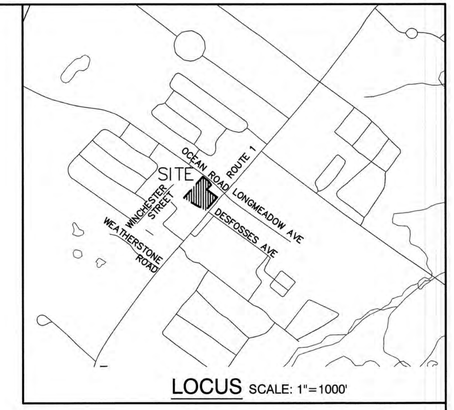

LOCUS SCALE: 1"=1000'

LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH (X)
- POND (X)
- TC PATH
- WETLANDS
- NRCS SOILS
- FLOW ARROW

APPLICANT
TUCK REALTY CORP.
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA
95,266 SQ. FT.
2.19 ACRES

Design: JAC	Draft: LAZ	Date: 9/17/19
Checked: JAC	Scale: 1" = 30'	Project No.: 18165
Drawing Name: 18165-WATERSHED.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE — MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
1	12/18/19	REVISED PER TOWN COMMENTS	LAZ
0	10/29/19	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PROPOSED WATERSHED PLAN
Project:	3110 LAFAYETTE ROAD AND 65 OCEAN ROAD PORTSMOUTH, NH 03801
Owner of Record:	CARTER CHAD, 65 OCEAN ROAD SUITE 21 PORTSMOUTH, NH 03801 — WEEKS REALTY TRUST, WEEKS KALEY E. TRUSTEE, PO BOX 100, HAMPTON FALLS, NH 03844

DRAWING No.
W2
SHEET 2 OF 2
JBE PROJECT NO. 18165

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JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

January 21, 2020

Portsmouth Planning Board
Attn: Dexter Legg
1 Junkins Avenue, Suite 3rd Floor
Portsmouth, NH 03801

RE: Groundwater Mounding Analysis
3110 Lafayette Road & 65 Ocean Road, Portsmouth, NH
Tax Map 292, Lots 151-1 & 151-2
JBE Project No. 18165

Dear Mr. Legg,

Jones & Beach Engineers, Inc., has performed a Groundwater Mounding Analysis for the subject site utilizing the Hantush Equation.

The parameters used in the Hantush Analysis utilize on-site testing and published values. Groundwater mounding calculations were derived using a Microsoft Excel document supplied by the USGS that acts as a supplement to the USGS report titled "Simulation of Groundwater Mounding Beneath Hypothetical Stormwater Infiltration Basins". This document can be found at the following web address:

http://pubs.usgs.gov/sir/2010/5102/support/sir2010-5102.pdf

The results of the groundwater mounding calculations for the proposed subsurface infiltration system consisting of R-Tanks is included with this document.

The input values were gathered from testing results and assumed values taken from published documents.

The infiltration rate, or saturated hydraulic conductivity (Ksat) value was determined using the 'Ksat Values for New Hampshire Soils', SSSNNE Special Publication No. 5, September, 2009. The in-situ soil in the area of infiltration is Urban Land-Canton Complex which has a minimum Ksat value of 6.0 inches/hour. A factor of safety of 2 was applied and a Ksat value of 3.0 inches/hour (6.0 ft/day) was used in the analysis. A 10:1 ratio of horizontal to vertical hydraulic conductivity is used per the USGS Report.

The time used for the groundwater mounding calculations is the drawdown time calculated for the infiltration system using the NH DES BMP Worksheet for Infiltration Practice Criteria (attached).

The Saturated Thickness value used for the mounding calculations was chosen using the USGS Document and a more conservative value of 10' is used (as opposed to 20' or 40' which yield lesser mounding values).

The specific yield for the groundwater calculations was chosen at 17% using the USGS Report and the test pit logs which show a sandy material.

These calculations show that a groundwater mound of 2.4' will occur underneath the center of the system. The closest foundation to the center of system is 72' away. Interpolating the Groundwater Mounding Table within the Groundwater Mounding Analysis, at a distance of 72' from the center of the basin there will be a 0.048' mound. This relates to 0.6", basically one-half an inch. This slight increase in groundwater elevation should not cause any problems with the adjacent foundation.

This proposed site development will have minimal adverse effect on abutting infrastructures or properties by way of stormwater infiltration if properly constructed in accordance with the Drainage Analysis and approved project plan set.

JONES & BEACH ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 · JonesandBeach.com

GROUNDWATER MOUNDING ANALYSIS

Project:	**Ocean Road Condominiums**
Location:	**3110 LaFayette Road/ 65 Ocean Raod**
By:	**Jones and Beach Engineers, Inc.**
Date:	**01/22/2020**
Project #:	**18165**

Input Values

6.0000	*R*	Recharge (infiltration) rate (feet/day)
0.170	Sy	Specific yield, Sy (dimensionless, between 0 and 1)
60.00	K	Horizontal hydraulic conductivity, Kh (feet/day)
12.500	x	1/2 length of basin (x direction, in feet)
64.500	y	1/2 width of basin (y direction, in feet)
0.150	t	duration of infiltration period (days)
10.000	hi(0)	initial thickness of saturated zone (feet)

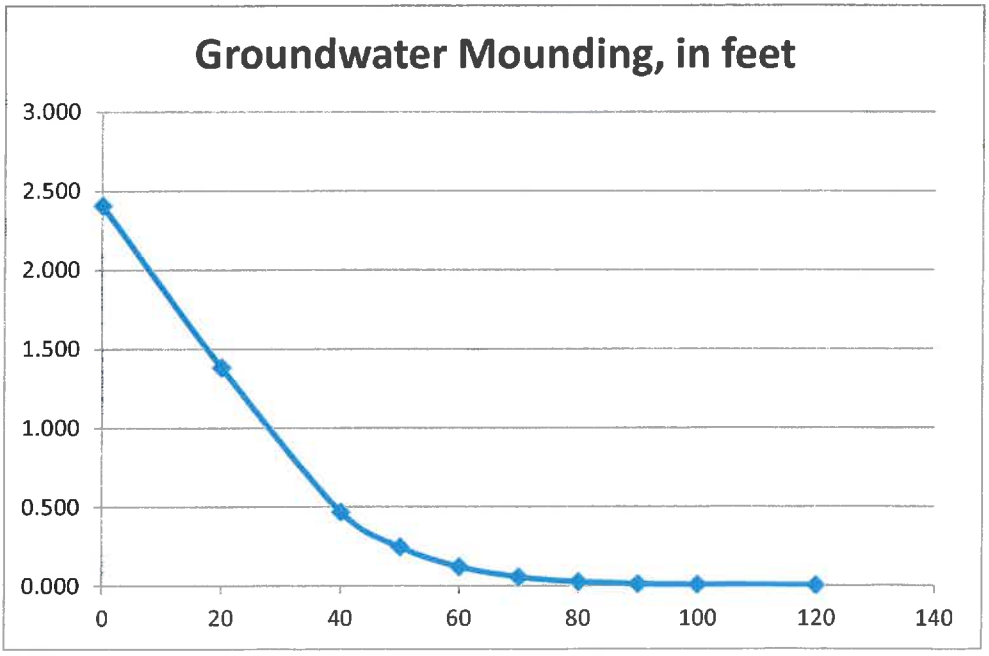
Solution

12.407	h(max)	maximum thickness of saturated zone*
2.407	Δh(max)	maximum groundwater mounding*

* Beneath center of basin at end of infiltration period

Table & Chart

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.407	0
1.381	20
0.467	40
0.243	50
0.119	60
0.054	70
0.024	80
0.010	90
0.005	100
0.002	120



Sourced directly from the USGS Hantush 1967 Equation Solver

JONES & BEACH ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 · JonesandBeach.com

GROUNDWATER MOUNDING ANALYSIS

Project:	**Ocean Road Condominiums**
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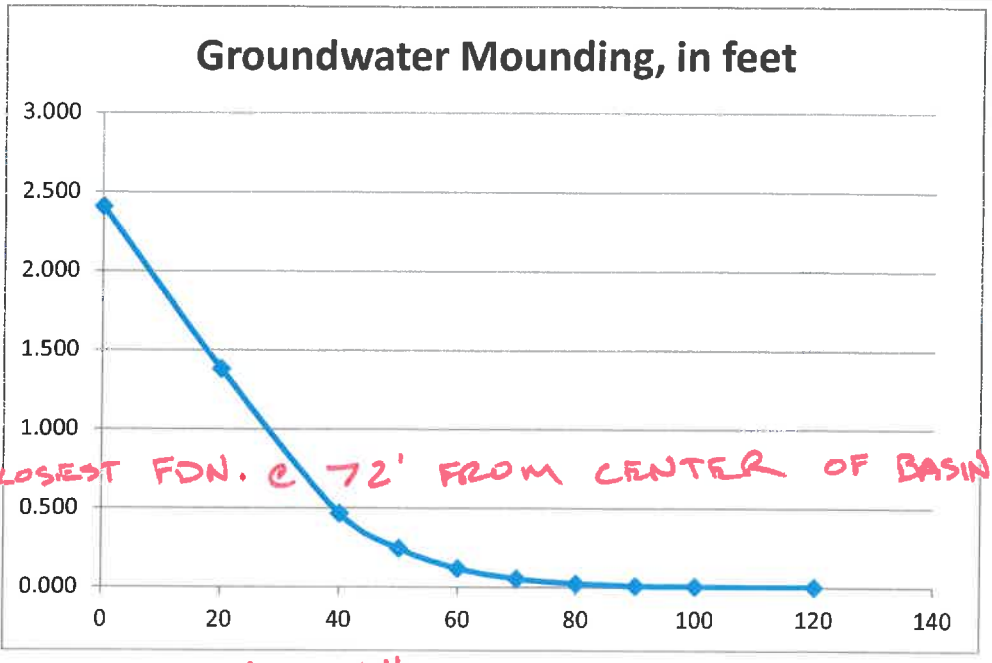
2.407	Δh(max)	maximum groundwater mounding*

* Beneath center of basin at end of infiltration period

Table & Chart

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.407	0
1.381	20
0.467	40
0.243	50
0.119	60
0.054	70
0.048	CLOSEST FDN. @ 72' FROM CENTER OF BASIN
0.024	80
0.010	90
0.005	100
0.002	120



0.048' MOUND @ 72' = 0.6"

Sourced directly from the USGS Hantush 1967 Equation Solver

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: _____

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable

		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	
0.93	ac	A = Area draining to the practice	
0.80	ac	A_I = Impervious area draining to the practice	
0.86	decimal	I = percent impervious area draining to the practice, in decimal form	
0.82	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.77	ac-in	WQV= 1" x Rv x A	
2,796	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
699	cf	25% x WQV (check calc for sediment forebay volume)	
		Method of pretreatment? (not required for clean or roof runoff)	
	cf	V_{SED} = sediment forebay volume, if used for pretreatment	← ≥ 25%WQV
4,356	cf	V = volume[1] (attach a stage-storage table)	← ≥ WQV
3,225	sf	A_{SA} = surface area of the bottom of the pond	
3.00	iph	$Ksat_{DESIGN}$ = design infiltration rate[2] = R	
3.5	hours	T_{DRAIN} = drain time = V / (A_{SA} * I_{DESIGN}) = t = 0.15 days	← ≤ 72-hrs
	feet	E_{BTM} = elevation of the bottom of the basin	
	feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
	feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
-	feet	D_{SHWT} = separation from SHWT	← ≥ *[3]
-	feet	D_{ROCK} = separation from bedrock	← ≥ *[3]
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	← ≥ 24"
	ft	D_T = depth of trench, if trench proposed	← 4 - 10 ft
	Yes/No	If a trench or underground system is proposed, observation well provided[4]	
		If a trench is proposed, material in trench	
		If a basin is proposed, basin floor material	
	Yes/No	If a basin is proposed, the perimeter should be curvilinear, basin floor shall be flat.	
	:1	If a basin is proposed, pond side slopes	← ≥3:1
	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
-		10 peak elevation ≤ Elevation of the top of the trench?[5]	← yes
-		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes: _____

Stage-Area-Storage for Pond 3P: R-TANKS

Elevation (feet)	Surface (acres)	Storage (acre-feet)
96.40	**0.088**	0.000
96.45	0.088	0.002
96.50	0.088	0.004
96.55	0.088	0.005
96.60	0.088	0.007
96.65	0.088	0.009
96.70	0.088	0.011
96.75	0.088	0.013
96.80	0.088	0.017
96.85	0.088	0.021
96.90	0.088	0.024
96.95	0.088	0.028
97.00	0.088	0.032
97.05	0.088	0.036
97.10	0.088	0.040
97.15	0.088	0.043
97.20	0.088	0.047
97.25	0.088	0.051
97.30	0.088	0.055
97.35	0.088	0.059
97.40	0.088	0.062
97.45	0.088	0.066
97.50	0.088	0.070
97.55	0.088	0.074
97.60	0.088	0.078
97.65	0.088	0.081
97.70	0.088	0.085
97.75	0.088	0.089
97.80	0.088	0.093
97.85	0.088	0.097
97.90	0.088	0.100
97.95	0.088	0.104
98.00	0.088	0.108
98.05	0.088	0.112
98.10	0.088	0.116
98.15	0.088	0.119
98.20	0.088	0.122
98.25	0.088	0.124
98.30	0.088	0.126
98.35	0.088	0.128
98.40	0.088	0.129
98.45	0.088	0.131
98.50	0.088	0.133
98.55	0.088	0.135
98.60	0.088	0.136
98.65	0.088	0.138
98.70	0.088	0.140
98.75	0.088	0.142
98.80	0.088	0.143
98.85	0.088	0.145
98.90	0.088	0.147
98.95	0.088	0.149
99.00	0.088	0.151
99.05	0.088	0.152
99.10	0.088	0.154
99.15	0.088	0.156
99.20	0.088	0.158
99.25	0.088	0.159
99.30	0.088	**0.161**

15" INV. = 97.90

0.100 Ac.ft x $\frac{43,560\ SF}{Ac}$

= 4356 CF AVAILABLE STORAGE

Summary for Pond 3P: R-TANKS

Inflow Area = 0.934 ac, 86.08% Impervious, Inflow Depth > 6.13" for 50-YR STORM event
Inflow = 6.08 cfs @ 12.08 hrs, Volume= 0.477 af
Outflow = 2.52 cfs @ 12.31 hrs, Volume= 0.477 af, Atten= 59%, Lag= 13.7 min
Discarded = 0.66 cfs @ 12.31 hrs, Volume= 0.403 af
Primary = 1.86 cfs @ 12.31 hrs, Volume= 0.074 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 98.76' @ 12.31 hrs Surf.Area= 0.088 ac Storage= 0.142 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 65.9 min (833.0 - 767.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	96.40'	0.061 af	**28.93'W x 133.02'L x 2.94'H Field A** 0.260 af Overall - 0.107 af Embedded = 0.153 af x 40.0% Voids
#2A	96.73'	0.101 af	**ACF R-Tank HD 1** x 1045 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 19 Rows of 55 Chambers
		0.163 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	96.40'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 94.80'
#2	Primary	97.90'	**15.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 97.90' / 97.80' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Discarded OutFlow Max=0.66 cfs @ 12.31 hrs HW=98.76' (Free Discharge)
↑**1=Exfiltration** (Controls 0.66 cfs)

Primary OutFlow Max=1.86 cfs @ 12.31 hrs HW=98.76' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Barrel Controls 1.86 cfs @ 2.93 fps)

JONES & BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

3110 Lafayette Road & 65 Ocean Road
Portsmouth, NH 03801
Tax Map 292, Lots 151-1, 151-2 & 153

Prepared for:

Tuck Realty Corp.
149 Epping Road, Suite 2A
Exeter, NH 03833

February 12, 2020
JBE Project No. 18165

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. The Homeowners Association, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The Homeowners Association, future owners and assigns shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. The annual report and certification shall be submitted with three copies to the DPW and the Town Planner by December 31st of each year.

B. General Inspection and Maintenance Requirements

1. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

    a. Vegetation and landscaping
    b. Parking lots and roadways
    c. Riprap outlet protection aprons
    d. Catch basins
    e. R-Tank Underground Detention System

2. Maintenance of permanent measures shall follow the following schedule:

    a. Normal winter roadway and parking lot maintenance including plowing and snow removal.

    b. Road and parking lot sweeping at the end of every winter, preferably at the start of the spring rain season.

    c. **Inspection** of culvert inlets and outlets at least **once per month** during the rainy season (March to November). Any debris is to be removed and disposed of properly.

    d. **Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately.

    e. **Annual inspection** of site's vegetation and landscaping. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in kind, if they are found to be dead or dying.

f. **Annual inspection** of catch basins to determine if they need to be cleaned. Catch basins are to be cleaned if the depth of deposits is greater than one-half the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin. If a catch basin significantly exceeds the one-half depth standard during the inspection, then it should be cleaned more frequently. If woody debris or trash accumulates in a catch basin, then it should be cleaned on a weekly basis. Manholes should be cleaned of any material upon inspection. Catch basins can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed. Grease hoods are to be wiped clean and the rags disposed of properly. Debris obscuring the grate inlet should also be removed.

g. Rock riprap should be **inspected annually** and after every major storm event in order to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock should be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation should not be allowed to become established in riprap areas, and/or any debris removed from the void spaces between the rocks. If the riprap is adjacent to a stream or other waterbody, the water should be kept clear of obstructions, debris, and sediment deposits.

h. R-Tank Underground Detention Systems:

See attached R-Tank Operation, Inspection & Maintenance by ACF Environmental.

Any inquiries in regards to the design, function, and/or maintenance of any one of the above-mentioned facilities or tasks shall be directed to the project engineer:

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
T#: (603) 772-4746

Commitment to maintenance requirements

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

_____

Signature

_____

Print Name

_____

Title

_____

Date

Annual Operations and Maintenance Report

The Homeowners Association, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The Association, future owners and assigns shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. The annual report and certification shall be submitted with three copies to the DPW and the Town Planner by December 31st of each year.

Construction Activity	Date of Inspection	Who Inspected	Findings of Inspector
Catch basins			
Vegetation and landscaping			
Parking lots and roadways			
Rip rap outlet protection			

R-Tank Underground Detention System			

R-TANK

R-TANK OPERATION, INSPECTION & MAINTENANCE

Operation

Your ACF R-Tank System has been designed to function in conjunction with the engineered drainage system on your site, the existing municipal infrastructure, and/or the existing soils and geography of the receiving watershed. Unless your site included certain unique and rare features, the operation of your R-Tank System will be driven by naturally occurring systems and will function autonomously. However, upholding a proper schedule of Inspection & Maintenance is critical to ensuring continued functionality and optimum performance of the system.

Inspection

Both the R-Tank and all stormwater pre-treatment features incorporated into your site must be inspected regularly. Inspection frequency for your system must be determined based on the contributing drainage area, but should never exceed one year between inspections (six months during the first year of operation).

Inspections may be required more frequently for pre-treatment systems. You should refer to the manufacturer requirements for the proper inspection schedule.

With the right equipment your inspection and measurements can be accomplished from the surface without physically entering any confined spaces. If your inspection does require confined space entry, you MUST follow all local/regional requirements as well as OSHA standards.

R-Tank Systems may incorporate Inspection Ports, Maintenance Ports, and/or adjoining manholes. Each of these features are easily accessed by removing the lid at the surface. With the cover removed, a visual inspection can be performed to identify sediment deposits within the structure. Using a flashlight, ALL access points should be examined to complete a thorough inspection.

Inspection Ports

Usually located centrally in the R-Tank System, these perforated columns are designed to give the user a base-line sediment depth across the system floor.

Maintenance Ports

Usually located near the inlet and outlet connections, you'll likely find deeper deposits of heavier sediments when compared to the Inspection Ports.

Manholes

Most systems will include at least two manholes - one at the inlet and another at the outlet. There may be more than one location where stormwater enters the system, which would result in additional manholes to inspect.

Bear in mind that these manholes often include a sump below the invert of the pipe connecting to the R-Tank. These sumps are designed to capture sediment before it reaches the R-Tank, and they should be kept clean to ensure they function properly. However, existence of sediment in the sump does NOT necessarily mean sediment has accumulated in the R-Tank.

After inspecting the bottom of the structure, use a mirror on a pole (or some other device) to check for sediment or debris in the pipe connecting to the R-Tank.

R-TANK OPERATION INSPECTION & MAINTENANCE

If sediment or debris is observed in any of these structures, you should determine the depth of the material. This is typically accomplished with a stadia rod, but you should determine the best way to obtain the measurement.

All observations and measurements should be recorded on an Inspection Log kept on file. We've included a form you can use at the end of this guideline.

Maintenance

The R-Tank System should be back-flushed once sediment accumulation has reached 6" or 15% of the total system height. Use the chart below as a guideline to determine the point at which maintenance is required on your system.

R-Tank Unit	Height	Max Sediment Dept
Mini	9.5"	1.5"
Single	17"	3"
Double	34"	5"
Triple	50"	6"
Quad	67"	6"
Pent	84"	6"

Before any maintenance is performed on your system, be sure to plug the outlet pipe to prevent contamination of the adjacent systems.

To back-flush the R-Tank, water is pumped into the system through the Maintenance Ports as rapidly as possible. Water should be pumped into ALL Maintenance Ports. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out.

If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well.

For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

Once removed, sediment-laden water may be captured for disposal or pumped through a Dirtbag™ (if permitted by the locality).

ACF ENVIRONMENTAL
LET'S GET IT DONE

2831 Cardwell Road
Richmond, Virginia, 23234
800.448.3636
FAX 804.743.7779
acfenvironmental.com

Step-By-Step Inspection & Maintenance Routine

1) **Inspection**
   a. Inspection Port
      i. Remove Cap
      ii. Use flashlight to detect sediment deposits
      iii. If present, measure sediment depth with stadia rod
      iv. Record results on Maintenance Log
      v. Replace Cap
   b. Maintenance Port/s
      i. Remove Cap
      ii. Use flashlight to detect sediment deposits
      iii. If present, measure sediment depth with stadia rod
      iv. Record results on Maintenance Log
      v. Replace Cap
      vi. Repeat for ALL Maintenance Ports
   c. Adjacent Manholes
      i. Remove Cover
      ii. Use flashlight to detect sediment deposits
      iii. If present, measure sediment depth with stadia rod, accounting for depth of sump (if present)
      iv. Inspect pipes connecting to R-Tank
      v. Record results on Maintenance Log
      vi. Replace Cover
      vii. Repeat for ALL Manholes that connect to the R-Tank

2) **Maintenance**
   a. Plug system outlet to prevent discharge of back-flush water
   b. Determine best location to pump out back-flush water
   c. Remove Cap from Maintenance Port
   d. Pump water as rapidly as possible (without over-topping port) into system until at least 1"
      of water covers system bottom
   e. Replace Cap
   f. Repeat at ALL Maintenance Ports
   g. Pump out back-flush water to complete back-flushing
   h. Vacuum all adjacent structures and any other structures or stormwater pre-treatment systems that require attention
   i. Sediment-laden water may be captured for disposal or pumped through a Dirtbag™.
   j. Replace any remaining Caps or Covers
   k. Record the back-flushing event in your Maintenance Log with any relevant specifics

R-Tank Maintenance Log

Site Name:____________________________

Location:____________________________

System Owner:____________________________

Company Responsible for Maintenance:____________________________

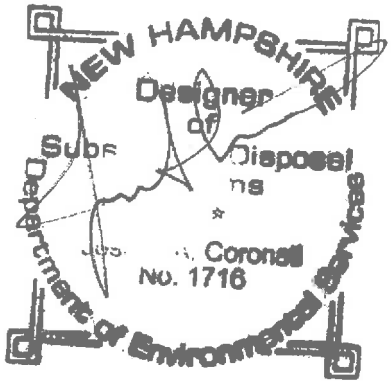
Contact:____________________________

Phone Number:____________________________

Date	Location	Depth to Bottom	Depth to Sediment	Sediment Depth	Observations/Notes	Initials

TEST PITS
FOR
3110 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE
AUGUST 2, 2019
JBE Project No. 18165

Performed by: Joseph Coronati, Jones & Beach Engineers, Inc., SSD #1716



Test Pit #1

0" - 8"		loam
8" - 36"		fine sandy loam friable
36" - 65"		loamy sand

SHWT = 36"
Roots to 28"
No H_2O @ observed
No Refusal observed

Test Pit #2 – grass mat, water line

0" -- 6"	10YR 3/2	very dark grayish brown fine sandy loam granular, friable many roots
6" - 20"	2.5Y 3/2	very dark grayish brown fine sandy loam granular, friable
20" - 36"	7.5YR 4/6	strong brown loamy sand massive friable
36" – 50"	2.5Y 5/4	light olive brown loamy sand massive friable

SHWT = 40"
Roots to 40"
H_2O @ 50"
No Refusal observed

Test Pit #3 – grass mat

0" - 4"	10YR 3/3	dark brown fine sandy loam granular, friable many roots
4" - 20"	2.5Y 3/2	very dark grayish brown fine sandy loam granular, friable many roots
20" - 32"	2.5Y 5/4	light olive brown fine sandy loam granular, friable 2% redox

SHWT = 20"
Roots to 20"
No H_2O observed
Refusal @ 32"

Test Pit #4 – grass mat, ledge at surface

0" - 6"	10YR 3/3	dark brown fine sandy loam granular, friable many roots
6" - 24"	2.5Y 3/2	very dark grayish brown fine sandy loam channers

SHWT = 24"
Roots to 24"
No H_2O observed
Refusal @ 24"

Test Pit #5 – grass mat, toe of ledge

0" - 6"	10YR 3/3	dark brown fine sandy loam granular, friable many roots
6" - 24"	2.5Y 3/2	very dark grayish brown fine sandy loam granular, friable
24" - 40"	2.5Y 3/2	very dark grayish brown fine sandy loam channers

SHWT = 36"
Roots to 12"
No H_2O observed
Refusal @ 40"

Test Pit #6 – grass mat, surface rocks

0" - 6"	10YR 3/3	dark brown fine sandy loam granular, friable
6" - 20"	2.5Y 3/2	very dark grayish brown fine sandy loam granular, friable
20" - 36"	2.5Y 3/2	very dark grayish brown fine sandy loam granular, friable
36" – 43"	2.5Y 5/4	light olive brown fine sandy loam granular, friable 2% redox

SHWT = 36"
Roots to 36"
No H_2O observed
Refusal @ 43"

Test Pit #7 – few bricks

0" - 6"	10YR 3/3	dark brown fine sandy loam granular, friable "A"
6" - 24"	10YR 3/2	very dark grayish brown fine sandy loam granular, friable "AP" – fill gravelly
24" - 36"	7.5YR 3/4	dark brown loam sand granular firm
36" – 48"	7.5YR 4/4	brown loamy sand platey firm rocks 2% redox

SHWT = 36"
Roots to 24"
No H_2O observed
Refusal @ 48"

Test Pit #8 – grass mat

0" - 6"	10YR 3/3	dark brown fine sandy loam granular, friable common roots "A"
6" - 48"	10YR 3/2	very dark grayish brown fine sandy loam granular, friable many roots "AP" – gravelly
48" - 60"	7.5YR 3/4	dark brown fine sandy loam granular, friable few roots
60" – 80"	10YR 5/6	yellowish brown loamy sand massive friable

SHWT = 60"
Roots to 60"
No H_2O observed
No Refusal observed

Test Pit #9 – grass mat, driveway

0" - 16"	7.5YR 4/6	strong brown fine sandy loam granular, friable common roots
16" - 24"	2.5Y 5/4	light olive brown loamy sand platey firm
24" - 48"	5Y 5/3	olive fine sand platey firm

SHWT = 24"
Roots to 24"
No H_2O observed
No Refusal observed

Test Pit #10 – grass mat

0" - 12"	10YR 3/3	dark brown fine sandy loam granular, friable "A" many roots
12" - 36"	10YR 3/2	very dark grayish brown fine sandy loam granular, friable "AP" common roots
36" - 46"	2.5Y 5/3	light olive brown fine sandy loam platey firm 2% redox

SHWT = 36"
Roots to 20"
No H_2O observed
No Refusal observed

Test Pit #11 – grass mat

0" - 12"	10YR 3/3	dark brown fine sandy loam granular, friable "A"
12" - 30"	10YR 3/2	very dark grayish brown fine sandy loam granular, friable "AP"
30" - 48"	2.5Y 5/3	light olive brown loamy sand platey firm
48" – 55"	5Y 5/3	olive fine sand platey firm

SHWT = 30"
Roots to 30"
No H_2O observed
No Refusal observed

Test Pit #12 – grass mat

0" - 14"	10YR 3/2	very dark grayish brown fine sandy loam granular, friable common roots
14" - 40"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
40" - 46"	2.5Y 5/3	light olive brown loamy sand platey firm 2% redox
46" – 56"	5Y 5/3	olive fine sand platey firm 10% redox

SHWT = 36"
Roots to 14"
No H_2O observed
No Refusal observed

Test Pit #13 – grass mat

0" - 8"	10YR 3/3	dark brown fine sandy loam granular, friable common roots
8" - 32"	2.5Y 5/6	light olive brown fine sandy loam granular, friable many roots
32" - 42"	2.5Y 5/3	light olive brown loamy sand platey firm
42" – 60"	5Y 5/3	olive fine sand platey firm 2% redox

SHWT = 32"
Roots to 32"
No H_2O observed
No Refusal observed