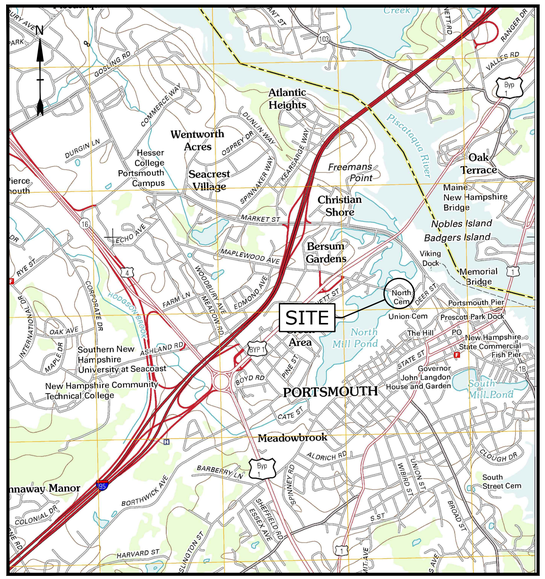
PROPOSED OFFICE BUILDING

111 MAPLEWOOD AVENUE
PORTSMOUTH, NEW HAMPSHIRE
PROJECT NO: K-0076-019
MARCH 18, 2019

LAST REVISED: APRIL 16, 2019

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	04/16/2019
1 of 2	SUBDIVISION PLAN	03/18/2019
2 of 2	SUBDIVISION PLAN	03/18/2019
C-101	OVERALL EXISTING CONDITIONS PLAN	04/16/2019
C-101.1	EXISTING CONDITIONS AND DEMOLITION PLAN	04/16/2019
C-101.2	EXISTING CONDITIONS AND DEMOLITION PLAN	04/16/2019
C-102	OVERALL SITE PLAN	04/16/2019
C-102.1	SITE PLAN	04/16/2019
C-102.2	SITE PLAN	04/16/2019
C-102.3	BASEMENT LEVEL FLOOR PLAN	04/16/2019
C-103.1	GRADING, DRAINAGE AND EROSIONS CONTROL PLAN	04/16/2019
C-103.2	GRADING, DRAINAGE AND EROSIONS CONTROL PLAN	04/16/2019
C-104.1	UTILITIES PLAN	04/16/2019
C-104.1	UTILITIES PLAN	04/16/2019
C-300	EASEMENT PLAN	04/16/2019
C-501	EROSION CONTROL NOTES & DETAILS	04/16/2019
C-502	DETAILS SHEET	04/16/2019
C-503	DETAILS SHEET	04/16/2019
C-504	DETAILS SHEET	04/16/2019
C-505	DETAILS SHEET	04/16/2019
C-506	DETAILS SHEET	04/16/2019
C-507	DETAILS SHEET	04/16/2019
L-101	LANDSCAPE PLAN	04/16/2019
L-501	LANDSCAPE DETAILS	04/16/2019
L-502	LANDSCAPE DETAILS	04/16/2019
LS-101	SITE LIGHT PHOTOMETRICS	03/18/2019
	BUILDING ELEVATION - ENTRY PASSAGE	04/12/2019
	BUILDING ELEVATION - MAPLEWOOD AVE	04/12/2019
	BUILDING ELEVATION - RAYNES AVE	04/12/2019
	BUILDING ELEVATION - VAUGHAN STREET	04/12/2019



LOCATION MAP
SCALE: 1" = 2,000'

LIST OF PERMITS		
LOCAL	STATUS	DATE
SITE PLAN REVIEW PERMIT	PENDING	
SUBDIVISION PERMIT	PENDING	
STATE		
NHDES - ALTERATION OF TERRAIN PERMIT	PENDING	
NHDES - SHORELAND PERMIT	PENDING	
NHDES - SEWER CONNECTION PERMIT	PENDING	
FEDERAL		
EPA - NPDES CGP	PENDING	

PREPARED BY:
Tighe&Bond
177 CORPORATE DRIVE
PORTSMOUTH, NEW HAMPSHIRE 03801
603-433-8818

BRADLEE MEZQUITA No. 09830 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE 4/16/19

PATRICK M. CRIMMINS No. 12078 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE 4/16/19

OWNER:
RJF-MAPLEWOOD, LLC
30 TEMPLE STREET, SUITE 400
NASHUA, NEW HAMPSHIRE 03060
603-672-0300

APPLICANT:
RW NORFOLK HOLDINGS, LLC
210 COMMERCE WAY, SUITE 300
PORTSMOUTH, NEW HAMPSHIRE 03801
603-430-4000

SURVEY CONSULTANT:
DOUCET SURVEY, INC.
102 KENT PLACE
NEWMARKET, NEW HAMPSHIRE 03110
603-659-6560

ARCHITECT:
CBT ARCHITECTS
110 CANAL STREET
BOSTON, MASSACHUSETTS 02114
617-262-4354

LANDSCAPE ARCHITECT:
HALVORSON DESIGN PARTNERSHIP, INC.
25 KINGSTON STREET, 5TH FLOOR
BOSTON, MASSACHUSETTS 02111
617-536-0380

TAC SUBMISSION
COMPLETE SET 30 SHEETS

Last Saved: 4/16/2019
Plotted: Apr 17, 2019 - 2:33pm By: NAHansen
Tighe & Bond: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Sheet\K-0076-019-COVER.dwg

NOTES:

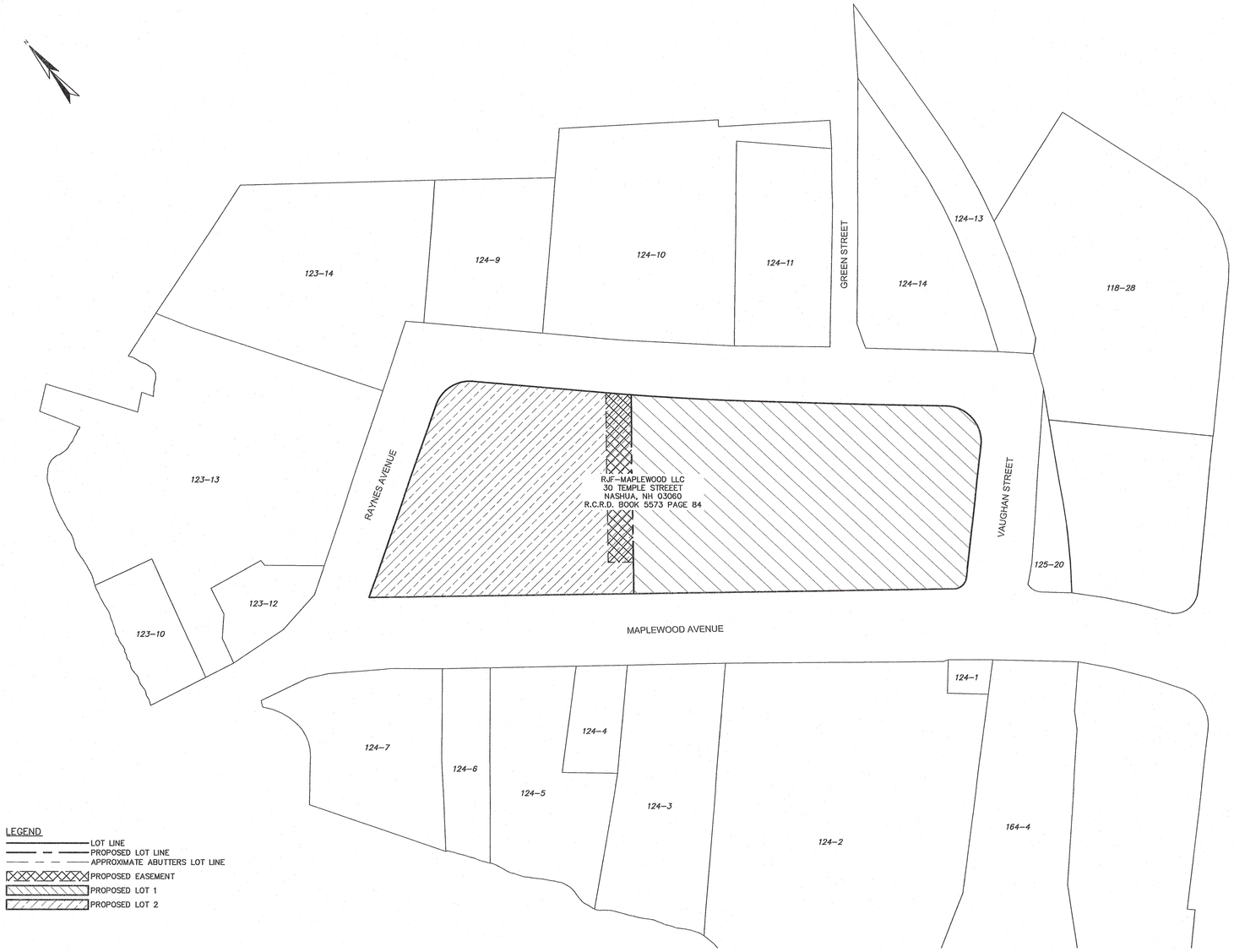
1. REFERENCE: TAX MAP 124, LOT 8
2. TOTAL PARCEL AREA: 101,362 SQ. FT. OR 2.327 AC.
3. OWNER OF RECORD: RJF–MAPLEWOOD LLC
   30 TEMPLE STREEET
   NASHUA, NH 03060
   R.C.R.D. BOOK 5573 PAGE 84
4. ZONE: CHARACTER DISTRICT 5 (CD5)
   DIMENSIONAL REQUIREMENTS:

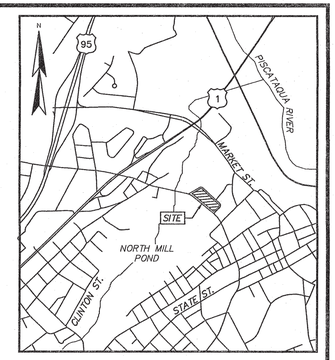
MIN. LOT AREA	NR
MAX. PRINCIPLE FRONT YARD	5 ft.
MAX. SECONDARY FRONT YARD	5 ft.
SIDE YARD	NR
MAX. BUILDING COVERAGE	95%

   ZONING INFORMATION LISTED HEREON IS BASED ON THE CITY OF PORTSMOUTH ZONING ORDINANCE AMENDED THROUGH 2/19/2019 AS AVAILABLE ON THE CITY WEBSITE ON 3/13/2019. ADDITIONAL REGULATIONS APPLY, AND REFERENCE IS HEREBY MADE TO THE EFFECTIVE ZONING ORDINANCE. THE LAND OWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE MUNICIPAL, STATE AND FEDERAL REGULATIONS.
5. FIELD SURVEY PERFORMED BY PJS & JPE DURING 8/12 USING A TRIMBLE S6 TOTAL STATION WITH A TRIMBLE TSC3 DATA COLLECTOR AND A SOKKIA B21 AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS. A SITE CHECK WAS PERFORMED IN JANUARY, 2019.
6. FLOOD HAZARD ZONES: "AE ELEV. 9" (SPECIAL FLOOD HAZARD AREA) AND "X" (NOT A SPECIAL FLOOD HAZARD AREA), PER FIRM MAP #33015C0259E, DATED 5/17/05.
7. HORIZONTAL DATUM BASED ON REFERENCE PLAN 1.
8. IN JANUARY, 2019, THE NORTHWESTERLY PORTION OF THE PROPERTY WAS ACTIVELY BEING USED AS A CONSTRUCTION STAGING AREA FOR WORK BEING DONE NORTHEASTERLY OF VAUGHAN STREET. EQUIPMENT AND MATERIAL WERE BEING STORED INSIDE A TEMPORARY FENCE.
9. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.
10. DUE TO THE COMPLEXITY OF RESEARCHING ROAD RECORDS AS A RESULT OF INCOMPLETE, UNORGANIZED, INCONCLUSIVE, OBLITERATED, OR LOST DOCUMENTS, THERE IS AN INHERENT UNCERTAINTY INVOLVED WHEN ATTEMPTING TO DETERMINE THE LOCATION AND WIDTH OF A ROADWAY RIGHT OF WAY. THE EXTENT OF THE ROADS AS DEPICTED HEREON ARE BASED ON REFERENCE PLAN 2.
11. WETLANDS WERE NOT DELINEATED.

REFERENCE PLANS:

1. "STANDARD PROPERTY SURVEY FOR PROPERTY AT 111 MAPLEWOOD AVENUE" DATED 1/31/06 BY NORTH EASTERLY SURVEY, R.C.R.D. PLAN D–33786.
2. "DISPOSITION PLAN PARCEL 3" DATED 6/73 BY ANDERSON–NICHOLS & CO., INC., R.C.R.D. PLAN D–4019.
3. "ALTA/ACSM LAND TITLE SURVEY, LAND OF MAPLEWOOD & VAUGHAN HOLDINGS COMPANY, LLC FOR R.J. FINLAY & COMPANY, LLC" DATED AUGUST 21, 2012 BY DOUCET SURVEY.





LEGEND

- LOT LINE
- PROPOSED LOT LINE
- APPROXIMATE ABUTTERS LOT LINE
- PROPOSED EASEMENT
- PROPOSED LOT 1
- PROPOSED LOT 2

ABUTTERS LIST:

TAX MAP 118 LOT 28
NORTH END MASTER DEVELOPMENT LP
501 DANFORTH STREET
PORTLAND, ME 04102
R.C.R.D. BK. 5569 PG. 2553

TAX MAP 123 LOT 10
31 RAYNES LLC
C/O PORTSMOUTH CHVROLET
549 ROUTE 1 BYPASS
PORTSMOUTH, NH 03801
R.C.R.D. BK. 4676 PG. 654

TAX MAP 123 LOT 12
203 MAPLEWOOD AVENUE LLC
549 US HIGHWAY 1 BYPASS
PORTSMOUTH, NH 03801
R.C.R.D. BK. 5621 LOT 420

TAX MAP 123 LOT 13
31 RAYNES LLC
C/O PORTSMOUTH CHEVROLET
549 ROUTE 1 BYPASS
PORTSMOUTH, NH 03801
R.C.R.D. BK. 4676 PG. 657

TAX MAP 123 LOT 14
HORIZON TRUST OF NEW HAMPSHIRE
C/O ROBERT A. MCGUIRE JR
PO BOX 988
DOVER, NH 03821
R.C.R.D BK. 5448 PG. 2348

TAX MAP 124 LOT 1
CITY OF PORTSMOUTH
PO BOX 628
PORTSMOUTH, NH 03802

TAX MAP 124 LOT 2
CITY OF PORTLAND
PO BOX 628
PORTSMOUTH, NH 03802

TAX MAP 124 LOT 3
CITY OF PORTSMOUTH
PO BOX 628
PORTSMOUTH, NH 03802

TAX MAP 124 LOT 4
KAREN L BOUFFARD REVO TRUST
C/O KAREN L BOUFFARD TRUSTEE
PO BOX 1389
PORTSMOUTH, NH 03802
R.C.R.D. BK. 3313 PG. 98

TAX MAP 124 LOT 5
SLATTERY & DUMONT LLC
66 OLD CONCORD TURNPIKE #10
BARRINGTON, NH 03825
R.C.R.D. BK. 5362 PG. 2526

TAX MAP 124 LOT 6
DONNA P. PANTELAKOS REV TRUST
G T & D P PANTELAKOS TRUSTEES
138 MAPLEWOOD AVE
PORTSMOUTH, NH 03801
R.C.R.D. BK. 5807 PG. 1

TAX MAP 124 LOT 7
GIDEON WALKER HOUSE TRUST
JAMES H SOMES JR TRUSTEE
154 MAPLEWOOD AVE
PORTSMOUTH, NH 03801

TAX MAP 124 LOT 9
319 VAUGHAN STREET CENTER LLC
104 GRAFTON DR
PORTSMOUTH, NH 03801
R.C.R.D BK. 5506 PG. 427

TAX MAP 124 LOT 10
VAUGHAN STREET HOTEL LLC
1359 HOOKSETT RD
HOOKSETT, NH 03106
R.C.R.D. BK. 5848 PG. 129

TAX MAP 124 LOT 11
VAUGHAN STREET HOTEL LLC
1359 HOOKSETT RD
HOOKSETT, NH 03106
R.C.R.D. BK. 5848 PG. 1508

TAX MAP 124 LOT 13
BOSTON AND MAINE CORP
C/O IRON HORSE PARK
HIGH STREET
NO BILLERICA, MA 01862

TAX MAP 124 LOT 14
DEBRA M. FABIASCHI
233 VAUGHAN ST #203
PORTSMOUTH, NH 03801
R.C.R.D. BK. 5711 PG. 1356

I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION AND FALLS UNDER THE URBAN SURVEY CLASSIFICATION OF THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. RANDOM TRAVERSE SURVEY BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.

_____ L.L.S. #916

3/18/19 DATE

THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEET REGISTRY OF DEED REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.

STATE OF NEW HAMPSHIRE — No. 916 — STEVEN V. MICHAUD — SIGNATURE — LAND LICENSED SURVEYOR

60 0 60 120
SCALE: 1 INCH = 60 FT.

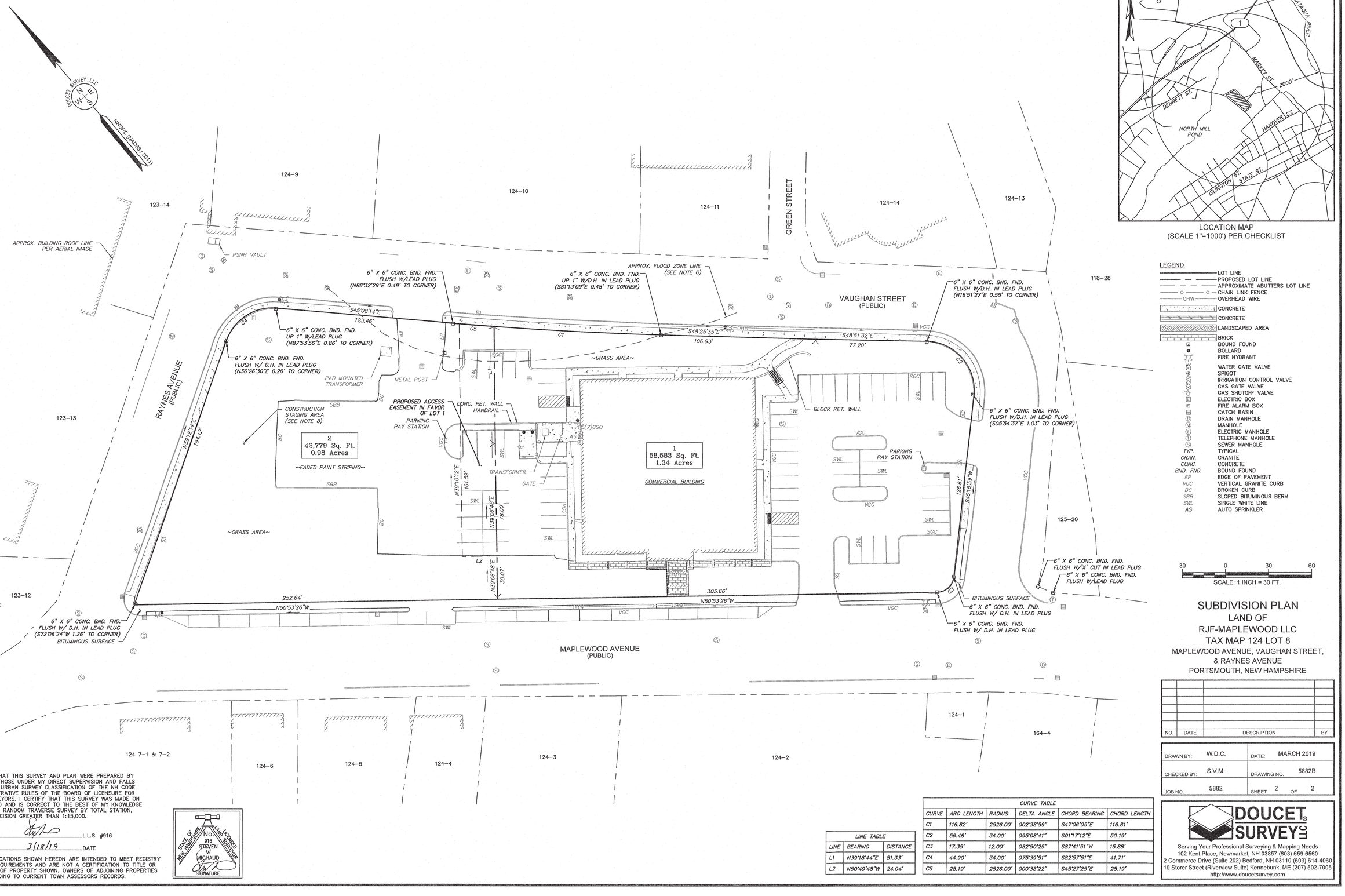
SUBDIVISION PLAN
LAND OF
RJF-MAPLEWOOD LLC
TAX MAP 124 LOT 8
MAPLEWOOD AVENUE, VAUGHAN STREET, & RAYNES AVENUE
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	W.D.C.	DATE:	MARCH 2019
CHECKED BY:	S.V.M.	DRAWING NO.	5882B
JOB NO.	5882	SHEET	1 OF 2

DOUCET SURVEY LLC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

FILE NAME: C:\DTA_30 FLATS\Temp\AcPublish_8632\SUBDIVISION.dwg LAYOUT NAME: Subdivision Plan PLOTTED: Monday, March 18, 2019 – 11:11am



LOCATION MAP
(SCALE 1"=1000') PER CHECKLIST

LEGEND

	LOT LINE
	PROPOSED LOT LINE
	APPROXIMATE ABUTTERS LOT LINE
	CHAIN LINK FENCE
OHW	OVERHEAD WIRE
	CONCRETE
	CONCRETE
	LANDSCAPED AREA
	BRICK
	BOUND FOUND
	BOLLARD
	FIRE HYDRANT
	WATER GATE VALVE
	SPIGOT
	IRRIGATION CONTROL VALVE
	GAS GATE VALVE
	GAS SHUTOFF VALVE
	ELECTRIC BOX
	FIRE ALARM BOX
	CATCH BASIN
D	DRAIN MANHOLE
M	MANHOLE
E	ELECTRIC MANHOLE
T	TELEPHONE MANHOLE
S	SEWER MANHOLE
TYP.	TYPICAL
GRAN.	GRANITE
CONC.	CONCRETE
BND. FND.	BOUND FOUND
EP	EDGE OF PAVEMENT
VGC	VERTICAL GRANITE CURB
BC	BROKEN CURB
SBB	SLOPED BITUMINOUS BERM
SWL	SINGLE WHITE LINE
AS	AUTO SPRINKLER

SUBDIVISION PLAN
LAND OF
RJF-MAPLEWOOD LLC
TAX MAP 124 LOT 8
MAPLEWOOD AVENUE, VAUGHAN STREET,
& RAYNES AVENUE
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	W.D.C.	DATE:	MARCH 2019
CHECKED BY:	S.V.M.	DRAWING NO.	5882B
JOB NO.	5882	SHEET	2 OF 2

I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION AND FALLS UNDER THE URBAN SURVEY CLASSIFICATION OF THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. RANDOM TRAVERSE SURVEY BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.

L.L.S. #916

3/18/19 DATE

THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEET REGISTRY OF DEED REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN, OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.

STATE OF NEW HAMPSHIRE — No. 916 — STEVEN V. MICHAUD — LICENSED LAND SURVEYOR — SIGNATURE

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N39°18'44"E	81.33'
L2	N50°49'48"W	24.04'

CURVE TABLE					
CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	116.82'	2526.00'	002°38'59"	S47°06'05"E	116.81'
C2	56.46'	34.00'	095°08'41"	S01°17'12"E	50.19'
C3	17.35'	12.00'	082°50'25"	S87°41'51"W	15.88'
C4	44.90'	34.00'	075°39'51"	S82°57'51"E	41.71'
C5	28.19'	2526.00'	000°38'22"	S45°27'25"E	28.19'

DOUCET SURVEY LLC
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2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

FILE NAME: C:\DATA 20 FILES\Temp\AcPublish_8832\5882B SUBDIVISION.dwg LAYOUT NAME: Subdivision Plan (2) PLOTTED: Monday, March 18, 2019 - 11:11am

DRAINAGE STRUCTURE TABLE

CB #1231
RIM ELEV. = 15.0'
12" R.C.P. = 11.4'

CB #1327
RIM ELEV. = 12.1'
12" R.C.P. = 9.4'

CB #1355
RIM ELEV. = 11.8'
12" R.C.P. = 9.1'

CB #1100
RIM ELEV.=7.0'
12" RCP INV.=4.2'

CB #1003
RIM ELEV.=9.3'
12" RCP INV.=5.5'

CB #5060
RIM ELEV. = 14.3'
12" HDPE = 9.2'

CB #5061
RIM ELEV. = 14.1'
(A) 8" ABS. = 9.0'
(B) 12" HDPE = 9.1'

CB #1149
RIM ELEV. = 10.3'
BADLY SLOPING RIM
(A) 8" ABS. = 7.0'
(B) 12" R.C.P. = 6.0'

CB #1175
RIM ELEV.=7.9'
12" RCP INV.=5.3'

DMH #1166
RIM ELEV.=9.3'
(A) 18" RCP INV.=4.5'
(B) 12" RCP INV.=5.5'
(C) 15" RCP INV.=4.5'

CB #1172
RIM ELEV.=10.3'
4" HDPE INV.=6.3'
12" RCP INV.=5.4'
12" RCP INV.=5.8'

CB #1006
RIM ELEV.=9.3'
12" RCP INV.=5.6'

DMH #1007
RIM ELEV.=9.7'
(A) 24" RCP INV.=1.6'
(B) 24" RCP INV.=1.3'
(C) 18" RCP INV.=1.6'
(D) 12" RCP INV.=5.5'

DMH #1096
RIM ELEV.=7.35'
(1100) INV.=3.85'
(1098) INV.=3.95'
(PDMH) INV.=3.45'
(1007) INV.=3.35'

MH #1764
RIM ELEV.=11.0'
(A) 15" RCP INV.=2.3'
(B) 24" RCP INV.=1.6'
(C) 24" RCP INV.=1.7'
(D) 12" RCP INV.=6.2'

CB #5476
RIM ELEV. = 12.8'
12" HDPE = 6.4'

CB #5550
RIM ELEV. = 11.0'
(A) 10" CI = 3.8'
(B) 4" HDPE = 5.7'
(C) 4" P.V.C. = 4.5'
(D) 10" ? = 3.8'

CB #5622
RIM ELEV. = 8.9'
(A) 12" HDPE = 5.1'
(B) 10" C.I. = 4.9'

CB #1098
RIM ELEV. = 7.1'
(A) 10" C.I. = 4.1'
(B) 10" C.I. = 4.1'
(C) 12" R.C.P. = 4.2'

CB #5736
RIM ELEV. = 14.6'
12" R.C.P. = 11.4'

SEWER STRUCTURE TABLE

SMH #1
RIM ELEV. = 10.0'
(1559) INV. 8" PVC = 3.65'
INV. OUT 12" PVC = 3.13'

SMH #2
RIM ELEV. = 7.75'
INV. IN 12" PVC = 2.95'
INV. OUT 12" PVC = 2.85'

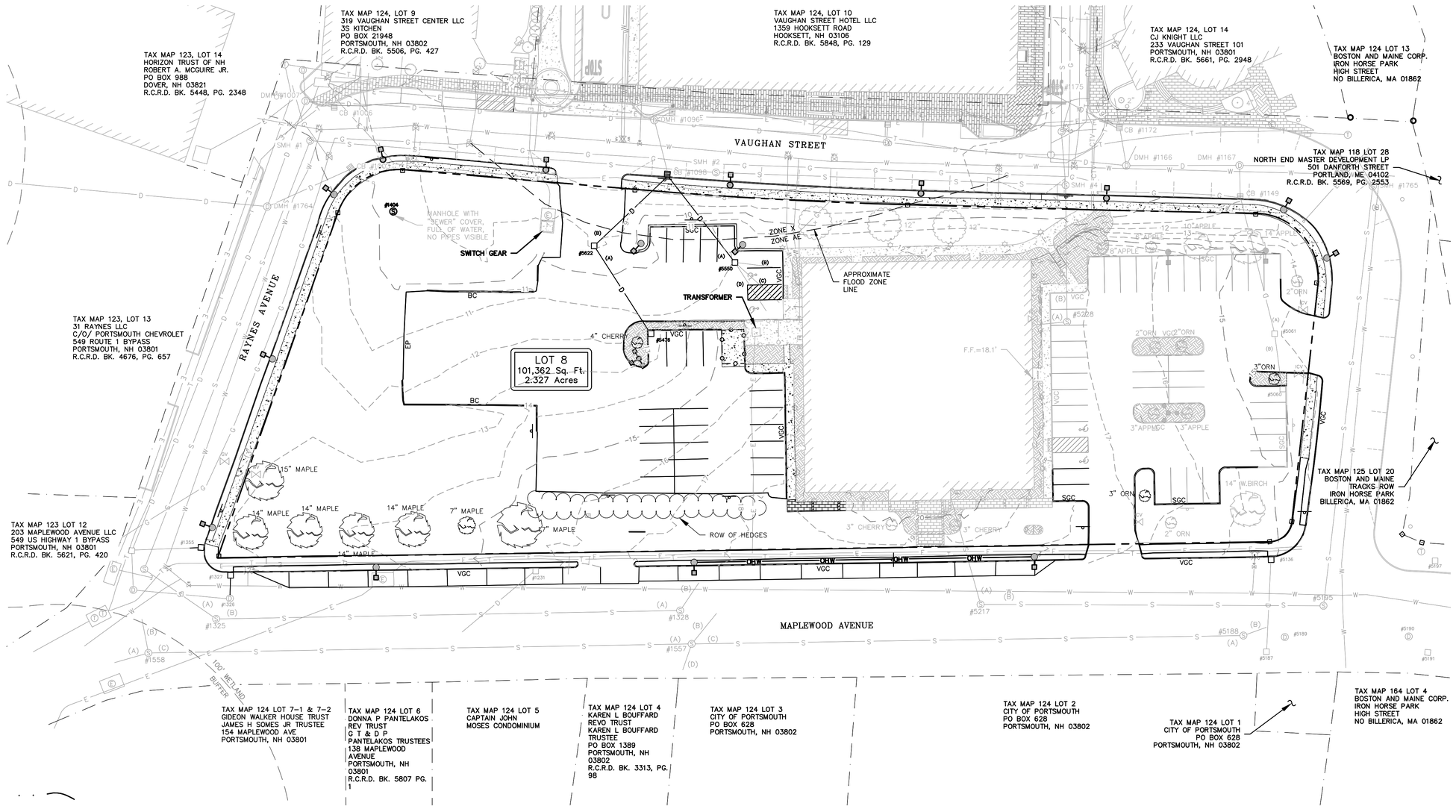
SMH #3
RIM ELEV. = 8.85'
INV. IN 12" PVC = 2.15'
INV. OUT 12" PVC = 2.05'

EXISTING CONDITIONS PLAN NOTES:

1. EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY PERFORMED BY DOUCET SURVEY INC. DURING 8/12. SEE REFERENCE PLAN #1.
2. FLOOD HAZARD ZONE BASED ON REFERENCE PLAN #1.
3. HORIZONTAL DATUM BASED ON REFERENCE PLAN #2.
4. VERTICAL DATUM BASED ON REFERENCE PLAN #1.

REFERENCE PLANS:

1. "EXISTING CONDITIONS PLAN FOR 111 MAPLEWOOD AVENUE" PREPARED BY TIGHE & BOND INC., DATED NOVEMBER 12, 2013.
2. "EXISTING CONDITIONS PLAN OF TAX MAP 123, LOT 15 & TAX MAP 124, LOTS 10 & 11" PREPARED BY DOUCET SURVEY INC., DATED FEBRUARY 3, 2016.
3. "UTILITIES PLAN" AC HOTEL AND COMMUNITY SPACE, PREPARED BY TIGHE & BOND INC., DATED JULY 23, 2018
4. "DISPOSITION PLAN PARCEL 3" DATED 6/73 BY ANDERSON-NICHOLS & CO., INC., R.C.R.D. PLAN #D-4019.
5. "PLAN OF LAND, VAUGHAN AND GREEN STREETS, PORTSMOUTH NH" DATED JULY 1955 BY JOHN W. DURGIN R.C.R.D. PLAN #02541.
6. "SEVERINO TRUCKING CO., INC. ELECTRIC DUCT BANK LOCATION PLAN" DATED MARCH 25, 2014.
7. "EXISTING FEATURES PLAN, TAX MAP 118 - LOT 28, TAX MAP 119 - LOT 4, TAX MAP 124 - LOT 12 & TAX MAP 125 LOT 21" DATED NOVEMBER 27, 2013, REVISED 1/16/15 BY MSC CIVIL ENGINEERS & LAND SURVEYORS, INC.



Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – 4-16-19

STATE OF NEW HAMPSHIRE – PATRICK M. CRIMMINS No. 12978 LICENSED PROFESSIONAL ENGINEER – 4-16-19

SCALE IN FEET
0 30' 60'
GRAPHIC SCALE

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

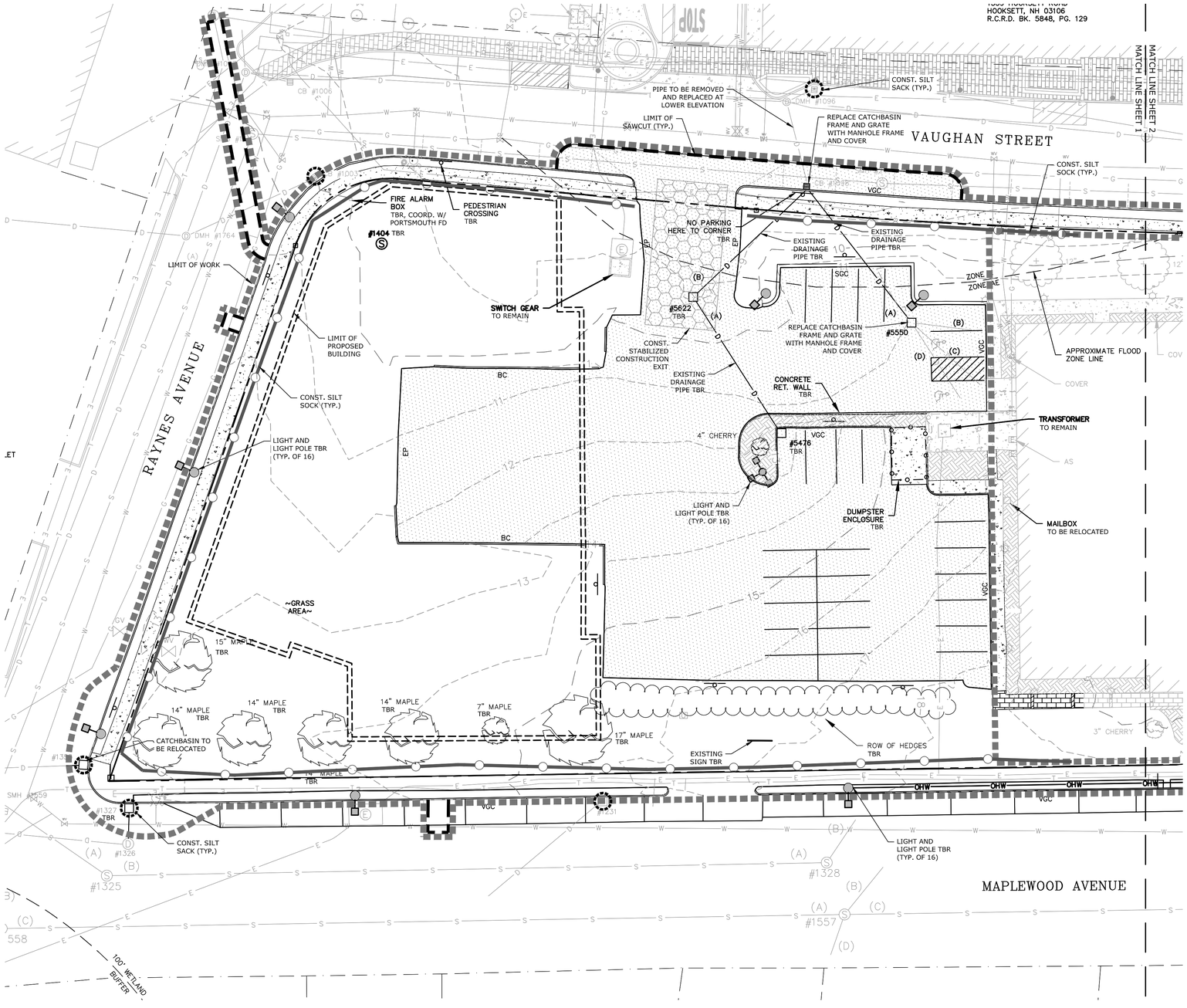
PROJECT NO:	K-0076-019
DATE:	03/18/2019
FILE:	K-0076-019_C-SITE.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

OVERALL EXISTING CONDITIONS PLAN

SCALE: AS SHOWN

C-101

Last Save Date: April 16, 2019 12:26 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 - 12:26pm By: Nathan Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: C-101



LEGEND

- APPROXIMATE LIMIT OF PROPOSED SAW CUT
- LIMIT OF WORK
- PROPOSED SILT SOCK
- APPROXIMATE LIMIT OF PAVEMENT TO BE REMOVED
- PROPOSED CONSTRUCTION EXIT
- BUILDING TO BE REMOVED
- LOCATION OF PROPOSED BUILDING
- INLET PROTECTION SILT SACK

TBR	TO BE REMOVED
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE

DEMOLITION NOTES:

1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
3. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
4. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
5. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. SAW CUT AND REMOVE PAVEMENT ONE (1) FOOT OFF PROPOSED EDGE OF PAVEMENT OR EXISTING CURB LINE IN ALL AREAS WHERE PAVEMENT TO BE REMOVED ABUTS EXISTING PAVEMENT OR CONCRETE TO REMAIN.
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14. COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
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17. PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
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21. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL UTILITIES TO BE REMOVED AND PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER 4.16.19

STATE OF NEW HAMPSHIRE – PATRICK M. CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER 4.16.19

SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

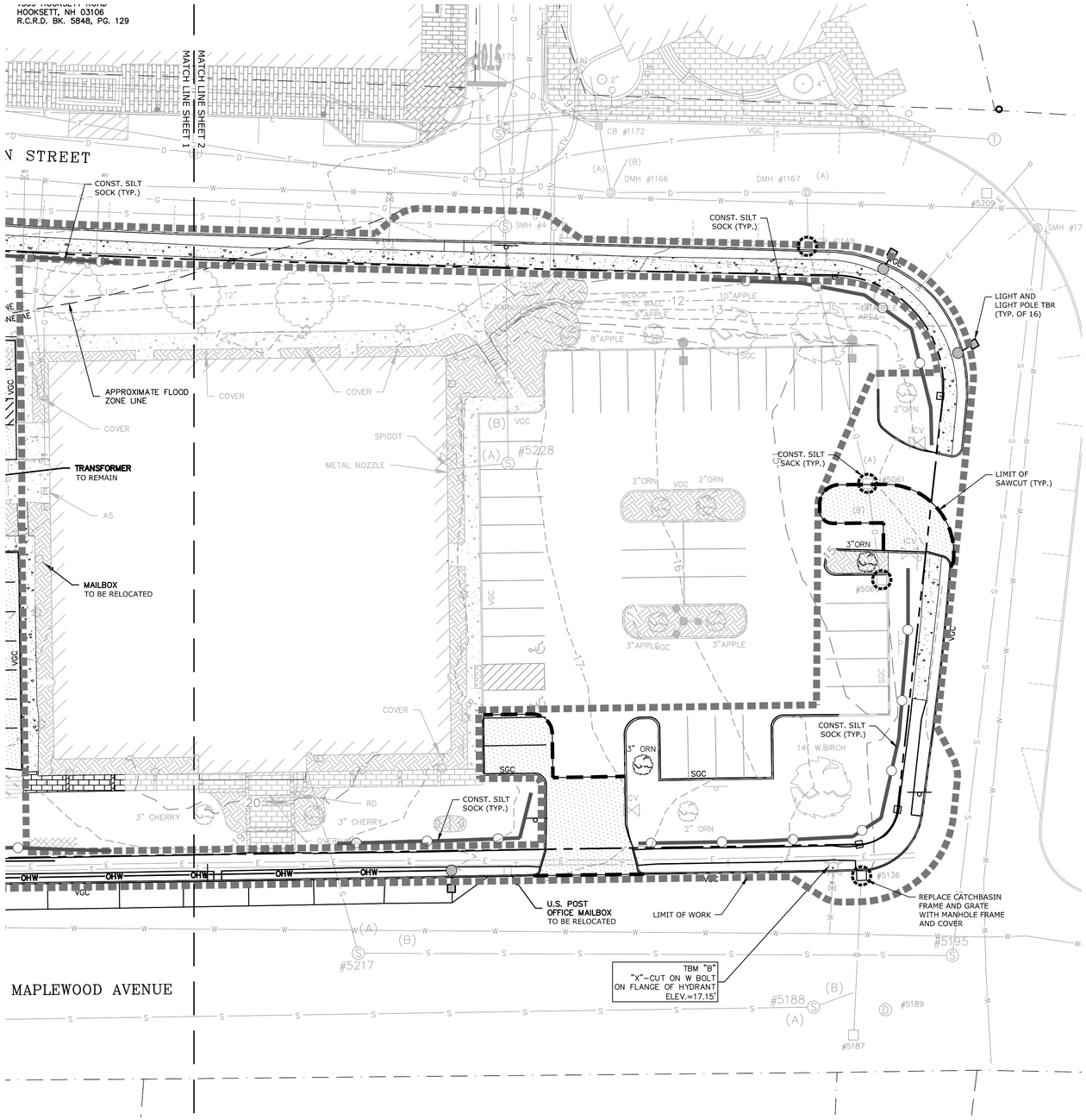
PROJECT NO:	K-0076-019
DATE:	03/18/2019
FILE:	K-0076-019_C-SITE.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: AS SHOWN

C-101.1

Last Save Date: April 16, 2019 12:26 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 12:26 PM By: Nick Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings_Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: C-101.1



LEGEND

- APPROXIMATE LIMIT OF PROPOSED SAW CUT
- LIMIT OF WORK
- PROPOSED SILT SOCK
- APPROXIMATE LIMIT OF PAVEMENT TO BE REMOVED
- PROPOSED CONSTRUCTION EXIT
- BUILDING TO BE REMOVED
- LOCATION OF PROPOSED BUILDING
- INLET PROTECTION SILT SACK

TBR	TO BE REMOVED
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE

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4/16/19

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SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

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C-101.2

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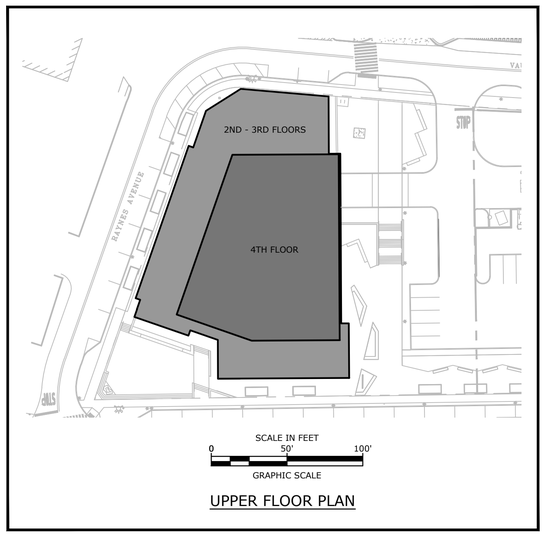


UPPER FLOOR PLAN

SITE DATA:

LOCATION: TAX MAP 124. LOT 8

OWNER: RJF-MAPLEWOOD, LLC
30 TEMPLE STREET, SUITE 400
NASHUA, NH 03060

ZONING DISTRICT: CHARACTER DISTRICT 5 (CD5)
DOWNTOWN OVERLAY DISTRICT
NORTH END INCENTIVE OVERLAY DISTRICT
HISTORIC DISTRICT

PROPOSED USE: OFFICE

PROPOSED LOT SIZE: ±0.98 ACRES (±42,778 SF)

PARKING REQUIREMENTS

PARKING SPACES REQUIRED:		
OFFICE	±59,000 SF	0 SPACES
COMMERCIAL	±5,000 SF	0 SPACES
DOWNTOWN OVERLAY DISTRICT		-4 SPACES
TOTAL MINIMUM PARKING SPACES REQUIRED =		0 SPACES
TOTAL PARKING SPACES PROVIDED:		
TOTAL PARKING SPACES PROVIDED =		36 SPACES

TWO (2) ADA ACCESSIBLE SPACES REQUIRED

	REQUIRED	PROVIDED
PARKING STALL SIZE:	8.5' X 19'	8.5' X 19'
DRIVE AISLE:	***22'	22'

***ZONING ORDINANCE 10.1114.21 ALLOWS MINIMUM 22' AISLE WIDTH FOR 90 DEGREE PARKING IN A PARKING STRUCTURE

BIKE SPACES REQUIRED:		
1 BIKE SPACE / 10 PARKING SPACES	4 SPACES	4 SPACES

PROPOSED GROUND FLOOR AREAS

FLOOR	OFFICE (SF)	COMMERCIAL (SF)	SERVICE/COMMON (SF)	TOTAL (SF)
BASEMENT	0	1,400	1,900	3,300
FIRST	0	13,300	6,600	19,900
SECOND	19,000	0	1,000	20,000
THIRD	19,000	0	1,000	20,000
FOURTH	9,500	0	1,000	10,500
TOTAL	47,500	14,700	11,500	73,700

DEVELOPMENT STANDARDS

BUILDING PLACEMENT (PRINCIPAL BUILDING):	REQUIRED	PROPOSED
MAXIMUM PRINCIPAL FRONT YARD:	5 FT	±12 FT
MAXIMUM SECONDARY FRONT YARD:	5 FT	±7 FT
SIDE YARD:	NR	
MINIMUM REAR YARD:	5 FT	N/A
MINIMUM FRONT LOT LINE BUILDOUT:	80%	±90.7%

BUILDING AND LOT OCCUPATION:	REQUIRED	PROPOSED
MAXIMUM BUILDING BLOCK LENGTH:	225 FT	194 FT
MAXIMUM FACADE MODULATION LENGTH:	100 FT	<100 FT
MAXIMUM ENTRANCE SPACING:	50 FT	<50 FT
MAXIMUM BUILDING COVERAGE:	95%	±46.5%
MAXIMUM BUILDING FOOTPRINT:	*30,000 SF	19,900 SF
MINIMUM LOT AREA:	NR	
MINIMUM LOT AREA PER DWELLING UNIT:	NR	
MINIMUM OPEN SPACE:	5%	17.6%
MAXIMUM GROUND FLOOR GFA PER USE:	15,000 SF	13,300 SF

*ZONING ORDINANCE 10.5A46.20 ALLOWS 30,000SF BUILDING FOOTPRINT WITH 20% COMMUNITY SPACE.

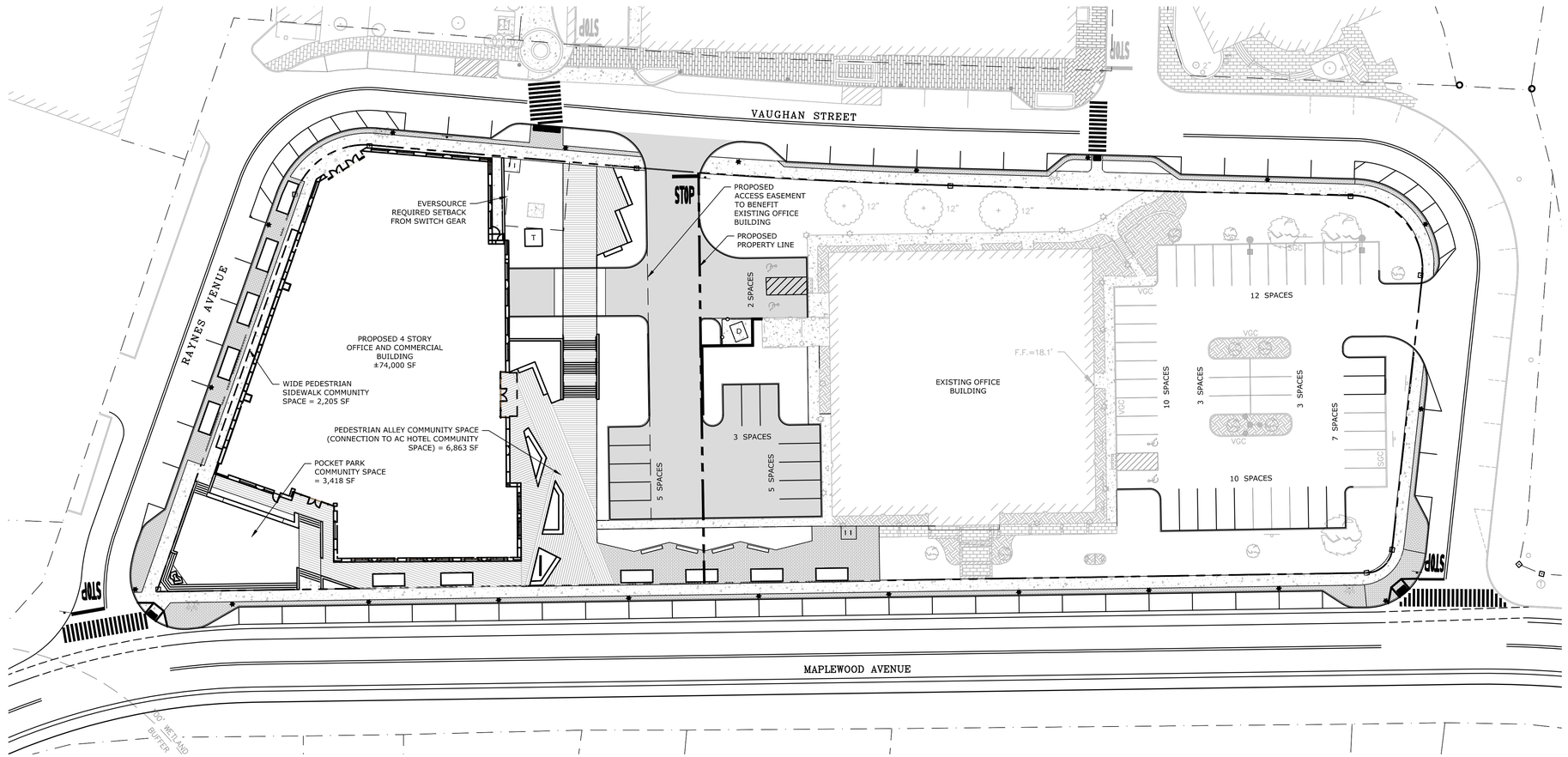
BUILDING FORM (PRINCIPAL BUILDING):	REQUIRED	PROVIDED
BUILDING HEIGHT:	**60 FT	55 FT
MAXIMUM FINISHED FLOOR SURFACE OF GROUND FLOOR ABOVE SIDEWALK GRADE:	36 IN	
MINIMUM GROUND STORY HEIGHT:	12 FT	
MINIMUM SECOND STORY HEIGHT:	10 FT	
FACADE GLAZING:		
STOOP FACADE TYPE	20% - 50%	
ALLOWED ROOF TYPES		
FLAT, GABLE, HIP, GAMBREL, MANSARD		FLAT

**ZONING ORDINANCE 10.5A46.20 ALLOWS A 1-STORY, UP TO 10' HEIGHT INCREASE WITH 20% COMMUNITY SPACE.

COMMUNITY SPACE:	8,556 SF	11,907 SF
	20%	27.8%

LEGEND

	PROPERTY LINE
	PROPOSED PROPERTY LINE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED CURB
	PROPOSED BUILDING
	PROPOSED PAVEMENT SECTION
	PROPOSED CONCRETE SIDEWALK
	PROPOSED BRICK SIDEWALK
•	PROPOSED BOLLARD
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
30'R	PROPOSED CURB RADIUS
VGC	PROPOSED VERTICAL GRANITE CURB
SGC	PROPOSED SLOPED GRANITE CURB



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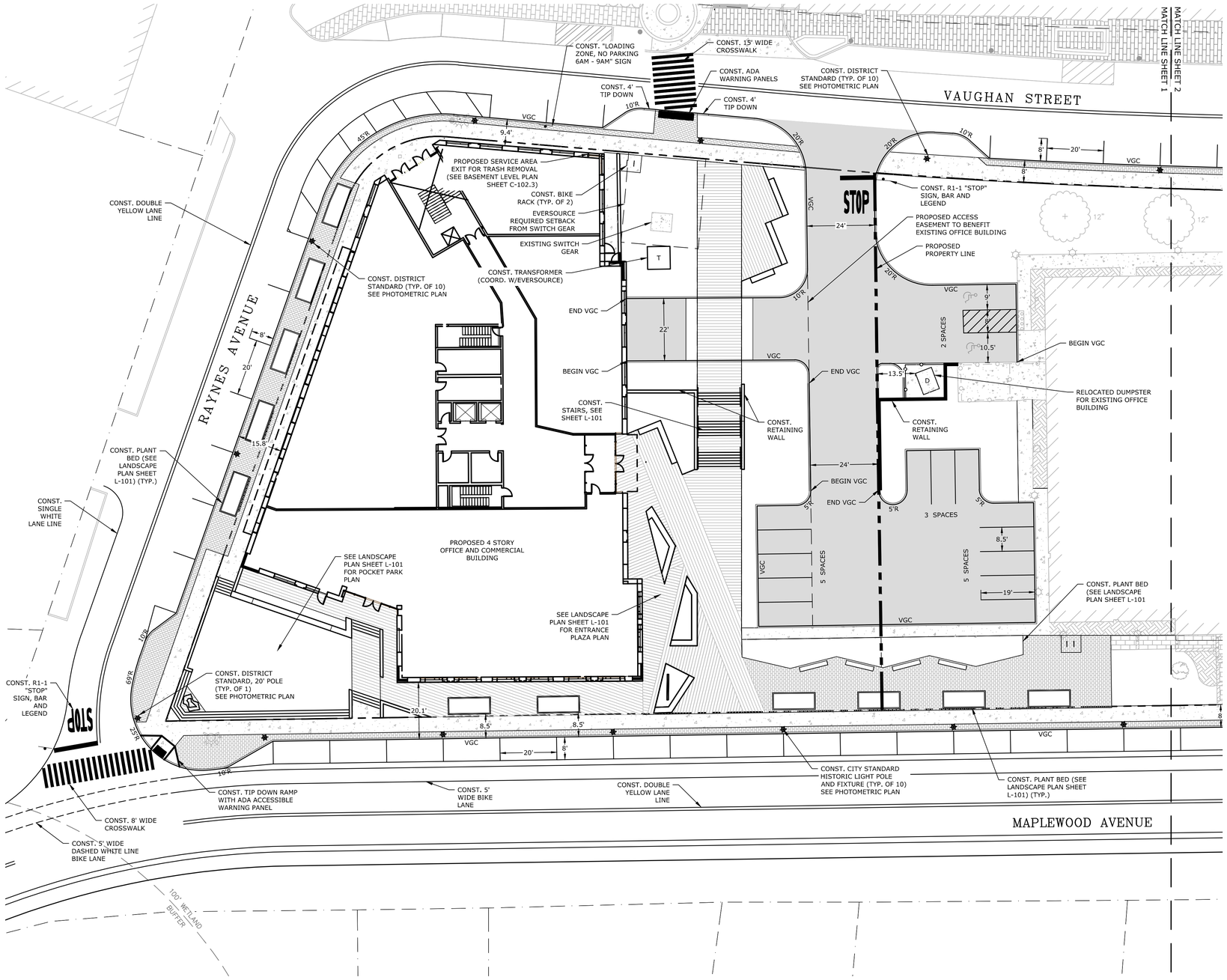
CHECKED:	PMC
APPROVED:	BLM

OVERALL SITE PLAN

SCALE: AS SHOWN

C-102

Last Save Date: April 16, 2019 1:01 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 1:01 PM By: Nicholas A. Hansen
T&B File Location: I:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: C-102



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BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
30'R	PROPOSED CURB RADIUS
VGC	PROPOSED VERTICAL GRANITE CURB
SGC	PROPOSED SLOPED GRANITE CURB

SITE NOTES:

1. STRIPE PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES SHALL BE THERMOPLASTIC MATERIAL. THERMOPLASTIC MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO AASHTO M249. (ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT. CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F").
2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
3. SEE DETAILS FOR PARKING STALL MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE.
5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
6. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
7. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
9. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAY WITH THE CITY OF PORTSMOUTH.
10. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
11. SEE ARCHITECTURAL/BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
12. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
13. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
14. ALL LIGHT POLE BASES NOT PROTECTED BY A RAISED CURB SHALL BE PAINTED YELLOW.
15. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING RETAINING WALL DESIGN FROM STRUCTURAL ENGINEER AND/OR WALL MANUFACTURER. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO CONSTRUCT WALL IN ACCORDANCE WITH DESIGN APPROVED BY THE ENGINEER. RETAINING WALL SHALL BE SEGMENTAL BLOCK WALL SYSTEM AS OUTLINED IN THE DETAILS.
17. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
18. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
19. THE APPLICANT SHALL HAVE A SITE SURVEY CONDUCTED BY A RADIO COMMUNICATIONS CARRIER APPROVED BY THE CITY'S COMMUNICATIONS DIVISION. THE RADIO COMMUNICATIONS CARRIER MUST BE FAMILIAR AND CONVERSANT WITH THE POLICE AND RADIO CONFIGURATION. IF THE SITE SURVEY INDICATES IT IS NECESSARY TO INSTALL A SIGNAL REPEATER EITHER ON OR NEAR THE PROPOSED PROJECT, THOSE COSTS SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE OWNER SHALL COORDINATE WITH THE SUPERVISOR OF RADIO COMMUNICATIONS FOR THE CITY.
20. A TEMPORARY SUPPORT OF EXCAVATION (SOE) PLAN, IF NECESSARY, SHALL BE PREPARED BY THE APPLICANT'S CONTRACTOR PRIOR TO CONSTRUCTION. IF THE SOE DESIGN IMPACTS THE CITY'S RIGHT OF WAY, THE SOE PLAN SHALL BE INCLUDED IN THE CONSTRUCTION MANAGEMENT AND MITIGATION PLAN (CMMP) FOR REVIEW AND APPROVAL BY THE CITY. IF LICENSES ARE REQUIRED FOR THE SOE, THE APPLICANT WILL BE REQUIRED TO OBTAIN THESE FROM THE CITY PRIOR TO CONSTRUCTION.
21. THE VALUE OF A FAIR CONTRIBUTION TOWARDS OFF-SITE PUBLIC IMPROVEMENT PROJECTS SHALL BE AGREED UPON BETWEEN THE APPLICANT AND CITY PRIOR TO FINAL APPROVALS.
22. APPLICANT SHALL WORK WITH THE CITY TO CONFIRM PROJECT SCOPE AND TIMING AS IT RELATES TO THE CITY'S COMPLETE STREETS IMPROVEMENT PROJECT THAT IS BEING DESIGNED BY THE CITY'S CONSULTANT.
23. THE APPLICANT AGREES TO EXECUTE A PROSPECTIVE DEVELOPMENT INCENTIVE AGREEMENT FOR THE EXCESS COMMUNITY SPACE AREAS PRIOR TO CONSTRUCTION.

SITE RECORDING NOTES:

1. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
2. 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.
3. THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH.

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 – LICENSED PROFESSIONAL ENGINEER
4/16/19

STATE OF NEW HAMPSHIRE – PATRICK M. CRIMMINS No. 12378 – LICENSED PROFESSIONAL ENGINEER
4/16/19

SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

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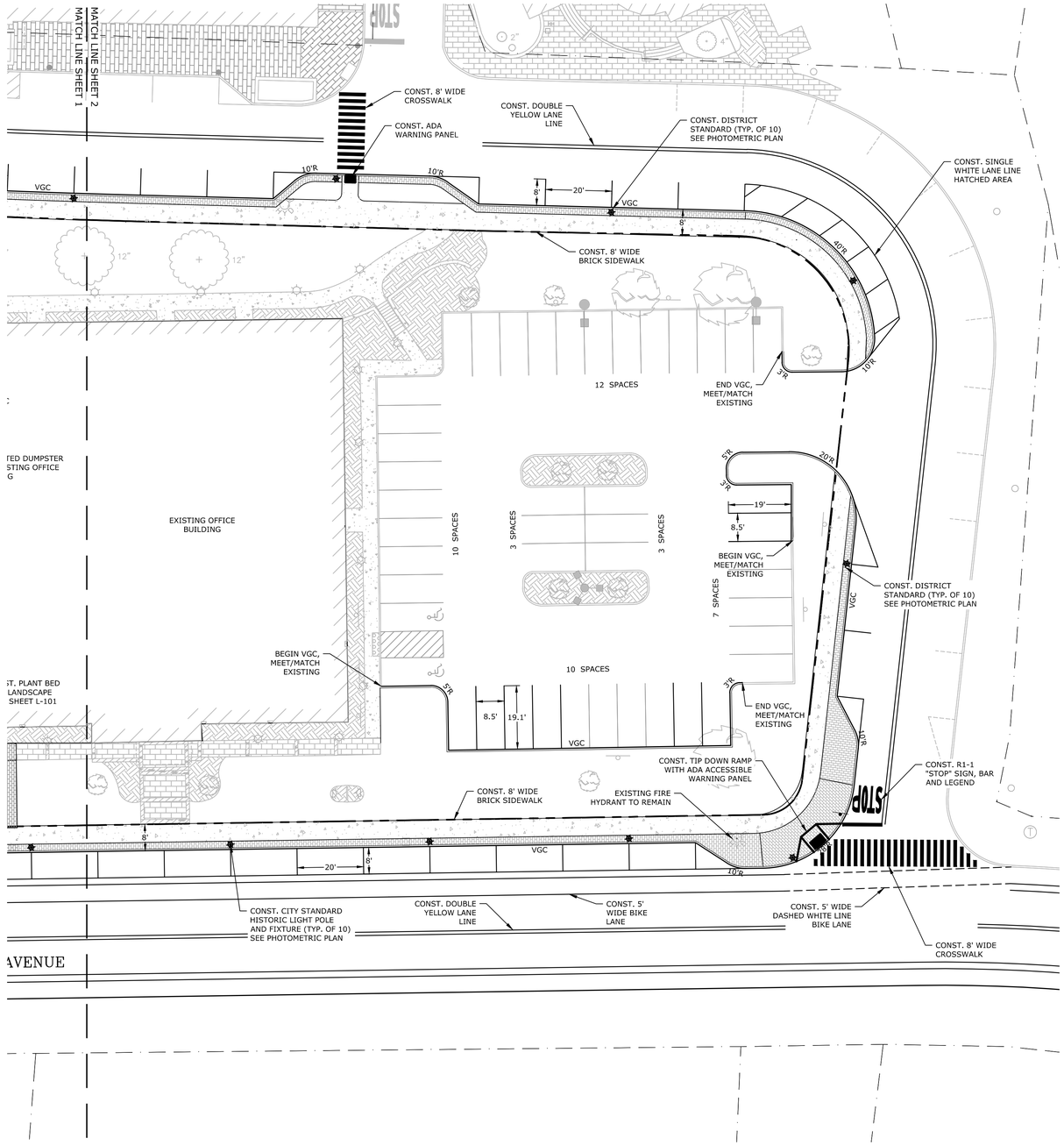
CHECKED:	PMC
APPROVED:	BLM

SITE PLAN

SCALE: AS SHOWN

C-102.1

Last Save Date: April 16, 2019 12:26 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 12:27 PM By: NAHANSEN
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: C-102.1



LEGEND

	PROPERTY LINE
	PROPOSED PROPERTY LINE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED CURB
	PROPOSED BUILDING
	PROPOSED PAVEMENT SECTION
	PROPOSED CONCRETE SIDEWALK
	PROPOSED BRICK SIDEWALK
•	PROPOSED BOLLARD
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
30'R	PROPOSED CURB RADIUS
VGC	PROPOSED VERTICAL GRANITE CURB
SGC	PROPOSED SLOPED GRANITE CURB

SITE NOTES:

1. STRIPE PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES SHALL BE THERMOPLASTIC MATERIAL. THERMOPLASTIC MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO AASHTO M249. (ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT. CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F").
2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
3. SEE DETAILS FOR PARKING STALL MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE.
5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
6. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
7. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
9. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAY WITH THE CITY OF PORTSMOUTH.
10. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
11. SEE ARCHITECTURAL/BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
12. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
13. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
14. ALL LIGHT POLE BASES NOT PROTECTED BY A RAISED CURB SHALL BE PAINTED YELLOW.
15. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING RETAINING WALL DESIGN FROM STRUCTURAL ENGINEER AND/OR WALL MANUFACTURER. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO CONSTRUCT WALL IN ACCORDANCE WITH DESIGN APPROVED BY THE ENGINEER. RETAINING WALL SHALL BE SEGMENTAL BLOCK WALL SYSTEM AS OUTLINED IN THE DETAILS.
17. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
18. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
19. THE APPLICANT SHALL HAVE A SITE SURVEY CONDUCTED BY A RADIO COMMUNICATIONS CARRIER APPROVED BY THE CITY'S COMMUNICATIONS DIVISION. THE RADIO COMMUNICATIONS CARRIER MUST BE FAMILIAR AND CONVERSANT WITH THE POLICE AND RADIO CONFIGURATION. IF THE SITE SURVEY INDICATES IT IS NECESSARY TO INSTALL A SIGNAL REPEATER EITHER ON OR NEAR THE PROPOSED PROJECT, THOSE COSTS SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE OWNER SHALL COORDINATE WITH THE SUPERVISOR OF RADIO COMMUNICATIONS FOR THE CITY.
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SITE RECORDING NOTES:

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2. 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.
3. THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH.

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 05830 LICENSED PROFESSIONAL ENGINEER 4/16/19

STATE OF NEW HAMPSHIRE – PATRICK M. CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER 4/16/19

SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
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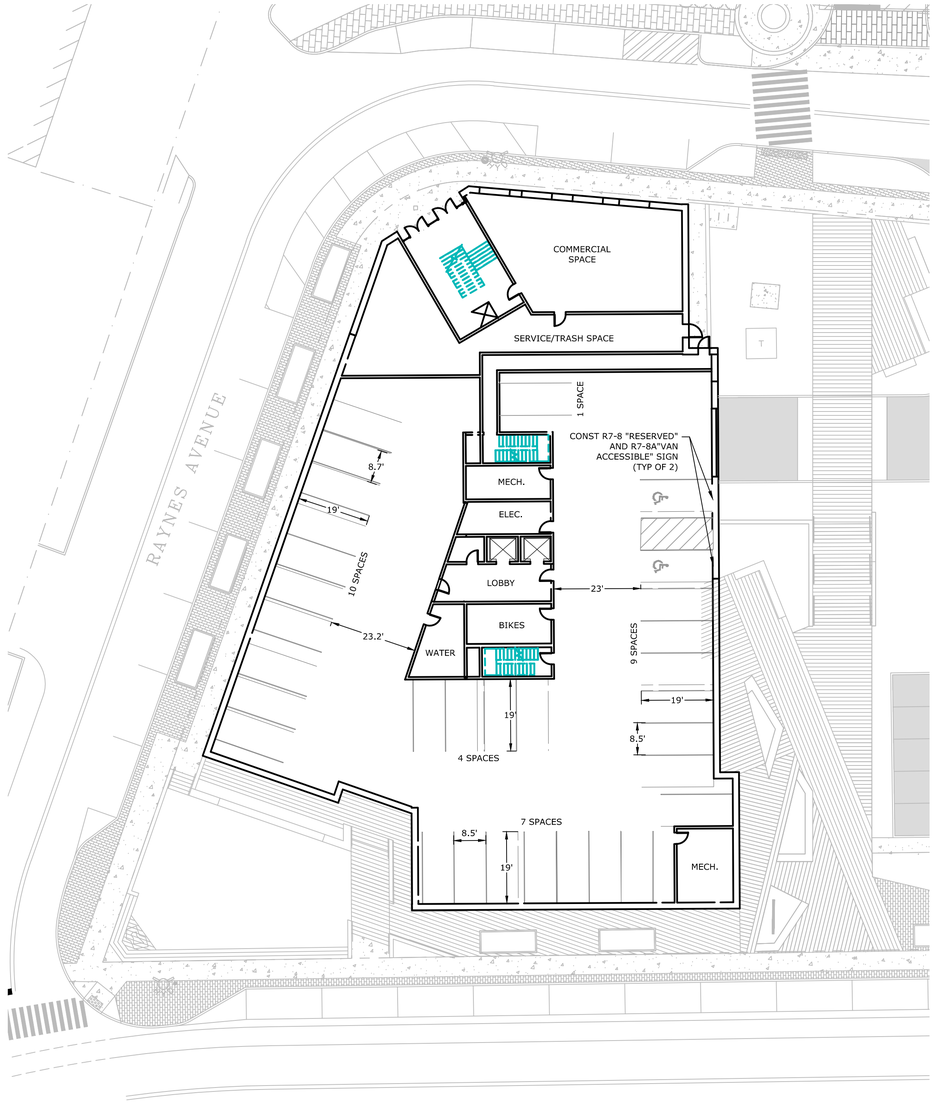
FILE:	K-0076-019_C-SITE.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

SITE PLAN

SCALE: AS SHOWN

C-102.2

Last Save Date: April 16, 2019 12:26 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 12:26 PM By: Nick Hansen
T&B File Location: I:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: C-102.2



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Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE – PROFESSIONAL ENGINEER – LICENSED
BRADLEE MEZQUITA
No. 08830
4-16-19

STATE OF NEW HAMPSHIRE
PATRICK M. CRIMMINS
No. 12378
LICENSED PROFESSIONAL ENGINEER
4-16-19

SCALE IN FEET
0 20' 40'
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BASEMENT LEVEL FLOOR PLAN

SCALE: AS SHOWN

C-102.3

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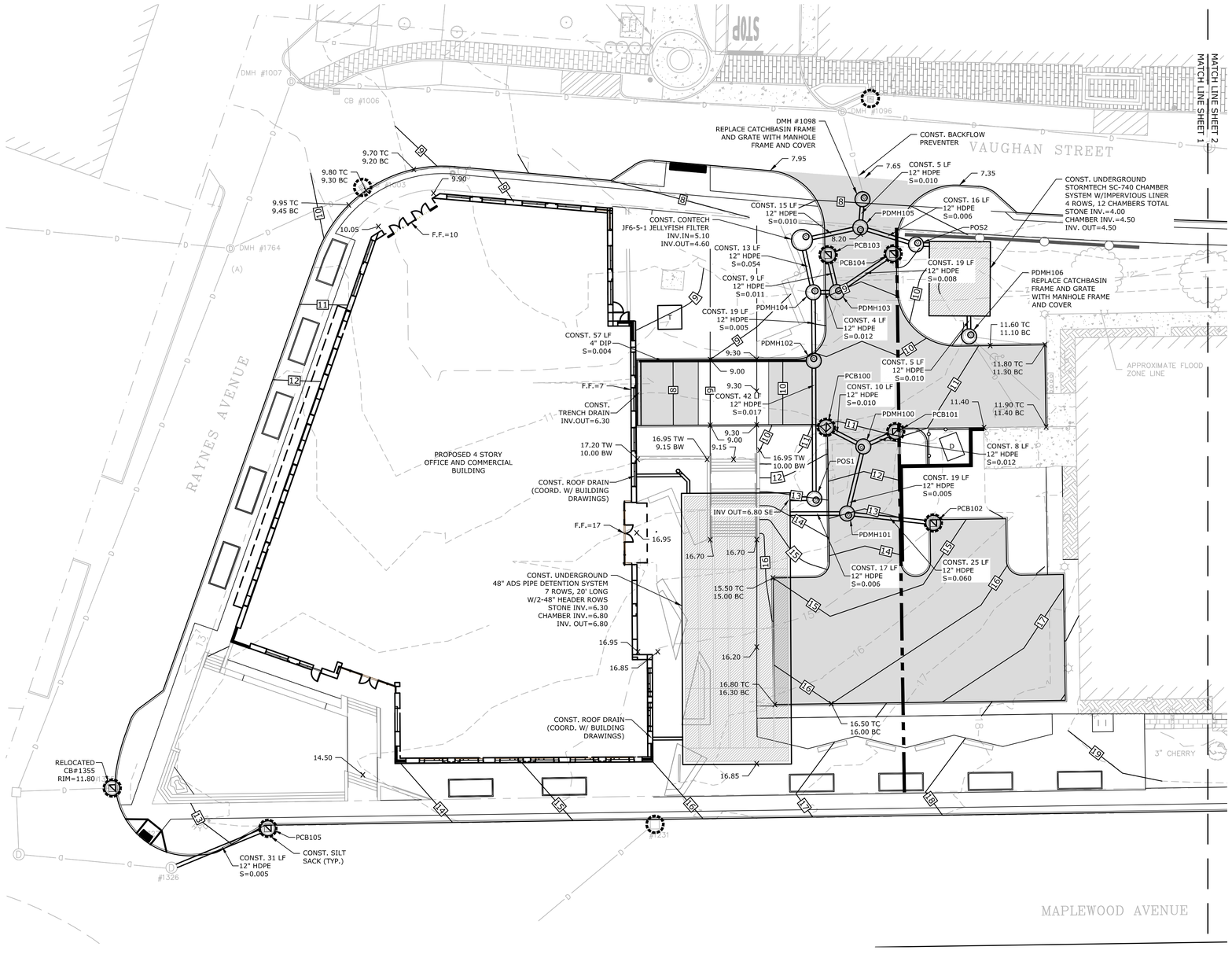
Plot Date: Tuesday, April 16, 2019 - 12:26 PM By: Nels A. Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: C-102.3



LEGEND

5	PROPOSED MAJOR CONTOUR LINE
5	PROPOSED MINOR CONTOUR LINE
	PROPOSED DRAIN LINE (TYP)
	PROPOSED SILT SOCK
	INLET PROTECTION SILT SACK
	PROPOSED CATCHBASIN
	PROPOSED DOUBLE GRATE CATCHBASIN
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BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
TC	TOP OF CURB
BC	BOTTOM OF CURB
TW	TOP OF WALL
BW	BOTTOM OF WALL

GRADING AND DRAINAGE NOTES:

1. COMPACTION REQUIREMENTS:

BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%

* ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.

2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL) OR RCP CLASS IV, UNLESS OTHERWISE SPECIFIED.
3. SEE UTILITY PLAN FOR ALL SITE UTILITY INFORMATION.
4. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
5. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
6. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
7. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
9. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
10. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS AND 4' SUMPS.
11. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
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13. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.

EROSION CONTROL NOTES:

1. INSTALL EROSION CONTROL BARRIERS AS SHOWN AS FIRST ORDER OF WORK.
2. SEE GENERAL EROSION CONTROL NOTES ON "EROSION CONTROL NOTES & DETAILS SHEET".
3. PROVIDE INLET PROTECTION AROUND ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. MAINTAIN FOR THE DURATION OF THE PROJECT.
4. INSTALL STABILIZED CONSTRUCTION EXIT(S).
5. INSPECT INLET PROTECTION AND PERIMETER EROSION CONTROL MEASURES DAILY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
6. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER AND MULCH.
7. CONSTRUCT EROSION CONTROL BLANKET ON ALL SLOPES STEEPER THAN 3:1.
8. PRIOR TO ANY WORK OR SOIL DISTURBANCE COMMENCING ON THE SUBJECT PROPERTY, INCLUDING MOVING OF EARTH, THE APPLICANT SHALL INSTALL ALL EROSION AND SILTATION MITIGATION AND CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL PERMITS AND APPROVALS.
9. CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, SPRINKLING WATER ON UNSTABLE SOILS SUBJECT TO ARID CONDITIONS.
10. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
11. ALL CATCH BASIN SUMPS AND PIPING SHALL BE THOROUGHLY CLEANED TO REMOVE ALL SEDIMENT AND DEBRIS AFTER THE PROJECT HAS BEEN FULLY PAVED.
12. TEMPORARY SOIL STOCKPILE SHALL BE SURROUNDED WITH PERIMETER CONTROLS AND SHALL BE STABILIZED BY TEMPORARY EROSION CONTROL SEEDING. STOCKPILE AREAS TO BE LOCATED AS FAR AS POSSIBLE FROM THE DELINEATED EDGE OF WETLANDS.
13. SAFETY FENCING SHALL BE PROVIDED AROUND STOCKPILES OVER 10 FT.
14. CONCRETE TRUCKS WILL BE REQUIRED TO WASH OUT (IF NECESSARY) SHOOTS ONLY WITHIN AREAS WHERE CONCRETE HAS BEEN PLACED. NO OTHER WASH OUT WILL BE ALLOWED.

DRAINAGE STRUCTURE TABLE

CB#1355 RIM=11.80	PCB103 RIM=8.50 INV.OUT=6.15	PDMH101 RIM=13.00 INV.IN=9.00 INV.OUT=8.60 INV.OUT=8.80	PDMH106 RIM=11.00 INV.OUT=4.50
DMH #1098 RIM=8.00 INV.IN=4.30 INV.OUT=4.20	PCB104 RIM=8.50 INV.OUT=6.20	PDMH102 RIM=10.05 INV.IN=6.05 INV.IN=6.00 INV.OUT=6.00	PDMH200 RIM=15.00 INV.IN=11.25
PCB100 RIM=11.00 INV.OUT=9.00	PCB105 RIM=12.70 INV.OUT=9.50	PDMH103 RIM=9.00 INV.IN=6.05 INV.IN=6.05 INV.OUT=5.95	POS1 RIM=13.00 INV.IN=6.80 INV.OUT=6.70
PCB101 RIM=11.00 INV.OUT=9.00	PCB200 RIM=15.35 INV.OUT=11.35	PDMH104 RIM=9.55 INV.IN=5.90 INV.IN=5.90 INV.OUT=5.80	POS2 RIM=9.00 INV.IN=4.50 INV.OUT=4.50
PCB102 RIM=14.50 INV.OUT=10.50	PDMH100 RIM=11.50 INV.IN=8.90 INV.IN=8.90 INV.IN=8.70	PDMH105 RIM=8.20 INV.IN=4.40 INV.OUT=4.35 INV.OUT=4.60	

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GRADING, DRAINAGE & EROSION CONTROL PLAN

SCALE: AS SHOWN

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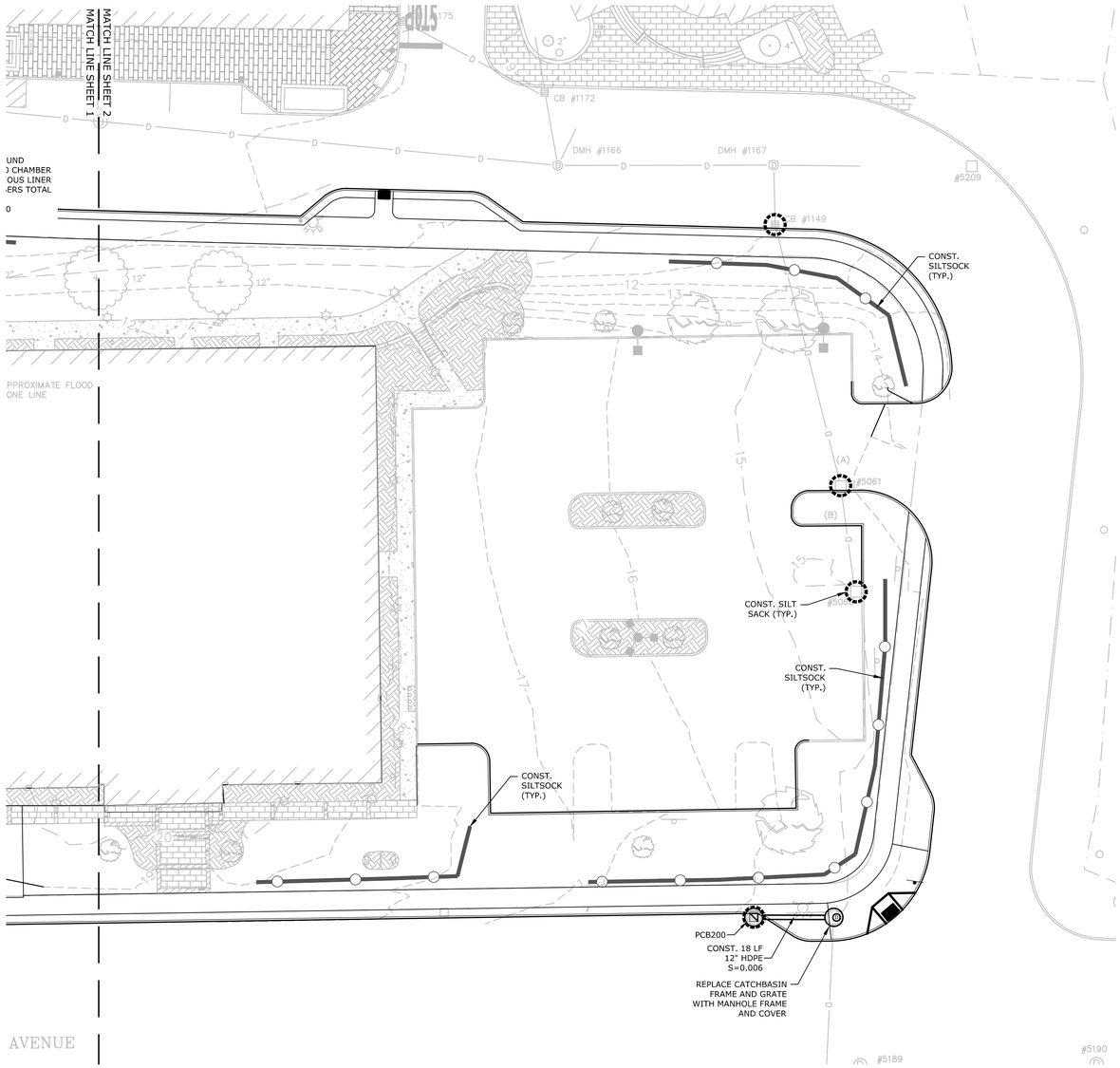

LEGEND

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- PROPOSED MINOR CONTOUR LINE
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- PROPOSED SILT SOCK
- INLET PROTECTION SILT SACK
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10. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
11. ALL CATCH BASIN SUMPS AND PIPING SHALL BE THOROUGHLY CLEANED TO REMOVE ALL SEDIMENT AND DEBRIS AFTER THE PROJECT HAS BEEN FULLY PAVED.
12. TEMPORARY SOIL STOCKPILE SHALL BE SURROUNDED WITH PERIMETER CONTROLS AND SHALL BE STABILIZED BY TEMPORARY EROSION CONTROL SEEDING. STOCKPILE AREAS TO BE LOCATED AS FAR AS POSSIBLE FROM THE DELINEATED EDGE OF WETLANDS.
13. SAFETY FENCING SHALL BE PROVIDED AROUND STOCKPILES OVER 10 FT.
14. CONCRETE TRUCKS WILL BE REQUIRED TO WASH OUT (IF NECESSARY) SHOOTS ONLY WITHIN AREAS WHERE CONCRETE HAS BEEN PLACED. NO OTHER WASH OUT WILL BE ALLOWED.

DRAINAGE STRUCTURE TABLE

CB#1355
RIM=11.80

DMH #1098
RIM=8.00
INV.IN=4.30
INV.OUT=4.20

PCB100
RIM=11.00
INV.OUT=9.00

PCB101
RIM=11.00
INV.OUT=9.00

PCB102
RIM=14.50
INV.OUT=10.50

PCB103
RIM=8.50
INV.OUT=6.15

PCB104
RIM=8.50
INV.OUT=6.20

PCB105
RIM=12.70
INV.OUT=9.50

PCB200
RIM=15.35
INV.OUT=11.35

PDMH100
RIM=11.50
INV.IN=8.90
INV.IN=8.90
INV.IN=8.70

PDMH101
RIM=13.00
INV.IN=9.00
INV.OUT=8.60
INV.OUT=8.80

PDMH102
RIM=10.05
INV.IN=6.05
INV.IN=6.00
INV.OUT=6.00

PDMH103
RIM=9.00
INV.IN=6.05
INV.IN=6.05
INV.OUT=5.95

PDMH104
RIM=9.55
INV.IN=5.90
INV.IN=5.90
INV.OUT=5.80

PDMH105
RIM=8.20
INV.IN=4.40
INV.OUT=4.35
INV.OUT=4.60

PDMH106
RIM=11.00
INV.OUT=4.50

PDMH200
RIM=15.00
INV.IN=11.25

POS1
RIM=13.00
INV.IN=6.80
INV.OUT=6.70

POS2
RIM=9.00
INV.IN=4.50
INV.OUT=4.50

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – 4/16/19

STATE OF NEW HAMPSHIRE – PATRICK M. CRIMMINS No. 12978 LICENSED PROFESSIONAL ENGINEER – 4/16/19

SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
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DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

GRADING, DRAINAGE & EROSION CONTROL PLAN

SCALE: AS SHOWN

C-103.2

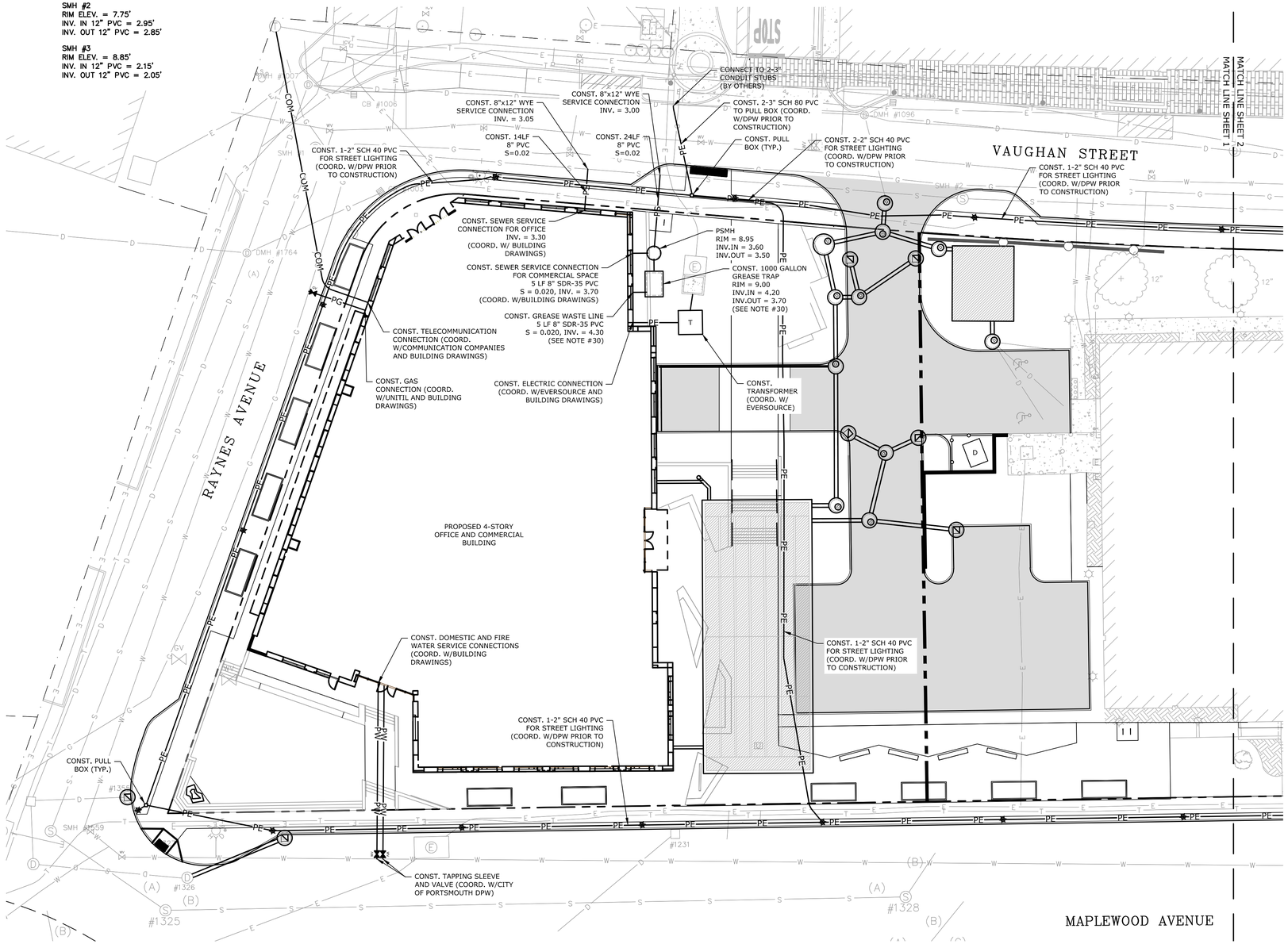
Last Save Date: April 16, 2019 12:26 PM By: NHANSEN
Revit Save Time: Tuesday, April 16, 2019 Saved By: Neil A. Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: C-103.2

SEWER STRUCTURE TABLE

SMH #1
RIM ELEV. = 10.0'
(1559) INV. 8" PVC = 3.65'
INV. OUT 12" PVC = 3.13'

SMH #2
RIM ELEV. = 7.75'
INV. IN 12" PVC = 2.95'
INV. OUT 12" PVC = 2.85'

SMH #3
RIM ELEV. = 8.85'
INV. IN 12" PVC = 2.15'
INV. OUT 12" PVC = 2.05'



UTILITY NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
   - NATURAL GAS - UNITIL
   - WATER/SEWER - CITY OF PORTSMOUTH
   - ELECTRIC - EVERSOURCE
   - COMMUNICATIONS - COMCAST/CONSOLIDATED COMMUNICATIONS
3. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
4. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
5. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE.
6. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE CITY OF PORTSMOUTH WATER DEPARTMENT.
7. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
8. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
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10. CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH STANDARDS.
11. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
12. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
13. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
14. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
15. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
16. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
17. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
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22. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
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31. APPLICANT'S ENGINEER SHALL UPDATE THE CITY'S VAUGHAN STREET SEWER IMPROVENNT PLANS TO INCLUDE LATERALS FOR THIS PROJECT'S SEWER SERVICES PRIOR TO SEWER CONSTRUCTION SCHEDULED FOR SPRING 2019.

LEGEND

	MATCH LINE
SD	EXISTING STORM DRAIN
SS	EXISTING SANITARY SEWER
SS	EXISTING SANITARY SEWER TO BE REMOVED
T	EXISTING UNDERGROUND TELECOMMUNICATION
W	EXISTING WATER
G	EXISTING GAS
E	EXISTING UNDERGROUND ELECTRIC
OHW	EXISTING OVERHEAD UTILITY
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PW	PROPOSED WATER
G	PROPOSED GAS
PE	PROPOSED UNDERGROUND ELECTRIC
COM	PROPOSED UNDERGROUND TELECOMMUNICATION
	EXISTING CATCHBASIN
D	EXISTING DRAIN MANHOLE
S	EXISTING SEWER MANHOLE
	EXISTING HYDRANT
WV	EXISTING WATER VALVE
E	EXISTING ELECTRIC MANHOLE
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BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
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SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

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Portsmouth, New Hampshire

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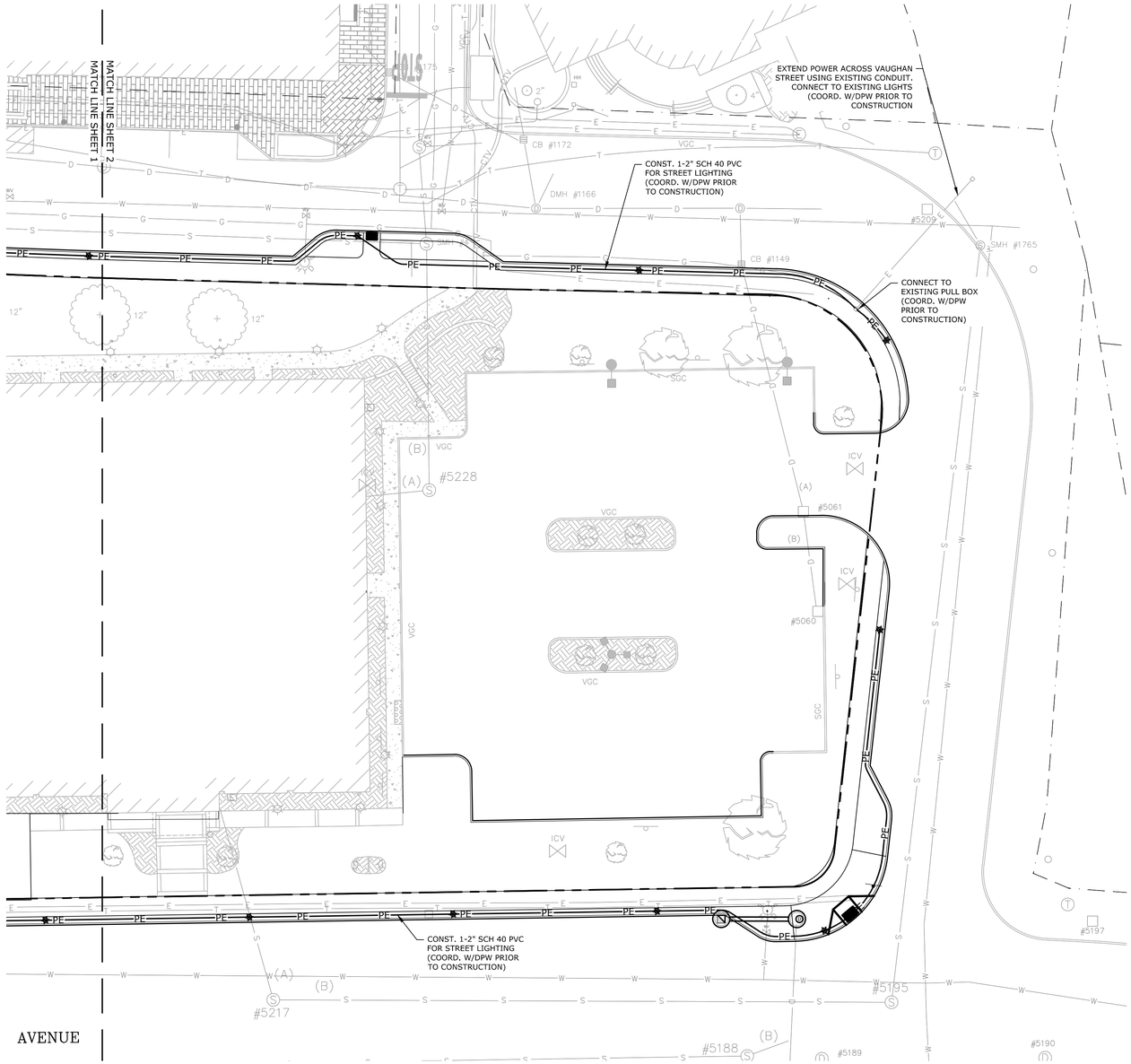
UTILITIES PLAN

SCALE: AS SHOWN

C-104.1

Last Save Date: April 16, 2019 - 12:26 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 - 12:26 PM By: Nels A. Hansen
T&B File Location: J:\KV\C0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: C-104.1



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BLDG	BUILDING
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STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 05830 LICENSED PROFESSIONAL ENGINEER 4-16-19

STATE OF NEW HAMPSHIRE – PATRICK M. CRIMMINS No. 12979 LICENSED PROFESSIONAL ENGINEER 4-16-19

SCALE IN FEET
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GRAPHIC SCALE

Proposed Office Building

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Portsmouth, New Hampshire

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UTILITIES PLAN

SCALE: AS SHOWN

C-104.2

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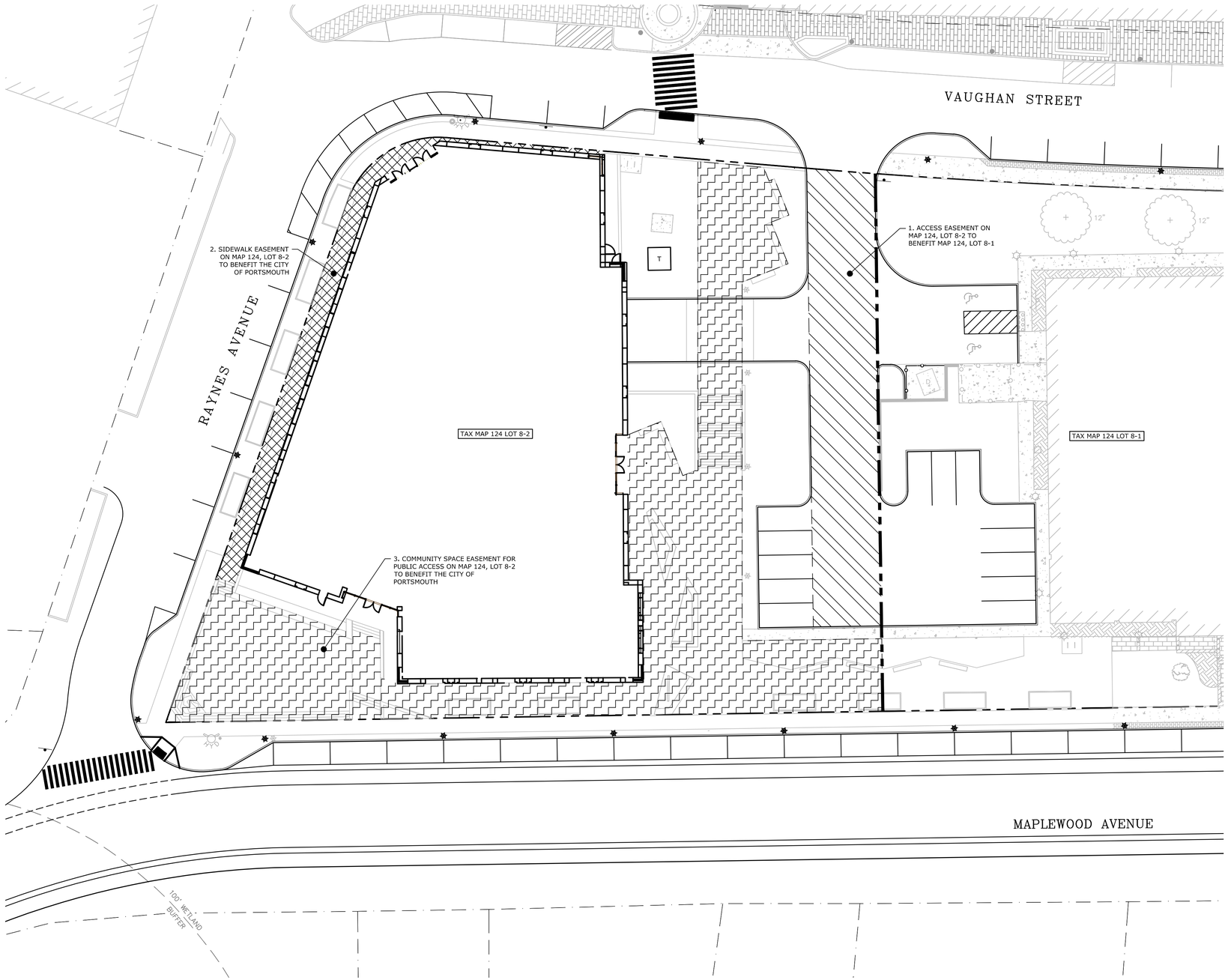

EASEMENTS

1. ACCESS EASEMENT ON MAP 124, LOT 8-2 TO BENEFIT MAP 124, LOT 8-1
2. SIDEWALK EASEMENT ON MAP 124, LOT 8-2 TO BENEFIT THE CITY OF PORTSMOUTH
3. COMMUNITY SPACE EASEMENT FOR PUBLIC ACCESS ON MAP 124, LOT 8-2 TO BENEFIT THE CITY OF PORTSMOUTH

EASEMENTS SHOWN HEREIN ARE FOR PERMITTING PURPOSES ONLY. FINAL EASEMENT PLAN SHALL BE PREPARED BY THE PROJECT SURVEYOR AND RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS PRIOR TO ISSUING BUILDING PERMITS.

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STATE OF NEW HAMPSHIRE — BRADLEE MEZQUITA No. 08830 — LICENSED PROFESSIONAL ENGINEER — 4/16/19

STATE OF NEW HAMPSHIRE — PATRICK M. CRIMMINS No. 12078 — LICENSED PROFESSIONAL ENGINEER — 4/16/19

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EASEMENT PLAN

SCALE: AS SHOWN

C-300

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T&B File Location: J:\KW\0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings_Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: C-300

GENERAL PROJECT INFORMATION

PROJECT APPLICANT: RW NORFOLK HOLDINGS, LLC
210 COMMERCE WAY, SUITE 300
PORTSMOUTH, NH 03801

PROJECT NAME: PROPOSED OFFICE BUILDING
PROJECT ADDRESS: 111 MAPLEWOOD AVENUE
PORTSMOUTH, NH 03801

PROJECT MAP / LOT: MAP 124 / LOT 8
PROJECT LATITUDE: 42°-04'-45" N
PROJECT LONGITUDE: 70°-45'-47" W

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE CONSTRUCTION OF A ±74,000SF OFFICE BUILDING WITH ASSOCIATED SITE IMPROVEMENTS.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 1.70 ACRES.

SOIL CHARACTERISTICS

BASED ON THE USCS SITE SPECIFIC SOIL SURVEY CONDUCTED BY JAMES P. GOVE, CSS, ON APRIL 22, 2013 THE SOILS ON SITE CONSIST OF URBAN LAND AND UDORTHENTS SOILS WHICH ARE EXCESSIVELY DRAINED SOILS WITH A HYDROLOGIC SOIL GROUP RATING OF A.

NAME OF RECEIVING WATERS

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA A CLOSED DRAINAGE SYSTEM TO THE CITY OF PORTSMOUTH'S CLOSED DRAINAGE SYSTEM WHICH ULTIMATELY FLOWS TO NORTH MILL POND THEN TO THE PISCATAQUA RIVER.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CUT AND CLEAR TREES.
2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
   - NEW CONSTRUCTION
   - CONTROL OF DUST
   - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
   - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
4. CLEAR AND DISPOSE OF DEBRIS.
5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
6. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
7. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
8. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
9. SEDIMENT TRAPS AND/OR BASINS SHALL BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.
10. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
11. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
12. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
13. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:

1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

EROSION CONTROL NOTES:

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

STABILIZATION:

1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.;
   E. IN AREAS TO BE PAVED, “STABLE” MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.
2. WINTER STABILIZATION PRACTICES:
   A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
   B. 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;
   C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
   A. TEMPORARY SEEDING;
   B. MULCHING.
4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
5. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
6. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

DUST CONTROL:

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

STOCKPILES:

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:

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

VEGETATION:

1. TEMPORARY GRASS COVER:
   A. SEEDBED PREPARATION:
      a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
   B. SEEDING:
      a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
      b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
      c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
   C. MAINTENANCE:
      a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
2. VEGETATIVE PRACTICE:
   A. FOR PERMANENT MEASURES AND PLANTINGS:
      a. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5;
      b. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20 FERTILIZER;
      c. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH;
      d. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH;
      e. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE;
      f. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED;
      g. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
      h. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE APPLIED AT THE INDICATED RATE:

SEED MIX	APPLICATION RATE
CREEPING RED FESCUE	20 LBS/ACRE
TALL FESCUE	20 LBS/ACRE
REDTOP	2 LBS/ACRE

IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.

3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
   A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

CONCRETE WASHOUT AREA:

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

ALLOWABLE NON-STORMWATER DISCHARGES:

1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:

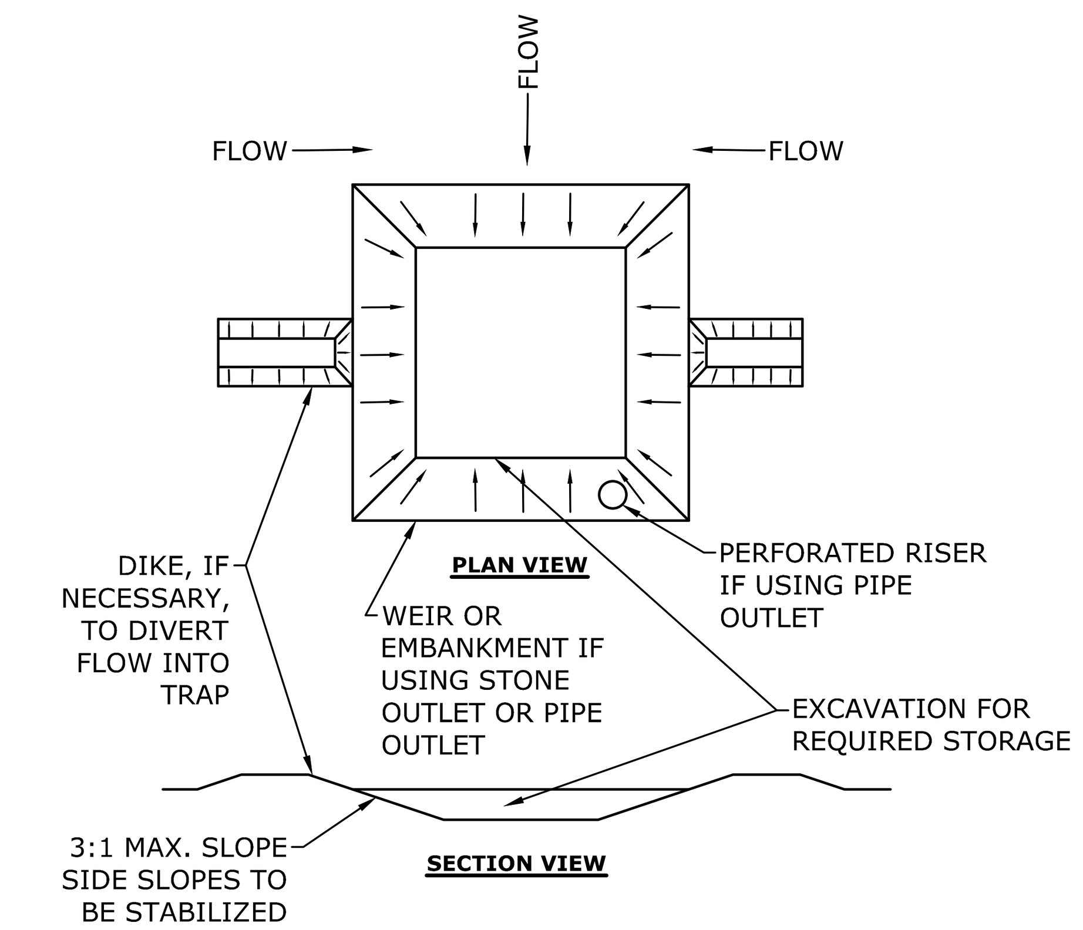
1. WASTE MATERIAL:
   A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE:
   A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE:
   A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION:

1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
   A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
      a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
      b. ALL REGULATED MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE, ON AN IMPERVIOUS SURFACE;
      c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
      d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
      e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
      f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
      g. THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
   B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
      a. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
      b. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
      c. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
   C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
      a. PETROLEUM PRODUCTS:
         i. ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
         ii. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
         iii. SECURE FUEL STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
         iv. INSPECT FUEL STORAGE AREAS WEEKLY;
         v. WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS;
         vi. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
         vii. SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
         viii. THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
            (1) EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;
            (2) PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS;
            (3) HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
            (4) USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES;
            (5) PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
         ix. FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT SHALL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT, OR ITS SUCCESSOR DOCUMENT.
         HTTPS://WWW.DES.NH.GOV/ORGANIZATION/COMMISSIONER/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF
      b. FERTILIZERS:
         i. FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
         ii. ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
         iii. STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
      c. PAINTS:
         i. ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
         ii. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
         iii. EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
   D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
      a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
      b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
      c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
      d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
      e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
      f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
   E. VEHICLE FUELING AND MAINTENANCE PRACTICE:
      a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPMENT/VEHICLE FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
      b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
      c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
      d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
      e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
      f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

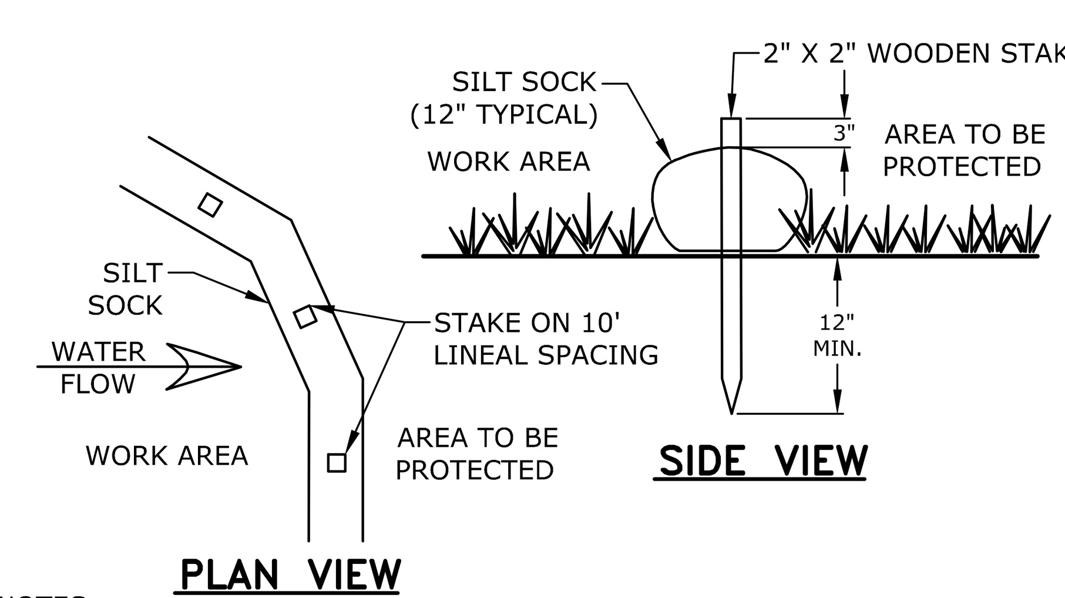
EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

1. THIS PROJECT EXCEEDS ONE (1) ACRE OF DISTURBANCE AND THUS REQUIRES A SWPPP. THE SWPPP SHALL BE PREPARED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SWPPP AND KEEP AN UPDATED COPY OF THE SWPPP ONSITE AT ALL TIMES.
2. THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
   A. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
   B. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
   C. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
   D. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.



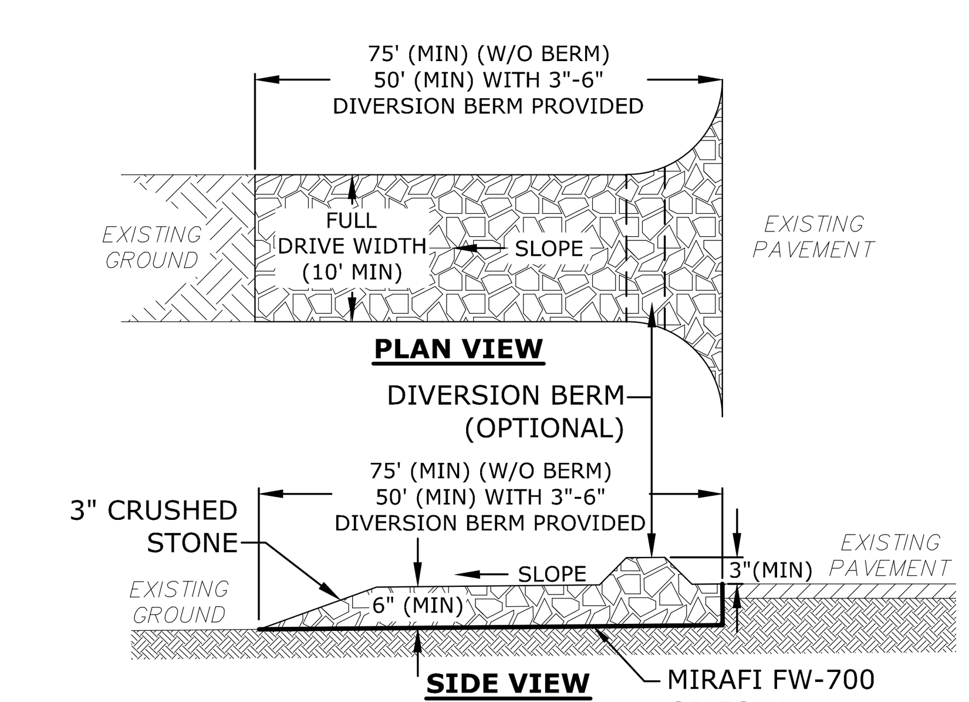
NOTES:
1. THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING AREA TO A SINGLE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. TRAP OUTLET SHALL BE MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP.
5. TRAP SHALL DISCHARGE TO A STABILIZED AREA.
6. TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.
8. SEDIMENT TRAPS MUST BE USED AS NEEDED TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.

SEDIMENT TRAP
NO SCALE



NOTES:
1. SILT SOCK SHALL BE SILT SOXX BY FILTREXX OR APPROVED EQUAL
2. INSTALL SILT SOCK IN ACCORDANCE WITH...

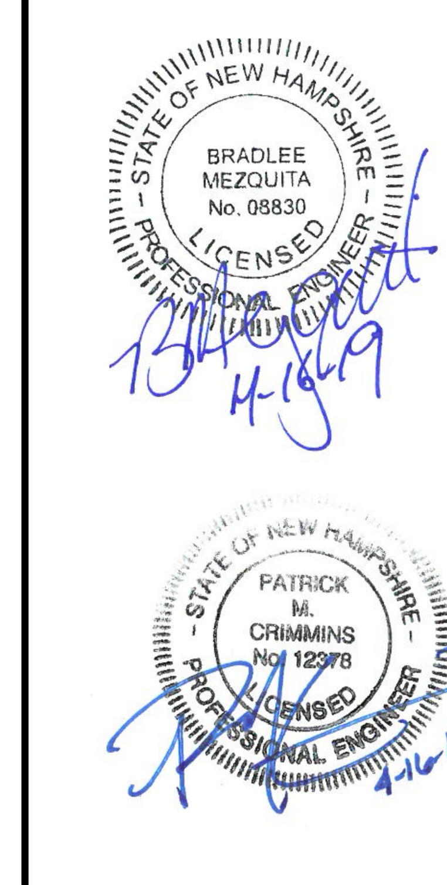
SILT SOCK
NO SCALE



NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS

STABILIZED CONSTRUCTION EXIT
NO SCALE

Tighe&Bond
Engineers | Environmental Specialists



Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

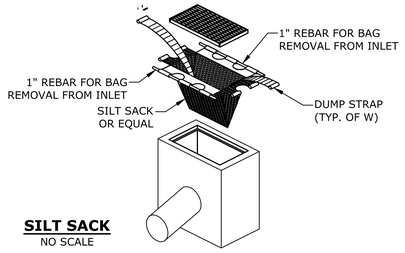
PROJECT NO:	K-0076-019
DATE:	03/18/2019
FILE:	K-0076-019-C-DTLS.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

EROSION CONTROL NOTES AND DETAILS SHEET

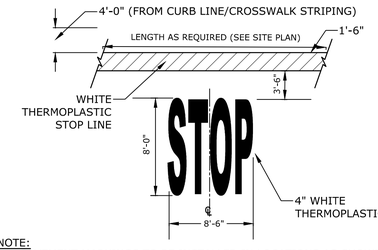
SCALE: AS SHOWN

C-501

Last Save Date: April 15, 2019 5:06 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 Plotted By: Neil A. Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings_Figures\AutoCAD\Xref\K-0076-019-C-DTLS.dwg Layout Tab: C-501

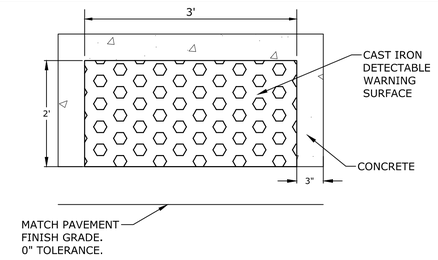


SILT SACK
NO SCALE



NOTE:
1. PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.
2. STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

STOP BAR AND LEGEND
NO SCALE

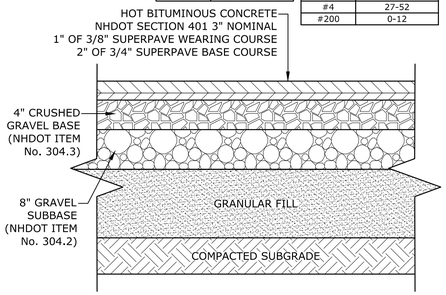


NOTES:
1. DETECTABLE WARNING SURFACE SHALL BE 2' X 3' CAST IRON PANEL SET IN CONCRETE.
2. DETECTABLE WARNING SURFACE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

CAST IRON DETECTABLE WARNING SURFACE
NO SCALE

NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12

NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12

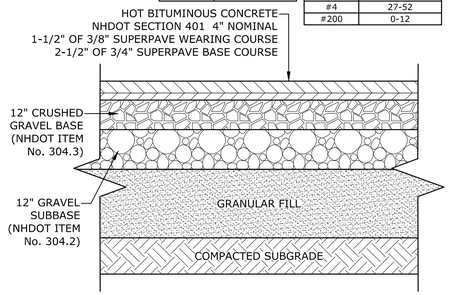


NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
4. REFER TO CITY SPECIFICATIONS FOR ASPHALT MIX DESIGN.

ON-SITE PAVEMENT SECTION
NO SCALE

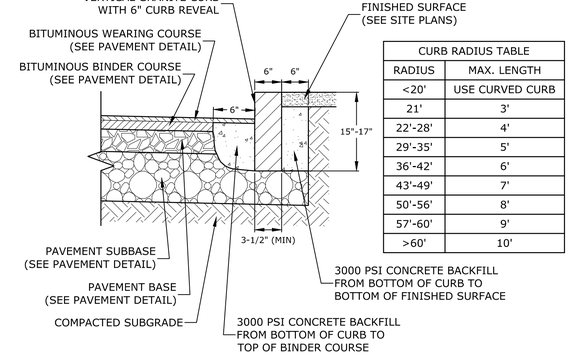
NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12

NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12



NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
4. REFER TO CITY SPECIFICATIONS FOR ASPHALT MIX DESIGN.

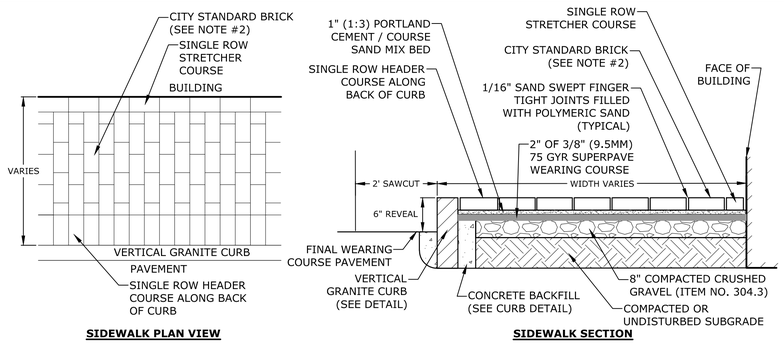
CITY RIGHT-OF-WAY PAVEMENT SECTION
NO SCALE



CURB RADIUS TABLE	
RADIUS	MAX. LENGTH
<20'	USE CURVED CURB
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

VERTICAL GRANITE CURB
NO SCALE

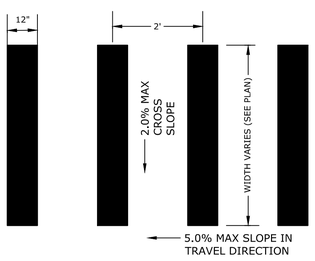


SIDEWALK PLAN VIEW

SIDEWALK SECTION

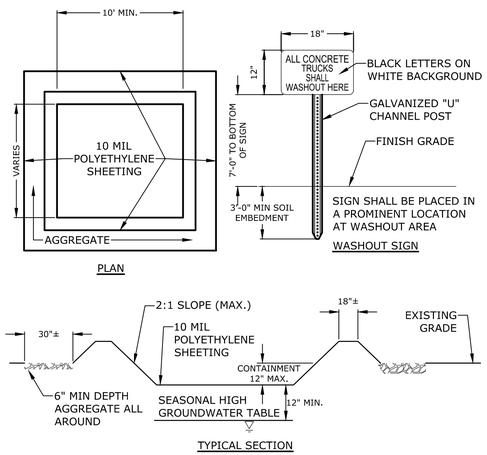
NOTES:
1. BRICK SIDEWALK SHALL BE INSTALLED AS DETAILED AND PER CITY OF PORTSMOUTH REQUIREMENTS/SPECIFICATIONS AND SHALL INCLUDE A CONTINUOUS APPROVED PAVER EDGE RESTRAINT SYSTEM AT ALL LOCATIONS NOT ADJACENT TO CURB OR BUILDINGS.
2. CITY STANDARD BRICK SHALL BE TRADITIONAL EDGE, PATHWAY, FULL RANGE 2.25"X4"X8" PAVER, BY PINE HALL BRICK, INC. BRICK MATERIAL SAMPLES SHALL BE PROVIDED TO DPW PRIOR TO INSTALLATION FOR REVIEW AND APPROVAL.
3. BEDDING MATERIAL SHALL BE A PORTLAND CEMENT / COURSE SAND MIX THAT IS 1 PART PORTLAND CEMENT AND 3 PARTS COURSE SAND. SAND SHALL CONFORM WITH ASTM C-33 AND CEMENT SHALL BE PORTLAND CEMENT TYPE I/TYPE II.

BRICK SIDEWALK
NO SCALE



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

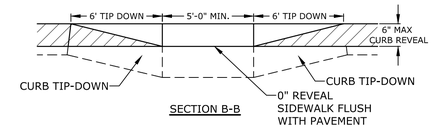
CROSSWALK STRIPING
NO SCALE



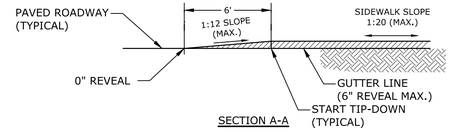
NOTES:
1. CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
2. CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
3. WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75% FULL.
4. WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY CONCRETE TRUCKS.
5. ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
6. AT LEAST WEEKLY REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE OF PROPERLY.

CONCRETE WASHOUT AREA
NO SCALE

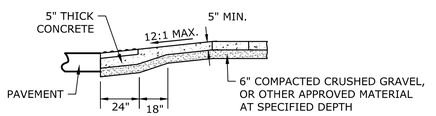
NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12



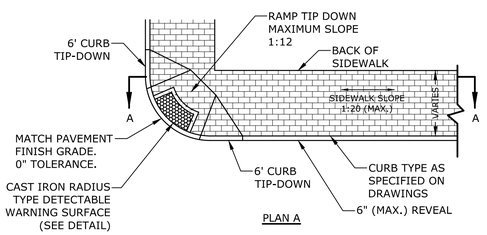
SECTION B-B



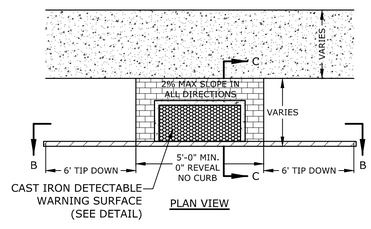
SECTION A-A



SECTION C-C



PLAN A



PLAN VIEW

NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. A 6" COMPACTED CRUSHED GRAVEL BASE (NHDOT ITEM No. 304.3) SHALL BE PROVIDED BENEATH RAMPS.
3. DETECTABLE WARNING PANEL SHALL BE CAST IRON SET IN CONCRETE (SEE DETAIL.)
4. PROVIDE DETECTABLE WARNING SURFACES ANYTIME THAT A CURB RAMP, BLENDED TRANSITION, OR LANDING CONNECTS TO A STREET.
5. LOCATE THE DETECTABLE WARNING SURFACES AT THE BACK OF THE CURB ALONG THE EDGE OF THE LANDING.
6. THE MAXIMUM RUNNING SLOPE OF ANY SIDEWALK CURB RAMP IS 12:1, THE MAXIMUM CROSS SLOPE IS 2%. THE SLOPE OF THE LANDING SHALL NOT EXCEED 2% IN ANY DIRECTION.
7. TRANSITIONS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. ROADWAY SHOULDER SLOPES ADJOINING SIDEWALK CURB RAMPS SHALL BE A MAXIMUM OF 5% (FULL WIDTH) FOR A DISTANCE OF 2 FT. FROM THE ROADWAY CURBLINE.
8. THE BOTTOM OF THE SIDEWALK CURB RAMP OR LANDING, EXCLUSIVE OF THE FLARED SIDES, SHALL BE WHOLLY CONTAINED WITHIN THE CROSSWALK MARKINGS.
9. DETECTABLE WARNING PANELS SHALL BE A MINIMUM OF 2 FEET IN DEPTH. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP, BLENDED TRANSITION, OR LANDING AND THE STREET.
10. THE TEXTURE OF THE DETECTABLE WARNING FEATURE MUST CONTRAST VISUALLY WITH THE SURROUNDING SURFACES (EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT).

CONCRETE WHEELCHAIR ACCESSIBLE RAMP
NO SCALE

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE — BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER — 4-16-19

STATE OF NEW HAMPSHIRE — PATRICK M. CRIMMINS No. 12078 REVISED PROFESSIONAL ENGINEER — 4-16-19

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

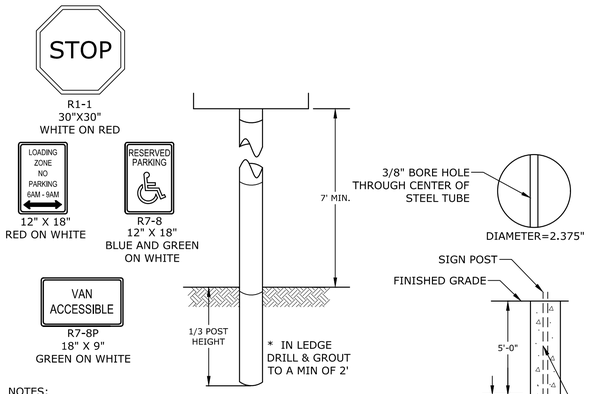
PROJECT NO:	K-0076-019
DATE:	03/18/2019
FILE:	K-0076-019-C-DTLS.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

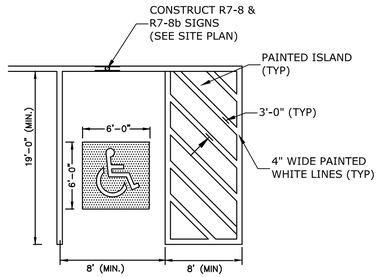
C-502

Last Save Date: April 15, 2019 5:06 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 8:34 AM By: nhansen
T&B File Location: I:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019-C-DTLS.dwg Layout Tab: C-502



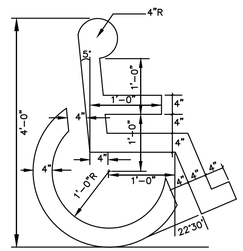
NOTES:
ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
POST: SCHEDULE 40 GALVANIZED STEEL PIPE (OUTSIDE DIA. = 2.375").
FINISH: POST TO BE POWDER COATED GLOSS BLACK
LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER (AS REQUIRED)
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070-1080)

SIGN LEGEND & SIGN POST
NO SCALE



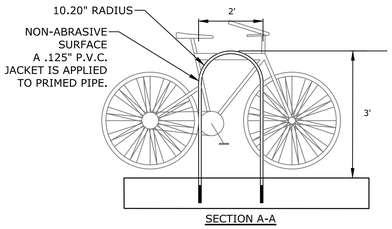
NOTES:
1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN W/DISABILITIES ACT.

ACCESSIBLE PARKING STALL
NO SCALE

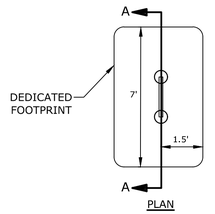


NOTES:
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING WHITE THERMOPLASTIC, REFLECTORIZED PAVEMENT MARKING MATERAL MEETING THE REQUIREMENTS OF ASTM D 4505.
2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

ACCESSIBLE SYMBOL
NO SCALE

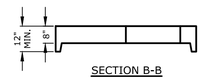


SECTION A-A

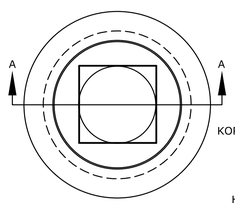


PLAN

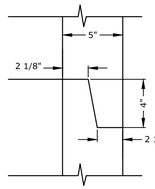
BIKE RACK
NO SCALE



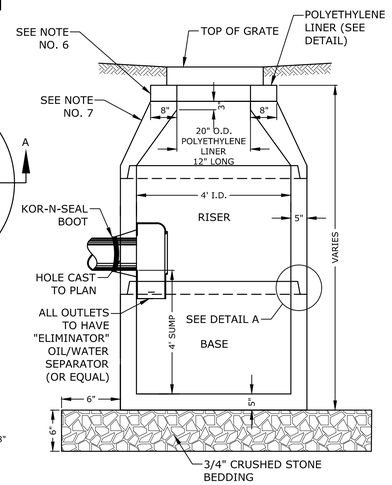
SECTION B-B
FLAT SLAB TOP



PLAN



DETAIL A
(TONGUE AND GROOVE JOINT)

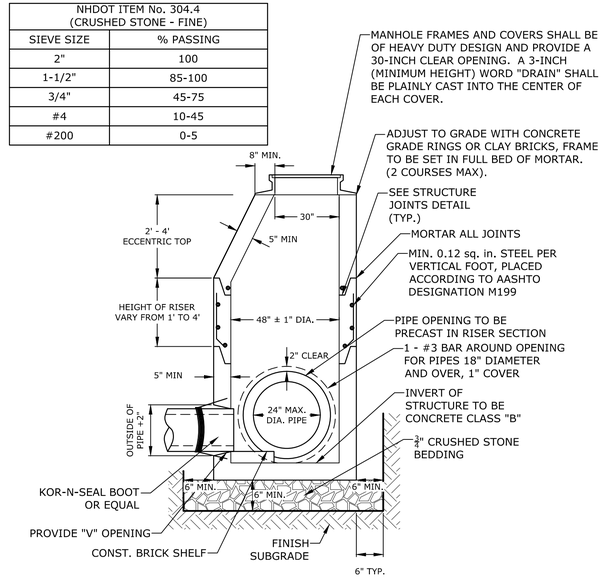


SECTION A-A

NOTES:
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
7. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
8. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
9. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
11. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
12. "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASIN.

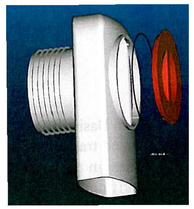
4' DIAMETER CATCHBASIN
NO SCALE

NHDOT ITEM No. 304.4 (CRUSHED STONE - FINE)	
SIEVE SIZE	% PASSING
2"	100
1-1/2"	85-100
3/4"	45-75
#4	10-45
#200	0-5



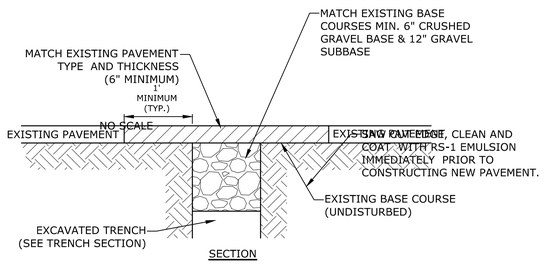
NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZNTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

4' DIAMETER DRAIN MANHOLE
NO SCALE

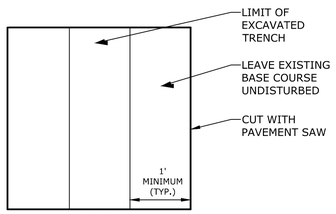


NOTES:
1. ALL CATCH BASIN OUTLETS TO HAVE "ELIMINATOR" OIL AND FLOATING DEBRIS TRAP MANUFACTURED BY KLEANSTREAM (NO EQUAL)
2. INSTALL DEBRIS TRAP TIGHT TO INSIDE OF STRUCTURE.
3. 1/4" HOLE SHALL BE DRILLED IN TOP OF DEBRIS TRAP

"ELIMINATOR" OIL FLOATING DEBRIS TRAP



SECTION



PLAN

NOTE:
COORDINATE AND OBTAIN APPROVAL FOR ALL TRENCHING AND PATCHING WITHIN CITY RIGHT OF WAY WITH CITY OF PORTSMOUTH DPW PRIOR TO COMMENCING WORK.

ROADWAY TRENCH PATCH
NO SCALE

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE — BRADLEE MEZQUITA No. 09830 LICENSED PROFESSIONAL ENGINEER — 4/16/19

STATE OF NEW HAMPSHIRE — PATRICK M. CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER — 4/16/19

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

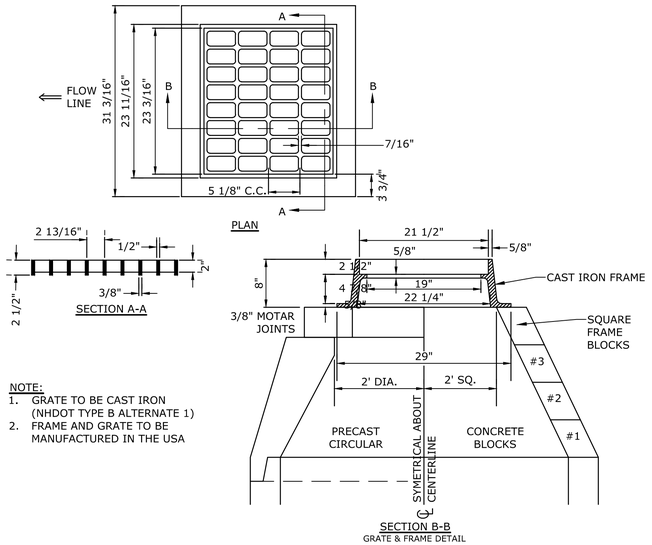
PROJECT NO:	K-0076-019
DATE:	03/18/2019
FILE:	K-0076-019-C-DTLS.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

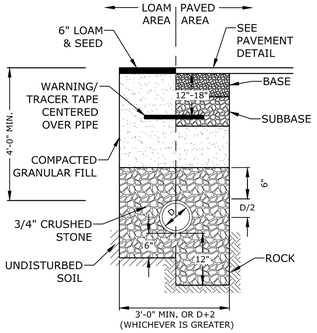
C-503

Last Save Date: April 15, 2019 5:06 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 9:08 AM By: Nick Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019-C-DTLS.dwg Layout Tab: C-503



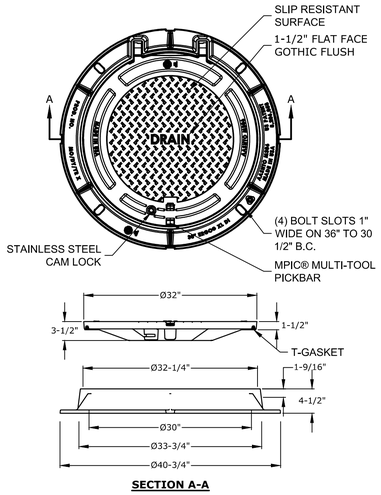
NOTE:
1. GRATE TO BE CAST IRON (NHDOT TYPE B ALTERNATE 1)
2. FRAME AND GRATE TO BE MANUFACTURED IN THE USA

CATCH BASIN FRAME & GRATE
NO SCALE



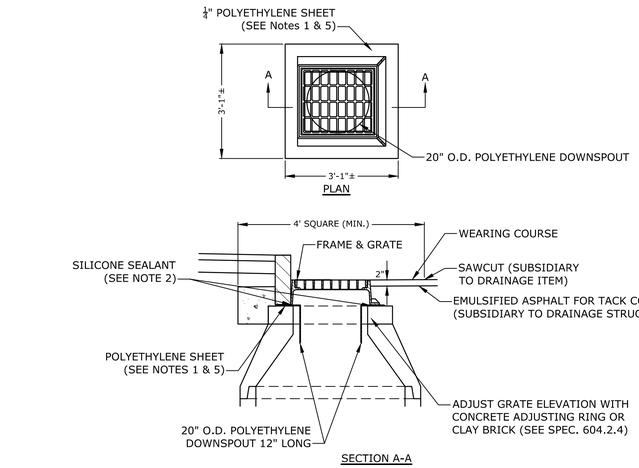
NOTE:
1. CRUSHED STONE BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 6" ABOVE TOP OF PIPE.
2. ALL UTILITIES SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE CITY OF PORTSMOUTH.

STORM DRAIN TRENCH
NO SCALE



NOTES:
1. MANHOLE FRAME AND COVER SHALL BE 32" HINGED ERGO XL BY EJ CO.
2. ALL DIMENSIONS ARE NOMINAL.
3. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
4. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN HE CENTER OF THE COVER.

DRAIN MANHOLE FRAME & COVER
NO SCALE

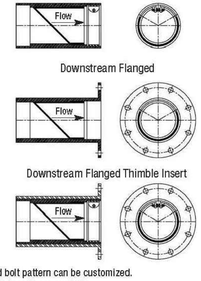


NOTES:
1. POLYETHYLENE LINER (ITEM 604.0007) SHALL BE FABRICATED AT THE SHOP. DOWNSPOUT SHALL BE EXTRUSION FILLET WELDED TO THE POLYETHYLENE SHEET.
2. PLACE A CONTINUOUS BEAD OF AN APPROVED SILICONE SEALANT (SUBSIDIARY TO ITEM 604.0007) BETWEEN FRAME AND POLYETHYLENE SHEET.
3. PLACE CLASS AA CONCRETE TO 2" BELOW THE TOP OF THE GRATE ELEVATION (SUBSIDIARY TO DRAINAGE STRUCTURE).
4. USE ON DRAINAGE STRUCTURES 4' MIN. DIAMETER ONLY.
5. TRIM POLYETHYLENE SHEET A MAXIMUM OF 4" OUTSIDE THE FLANGE ON THE FRAME FOR THE CATCH BASIN BEFORE PLACING CONCRETE (EXCEPT AS SHOWN WHEN USED WITH 3-FLANGE FRAME AND CURB).
6. THE CENTER OF THE GRATE & FRAME MAY BE SHIFTED A MAXIMUM OF 6" FROM THE CENTER OF THE DOWNSPOUT IN ANY DIRECTION.
7. PLACED ONLY IN DRAINAGE STRUCTURES IN PAVEMENT.
8. SEE NHDOT DR-04, "DI-DB, UNDERDRAIN FLUSHING BASIN AND POLYETHYLENE LINER DETAILS", FOR ADDITIONAL INFORMATION.
9. CATCHBASINS WITHIN CITY RIGHT OF WAY SHALL HAVE A POLYETHYLENE LINER

POLYETHYLENE LINER
NO SCALE

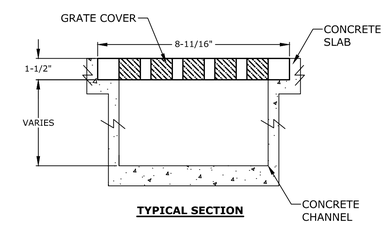
NOMINAL PIPE SIZE I.D.*		OVERALL LENGTH**		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING	
Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters
12	300	23	584	1	2	51	40	12

Mounting Styles and Configurations



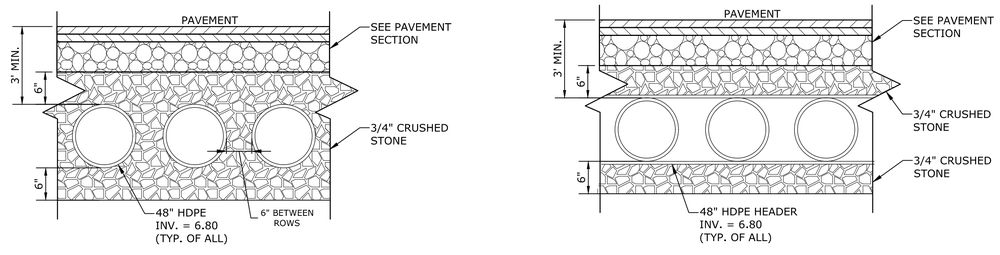
Flange shape and bolt pattern can be customized.
Flangeless thimble inserts are available.

TYPICAL BACK FLOW PREVENTER
NO SCALE



NOTES:
1. TRENCH DRAIN FRAME AND GRATE SHALL BE MULTIDRAIN ECONODRAIN SERIES #6 OR EQUAL WITH ADA COMPLIANT GRATE.
2. CONCRETE CHANNEL TO BE CAST AS PART OF STAIR SLAB (COORDINATE WITH BUILDING DRAWINGS).

TRENCH DRAIN DETAIL
NO SCALE



NOTES:
1. UNDERGROUND DETENTION SYSTEM TO BE 48" HDPE PIPE DESIGNED FOR H-20 LOADING. CONTRACTOR TO SUBMIT PIPE SPECIFICATIONS AND FINAL MANUFACTURES DESIGN TO ENGINEER FOR APPROVAL.
2. MANUFACTURER TO SUBMIT PLANS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE.
3. THE DESIGN ENGINEER SHALL PROVIDE SUFFICIENT INSPECTION TO CERTIFY THAT THE SYSTEM HAS BEEN INSTALLED PER THE APPROVED DESIGN PLAN.
4. REFER TO STANDARD DUTY PAVEMENT SECTION DETAIL FOR PAVEMENT SECTION.

UNDERGROUND DETENTION SYSYTEM DETAIL
NO SCALE

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE — BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER — 4/16/19

STATE OF NEW HAMPSHIRE — PATRICK M. CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER — 4/16/19

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

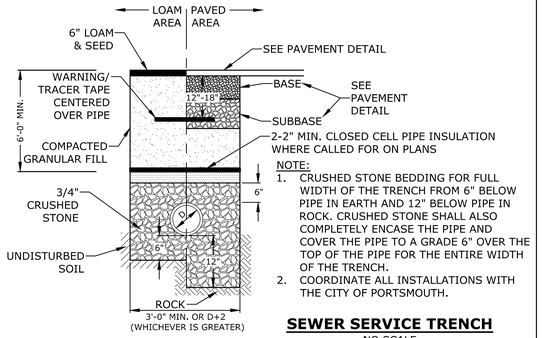
MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

PROJECT NO:	K-0076-019
DATE:	03/18/2019
FILE:	K-0076-019-C-DTLS.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

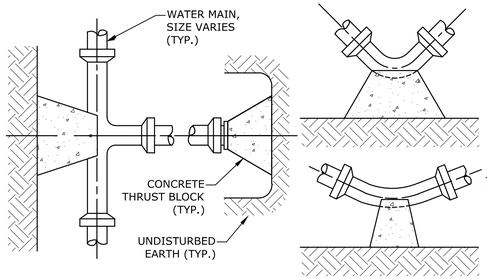
SCALE: AS SHOWN

C-504



NOTE:
1. CRUSHED STONE BEDDING FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK. CRUSHED STONE SHALL ALSO COMPLETELY ENCASE THE PIPE AND COVER THE PIPE TO A GRADE 6" OVER THE TOP OF THE PIPE FOR THE ENTIRE WIDTH OF THE TRENCH.
2. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

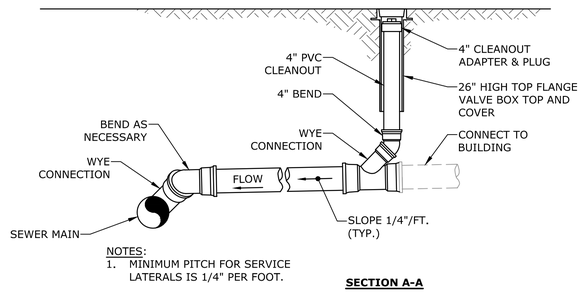
SEWER SERVICE TRENCH
NO SCALE



TEST PRESSURE = 200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL					
	REACTION TYPE	PIPE SIZE				
		4"	6"	8"	10"	12"
	A 90°	0.89	2.19	3.82	11.14	17.24
	B 180°	0.65	1.55	2.78	8.38	12.00
	C 45°	0.48	1.19	2.12	6.02	9.32
	D 22-1/2°	0.25	0.60	1.06	3.08	4.74
	E 11-1/4°	0.13	0.30	0.54	1.54	2.38

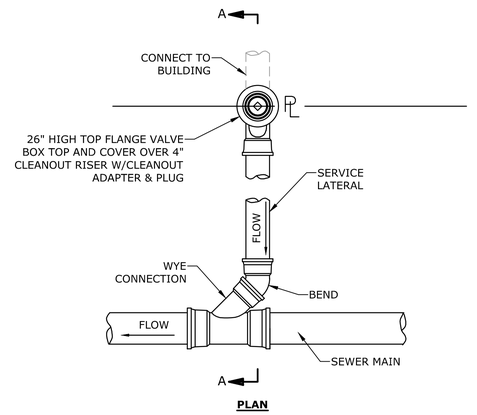
NOTES:
1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT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

THRUST BLOCKING DETAIL
NO SCALE



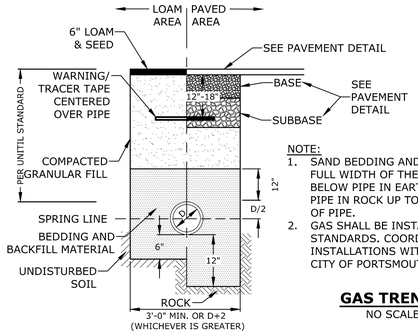
NOTES:
1. MINIMUM PITCH FOR SERVICE LATERALS IS 1/4" PER FOOT.

SECTION A-A



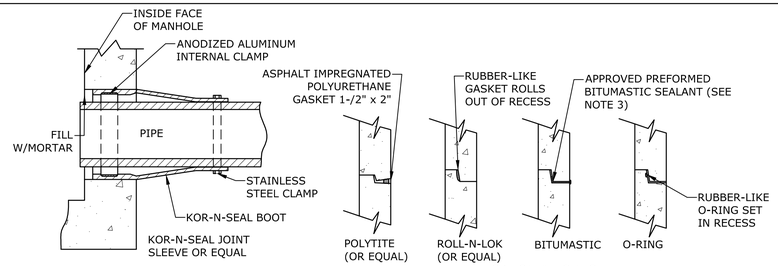
PLAN

SANITARY SERVICE LATERAL WITH CLEANOUT
NO SCALE



NOTE:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. GAS SHALL BE INSTALLED PER UNITIL STANDARDS. COORDINATE ALL INSTALLATIONS WITH UNITIL AND THE CITY OF PORTSMOUTH.

GAS TRENCH
NO SCALE

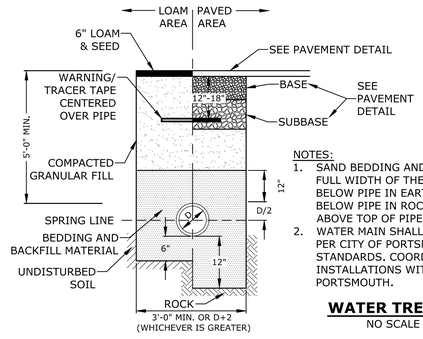


PIPE TO MANHOLE JOINTS

HORIZONTAL JOINTS

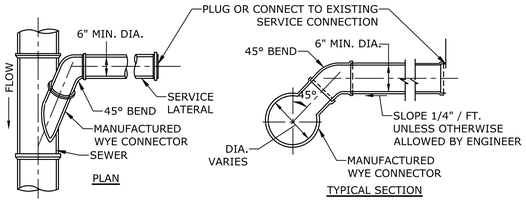
NOTES:
1. HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER CITY OF PORTSMOUTH DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.
3. FOR BITUMASTIC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

MANHOLE JOINTS
NO SCALE

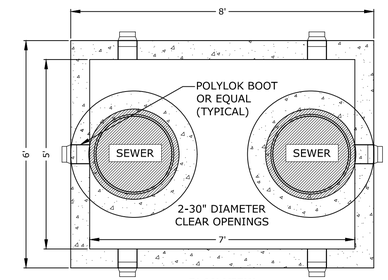


NOTES:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. WATER MAIN SHALL BE INSTALLED PER CITY OF PORTSMOUTH STANDARDS. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

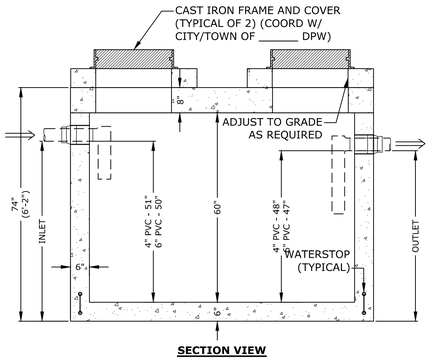
WATER TRENCH
NO SCALE



STANDARD SERVICE LATERAL CONNECTION
NO SCALE



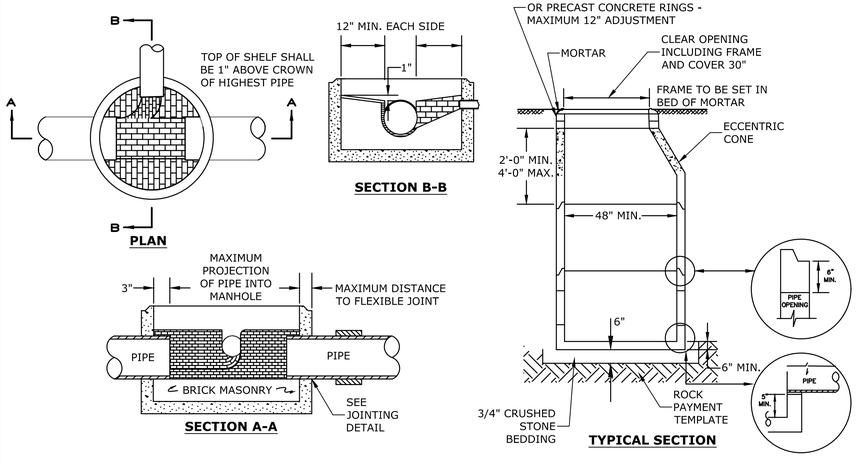
PLAN VIEW



SECTION VIEW

NOTES:
1. STEEL REINFORCEMENT SHALL CONFORM TO LATEST ASTM SPECIFICATIONS: ASTM-A615 GRADE 60 REBAR.
2. CONCRETE SHALL BE F_C=5,000 PSI @ 28 DAYS MINIMUM.
3. FLEXIBLE SLEEVES SHALL BE PROVIDED ON ALL PIPE CONNECTIONS.
4. JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
5. INLET SHALL PENETRATE AT LEAST 9" BELOW THE LIQUID LEVEL, BUT NOT DEEPER THAN THE OUTLET BAFFLE.
6. OUTLET SHALL EXTEND BELOW THE SURFACE OF THE LIQUID EQUAL TO 40% OF THE LIQUID DEPTH (19").
7. DESIGN LOADING SHALL BE: AASHTO-HS20-44, ASTM C-890-06.
8. DESIGN SPECIFIED AS: ASTM C-1227-08, ASTM C-913-08.
9. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WITHIN CITY RIGHT OF WAY SHALL BE CITY STANDARD HINGE COVERS MANUFACTURED BY EJ. FRAMES AND COVERS WILL BE PURCHASED FROM THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. ALL OTHER MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
10. GREASE TRAP SHALL BE PHOENIX PRECAST CONCRETE P/N: ST-1000H20 OR EQUAL.
11. TANK SHALL BE PUMPED AS NEEDED.

1,000 GALLON GREASE TRAP
NO SCALE



NOTES:
1. INVERT AND SHELF TO BE PLACED AFTER EACH LEAKAGE TEST.
2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT.
3. INVERT BRICKS SHALL BE LAID ON EDGE.
4. BITUMINOUS WATERPROOF COATING TO BE APPLIED TO ENTIRE EXTERIOR OF MANHOLE.
5. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WITHIN CITY RIGHT OF WAY SHALL BE CITY STANDARD HINGE COVERS MANUFACTURED BY EJ. FRAMES AND COVERS WILL BE PURCHASED FROM THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. ALL OTHER MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
6. HORIZONTAL JOINTS SHALL BE SEALED FOR WATER TIGHTNESS USING A DOUBLE ROW OF ELASTOMERIC OR MASTIC-LIKE SEALANT.
7. BARREL AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE DESIGNED FOR H20 LOADING, AND CONFORMING TO ASTM C478-06.

SEWER MANHOLE
NO SCALE

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 – LICENSED PROFESSIONAL ENGINEER

STATE OF NEW HAMPSHIRE – PATRICK M. CRIMMINS No. 12578 – LICENSED PROFESSIONAL ENGINEER

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

PROJECT NO:	K-0076-019
DATE:	03/18/2019
FILE:	K-0076-019-C-DTLS.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

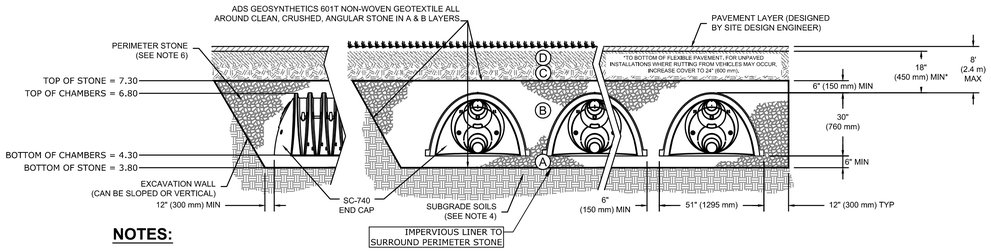
C-505

Last Save Date: April 15, 2019 5:06 PM By: NAHANSEN
Plot Date: April 15, 2019 5:06 PM By: Nathan Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019-C-DTLS.dwg Layout Tab: C-505

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

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

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:

1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
7. PLACE MINIMUM 12.5' OF ADS GEOSYNTHETICS 315WTK WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

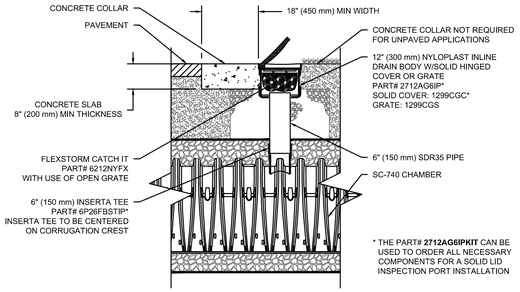
INSPECTION & MAINTENANCE

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

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

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

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



SC-740 6" INSPECTION PORT DETAIL
NTS

NOTES

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

STORMTECH CHAMBER SPECIFICATIONS

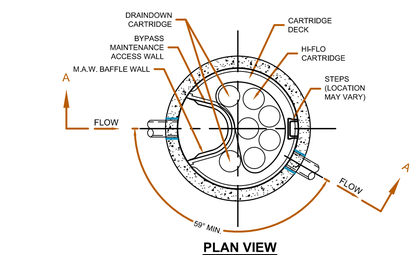
1. CHAMBERS SHALL BE STORMTECH SC-740, SC-310, OR APPROVED EQUAL.
2. CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS.^J
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".^J
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:

7.1. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.

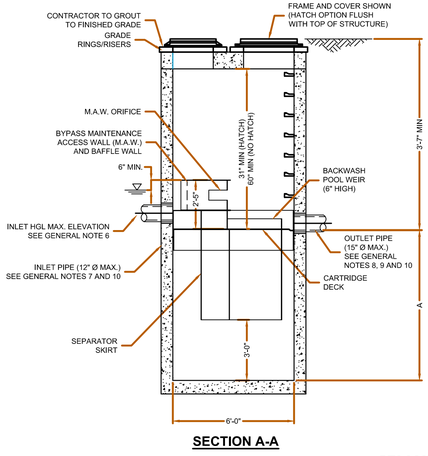
7.2. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.

7.3. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.

8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.



PLAN VIEW



SECTION A-A

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN. Ø72" MANHOLE JELLYFISH PEAK TREATMENT CAPACITY IS 1.16 CFS, AND MAXIMUM BYPASS CAPACITY IS 4.00 CFS. IF THE SITE CONDITIONS EXCEED TOTAL CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE DEPTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	7'-5"	6'-3"	5'-2"	4'-2"
FLOW RATE HIGH-FLO / DRAINDOWN (cfs) (per cart)	0.18 / 0.09	0.13 / 0.065	0.09 / 0.045	0.05 / 0.025
MAX. CARTS HIGH-FLO/DRAINDOWN		6 / 1		
MAX. BYPASS (cfs)		4.00		
MAX. TREATMENT (cfs)	1.16	0.87	0.58	0.32
MAX. TREATMENT AND BYPASS (cfs) (TOTAL CAPACITY)	5.16	4.87	4.58	4.32

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	6'
WATER QUALITY FLOW RATE (cfs)	0.91
BYPASS FLOW RATE (cfs)	5.00
PEAK FLOW RATE (cfs)	4.42
RETURN PERIOD OF PEAK FLOW (yrs)	50
# OF CARTRIDGES REQUIRED (HF / DD)	5/1
CARTRIDGE SIZE	54"

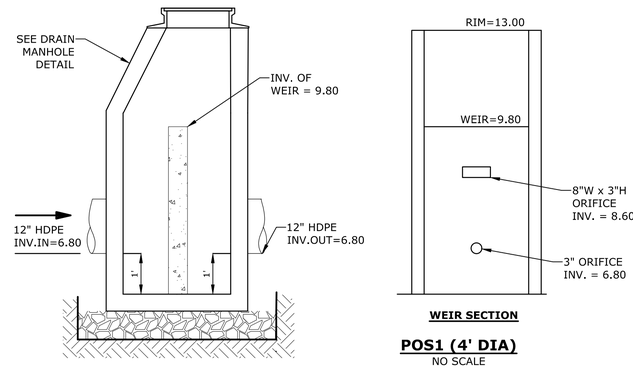
GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. INLET HGL NOT TO EXCEED 6" BELOW THE TOP OF THE M.A.W. DURING THE PEAK DESIGN STORM, OR 10-YEAR STORM (WHICHEVER IS GREATER).
7. INLET PIPE INVERT ELEVATION VARIES FROM 0" TO 6" MAXIMUM ABOVE THE OUTLET PIPE INVERT.
8. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
9. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
10. THE DIFFERENCE IN THE INLET AND OUTLET PIPE ELEVATIONS FOR RETROFIT INSTALLATIONS TO EXISTING STORM DRAIN PIPES SHALL BE EQUAL TO THE SLOPE OVER THE DIAMETER OF THE MANHOLE; NOT THE EXCEED 6" IN VERTICAL DIFFERENTIAL BETWEEN INLET AND OUTLET PIPES.
11. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (866) 740-3318.

JELLYFISH JF6-5-1 ONLINE CONFIGURATION
NO SCALE

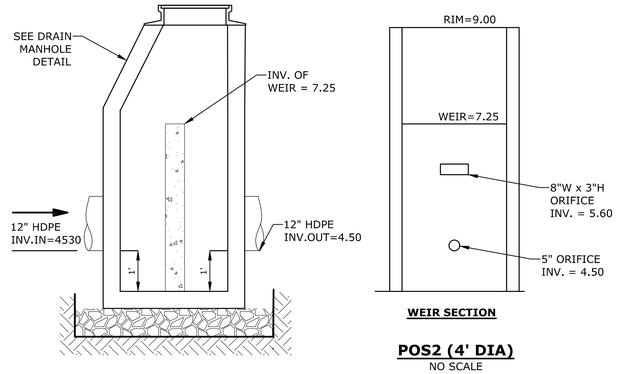
Jellyfish Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,618 & US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX



POS1 (4' DIA)
NO SCALE

NOTE:
1. ALL JOINTS ON THE OUTLET STRUCTURE SHALL BE WATERTIGHT.



POS2 (4' DIA)
NO SCALE

NOTE:
1. ALL JOINTS ON THE OUTLET STRUCTURE SHALL BE WATERTIGHT.

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STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 09830 LICENSED PROFESSIONAL ENGINEER – 4/16/19

STATE OF NEW HAMPSHIRE – PATRICK M. CRIMMINS No. 12978 LICENSED PROFESSIONAL ENGINEER – 4/16/19

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

PROJECT NO:	K-0076-019
DATE:	03/18/2019
FILE:	K-0076-019-C-DTLS.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-506

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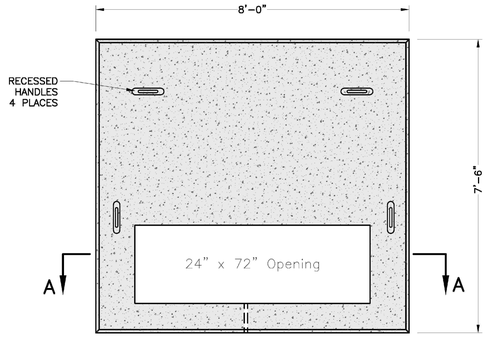
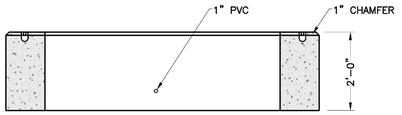
Plot Date: April 15, 2019 5:06 PM By: Nathan A. Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings_Figures\AutoCAD\Xref\K-0076-019-C-DTLS.dwg Layout Tab: C-506



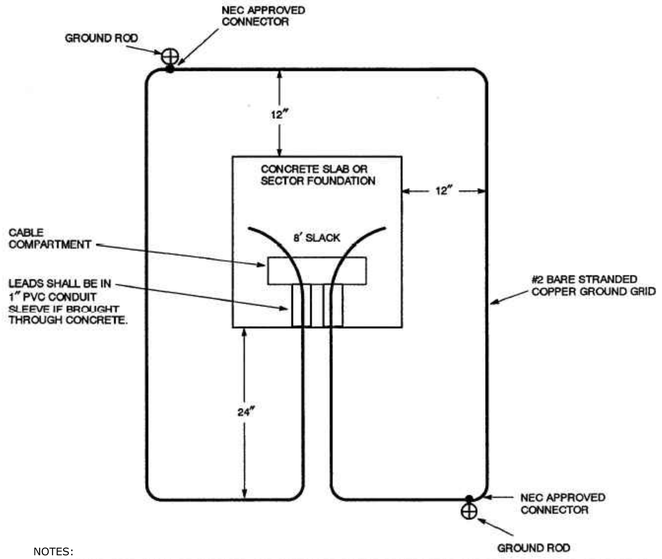
PLAN



SECTION A–A

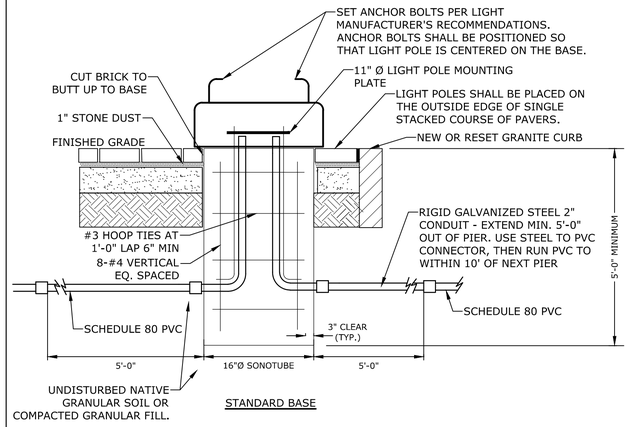
NOTES:
1. DIMENSIONS SHOWN REPRESENT TYPICAL REQUIREMENTS. MANHOLE LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED WITH EVERSOURCE PRIOR TO CONSTRUCTION
2. CONCRETE MINIMUM STRENGTH - 4,000 PSI @ 28 DAYS
3. STEEL REINFORCEMENT - ASTM A615, GRADE 60
4. PAD MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS

3-PHASE TRANSFORMER PAD
NO SCALE



NOTES:
THE GROUND GRID SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AND IS TO BE BURIED AT LEAST 12 INCHES BELOW GRADE. EIGHT FEET OF EXTRA WIRE FOR EACH GROUND GRID LEG SHALL BE LEFT EXPOSED IN THE CABLE COMPARTMENT TO ALLOW FOR THE CONNECTION TO THE TRANSFORMER. THE TWO 8-FOOT GROUND RODS MAY BE EITHER GALVANIZED STEEL OR COPPERWELD AND THEY SHALL BE CONNECTED TO THE GRID WITH NEC APPROVED CONNECTORS.

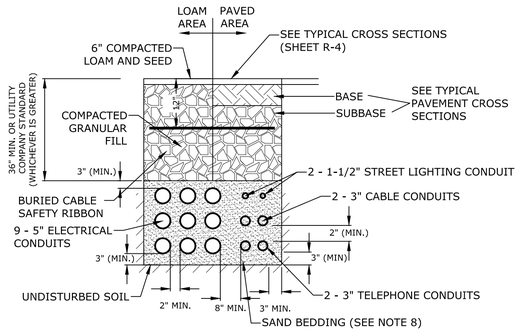
PAD-MOUNTED EQUIPMENT GROUNDING GRID DETAIL
NO SCALE



STANDARD BASE

NOTES:
1. REFER TO ELECTRICAL PLANS FOR WIRING DETAILS.
2. CONCRETE: 4000 PSI, AIR ENTRAINED STEEL: 60 KSI
3. LIGHT POLE FOUNDATIONS SHALL BE PLACED PRIOR TO INSTALLATION OF BRICK PAVERS.
4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL, TO INCLUDE PERFORMANCE SPECIFICATIONS, CALCULATIONS AND NH LICENSED STRUCTURAL ENGINEER'S STAMP FOR LIGHT POLE FOUNDATION.
5. STANDARD BASE SHALL BE CONSTRUCTED UNLESS THERE IS CONFLICT WITH THE EXISTING DUCT BANK. SPREAD FOOTING BASE SHALL BE USED IN LIEU OF STANDARD BASE IN LOCATIONS WHERE TOP OF DUCT BANK ELEVATION WILL CONFLICT WITH STANDARD POLE BASE DEPTH. CONTRACTOR SHALL VERIFY LOCATIONS WHERE SPREAD FOOTINGS ARE REQUIRED PRIOR TO CONSTRUCTION. SEE NOTE#4 FOR SUBMITTAL REQUIREMENTS.

HISTORIC LIGHT FIXTURE BASE
NO SCALE



NOTES:
1. NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED BY LOCAL UTILITY OR AS SHOWN ON ELECTRICAL DRAWINGS. CONTRACTOR TO PROVIDE ONE SPARE CONDUIT FOR EACH UTILITY TO BUILDING.
2. DIMENSIONS SHOWN REPRESENT OWNERS MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY COMPANY STANDARDS, BUT SHALL NOT BE LESS THAN THOSE SHOWN.
3. NO CONDUIT RUN SHALL EXCEED 360 DEGREES IN TOTAL BENDS.
4. A SUITABLE PULLING STRING, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED IN THE CONDUIT BEFORE UTILITY COMPANY IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT.
5. UTILITY COMPANY MUST BE GIVEN THE OPPORTUNITY TO INSPECT THE CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD THE UTILITY COMPANY BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER.
6. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND, WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE.
7. ALL 90° SWEEPS WILL BE MADE USING RIGID GALVANIZED STEEL. SWEEPS WITH A 36 TO 48 INCH RADIUS.
8. SAND BEDDING TO BE REPLACED WITH CONCRETE ENCASEMENT WHERE COVER IS LESS THAN 3 FEET, WHEN LOCATED BELOW PAVEMENT, OR WHERE SHOWN ON THE UTILITIES PLAN.

ELECTRICAL AND COMMUNICATION CONDUIT
NO SCALE

Tighe&Bond
Engineers | Environmental Specialists

BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE
4-16-19

PATRICK M. CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE
4/16/19

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

PROJECT NO:	K-0076-019
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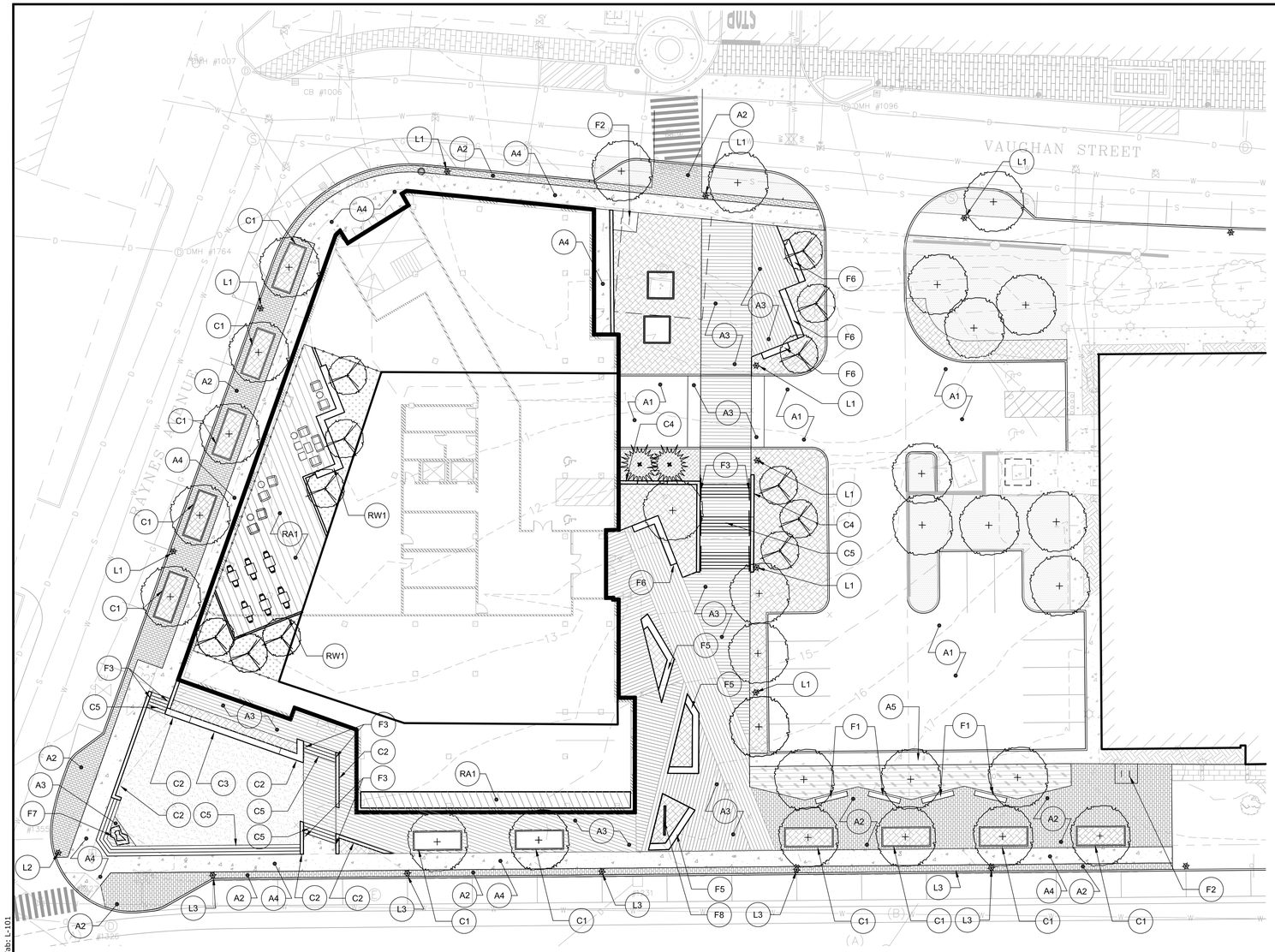
FILE:	K-0076-019-C-DTLS.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-507

Last Save Date: April 15, 2019 5:06 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 8:30 AM By: Nicholas A. Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings_Figures\AutoCAD\Xref\K-0076-019-C-DTLS.dwg Layout Tab: C-507



GENERAL NOTES

1. THE PROPERTY OWNER AND FUTURE PROPERTY OWNERS SHALL BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR AND REPLACEMENT OF SCREENING AND LANDSCAPE MATERIALS.
2. REQUIRED PLANT MATERIALS SHALL BE TENDED AND MAINTAINED IN A HEALTHY GROWING CONDITION, REPLACED WHEN NECESSARY, AND KEPT FREE OF REFUSE AND DEBRIS. ALL REQUIRED FENCES AND WALLS SHALL BE MAINTAINED IN GOOD REPAIR.
3. 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.

GENERAL MATERIALS NOTES

1. CONTRACTOR SHALL PROVIDE SUBMITTALS FOR MATERIALS RELATED IN THE CONTRACT DOCUMENTS PRIOR TO PROCUREMENT.
2. SHOP DRAWINGS FOR CURBING, STAIRS, WALLS, AND PAVEMENT SHALL BE BASED ON FIELD MEASUREMENT AND LAYOUT VERIFICATION BY THE CONTRACTOR.
3. EXPANSION JOINT FILLER AND SEALANT SHALL BE PLACED WHERE PAVEMENT MEETS CURBING, WALLS, OR OTHER VERTICAL ELEMENTS, INCLUDING LIGHT BASES, HYDRANTS, BUILDINGS AND BUILDING COLUMNS, WALLS, AND OTHER CONDITIONS AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL REQUEST THE PRESENCE OF THE ARCHITECT TO REVIEW THE LAYOUT OF EXPANSION JOINTS PRIOR TO PLACING FINISHED WORK.

PLANTING LEGEND

- DECIDUOUS STREET TREE
- DECIDUOUS FLOWERING TREE
- EVERGREEN TREE
- PLANTING BED - MIXED COMPOSITION OF SHRUBS, GROUND COVERS, PERENNIALS AND GRASSES
- SCREEN PLANTING OF 48" HEIGHT MIX OF EVERGREEN AND DECIDUOUS SHRUBS
- LAWN
- ROOF DECK PLANTING BED - MIXED COMPOSITION OF SHRUBS, GROUND COVERS, PERENNIALS AND GRASSES

MATERIALS LEGEND

TAG	DESCRIPTION	DETAIL
A1	BITUMINOUS CONCRETE PAVING	
A2	BRICK PAVING - CITY OF PORTSMOUTH STANDARD - OVER SETTING BED ON COMPACTED CRUSHED STONE BASE IN PEDESTRAIN AREAS AND CONCRETE BASE IN VEHICULAR AREAS	
A3	PRECAST CONCRETE UNIT PAVERS OVER SETTING BED ON BITUMINOUS CONCRETE BASE IN PEDESTRIAN AREAS AND CONCRETE BASE IN VEHICULAR AREAS	
A4	CONCRETE PAVING - CITY OF PORTSMOUTH STANDARD	
C1	ORNAMENTAL GRANITE CURB W/ PLANTER RAIL	
C2	LANDSCAPE PLANTER WALL- HEIGHT AND WIDTH VARIES	
C3	LANDSCAPE PLANTER WALL WITH SEAT	
C4	LANDSCAPE TERRACE RETAINING WALL	
C5	GRANITE LANDSCAPE STAIRS	

TAG	DESCRIPTION	DETAIL
F1	WOOD AND METAL BENCH	
F2	BICYCLE RACK, TYP. OF 4	
F3	STAIR HANDRAIL	
F5	LANDSCAPE PLANTER WITH INTEGRATED SEAT	
F6	SEAT WALL	
F7	GATEWAY SCULPTURE	
F8	BUILDING & ADDRESS SIGNAGE	
L1	STREET LIGHT - CITY OF PORTSMOUTH DISTRICT STANDARD PEDESTRIAN LIGHT, SEE LIGHTING PLAN	
L2	STREET LIGHT TYPE 2 (MODIFIED POLE HEIGHT) - CITY OF PORTSMOUTH DISTRICT STANDARD PEDESTRIAN LIGHT, SEE LIGHTING PLAN	
L3	STREET LIGHT TYPE 3 - CITY OF PORTSMOUTH STANDARD LANTERN FOR MAPLEWOOD AVENUE, SEE LIGHTING PLAN	

TAG	DESCRIPTION	DETAIL
RA1	ROOF DECK - PRECAST CONCRETE PAVER ON PEDESTAL - 2 3/4" THICKNESS	
RW1	PLANTER WITH BUILT-IN SEAT - WITH 30" SOIL DEPTH	

Tighe&Bond
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HALVORSON DESIGN PARTNERSHIP
25 KINGSTON ST. BOSTON MA 02111-2200
(PHONE) 617.536.0350
WWW.HALVORSONDESIGN.COM

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

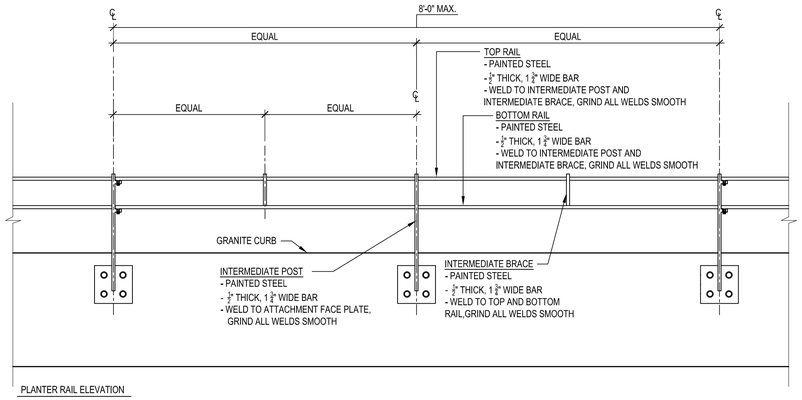
PROJECT NO: K-0076-019
DATE: 03/18/2019
FILE: L101 Material Plan.dwg
DRAWN BY:
CHECKED:
APPROVED:

LANDSCAPE PLAN

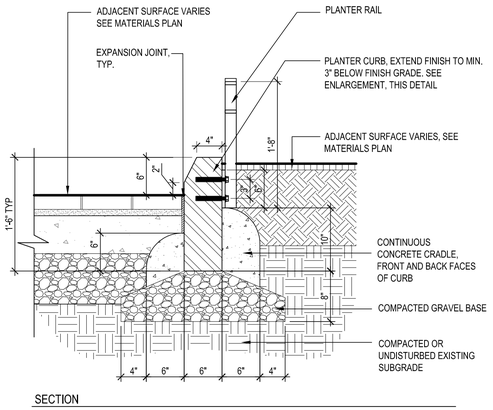
SCALE: AS SHOWN

L-101

Last Save Date: April 15, 2019 5:32 PM By: RICHARD
Plot Date: Monday, April 15, 2019 5:32 PM By: Richard Houghton
T&B File Location: M:\111 Maplewood Ave, Portsmouth, NH_2019\00 CAD\Sheets\L101 Material Plan.dwg Layout Tab: L-101

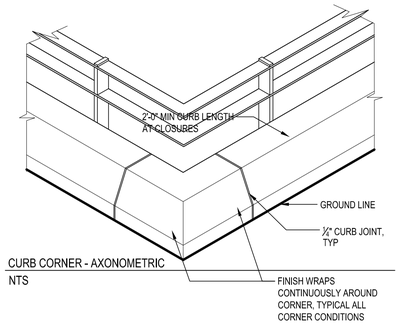


PLANTER RAIL ELEVATION



SECTION

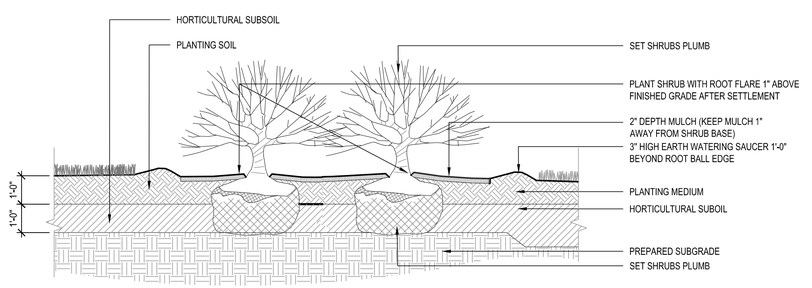
NOTES:
1. TYPICAL CURB LENGTH IS 6'-0", MINIMUM IS 2'-0" AND MAXIMUM IS 8'-0". CONFIRM VIA SHOP DRAWINGS.
2. MITERED CORNERS NOT ACCEPTABLE



CURB CORNER - AXONOMETRIC
NTS

1 GRANITE PLANTER CURB W/ PLANTER RAIL

Scale: 1"=1'-0"

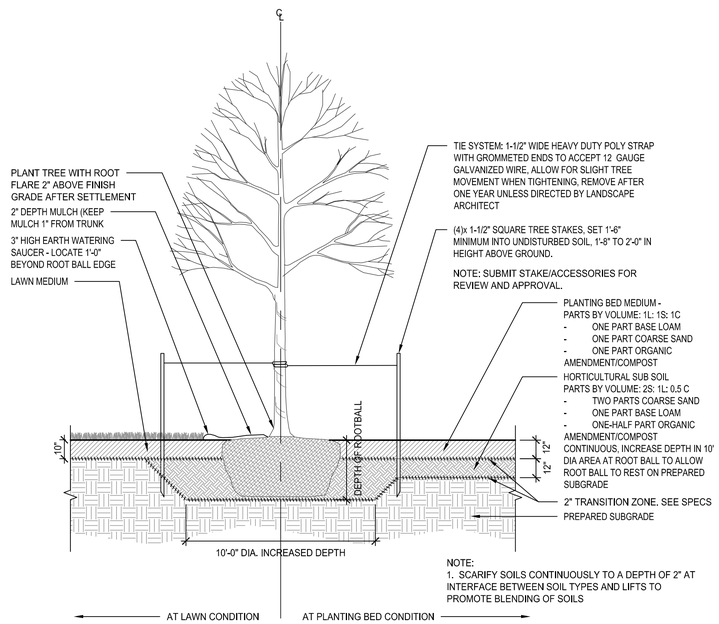


PLANTING NOTES:
1. REMOVE UPPER THIRD OF BURLAP PRIOR TO BACKFILLING, IF CONTAINERIZED. REMOVE PLANTS FROM POTS PRIOR TO PLANTING AND SCARIFY ROOT BALL IN 4 PLACES TO ½" DEPTH
2. LOOSE OR CRACKED ROOT BALLS WILL NOT BE ACCEPTED FOR PLANTING
3. ROOT BALL SHALL SIT ON PREPARED SUBGRADE

4. DO NOT EXCAVATE BELOW ROOT BALL
5. PLANTING PIT TO BE 3 TIMES WIDTH OF ROOT BALL
6. FLOOD WATERING SAUCER TWICE DURING FIRST 24 HOURS AFTER PLANTING
7. RAISE AND REPLANT SHRUBS THAT SETTLE AFTER PLANTING AND WATERING
8. SCARIFY SOILS CONTINUOUSLY TO A DEPTH OF 2" AT INTERFACE BETWEEN SOIL TYPES AND LIFTS TO PROMOTE BLENDING OF SOILS

2 PLANTING BED - SHRUB & PERENNIAL AREA

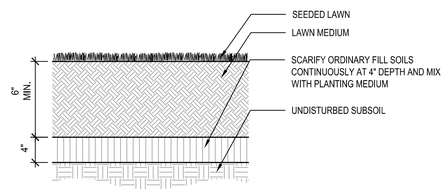
SCALE: 3/8"=1'-0"



NOTE:
1. SCARIFY SOILS CONTINUOUSLY TO A DEPTH OF 2" AT INTERFACE BETWEEN SOIL TYPES AND LIFTS TO PROMOTE BLENDING OF SOILS

3 TREE PLANTING - IN LAWN OR PLANT BED AT GRADE

Scale: 1/4"=1'-0"



4 SOD / SEEDED LAWN

Scale: NTS

PLANTING NOTES

1. PLANT SPECIES SELECTIONS INCLUDING TREES TO BE COORDINATED WITH THE PORTSMOUTH PLANNING DEPARTMENT.

2. LOW PHOSPHORUS, SLOW RELEASE NITROGEN FERTILIZER TO BE USED FOR PLANTING BEDS.

3. LANDSCAPE ARCHITECT TO APPROVE PLANT MATERIAL PRIOR TO DELIVERY TO SITE.

4. PLANT MATERIAL SHALL CONFORM TO "THE AMERICAN STANDARD FOR NURSERY STOCK", PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.

5. NO SUBSTITUTIONS OF PLANT SPECIES WITHOUT LANDSCAPE ARCHITECT'S WRITTEN APPROVAL.

6. SUBSTITUTIONS OF PLANT SPECIES SHALL BE A PLANT OF EQUIVALENT OVERALL FORM, HEIGHT AND BRANCHING HABIT, FLOWER, LEAF AND FRUIT, COLOR AND TIME OF BLOOM, AS APPROVED BY LANDSCAPE ARCHITECT.

7 LOCATE AND VERIFY UTILITY LINE LOCATIONS PRIOR TO STAKING AND REPORT CONFLICTS TO LANDSCAPE ARCHITECT.

8. PLANTING DEMOLITION DEBRIS, GARBAGE, LUMPS OF CONCRETE, STEEL AND OTHER MATERIALS DELETERIOUS TO PLANT'S HEALTH AS DETERMINED BY LANDSCAPE ARCHITECT SHALL BE REMOVED FROM ALL PLANTING AREAS.

9. NO PLANTING TO BE INSTALLED BEFORE ACCEPTANCE OF ROUGH GRADING.

10. ALL PROPOSED TREE LOCATIONS SHALL BE STAKED OR LAID OUT IN THEIR APPROXIMATE LOCATION BY THE CONTRACTOR. REFER TO LAYOUT AND PLANTING SHEETS FOR LAYOUT INFORMATION. THE CONTRACTOR SHALL ADJUST THE LOCATIONS AS REQUESTED BY THE LANDSCAPE ARCHITECT TO ACCOUNT FOR SUBSURFACE UTILITIES AND OTHER FIELD CONDITIONS. FINAL LOCATIONS OF ALL PLANTS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.

11. INSTALL PLANTS WITH ROOT FLARES FLUSH WITH FINISHED GRADE. IMMEDIATELY REPLANT PLANTS THAT SETTLE OUT OF PLUMB OR BELOW FINISHED GRADE.

12. PLANT UNDER FULL TIME SUPERVISION OF CERTIFIED ARBORIST, NURSERYMAN, OR LICENSED LANDSCAPE ARCHITECT. PROVIDE WRITTEN VERIFICATION OF CERTIFICATION AND/OR LICENSE FOR LANDSCAPE ARCHITECT'S APPROVAL.

13. WATER PLANTS THOROUGHLY AFTER INSTALLATION, A MINIMUM OF TWICE WITHIN THE FIRST 24 HOURS.

14. REPAIR DAMAGE DUE TO OPERATIONS INSIDE AND OUTSIDE OF LIMIT OF WORK

15. SOAK PERENNIALS FOR 24 HOURS PRIOR TO INSTALLATION

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Engineers | Environmental Specialists

HALVORSON DESIGN PARTNERSHIP

25 KINGSTON ST. BOSTON MA 02111-2200
(PHONE) 617.556.0380
WWW.HALVORSONDESIGN.COM

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

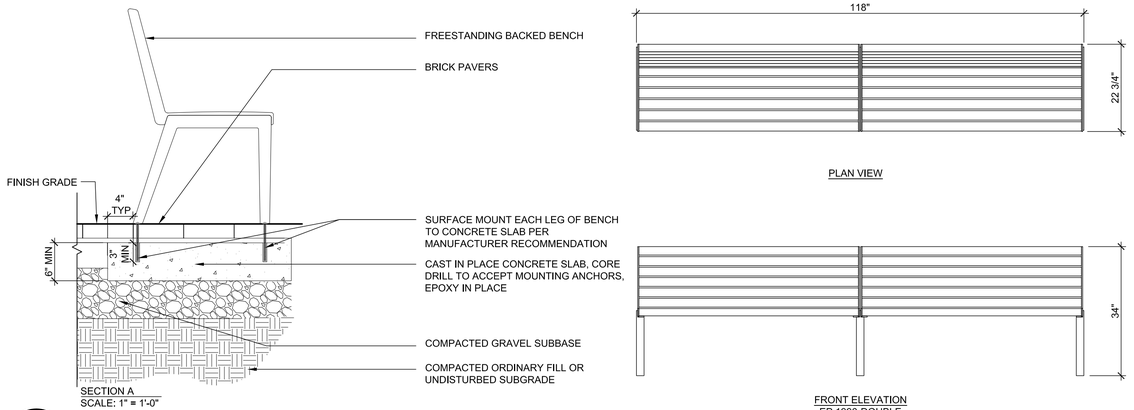
MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

PROJECT NO: K-0076-019
DATE: 03/18/2019
FILE: L101 Material Plan.dwg
DRAWN BY:
CHECKED:
APPROVED:

LANDSCAPE DETAILS

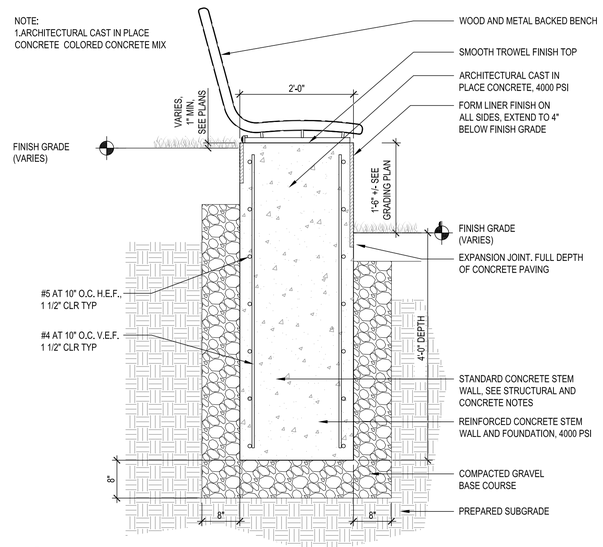
SCALE: AS SHOWN

L-501



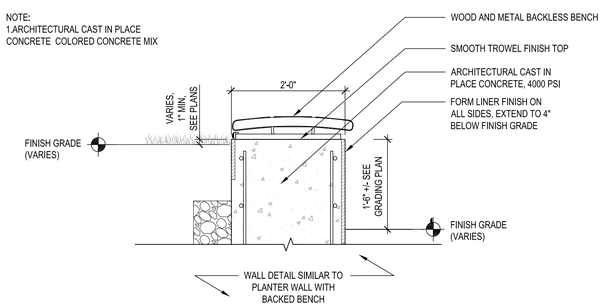
1 LONG FREESTANDING BENCH - SURFACE MOUNT CONDITION

Scale: AS NOTED



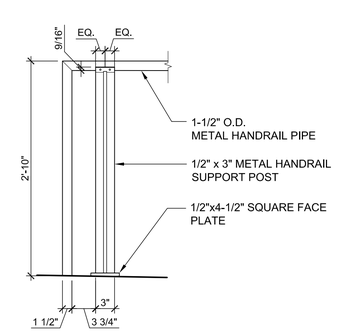
2 LANDSCAPE PLANTER WALL WITH BACKED BENCH

Scale: 3/4"=1'-0"

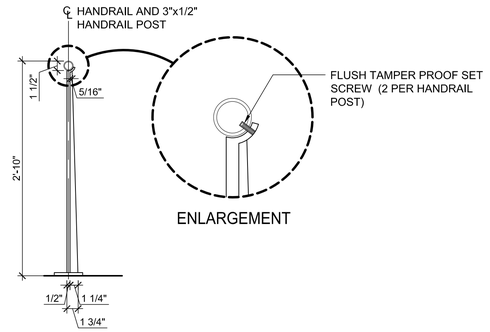


3 LANDSCAPE PLANTER WALL WITH BACKLESS BENCH

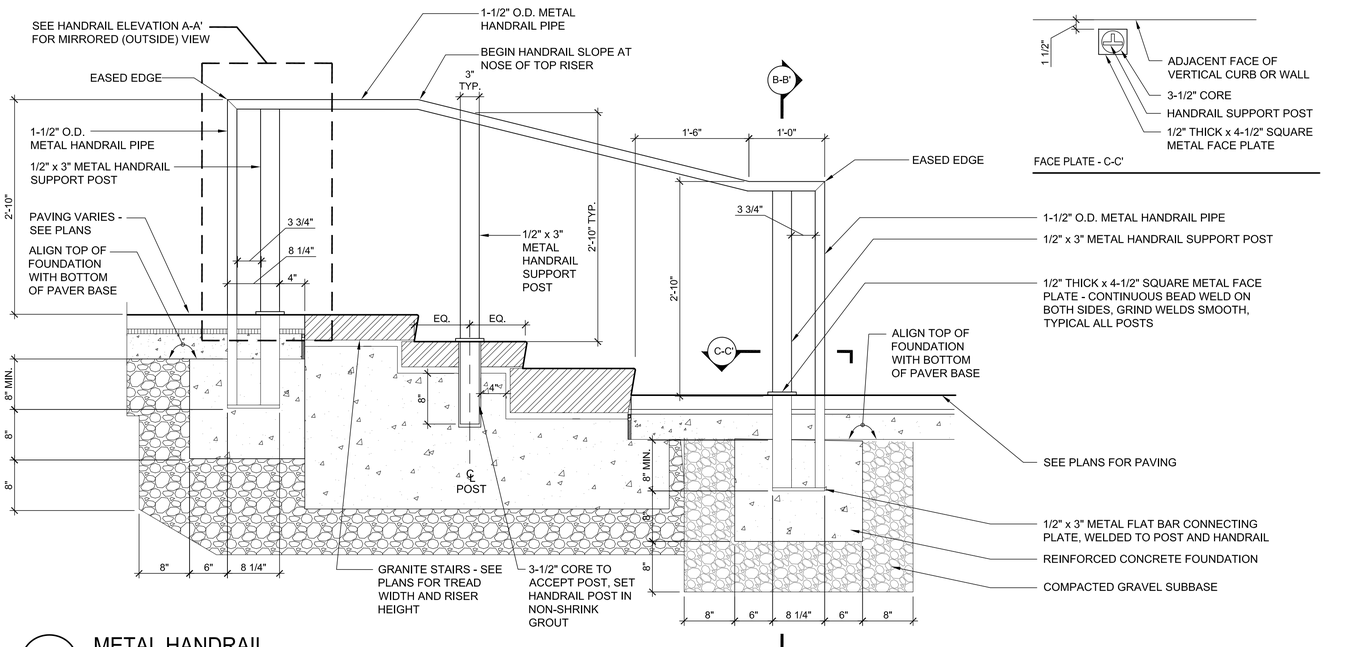
Scale: 3/4"=1'-0"



HANDRAIL ELEVATION A-A'
MIRRORED VIEW OF HANDRAIL POST



HANDRAIL - ELEVATION B-B'
SIDE VIEW OF HANDRAIL POST



4 METAL HANDRAIL

SCALE: 1" = 1'-0"

FACE PLATE - C-C'

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HALVORSON DESIGN PARTNERSHIP

25 KINGSTON ST. BOSTON MA 02111-2200
(PHONE) 617.536.0350
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Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

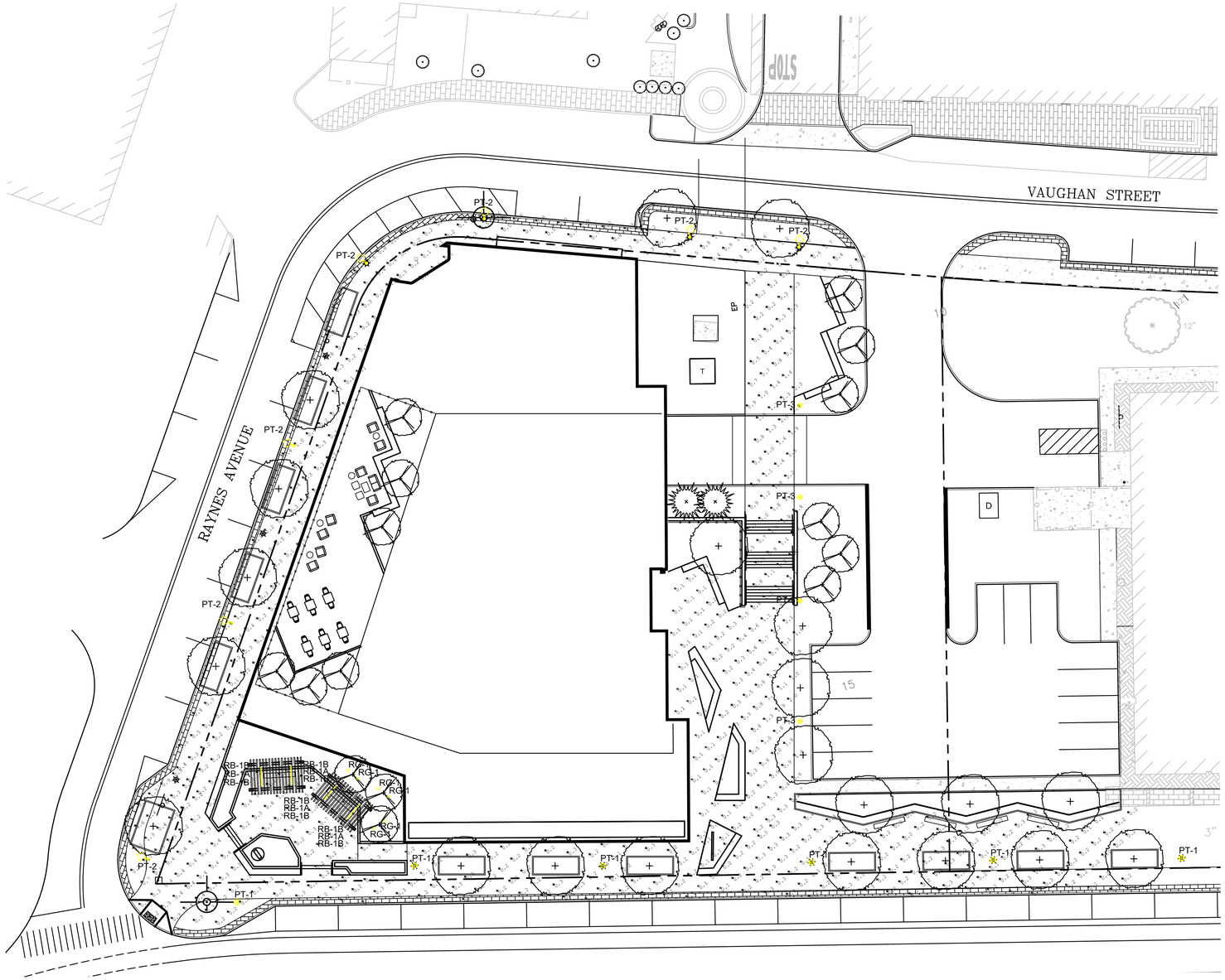
PROJECT NO: K-0076-019
DATE: 03/18/2019
FILE: L502 Details.dwg
DRAWN BY:
CHECKED:
APPROVED:

LANDSCAPE DETAILS

SCALE: AS SHOWN

L-502

Last Save Date: April 11, 2019 3:58 PM By: RICHARD
Plot Date: March 18, 2019 3:58 PM By: Richard Houghton
T&B File Location: M:\111 Maplewood Ave, Portsmouth, NH_2019\00 CAD\Sheets\L502 Details.dwg Layout Tab: L-502



Code/Tag	Image	Product / Manufacturer	Attributes	Notes
PT-1		**New Stamp Lighting "RS-TUR"** Description: Historic style fixture on 10'-2" pole	**Fixture Specification** : #RS-TUR-177 **Pole Specification** : #PSHNC-16-10.17-2.88/3.50-CB **Lamping** : Sylvania #78911 **Wattage (W)** : 28W **Output (lm)** : 2200lm **CCT (K)** : 2700K **CRI** : 80 **Voltage (V)** : 120V **Finish** : Satin Black **Material (Pole)** : Ductile Iron **Material (Fixture)** : Commercial Grade Copper and Steel **Height (ft)** : 14'-2" **Location** : Maplewood Ave **Qty** : 6	1. EC to verify voltage, prior to ordering.
PT-2		**King Luminaire "K729 Aurora Jr"** Description: 16' LED Post Top	**Fixture Specification** : #K729-P2FL-II-60(SSL)-7042-120:277-KPL10-3K **Arm Specification** : #(MOD) KA72-T-1-3' **Pole Specification** : #KBH16-G-S11-SBP C/W 140-35/55&DR **Lamping** : LED (Included) **Wattage (W)** : 60W **Output (lm)** : 6000lm **CCT (K)** : 3000K **CRI** : 80 **Voltage (V)** : 120-277V **Distribution** : Type II **Label/IP** : IP66 **Finish** : Textured Black **Material (Pole)** : Concrete **Material (Arm)** : Aluminum **Material (Fixture)** : Aluminum **Height (ft)** : 18'-0" **Arm Length (ft)** : 41" **Location** : Raynes Ave, Vaughan St **Qty** : 8	1. EC to verify voltage (prior to ordering).
PT-3		**Lumenpulse "Lumenicon"** Description: Medium LED Area light with softsite lens on square lumentech pole.	**Fixture Specification** : #LIAM-120-SSL-L30-30K-CRI80-5-BKTX **Mounting Specification** : #PU8-S1X **Pole Specification** : #PL-T-5-S-14'-BK **Lamping** : LED (Included) **Wattage (W)** : 46W **Output (lm)** : 3000lm **CCT (K)** : 3000K **CRI** : 80 **Voltage (V)** : 120V **Distribution** : Type V **Label/IP** : IP66 **Finish** : Black **Material (Pole)** : Aluminum **Material (Fixture)** : Aluminum Alloy **Height (ft)** : 14' **Location** : Community Path **Qty** : 4	1. EC to verify voltage, prior to ordering.

Code/Tag	Image	Product / Manufacturer	Attributes	Notes
RB-1A/RB-1B		**Ecosense Lighting "TROV L50"** Description: Linear LED with line of light optics	**RB-1A Specification** : #L50-E-48-04-30-90-MULT-LOL **RB-1B Specification** : #L50-E-12-04-30-90-MULT-LOL **Leader Cable** : #CBL-3P-L-UNV-10 (By EC) **Jumper Cable** : #CBL-3P-L-UNV-50 (By EC) **Terminator Caps** : #CBL-3P-L-UNV-CAPS (As Req'd) **Lamping** : LED (Included) **Wattage (W)** : 4W/FT **Output (lm)** : 302lm/FT **CCT (K)** : 3000K **CRI** : 90+ **Dimming Protocol** : 0-10V **Voltage (V)** : 120/277V **Distribution** : Line of Light **Label/IP** : IP66 **Finish** : Aluminum **Location** : Plaza **RB-1A Qty** : 4 **RB-1B Qty** : 8	1. EC to verify voltage (prior to ordering). 2. EC to coordinate and verify with manufacturer that fixture is ordered with all necessary power feeds, jumper cables and connectors for installation of a complete system. 3. EC to coordinate and confirm lengths, per plan, prior to ordering.
RG-1		**B-K Lighting "HP2"** Description: In-grade accent with integral transformer.	**Specification** : #B-HP2-LED-TR-x59-FL-MIT-11-D12INC-MT-AH-GM-R **Lamping** : LED (Included) **Wattage (W)** : 12W **Output (lm)** : 659lm **CCT (K)** : 3000K **CRI** : 80 **Voltage (V)** : 12V **Distribution** : 35° Flood **Label/IP** : IP68 **Finish** : Mirique Brass (Verify) **Location** : Site Trees **Qty** : 6	1. EC to verify voltage, prior to ordering.

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Community Path Top	Illuminance	Fc	0.74	2.9	0.1	7.40	29.00
Plaza Raynes Ave Top	Illuminance	Fc	1.07	3.4	0.2	5.35	17.00
Sidewalk - Raynes Avenue Top	Illuminance	Fc	0.41	2.6	0.1	4.10	26.00
Sidewalk - Vaughan Street Top	Illuminance	Fc	0.60	1.6	0.1	6.00	16.00
Sidewalk Maplewood Ave Top	Illuminance	Fc	0.32	4.6	0.1	3.20	46.00

Lighting Schedule Notes:

1. Lighting submittals are required for all lighting fixtures, prior to ordering. Any lighting ordered without prior review and approval by **Lumen Studio, Inc.** is the sole responsibility of the contractor.

2. Any substitutions not approved by **Lumen Studio, Inc.** prior to ordering, are the sole responsibility of the contractor.

3. All additional costs associated with the integration, and use of substitute products are the sole responsibility of the contractor and lighting distributor. These include, but are not limited to:

a. Revision of details and construction drawings (by Architect and/or **Lumen Studio, Inc.**)

b. Labor costs associated with the modifications required, in the field, for previously coordinated lighting equipment.

c. Cost of running additional photometric and/or energy studies by **Lumen Studio, Inc.**

d. Delay of project, due to unexpected lead-time issues associated with substitute lighting equipment or because submitted lighting equipment, as determined by the **Lumen Studio, Inc.** is "Not Equal".

4. The management of lead-times, for all lighting equipment, is the sole responsibility of the contractor, and not acceptable as a reason for substitution requests.

5. Quantities, lengths, and installation details for all lighting products, are to be verified, by contractor, prior ordering.

6. Contractor responsible for coordinating all lighting installation details, with site conditions, and informing **Lumen Studio, Inc.**, of any conflicts prior to proceeding with installation.

7. All fixtures shall be ordered with all necessary power supplies, drivers, power feeds, and components, as required, for installation.

8. For all continuous run fixtures, including track, manufacturer shall submit a layout drawing for run lengths specified, per Contract Documents, during shop drawing review for **Lumen Studio, Inc.** approval, prior to fabrication.

9. Contractor shall verify voltage and coordinate, prior to ordering any lighting equipment.

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SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	3/18/2019	TAC Submission

PROJECT NO:	K-0076-019
DATE:	03/18/2019
FILE:	20190314 111 Maplewood Lighting.dwg
DRAWN BY:	
CHECKED:	
APPROVED:	

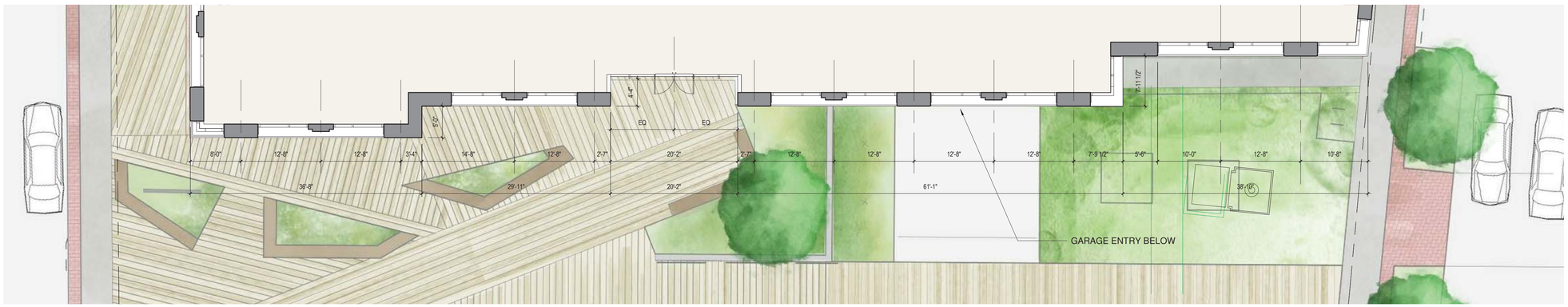
SITE LIGHTING PHOTOMETRICS

SCALE: 1" = 20'

LS-101

Last Save Date: March 17, 2019 7:50 PM By: NAHANSEN
Plot Date: Sunday, March 17, 2019 Plotted By: Neil A. Hansen
File Location: J:\K\0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\From Others\From Halvorsen\20190314 111 Maplewood Lighting - Standard\20190314 111 Maplewood Lighting - Standard Layout Tab- LS101

1 Building Elevation - Entry Passage Elevation
1/8" = 1'-0"



2 Enlarged Ground Floor Plan - Entry Passage
1/8" = 1'-0"

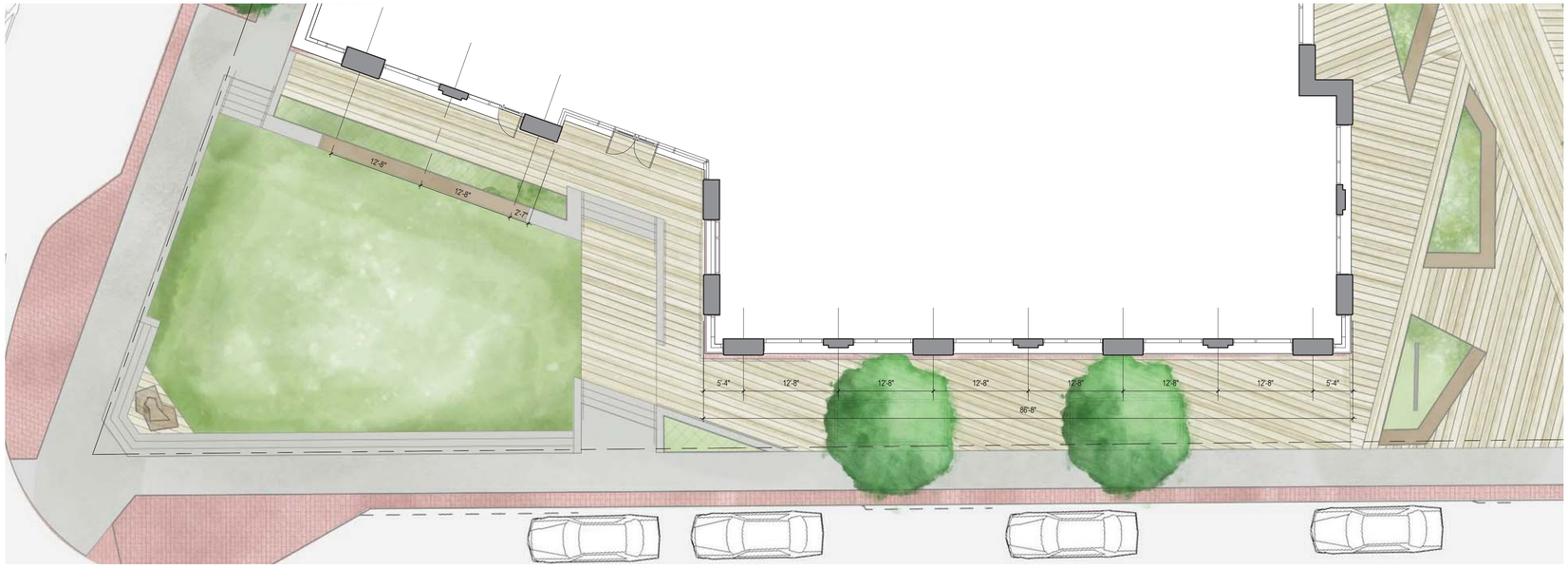
4/12/2019 8:45:29 AM

BUILDING ELEVATION - ENTRY PASSAGE

111 MAPLEWOOD AVE PORTSMOUTH, NH

04.12.19

2 Building Elevation - Maplewood Avenue
1/8" = 1'-0"



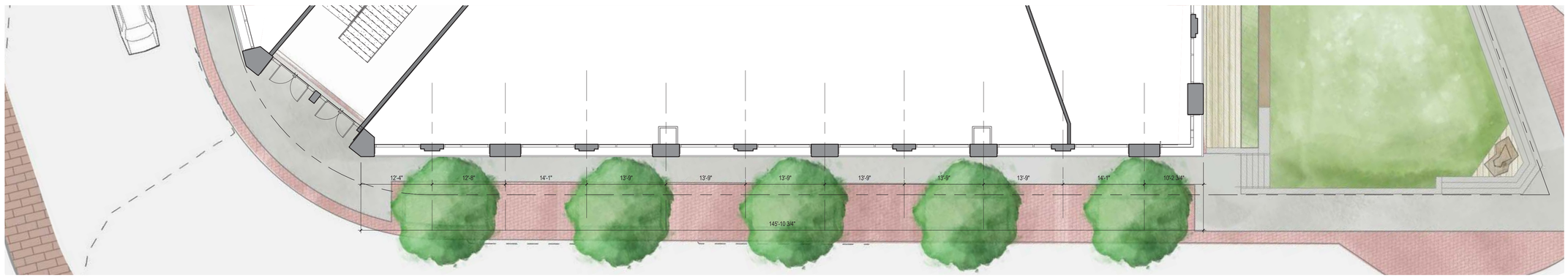
4/12/2019 8:45:13 AM

BUILDING ELEVATION - MAPLEWOOD AVE

111 MAPLEWOOD AVE PORTSMOUTH, NH

04.12.19

2 Building Elevation - Raynes Avenue
1/8" = 1'-0"



1 Enlarged Ground Floor Plan - Raynes Avenue
1/8" = 1'-0"

4/12/2019 8:45:43 AM

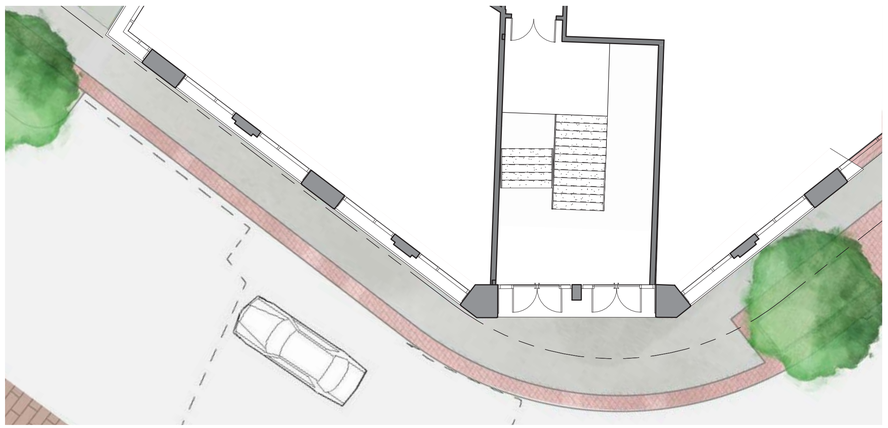
THE KANE COMPANY, INC.
KANE
COMMERCIAL/INDUSTRIAL/REAL ESTATE
cbt

BUILDING ELEVATION - RAYNES AVE

111 MAPLEWOOD AVE PORTSMOUTH, NH

04.12.19

2 Building Elevation - Vaughan Street
1/8" = 1'-0"



1 Enlarged Ground Floor Plan - Vaughan Street
1/8" = 1'-0"

4/12/2019 8:45:48 AM

THE KANE COMPANY, INC.
KANE
COMMERCIAL/INDUSTRIAL/REAL ESTATE

cbt

BUILDING ELEVATION - VAUGHAN ST

111 MAPLEWOOD AVE PORTSMOUTH, NH

04.12.19

Tighe&Bond
Engineers | Environmental Specialists

K-0076-019
April 16, 2019

Ms. Juliet Walker, Planning Director
City of Portsmouth Planning Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Site Review & Subdivision Permit Applications
Proposed Office Building - 111 Maplewood Avenue

Dear Juliet:

On behalf of RJF-Maplewood, LLC, owner, and RW Norfolk Holdings, LLC, applicant, we are pleased to submit the following supplemental information to support Site Review and Subdivision Permit Applications for the above referenced project:

- Four (4) full size & six (6) half size copies of the Site Plan Set last revised April 16, 2019;
- Ten (10) copies of the Community Space Exhibit last revised April 16, 2019;
- Ten (10) copies of the Drainage Analysis Memorandum last revised April 16, 2019;
- Ten (10) copies of the Responses to TAC Traffic Comment Memorandum dated April 16, 2019
- Ten (10) copies of the Waiver Request Letter dated April 16, 2019
- Ten (10) copies of the Conditional Use Permit Letter dated April 16, 2019
- Ten (10) copies of the Site Review Comment Response dated April 16, 2019;
- One (1) check for Conditional Use Permit Application
- One (1) CD containing digital copies of the above listed materials

The enclosed plans and supplemental materials have been provided to address comments received from the Technical Advisory Committee (TAC) at their meeting held on April 2, 2019. Also enclosed is a Site Review Comment Response that includes responses to City staff comments.

We respectfully request to be places on the next TAC meeting agenda for April 30, 2019. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,
TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Senior Project Manager

Neil A. Hansen, PE
Project Engineer

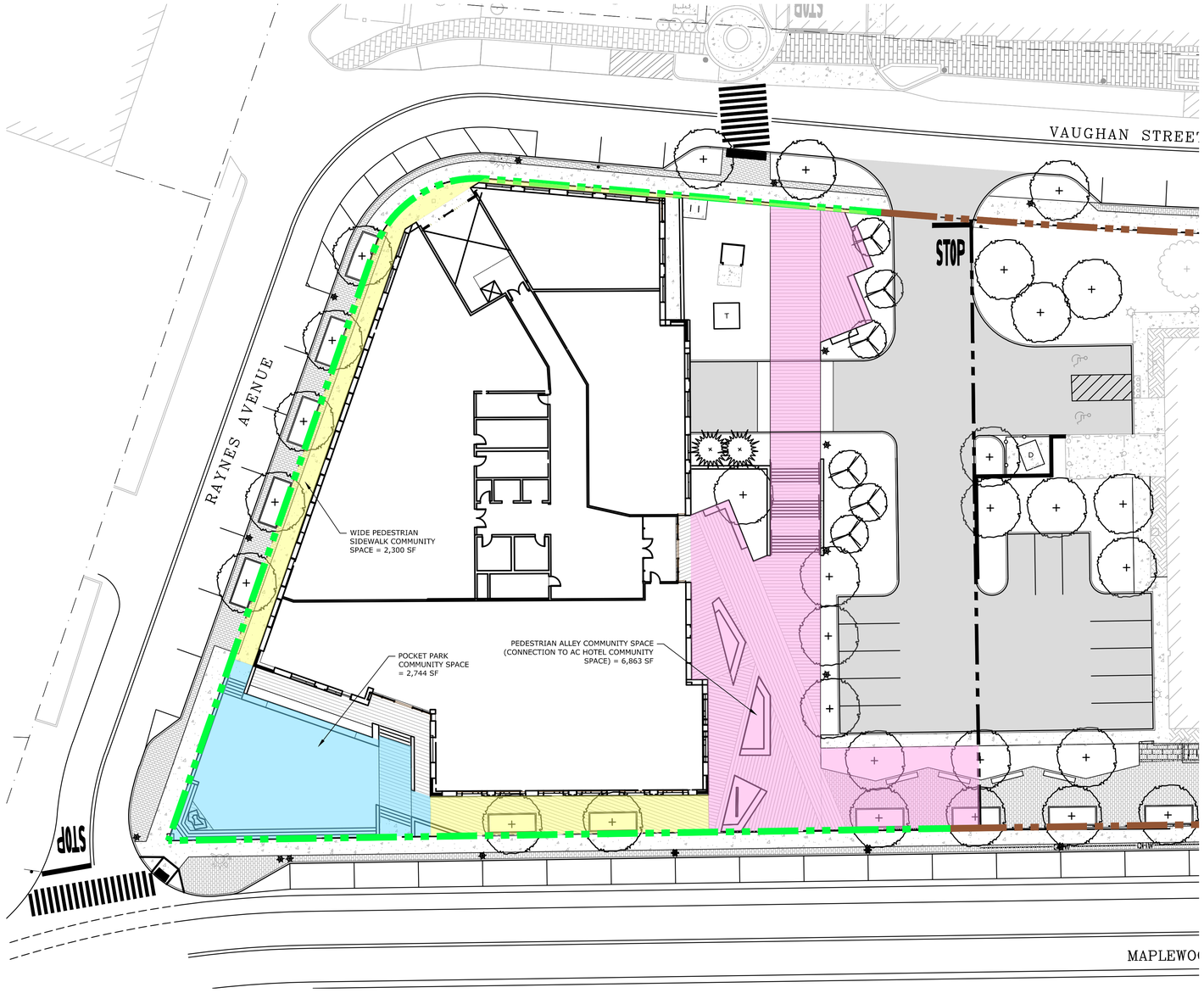
Cc: RW Norfolk Holdings, LLC
CBT Architects
Halvorson Design Partnership
DTC Lawyers

111 MAPLEWOOD AVENUE
PORTSMOUTH, NEW HAMPSHIRE

COMMUNITY SPACE EXHIBIT

COMMUNITY OPEN SPACE:

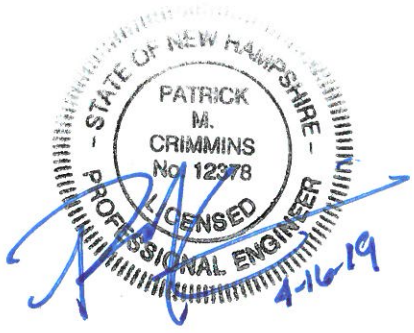
	REQUIRED	PROVIDED
POCKET PARK COMMUNITY SPACE		2,744 SF
PEDESTRIAN ALLEY COMMUNITY SPACE		6,863 SF
WIDE SIDEWALK COMMUNITY SPACE		2,300 SF
TOTAL LOT AREA: 42,778 SF COMMUNITY OPEN SPACE (20% OF TOTAL)	8,556 SF	11,907 SF



Tighe&Bond
Engineers | Environmental Specialists
April 16, 2019
K-0076-019-C-SITE.dwg

Last Save Date: April 16, 2019 1:01 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 Plotted By: Neil A. Hansen
NH Plot Location: J:\KK0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings - Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: COMMUNITY

Drainage Analysis



TO: City of Portsmouth Technical Advisory Committee (TAC)

FROM: Neil A. Hansen, PE
Patrick M. Crimmins, PE

COPY: RW Norfolk Holdings LLC

DATE: March 18, 2019
Revised: April 16, 2019

1.0 Project Description

The proposed project is located at 111 Maplewood Avenue in Portsmouth, New Hampshire. The existing parcels includes a two (2) story office building with a footprint of approximately 14,500 SF with associated surface parking. The site is bound to the north by Raynes Avenue, to the south and east by Vaughan Street, and to the west by Maplewood Avenue. The topography of the site has a high point at the center of the site with approximately half of the site sloping northeast towards Vaughan Street and the remaining half sloping southeast towards Vaughan Street. The western property line slopes towards Maplewood Avenue approximately half sloping to the north and half to the south.

Runoff generated by the site flows to two discharge points and are identified as Point of Analysis 1 (PA1) and Point of Analysis 2 (PA2). PA1 is located in the municipal drainage system at the corner of Raynes Avenue and Vaughan Street and ultimately flows to North Mill Pond. The majority of the site flows to PA1 via an on-site closed drainage system. The remainder of the site flows to PA2 which outlets into the municipal drainage system at the corner of Vaughan Street and Maplewood Avenue.

The proposed project consists of constructing 4-story mixed use building with basement level parking, 1st floor office and commercial space, upper story office space and associated site improvements. These site improvements include a stormwater management system that consists of a two (2) underground detention systems and a Contech Jellyfish Filter stormwater filtration system.

The proposed project is located in the Shoreland Protection Buffer and will disturb over 50,000 SF of the site. Thus, the project will require a New Hampshire Department of Environmental Services (NHDES) Alteration of Terrain (AoT) Permit.

2.0 Drainage Analysis

2.1 Calculation Methods

The parcels on-site watersheds were analyzed under this section. The design storms analyzed in this study are the 2-year, 10-year, 25-year and 50-year 24-hour duration storm as per NHDES AoT Regulations (Env-Wq 1500). The stormwater modeling system, HydroCAD 10.0 was utilized to predict the peak runoff rates from these storm events. A Type III storm pattern was used in the model. The rainfall data for these storm events was obtained from the data published by the Northeast Regional Climate Center at Cornell University, with an additional 15% added factor of safety as required by NHDES AoT Regulation Env-Wq 1503.08(l).

The time of concentration was computed using the TR-55 Method, which provides a means of determining the time for an entire watershed to contribute runoff to a specific location via sheet flows, shallow concentrated flow and channel flow. Runoff curve numbers were

calculated by estimating the coverage areas and then summing the curve number for the coverage area as a percent of the entire watershed.

References:

1. HydroCAD Stormwater Modeling System, by HydroCAD Software Solutions LLC, Chocorua, New Hampshire.

2. New Hampshire Stormwater Management Manual, Volume 2, Post-Construction Best Management Practices Selection and Design, December 2008.

3. “Extreme Precipitation in New York & New England." Extreme Precipitation in New York & New England by Northeast Regional Climate Center (NRCC), 26 June 2012.

2.2 Pre-Development Calculations

In order to analyze the pre-development condition, the site has been divided into six (6) watershed areas modeled at two (2) points of analysis. These points of analysis and watersheds are depicted on the plan entitled "Pre-Development Watershed Plan", Sheet C-801.

Each of the points of analysis and their contributing watershed areas are described below:

Point of Analysis One (PA1)

Pre-Development Watershed 1.0 (PRE 1.1) and Pre-Development Watershed 1.1 (PRE 1.1) are comprised primarily of the paved parking and surrounding grass area to the north of the existing office building. Runoff from this watershed area travels via overland flow to the municipal drainage system in Vaughan Street (PA1). The municipal drainage system ultimately discharges to the North Mill Pond.

Pre-Development Watershed 1.2 (PRE 1.2) is comprised of the roof of the existing office building. The building's roof drains connect to the municipal drainage system in Vaughan Street (PA1).

Pre-Development Watershed 1.3 (PRE 1.3) and Pre-Development Watershed 1.4 (PRE 1.4) are comprised primarily of the paved parking and surrounding grass area to the south of the existing office building. Runoff from this watershed area travels via overland flow and the existing on-site closed drainage system to the municipal drainage system in Vaughan Street (PA1). The municipal drainage system ultimately discharges to the North Mill Pond.

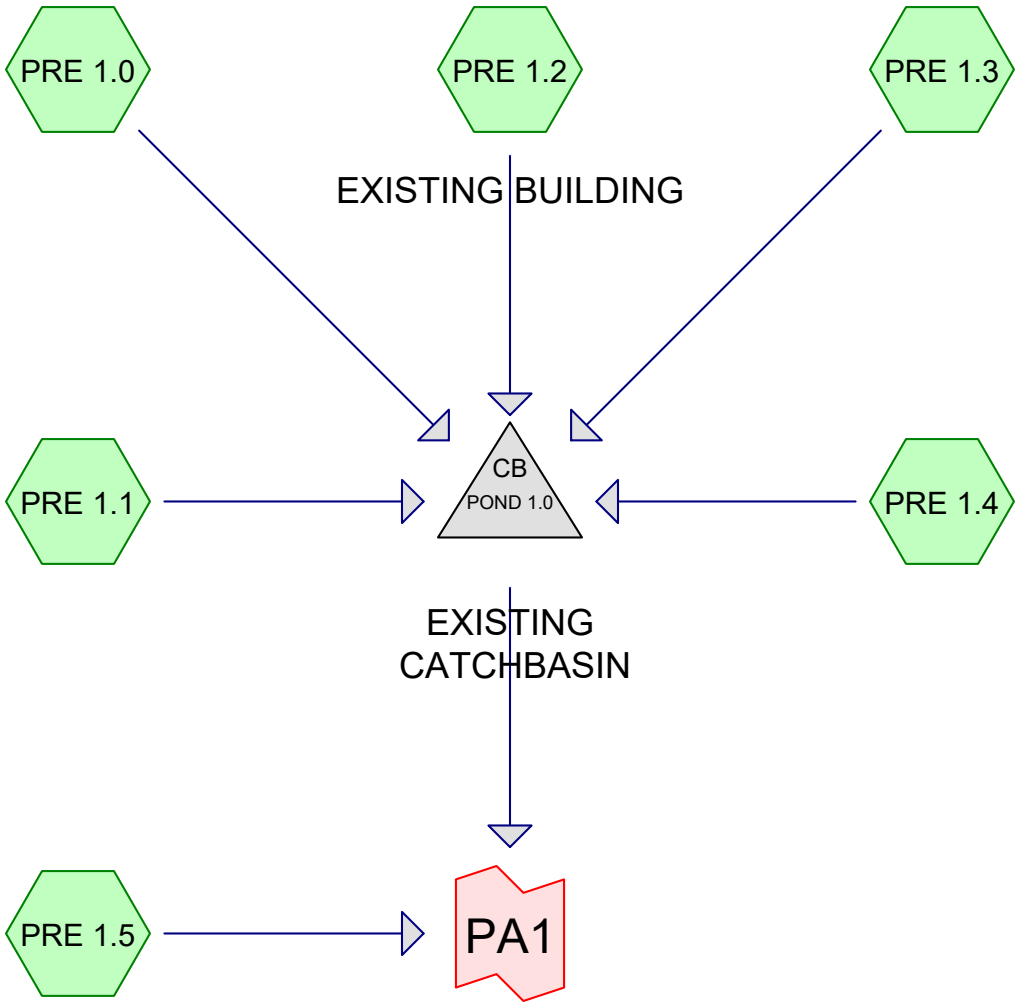
Pre-Development Watershed 1.5 (PRE 1.5) is comprised primarily of grass area with some paved sidewalk area along Maplewood Avenue. Runoff from this watershed area travels via overland flow to the municipal drainage system in Maplewood Avenue. This drainage system connects to the Vaughan Street municipal drainage system (PA1).

Point of Analysis Two (PA2)

Pre-Development Watershed 2.0 (PRE 2.0) is comprised primarily of grass area with some paved sidewalk area along Maplewood Avenue. Runoff from this watershed area travels via overland flow to the municipal drainage system at the corner of Maplewood Avenue and Vaughan Street (PA2).

2.2.1 Pre-Development Calculations

2.2.2 Pre-Development Watershed Plan



Subcat Reach Pond Link

Routing Diagram for K-0076-019 PRE
Prepared by Tighe & Bond, Printed 3/18/2019

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.119	39	>75% Grass cover, Good, HSG A (PRE 1.0, PRE 1.1, PRE 1.3, PRE 1.4, PRE 1.5, PRE 2.0)
1.181	98	Paved parking, HSG A (PRE 1.0, PRE 1.1, PRE 1.3, PRE 1.4, PRE 1.5, PRE 2.0)
0.344	98	Roofs, HSG A (PRE 1.2)
2.644	**73**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.644	HSG A	PRE 1.0, PRE 1.1, PRE 1.2, PRE 1.3, PRE 1.4, PRE 1.5, PRE 2.0
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.644		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 PRE 1.0: Runoff Area=36,506 sf 27.13% Impervious Runoff Depth>0.41"
Flow Length=514' Tc=10.7 min CN=55 Runoff=0.17 cfs 0.028 af

Subcatchment PRE 1.1: Runoff Area=17,880 sf 92.55% Impervious Runoff Depth>3.01"
Flow Length=238' Tc=5.0 min CN=94 Runoff=1.38 cfs 0.103 af

Subcatchment PRE 1.2: EXISTING Runoff Area=14,979 sf 100.00% Impervious Runoff Depth>3.44"
Flow Length=368' Slope=0.0050 '/' Tc=5.0 min CN=98 Runoff=1.24 cfs 0.099 af

Subcatchment PRE 1.3: Runoff Area=12,066 sf 36.74% Impervious Runoff Depth>0.65"
Flow Length=467' Tc=5.0 min CN=61 Runoff=0.16 cfs 0.015 af

Subcatchment PRE 1.4: Runoff Area=15,815 sf 89.81% Impervious Runoff Depth>2.81"
Flow Length=572' Tc=5.0 min CN=92 Runoff=1.16 cfs 0.085 af

Subcatchment PRE 1.5: Runoff Area=9,633 sf 32.53% Impervious Runoff Depth>0.53"
Flow Length=468' Tc=5.0 min CN=58 Runoff=0.09 cfs 0.010 af

Subcatchment PRE 2.0: Runoff Area=8,287 sf 38.92% Impervious Runoff Depth>0.70"
Flow Length=187' Tc=5.0 min CN=62 Runoff=0.13 cfs 0.011 af

Pond POND 1.0: EXISTING CATCHBASIN Peak Elev=4.86' Inflow=3.95 cfs 0.330 af
24.0" Round Culvert n=0.012 L=145.0' S=0.0162 '/' Outflow=3.95 cfs 0.330 af

Link PA1: POINT OF ANALYSIS 1 Inflow=4.03 cfs 0.340 af
Primary=4.03 cfs 0.340 af

Link PA2: POINT OF ANALYSIS 2 Inflow=0.13 cfs 0.011 af
Primary=0.13 cfs 0.011 af

Total Runoff Area = 2.644 ac Runoff Volume = 0.351 af Average Runoff Depth = 1.59"
42.32% Pervious = 1.119 ac 57.68% Impervious = 1.525 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 PRE 1.0: Runoff Area=36,506 sf 27.13% Impervious Runoff Depth>1.28"
Flow Length=514' Tc=10.7 min CN=55 Runoff=0.91 cfs 0.089 af

Subcatchment PRE 1.1: Runoff Area=17,880 sf 92.55% Impervious Runoff Depth>4.88"
Flow Length=238' Tc=5.0 min CN=94 Runoff=2.18 cfs 0.167 af

Subcatchment PRE 1.2: EXISTING Runoff Area=14,979 sf 100.00% Impervious Runoff Depth>5.34"
Flow Length=368' Slope=0.0050 '/' Tc=5.0 min CN=98 Runoff=1.89 cfs 0.153 af

Subcatchment PRE 1.3: Runoff Area=12,066 sf 36.74% Impervious Runoff Depth>1.73"
Flow Length=467' Tc=5.0 min CN=61 Runoff=0.53 cfs 0.040 af

Subcatchment PRE 1.4: Runoff Area=15,815 sf 89.81% Impervious Runoff Depth>4.65"
Flow Length=572' Tc=5.0 min CN=92 Runoff=1.88 cfs 0.141 af

Subcatchment PRE 1.5: Runoff Area=9,633 sf 32.53% Impervious Runoff Depth>1.50"
Flow Length=468' Tc=5.0 min CN=58 Runoff=0.36 cfs 0.028 af

Subcatchment PRE 2.0: Runoff Area=8,287 sf 38.92% Impervious Runoff Depth>1.81"
Flow Length=187' Tc=5.0 min CN=62 Runoff=0.38 cfs 0.029 af

Pond POND 1.0: EXISTING CATCHBASIN Peak Elev=5.21' Inflow=7.03 cfs 0.590 af
24.0" Round Culvert n=0.012 L=145.0' S=0.0162 '/' Outflow=7.03 cfs 0.590 af

Link PA1: POINT OF ANALYSIS 1 Inflow=7.38 cfs 0.618 af
Primary=7.38 cfs 0.618 af

Link PA2: POINT OF ANALYSIS 2 Inflow=0.38 cfs 0.029 af
Primary=0.38 cfs 0.029 af

Total Runoff Area = 2.644 ac Runoff Volume = 0.646 af Average Runoff Depth = 2.93"
42.32% Pervious = 1.119 ac 57.68% Impervious = 1.525 ac

Summary for Subcatchment PRE 1.0:

Runoff = 0.91 cfs @ 12.17 hrs, Volume= 0.089 af, Depth> 1.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
26,602	39	>75% Grass cover, Good, HSG A
9,904	98	Paved parking, HSG A
36,506	55	Weighted Average
26,602		72.87% Pervious Area
9,904		27.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	100	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
2.0	304	0.0300	2.60		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.8	80	0.0060	1.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	30	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.7	514	Total			

Summary for Subcatchment PRE 1.1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.18 cfs @ 12.07 hrs, Volume= 0.167 af, Depth> 4.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
1,332	39	>75% Grass cover, Good, HSG A
16,548	98	Paved parking, HSG A
17,880	94	Weighted Average
1,332		7.45% Pervious Area
16,548		92.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	100	0.0500	2.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.3	83	0.0500	4.54		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	55	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
1.4	238	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PRE 1.2: EXISTING BUILDING

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.89 cfs @ 12.07 hrs, Volume= 0.153 af, Depth> 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
14,979	98	Roofs, HSG A
14,979		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	35	0.0050	2.84	1.55	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013 Cast iron, coated
0.3	58	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	30	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.6	185	0.0050	5.52	17.33	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
0.2	60	0.0050	5.52	17.33	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.4	368	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PRE 1.3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
7,633	39	>75% Grass cover, Good, HSG A
4,433	98	Paved parking, HSG A
12,066	61	Weighted Average
7,633		63.26% Pervious Area
4,433		36.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0254	1.62		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.2	38	0.0254	3.24		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	17	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	60	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.9	252	0.0050	4.55	8.05	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
2.4	467	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PRE 1.4:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.88 cfs @ 12.07 hrs, Volume= 0.141 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
1,611	39	>75% Grass cover, Good, HSG A
14,204	98	Paved parking, HSG A
15,815	92	Weighted Average
1,611		10.19% Pervious Area
14,204		89.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0237	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.2	35	0.0254	3.24		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	105	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	20	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	60	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.9	252	0.0050	4.55	8.05	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
3.0	572	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PRE 1.5:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
6,499	39	>75% Grass cover, Good, HSG A
3,134	98	Paved parking, HSG A
9,633	58	Weighted Average
6,499		67.47% Pervious Area
3,134		32.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0159	1.12		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
1.0	148	0.0159	2.56		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	84	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.8	196	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
2.8	468	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PRE 2.0:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.029 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
5,062	39	>75% Grass cover, Good, HSG A
3,225	98	Paved parking, HSG A
8,287	62	Weighted Average
5,062		61.08% Pervious Area
3,225		38.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	10	0.0360	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
0.3	45	0.0360	2.85		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.7	132	0.0227	3.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.1	187	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond POND 1.0: EXISTING CATCHBASIN

Inflow Area = 2.232 ac, 61.77% Impervious, Inflow Depth > 3.17" for 10 Year Storm event
Inflow = 7.03 cfs @ 12.08 hrs, Volume= 0.590 af
Outflow = 7.03 cfs @ 12.08 hrs, Volume= 0.590 af, Atten= 0%, Lag= 0.0 min
Primary = 7.03 cfs @ 12.08 hrs, Volume= 0.590 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 5.21' @ 12.08 hrs
Flood Elev= 7.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	3.95'	**24.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 3.95' / 1.60' S= 0.0162 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=6.83 cfs @ 12.08 hrs HW=5.19' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 6.83 cfs @ 3.34 fps)

Summary for Link PA1: POINT OF ANALYSIS 1

Inflow Area = 2.454 ac, 59.13% Impervious, Inflow Depth > 3.02" for 10 Year Storm event
Inflow = 7.38 cfs @ 12.08 hrs, Volume= 0.618 af
Primary = 7.38 cfs @ 12.08 hrs, Volume= 0.618 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA2: POINT OF ANALYSIS 2

Inflow Area = 0.190 ac, 38.92% Impervious, Inflow Depth > 1.81" for 10 Year Storm event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 0.029 af
Primary = 0.38 cfs @ 12.09 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 PRE 1.0: Runoff Area=36,506 sf 27.13% Impervious Runoff Depth>2.17"
Flow Length=514' Tc=10.7 min CN=55 Runoff=1.69 cfs 0.152 af

Subcatchment PRE 1.1: Runoff Area=17,880 sf 92.55% Impervious Runoff Depth>6.36"
Flow Length=238' Tc=5.0 min CN=94 Runoff=2.81 cfs 0.218 af

Subcatchment PRE 1.2: EXISTING Runoff Area=14,979 sf 100.00% Impervious Runoff Depth>6.84"
Flow Length=368' Slope=0.0050 '/' Tc=5.0 min CN=98 Runoff=2.40 cfs 0.196 af

Subcatchment PRE 1.3: Runoff Area=12,066 sf 36.74% Impervious Runoff Depth>2.76"
Flow Length=467' Tc=5.0 min CN=61 Runoff=0.88 cfs 0.064 af

Subcatchment PRE 1.4: Runoff Area=15,815 sf 89.81% Impervious Runoff Depth>6.13"
Flow Length=572' Tc=5.0 min CN=92 Runoff=2.44 cfs 0.185 af

Subcatchment PRE 1.5: Runoff Area=9,633 sf 32.53% Impervious Runoff Depth>2.46"
Flow Length=468' Tc=5.0 min CN=58 Runoff=0.62 cfs 0.045 af

Subcatchment PRE 2.0: Runoff Area=8,287 sf 38.92% Impervious Runoff Depth>2.86"
Flow Length=187' Tc=5.0 min CN=62 Runoff=0.63 cfs 0.045 af

Pond POND 1.0: EXISTING CATCHBASIN Peak Elev=5.49' Inflow=9.68 cfs 0.814 af
24.0" Round Culvert n=0.012 L=145.0' S=0.0162 '/' Outflow=9.68 cfs 0.814 af

Link PA1: POINT OF ANALYSIS 1 Inflow=10.30 cfs 0.860 af
Primary=10.30 cfs 0.860 af

Link PA2: POINT OF ANALYSIS 2 Inflow=0.63 cfs 0.045 af
Primary=0.63 cfs 0.045 af

Total Runoff Area = 2.644 ac Runoff Volume = 0.905 af Average Runoff Depth = 4.11"
42.32% Pervious = 1.119 ac 57.68% Impervious = 1.525 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 PRE 1.0: Runoff Area=36,506 sf 27.13% Impervious Runoff Depth>3.11"
Flow Length=514' Tc=10.7 min CN=55 Runoff=2.51 cfs 0.217 af

Subcatchment PRE 1.1: Runoff Area=17,880 sf 92.55% Impervious Runoff Depth>7.76"
Flow Length=238' Tc=5.0 min CN=94 Runoff=3.38 cfs 0.265 af

Subcatchment PRE 1.2: EXISTING Runoff Area=14,979 sf 100.00% Impervious Runoff Depth>8.24"
Flow Length=368' Slope=0.0050 '/' Tc=5.0 min CN=98 Runoff=2.88 cfs 0.236 af

Subcatchment PRE 1.3: Runoff Area=12,066 sf 36.74% Impervious Runoff Depth>3.81"
Flow Length=467' Tc=5.0 min CN=61 Runoff=1.23 cfs 0.088 af

Subcatchment PRE 1.4: Runoff Area=15,815 sf 89.81% Impervious Runoff Depth>7.52"
Flow Length=572' Tc=5.0 min CN=92 Runoff=2.95 cfs 0.227 af

Subcatchment PRE 1.5: Runoff Area=9,633 sf 32.53% Impervious Runoff Depth>3.46"
Flow Length=468' Tc=5.0 min CN=58 Runoff=0.89 cfs 0.064 af

Subcatchment PRE 2.0: Runoff Area=8,287 sf 38.92% Impervious Runoff Depth>3.93"
Flow Length=187' Tc=5.0 min CN=62 Runoff=0.87 cfs 0.062 af

Pond POND 1.0: EXISTING CATCHBASIN Peak Elev=5.78' Inflow=12.27 cfs 1.034 af
24.0" Round Culvert n=0.012 L=145.0' S=0.0162 '/' Outflow=12.27 cfs 1.034 af

Link PA1: POINT OF ANALYSIS 1 Inflow=13.15 cfs 1.098 af
Primary=13.15 cfs 1.098 af

Link PA2: POINT OF ANALYSIS 2 Inflow=0.87 cfs 0.062 af
Primary=0.87 cfs 0.062 af

Total Runoff Area = 2.644 ac Runoff Volume = 1.160 af Average Runoff Depth = 5.26"
42.32% Pervious = 1.119 ac 57.68% Impervious = 1.525 ac

PRE-DEVELOPMENT WATERSHED BOUNDARY

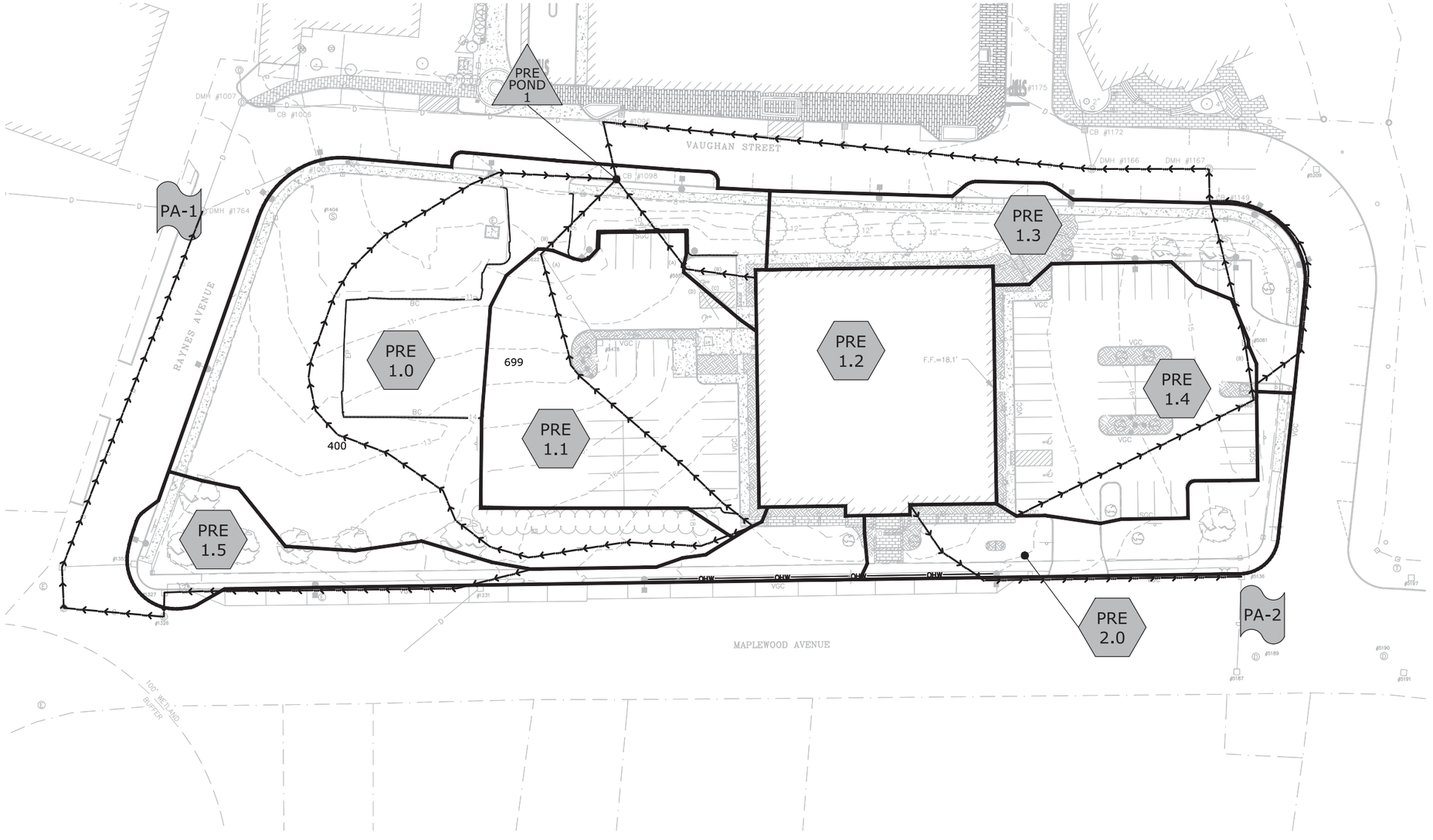
SITE SPECIFIC SOIL SURVEY BOUNDARIES

LONGEST FLOW PATH

PRE 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION

PRE POND 1 — PRE-DEVELOPMENT POND DESIGNATION

PA-1 — POINT OF ANALYSIS



SITE SPECIFIC SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

SYMBOL	SOIL TYPE	HSG
400	UDORTHENTS GLACIAL	A
699	URBAN LAND	A

Tighe&Bond
Engineers | Environmental Specialists

SCALE IN FEET
0 30' 60'
GRAPHIC SCALE

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

PROJECT NO:	K-0076-019
DATE:	03/18/2019
FILE:	K-0076-019_C-SITE.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

PRE DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-801

Last Save Date: April 16, 2019 - 12:26 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 - 12:27 PM By: Nick Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: C-801

2.3 Post-Development Calculations

The proposed drainage condition has been evaluated by dividing the site into ten (10) watershed areas which discharge to the same two (2) points of analysis as in the pre-development condition as depicted on "Post-Development Watershed Plan", C-802.

Each of the points of analysis and their contributing watershed areas are described below:

Point of Analysis One (PA1)

Post-Development Watershed 1.0 (POST 1.0) is comprised primarily of the paved parking and surrounding grass area to the east of the site, between the proposed and existing office buildings. Runoff from this watershed area travels via overland flow and the on-site closed drainage system to a Contech Jellyfish Filter stormwater filtration system. This system has been sized to treat the 1 Year Storm volume that is discharged from the detention system and bypass the larger storm flows. This is a larger volume than the Water Quality Volume which is required to be treated per NHDES AoT regulations. The Jellyfish Filter discharges to the municipal drainage system in Vaughan Street (PA1). The municipal drainage system ultimately discharges to the North Mill Pond.

Post-Development Watershed 1.1 (POST 1.1) and Post-Development Watershed 1.8 (POST 1.8) are comprised primarily of the paved parking area between the proposed and existing office building and the roof runoff from the proposed office building. Runoff from these watershed areas travels via a closed drainage system to an underground detention system. The detention system discharges into a Jellyfish Filter stormwater filtration system. This system has been sized to treat the 1 Year Storm volume that is discharged from the detention system and bypass the larger storm flows. This is a larger volume than the Water Quality Volume which is required to be treated per NHDES AoT regulations. The Jellyfish Filter discharges to the municipal drainage system in Vaughan Street (PA1).

Post-Development Watershed 1.2 (POST 1.2) is comprised of the roof of the existing office building. The building's roof drains connect to an underground detention system. The underground detention system discharges to the municipal drainage system in Vaughan Street (PA1).

Post-Development Watershed 1.3 (POST 1.3) and Post-Development Watershed 1.4 (POST 1.4) are comprised primarily of the paved parking and surrounding grass area to the south of the existing office building. Runoff from this watershed area travels via overland flow and the existing on-site closed drainage system to the municipal drainage system in Vaughan Street (PA1). The municipal drainage system ultimately discharges to the North Mill Pond.

Post-Development Watershed 1.5 (POST 1.5) is comprised primarily of paved sidewalk area along Maplewood Avenue. Runoff from this watershed area travels via overland flow to the municipal drainage system in Maplewood Avenue. This drainage system connects to the Vaughan Street municipal drainage system (PA1).

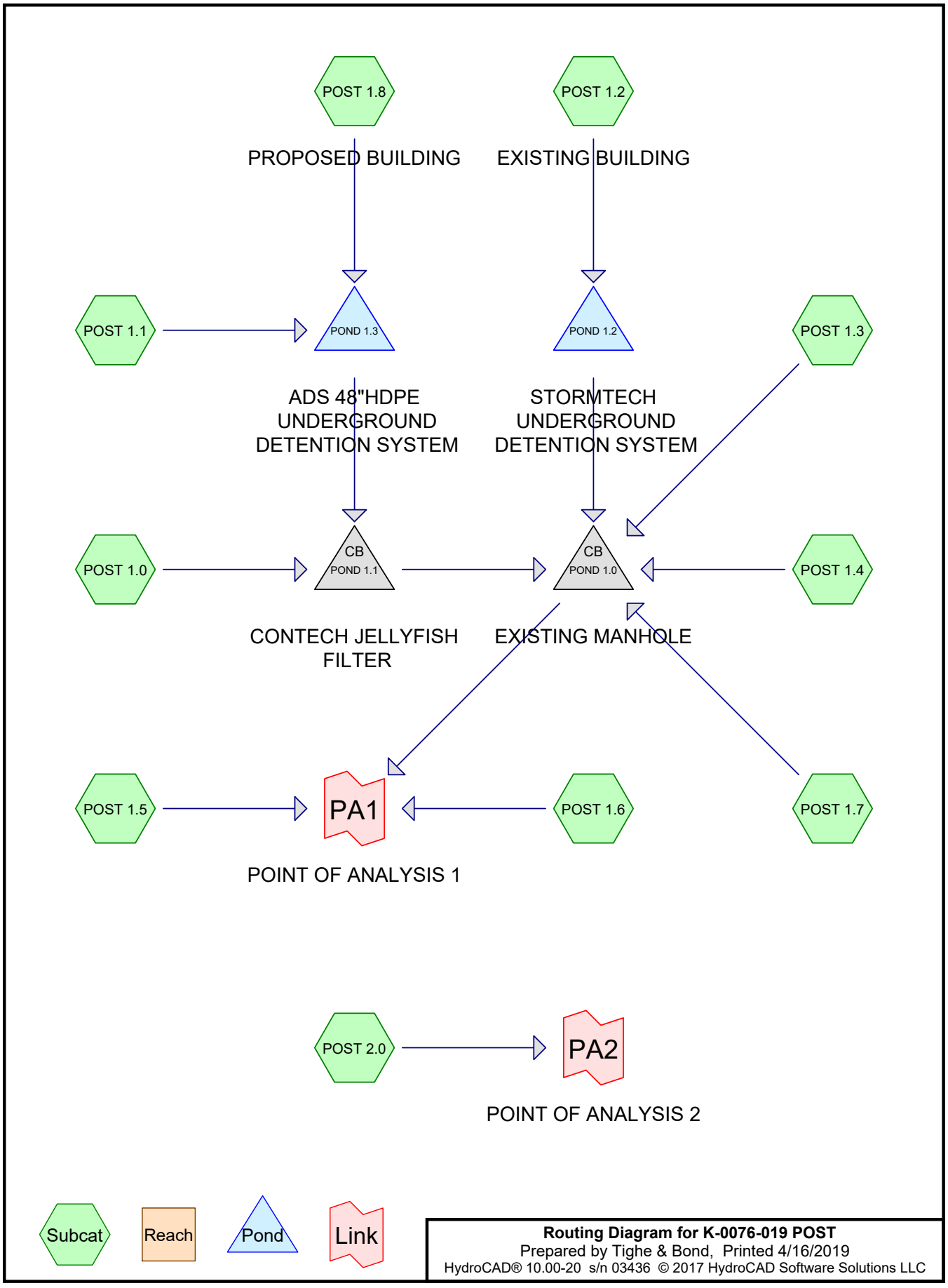
Post-Development Watershed 1.6 (POST 1.6) and Post-Development Watershed 1.7 (POST 1.7) are comprised primarily of paved sidewalk area along Raynes Avenue and Vaughan Street. Runoff from these watershed areas travels via overland flow to the municipal drainage system in Vaughan Street (PA1).

Point of Analysis Two (PA2)

Post-Development Watershed 2.0 (POST 2.0) is comprised primarily of grass area with some paved sidewalk area along Maplewood Avenue. Runoff from this watershed area travels via overland flow to the municipal drainage system at the corner of Maplewood Avenue and Vaughan Street (PA2).

2.3.1 Post-Development Calculations

2.3.2 Post-Development Watershed Plan



Routing Diagram for K-0076-019 POST
Prepared by Tighe & Bond, Printed 4/16/2019

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.605	39	>75% Grass cover, Good, HSG A (POST 1.0, POST 1.1, POST 1.3, POST 1.4, POST 1.5, POST 1.6, POST 1.7, POST 2.0)
1.235	98	Paved parking, HSG A (POST 1.0, POST 1.1, POST 1.3, POST 1.4, POST 1.5, POST 1.6, POST 1.7, POST 2.0)
0.804	98	Roofs, HSG A (POST 1.2, POST 1.8)
2.644	**84**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.644	HSG A	POST 1.0, POST 1.1, POST 1.2, POST 1.3, POST 1.4, POST 1.5, POST 1.6, POST 1.7, POST 1.8, POST 2.0
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.644		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 POST 1.0: Runoff Area=7,961 sf 81.99% Impervious Runoff Depth>2.34"
Flow Length=112' Tc=5.0 min CN=87 Runoff=0.50 cfs 0.036 af

Subcatchment POST 1.1: Runoff Area=15,025 sf 75.37% Impervious Runoff Depth>2.01"
Flow Length=172' Tc=5.0 min CN=83 Runoff=0.81 cfs 0.058 af

Subcatchment POST 1.2: EXISTING Runoff Area=14,979 sf 100.00% Impervious Runoff Depth>3.44"
Tc=5.0 min CN=98 Runoff=1.24 cfs 0.099 af

Subcatchment POST 1.3: Runoff Area=12,066 sf 42.04% Impervious Runoff Depth>0.80"
Flow Length=470' Tc=5.0 min CN=64 Runoff=0.22 cfs 0.018 af

Subcatchment POST 1.4: Runoff Area=16,218 sf 88.46% Impervious Runoff Depth>2.71"
Flow Length=572' Tc=5.0 min CN=91 Runoff=1.16 cfs 0.084 af

Subcatchment POST 1.5: Runoff Area=10,104 sf 69.36% Impervious Runoff Depth>1.78"
Flow Length=182' Tc=5.0 min CN=80 Runoff=0.48 cfs 0.034 af

Subcatchment POST 1.6: Runoff Area=3,425 sf 74.01% Impervious Runoff Depth>2.01"
Flow Length=572' Tc=5.0 min CN=83 Runoff=0.19 cfs 0.013 af

Subcatchment POST 1.7: Runoff Area=7,468 sf 53.09% Impervious Runoff Depth>1.12"
Flow Length=188' Slope=0.0159 '/' Tc=5.0 min CN=70 Runoff=0.21 cfs 0.016 af

Subcatchment POST 1.8: PROPOSED Runoff Area=20,033 sf 100.00% Impervious Runoff Depth>3.44"
Tc=5.0 min CN=98 Runoff=1.66 cfs 0.132 af

Subcatchment POST 2.0: Runoff Area=7,884 sf 38.22% Impervious Runoff Depth>0.70"
Flow Length=187' Tc=5.0 min CN=62 Runoff=0.12 cfs 0.011 af

Pond POND 1.0: EXISTING MANHOLE Peak Elev=4.74' Inflow=3.06 cfs 0.440 af
24.0" Round Culvert n=0.012 L=145.0' S=0.0162 '/' Outflow=3.06 cfs 0.440 af

Pond POND 1.1: CONTECH JELLYFISH FILTER Peak Elev=5.11' Inflow=0.76 cfs 0.226 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=0.76 cfs 0.226 af

Pond POND 1.2: STORMTECH Peak Elev=5.82' Storage=0.014 af Inflow=1.24 cfs 0.099 af
Outflow=0.91 cfs 0.096 af

Pond POND 1.3: ADS 48"HDPE Peak Elev=8.67' Storage=0.068 af Inflow=2.47 cfs 0.190 af
Outflow=0.35 cfs 0.190 af

Link PA1: POINT OF ANALYSIS 1 Inflow=3.73 cfs 0.487 af
Primary=3.73 cfs 0.487 af

Link PA2: POINT OF ANALYSIS 2 Inflow=0.12 cfs 0.011 af
Primary=0.12 cfs 0.011 af

Total Runoff Area = 2.644 ac Runoff Volume = 0.501 af Average Runoff Depth = 2.27"
22.89% Pervious = 0.605 ac 77.11% Impervious = 2.039 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 POST 1.0: Runoff Area=7,961 sf 81.99% Impervious Runoff Depth>4.11"
Flow Length=112' Tc=5.0 min CN=87 Runoff=0.87 cfs 0.063 af

Subcatchment POST 1.1: Runoff Area=15,025 sf 75.37% Impervious Runoff Depth>3.70"
Flow Length=172' Tc=5.0 min CN=83 Runoff=1.49 cfs 0.106 af

Subcatchment POST 1.2: EXISTING Runoff Area=14,979 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=1.89 cfs 0.153 af

Subcatchment POST 1.3: Runoff Area=12,066 sf 42.04% Impervious Runoff Depth>1.97"
Flow Length=470' Tc=5.0 min CN=64 Runoff=0.62 cfs 0.045 af

Subcatchment POST 1.4: Runoff Area=16,218 sf 88.46% Impervious Runoff Depth>4.54"
Flow Length=572' Tc=5.0 min CN=91 Runoff=1.90 cfs 0.141 af

Subcatchment POST 1.5: Runoff Area=10,104 sf 69.36% Impervious Runoff Depth>3.40"
Flow Length=182' Tc=5.0 min CN=80 Runoff=0.92 cfs 0.066 af

Subcatchment POST 1.6: Runoff Area=3,425 sf 74.01% Impervious Runoff Depth>3.70"
Flow Length=572' Tc=5.0 min CN=83 Runoff=0.34 cfs 0.024 af

Subcatchment POST 1.7: Runoff Area=7,468 sf 53.09% Impervious Runoff Depth>2.47"
Flow Length=188' Slope=0.0159 '/' Tc=5.0 min CN=70 Runoff=0.49 cfs 0.035 af

Subcatchment POST 1.8: PROPOSED Runoff Area=20,033 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=2.53 cfs 0.205 af

Subcatchment POST 2.0: Runoff Area=7,884 sf 38.22% Impervious Runoff Depth>1.81"
Flow Length=187' Tc=5.0 min CN=62 Runoff=0.37 cfs 0.027 af

Pond POND 1.0: EXISTING MANHOLE Peak Elev=5.06' Inflow=5.69 cfs 0.745 af
24.0" Round Culvert n=0.012 L=145.0' S=0.0162 '/' Outflow=5.69 cfs 0.745 af

Pond POND 1.1: CONTECH JELLYFISH FILTER Peak Elev=5.36' Inflow=1.43 cfs 0.374 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=1.43 cfs 0.374 af

Pond POND 1.2: STORMTECH Peak Elev=6.41' Storage=0.018 af Inflow=1.89 cfs 0.153 af
Outflow=1.43 cfs 0.150 af

Pond POND 1.3: ADS 48"HDPE Peak Elev=9.33' Storage=0.106 af Inflow=4.02 cfs 0.311 af
Outflow=0.99 cfs 0.311 af

Link PA1: POINT OF ANALYSIS 1 Inflow=6.93 cfs 0.835 af
Primary=6.93 cfs 0.835 af

Link PA2: POINT OF ANALYSIS 2 Inflow=0.37 cfs 0.027 af
Primary=0.37 cfs 0.027 af

Total Runoff Area = 2.644 ac Runoff Volume = 0.866 af Average Runoff Depth = 3.93"
22.89% Pervious = 0.605 ac 77.11% Impervious = 2.039 ac

Summary for Subcatchment POST 1.0:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.87 cfs @ 12.07 hrs, Volume= 0.063 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
1,434	39	>75% Grass cover, Good, HSG A
6,527	98	Paved parking, HSG A
7,961	87	Weighted Average
1,434		18.01% Pervious Area
6,527		81.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	80	0.0400	1.86		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.2	32	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.9	112	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.49 cfs @ 12.07 hrs, Volume= 0.106 af, Depth> 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
3,700	39	>75% Grass cover, Good, HSG A
11,325	98	Paved parking, HSG A
15,025	83	Weighted Average
3,700		24.63% Pervious Area
11,325		75.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0500	1.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.1	48	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	74	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.9	172	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.2: EXISTING BUILDING

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.89 cfs @ 12.07 hrs, Volume= 0.153 af, Depth> 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
14,979	98	Roofs, HSG A
14,979		100.00% Impervious Area

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

Summary for Subcatchment POST 1.3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.62 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
6,993	39	>75% Grass cover, Good, HSG A
5,073	98	Paved parking, HSG A
12,066	64	Weighted Average
6,993		57.96% Pervious Area
5,073		42.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0254	1.62		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.2	38	0.0254	3.24		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	20	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	60	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.9	252	0.0050	4.55	8.05	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
2.4	470	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.4:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.90 cfs @ 12.07 hrs, Volume= 0.141 af, Depth> 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
1,871	39	>75% Grass cover, Good, HSG A
14,347	98	Paved parking, HSG A
16,218	91	Weighted Average
1,871		11.54% Pervious Area
14,347		88.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0237	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.2	35	0.0254	3.24		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	105	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	20	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	60	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.9	252	0.0050	4.55	8.05	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
3.0	572	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.5:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.92 cfs @ 12.08 hrs, Volume= 0.066 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
3,096	39	>75% Grass cover, Good, HSG A
7,008	98	Paved parking, HSG A
10,104	80	Weighted Average
3,096		30.64% Pervious Area
7,008		69.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	52	0.0500	1.87		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.2	52	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	78	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
1.1	182	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.6:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.34 cfs @ 12.07 hrs, Volume= 0.024 af, Depth> 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
890	39	>75% Grass cover, Good, HSG A
2,535	98	Paved parking, HSG A
3,425	83	Weighted Average
890		25.99% Pervious Area
2,535		74.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0237	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.2	35	0.0254	3.24		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	105	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	20	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	60	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.9	252	0.0050	4.55	8.05	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
3.0	572	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.7:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.035 af, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
3,503	39	>75% Grass cover, Good, HSG A
3,965	98	Paved parking, HSG A
7,468	70	Weighted Average
3,503		46.91% Pervious Area
3,965		53.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0159	1.12		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
1.0	148	0.0159	2.56		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.6	188	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.8: PROPOSED BUILDING

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.53 cfs @ 12.07 hrs, Volume= 0.205 af, Depth> 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
20,033	98	Roofs, HSG A
20,033		100.00% Impervious Area

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

Summary for Subcatchment POST 2.0:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.37 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=5.58"

Area (sf)	CN	Description
4,871	39	>75% Grass cover, Good, HSG A
3,013	98	Paved parking, HSG A
7,884	62	Weighted Average
4,871		61.78% Pervious Area
3,013		38.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	10	0.0360	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
0.3	45	0.0360	2.85		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.7	132	0.0227	3.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.1	187	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond POND 1.0: EXISTING MANHOLE

Inflow Area = 2.152 ac, 81.33% Impervious, Inflow Depth > 4.16" for 10 Year Storm event
Inflow = 5.69 cfs @ 12.10 hrs, Volume= 0.745 af
Outflow = 5.69 cfs @ 12.10 hrs, Volume= 0.745 af, Atten= 0%, Lag= 0.0 min
Primary = 5.69 cfs @ 12.10 hrs, Volume= 0.745 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 5.06' @ 12.10 hrs
Flood Elev= 7.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	3.95'	**24.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 3.95' / 1.60' S= 0.0162 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=5.64 cfs @ 12.10 hrs HW=5.06' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 5.64 cfs @ 3.16 fps)

Summary for Pond POND 1.1: CONTECH JELLYFISH FILTER

Inflow Area = 0.988 ac, 88.07% Impervious, Inflow Depth > 4.54" for 10 Year Storm event
Inflow = 1.43 cfs @ 12.12 hrs, Volume= 0.374 af
Outflow = 1.43 cfs @ 12.12 hrs, Volume= 0.374 af, Atten= 0%, Lag= 0.0 min
Primary = 1.43 cfs @ 12.12 hrs, Volume= 0.374 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 5.36' @ 12.14 hrs
Flood Elev= 8.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	4.60'	**12.0" Round Culvert** L= 15.0' CPP, mitered to conform to fill, Ke= 0.700

Inlet / Outlet Invert= 4.60' / 4.45' S= 0.0100 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.41 cfs @ 12.12 hrs HW=5.35' TW=5.03' (Dynamic Tailwater)
└**1=Culvert** (Outlet Controls 1.41 cfs @ 3.12 fps)

Summary for Pond POND 1.2: STORMTECH UNDERGROUND DETENTION SYSTEM

Inflow Area = 0.344 ac,100.00% Impervious, Inflow Depth > 5.34" for 10 Year Storm event
Inflow = 1.89 cfs @ 12.07 hrs, Volume= 0.153 af
Outflow = 1.43 cfs @ 12.14 hrs, Volume= 0.150 af, Atten= 24%, Lag= 4.3 min
Primary = 1.43 cfs @ 12.14 hrs, Volume= 0.150 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 6.41' @ 12.14 hrs Surf.Area= 0.012 ac Storage= 0.018 af
Flood Elev= 7.50' Surf.Area= 0.012 ac Storage= 0.024 af

Plug-Flow detention time= 31.8 min calculated for 0.150 af (98% of inflow)
Center-of-Mass det. time= 19.2 min (764.2 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.00'	0.011 af	**20.50'W x 24.98'L x 3.50'H Field A** 0.041 af Overall - 0.013 af Embedded = 0.028 af x 40.0% Voids
#2A	4.50'	0.013 af	**ADS_StormTech SC-740 +Cap** x 12 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 4 Rows of 3 Chambers
		0.024 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	4.50'	**12.0" Round Culvert** L= 35.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 4.50' / 4.30' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	4.50'	**5.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	5.60'	**8.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	7.25'	**4.0' 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

Primary OutFlow Max=1.44 cfs @ 12.14 hrs HW=6.40' TW=4.99' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.44 cfs of 3.95 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.78 cfs @ 5.71 fps)
├**3=Orifice/Grate** (Orifice Controls 0.66 cfs @ 3.95 fps)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond POND 1.3: ADS 48"HDPE UNDERGROUND DETENTION SYSTEM

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=32)

Inflow Area = 0.805 ac, 89.45% Impervious, Inflow Depth > 4.64" for 10 Year Storm event
Inflow = 4.02 cfs @ 12.07 hrs, Volume= 0.311 af
Outflow = 0.99 cfs @ 12.45 hrs, Volume= 0.311 af, Atten= 75%, Lag= 22.6 min
Primary = 0.99 cfs @ 12.45 hrs, Volume= 0.311 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.33' @ 12.45 hrs Surf.Area= 0.076 ac Storage= 0.106 af
Flood Elev= 10.30' Surf.Area= 0.076 ac Storage= 0.156 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 76.2 min (842.7 - 766.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	6.30'	0.000 af	**36.50'W x 91.00'L x 5.50'H Field A** 0.419 af Overall - 0.215 af Embedded = 0.205 af x 0.0% Voids
#2A	6.80'	0.179 af	**ADS N-12 48"** x 28 Inside #1 Inside= 47.7"W x 47.7"H => 12.40 sf x 20.00'L = 248.0 cf Outside= 54.0"W x 54.0"H => 14.86 sf x 20.00'L = 297.1 cf 7 Rows of 4 Chambers 34.50' Header x 12.40 sf x 2 = 855.6 cf Inside
		0.179 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	6.80'	**12.0" Round Culvert** L= 74.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 6.80' / 5.70' S= 0.0149 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	6.80'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	8.60'	**8.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	9.80'	**4.0' 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

Primary OutFlow Max=0.99 cfs @ 12.45 hrs HW=9.33' TW=5.27' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.99 cfs of 4.76 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.37 cfs @ 7.47 fps)
  - **3=Orifice/Grate** (Orifice Controls 0.62 cfs @ 3.74 fps)
  - **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link PA1: POINT OF ANALYSIS 1

Inflow Area = 2.463 ac, 79.97% Impervious, Inflow Depth > 4.07" for 10 Year Storm event
Inflow = 6.93 cfs @ 12.09 hrs, Volume= 0.835 af
Primary = 6.93 cfs @ 12.09 hrs, Volume= 0.835 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA2: POINT OF ANALYSIS 2

Inflow Area = 0.181 ac, 38.22% Impervious, Inflow Depth > 1.81" for 10 Year Storm event
Inflow = 0.37 cfs @ 12.09 hrs, Volume= 0.027 af
Primary = 0.37 cfs @ 12.09 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 POST 1.0: Runoff Area=7,961 sf 81.99% Impervious Runoff Depth>5.55"
Flow Length=112' Tc=5.0 min CN=87 Runoff=1.15 cfs 0.085 af

Subcatchment POST 1.1: Runoff Area=15,025 sf 75.37% Impervious Runoff Depth>5.10"
Flow Length=172' Tc=5.0 min CN=83 Runoff=2.03 cfs 0.147 af

Subcatchment POST 1.2: EXISTING Runoff Area=14,979 sf 100.00% Impervious Runoff Depth>6.84"
Tc=5.0 min CN=98 Runoff=2.40 cfs 0.196 af

Subcatchment POST 1.3: Runoff Area=12,066 sf 42.04% Impervious Runoff Depth>3.06"
Flow Length=470' Tc=5.0 min CN=64 Runoff=0.99 cfs 0.071 af

Subcatchment POST 1.4: Runoff Area=16,218 sf 88.46% Impervious Runoff Depth>6.01"
Flow Length=572' Tc=5.0 min CN=91 Runoff=2.47 cfs 0.187 af

Subcatchment POST 1.5: Runoff Area=10,104 sf 69.36% Impervious Runoff Depth>4.77"
Flow Length=182' Tc=5.0 min CN=80 Runoff=1.29 cfs 0.092 af

Subcatchment POST 1.6: Runoff Area=3,425 sf 74.01% Impervious Runoff Depth>5.10"
Flow Length=572' Tc=5.0 min CN=83 Runoff=0.46 cfs 0.033 af

Subcatchment POST 1.7: Runoff Area=7,468 sf 53.09% Impervious Runoff Depth>3.68"
Flow Length=188' Slope=0.0159 '/' Tc=5.0 min CN=70 Runoff=0.74 cfs 0.053 af

Subcatchment POST 1.8: PROPOSED Runoff Area=20,033 sf 100.00% Impervious Runoff Depth>6.84"
Tc=5.0 min CN=98 Runoff=3.22 cfs 0.262 af

Subcatchment POST 2.0: Runoff Area=7,884 sf 38.22% Impervious Runoff Depth>2.86"
Flow Length=187' Tc=5.0 min CN=62 Runoff=0.60 cfs 0.043 af

Pond POND 1.0: EXISTING MANHOLE Peak Elev=5.30' Inflow=7.89 cfs 0.996 af
24.0" Round Culvert n=0.012 L=145.0' S=0.0162 '/' Outflow=7.89 cfs 0.996 af

Pond POND 1.1: CONTECH JELLYFISH FILTER Peak Elev=5.66' Inflow=2.10 cfs 0.493 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=2.10 cfs 0.493 af

Pond POND 1.2: STORMTECH Peak Elev=7.08' Storage=0.022 af Inflow=2.40 cfs 0.196 af
Outflow=1.81 cfs 0.193 af

Pond POND 1.3: ADS 48"HDPE Peak Elev=9.91' Storage=0.137 af Inflow=5.25 cfs 0.409 af
Outflow=1.69 cfs 0.409 af

Link PA1: POINT OF ANALYSIS 1 Inflow=9.61 cfs 1.121 af
Primary=9.61 cfs 1.121 af

Link PA2: POINT OF ANALYSIS 2 Inflow=0.60 cfs 0.043 af
Primary=0.60 cfs 0.043 af

Total Runoff Area = 2.644 ac Runoff Volume = 1.168 af Average Runoff Depth = 5.30"
22.89% Pervious = 0.605 ac 77.11% Impervious = 2.039 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 POST 1.0: Runoff Area=7,961 sf 81.99% Impervious Runoff Depth>6.91"
Flow Length=112' Tc=5.0 min CN=87 Runoff=1.42 cfs 0.105 af

Subcatchment POST 1.1: Runoff Area=15,025 sf 75.37% Impervious Runoff Depth>6.43"
Flow Length=172' Tc=5.0 min CN=83 Runoff=2.54 cfs 0.185 af

Subcatchment POST 1.2: EXISTING Runoff Area=14,979 sf 100.00% Impervious Runoff Depth>8.24"
Tc=5.0 min CN=98 Runoff=2.88 cfs 0.236 af

Subcatchment POST 1.3: Runoff Area=12,066 sf 42.04% Impervious Runoff Depth>4.16"
Flow Length=470' Tc=5.0 min CN=64 Runoff=1.35 cfs 0.096 af

Subcatchment POST 1.4: Runoff Area=16,218 sf 88.46% Impervious Runoff Depth>7.39"
Flow Length=572' Tc=5.0 min CN=91 Runoff=3.00 cfs 0.229 af

Subcatchment POST 1.5: Runoff Area=10,104 sf 69.36% Impervious Runoff Depth>6.07"
Flow Length=182' Tc=5.0 min CN=80 Runoff=1.63 cfs 0.117 af

Subcatchment POST 1.6: Runoff Area=3,425 sf 74.01% Impervious Runoff Depth>6.43"
Flow Length=572' Tc=5.0 min CN=83 Runoff=0.58 cfs 0.042 af

Subcatchment POST 1.7: Runoff Area=7,468 sf 53.09% Impervious Runoff Depth>4.88"
Flow Length=188' Slope=0.0159 '/' Tc=5.0 min CN=70 Runoff=0.98 cfs 0.070 af

Subcatchment POST 1.8: PROPOSED Runoff Area=20,033 sf 100.00% Impervious Runoff Depth>8.24"
Tc=5.0 min CN=98 Runoff=3.85 cfs 0.316 af

Subcatchment POST 2.0: Runoff Area=7,884 sf 38.22% Impervious Runoff Depth>3.93"
Flow Length=187' Tc=5.0 min CN=62 Runoff=0.83 cfs 0.059 af

Pond POND 1.0: EXISTING MANHOLE Peak Elev=5.57' Inflow=10.41 cfs 1.234 af
24.0" Round Culvert n=0.012 L=145.0' S=0.0162 '/' Outflow=10.41 cfs 1.234 af

Pond POND 1.1: CONTECH JELLYFISH FILTER Peak Elev=7.20' Inflow=4.28 cfs 0.606 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=4.28 cfs 0.606 af

Pond POND 1.2: STORMTECH Peak Elev=7.45' Storage=0.024 af Inflow=2.88 cfs 0.236 af
Outflow=2.58 cfs 0.233 af

Pond POND 1.3: ADS 48"HDPE Peak Elev=10.13' Storage=0.148 af Inflow=6.39 cfs 0.501 af
Outflow=3.55 cfs 0.501 af

Link PA1: POINT OF ANALYSIS 1 Inflow=12.46 cfs 1.393 af
Primary=12.46 cfs 1.393 af

Link PA2: POINT OF ANALYSIS 2 Inflow=0.83 cfs 0.059 af
Primary=0.83 cfs 0.059 af

Total Runoff Area = 2.644 ac Runoff Volume = 1.456 af Average Runoff Depth = 6.61"
22.89% Pervious = 0.605 ac 77.11% Impervious = 2.039 ac

POST-DEVELOPMENT WATERSHED BOUNDARY

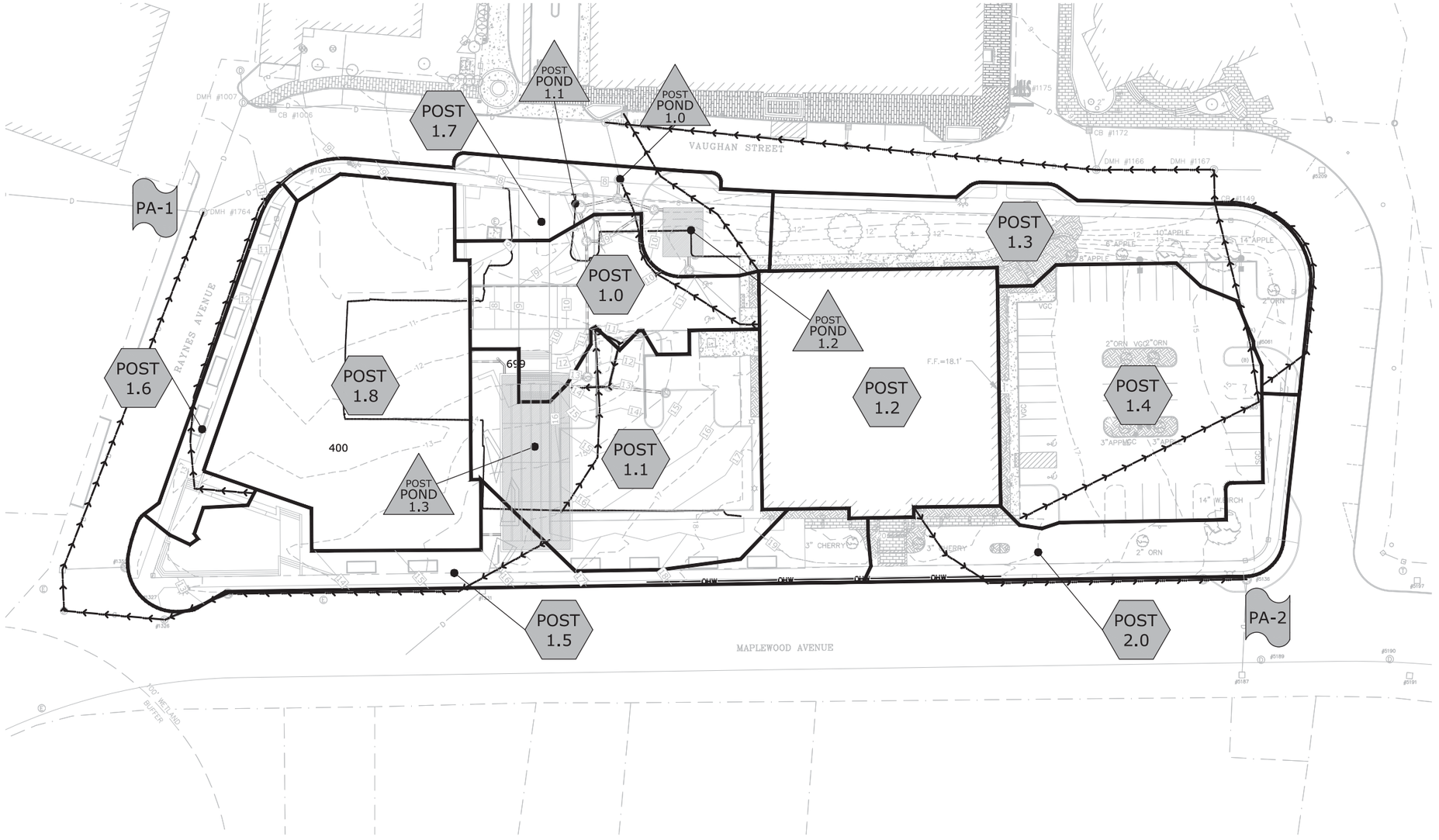
SITE SPECIFIC SOIL SURVEY BOUNDARIES

LONGEST FLOW PATH

POST 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION

POST POND 1 — POST-DEVELOPMENT POND DESIGNATION

PA-1 — POINT OF ANALYSIS



SITE SPECIFIC SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

SYMBOL	SOIL TYPE	HSG
400	UDORTHENTS GLACIAL	A
699	URBAN LAND	A

Tighe&Bond
Engineers | Environmental Specialists

SCALE IN FEET
0 30' 60'
GRAPHIC SCALE

Proposed Office Building

RW Norfolk Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	4/16/2019	Revised TAC Submission
B	3/18/2019	NHDES Submissions
A	3/18/2019	TAC Submission

PROJECT NO:	K-0076-019
DATE:	03/18/2019
FILE:	K-0076-019_C-SITE.dwg
DRAWN BY:	NAH
CHECKED:	PMC
APPROVED:	BLM

POST DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-802

Last Save Date: April 16, 2019 - 12:26 PM By: NAHANSEN
Plot Date: Tuesday, April 16, 2019 - 12:27 PM By: Nate A. Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Drawings, Figures\AutoCAD\Xref\K-0076-019_C-SITE.dwg Layout Tab: C-802

2.4 Peak Rate Comparisons

The following table summarizes and compares the pre- and post-development peak runoff rates for the 2-year, 10-year, 25-year and 50-year storm events at each point of analysis. The pre-development 1-year storm event is also included for channel protection requirements.

Point of Analysis	Pre/**Post** 2-Year Storm (cfs)	Pre/**Post** 10-Year Storm (cfs)	Pre/**Post** 25-Year Storm (cfs)	Pre/**Post** 50-Year Storm (cfs)
PA1	4.03/**3.73**	7.38/**6.93**	10.30/**9.61**	13.15/**12.46**
PA2	0.13/**0.12**	0.38/**0.37**	0.63/**0.60**	0.87/**0.83**

2.5 Stormwater Treatment

The stormwater management system has been designed to provide stormwater treatment as required by the City of Portsmouth Site Review Regulations and NHDES AoT Regulations (Env-Wq 1500).

Runoff generated from impervious area will be treated by a Runoff generated by Contech Jellyfish Filter stormwater filtration system. The surface parking area will receive pre-treatment from deep sump catch basins prior to discharging to the stormwater detention system. The roof runoff does not require pretreatment and will be discharged directly into the detention system. The detention system discharges to the Jellyfish Filter stormwater filtration system.

The Jellyfish Filter stormwater filtration system was sized to treat the 1 Year Storm flow which exceeds the Water Quality Volume requirements for the NHDES AoT Regulations as shown in the attached Jellyfish Filter Design Summary prepared by Contech Engineered Solutions, LLC.

3.0 Conclusion

The proposed project will result in a reduction in post-development peak runoff rates from the pre-development condition. The impervious area resulting from the proposed project will be treated by the proposed stormwater filtration system. The project will require an NHDES AoT Permit. A complete copy of the AoT Permit Application will be provided to the City of Portsmouth when it is submitted to NHDES.

Jellyfish Filter Design Summary

111 Maplewood Avenue: Contech Filter

Portsmouth, NH

Information Provided:

- Total Contributing Drainage Area = 1 acre
- Impervious cover = 0.87 acres
- Design Storm = 1.00" Rainfall
- T_c = 6 minutes
- Unit Peak Discharge, qu = 700 cfs/mi^2/in
- Presiding agency = Alteration of Terrain Bureau - NHDES (AoT-NHDES)

Jellyfish Information and Cartridge Data:

The Jellyfish® Filter is an engineered Stormwater quality treatment technology featuring pre-treatment and membrane filtration in a compact stand-alone treatment system that removes a high level and wide variety of Stormwater pollutants. Exceptional pollutant removal is achieved at high treatment flow rates with minimal head loss and low maintenance costs. Each lightweight Jellyfish Filter cartridge contains an extraordinarily large amount of membrane surface area, resulting in superior flow capacity and pollutant removal capacity. The Jellyfish Filter is NJCAT verified in accordance to the TARP Tier II Protocol and New Jersey Tier II Stormwater Test Requirements – Amendments to Tarp Tier II Protocol, with a demonstrated 89% TSS removal efficiency.

- Jellyfish cartridge length = 54 inches (nominal)
- Jellyfish cartridge flowrate (Hi Flo) = 80 gpm
- Jellyfish cartridge flowrate (Drain Down) = 40 gpm
- Jellyfish cartridge headloss = Minimum 18" above outlet

Design Summary:

The Jellyfish for this site was design as a flow-based system, and was sized based on calculating the peak water quality flow rate associated with the design storm. The design storm rainfall depth of 1.00 inch was selected based on NHDES-AoT regulations as of December 2008. Using the NHDES BMP Worksheet, a water quality flow rate of 0.911 cfs was calculated. See the WQF results from the sheet below:

Water Quality Volume (WQV)		
1.00	ac	A = Area draining to the practice
0.87	ac	A_I = Impervious area draining to the practice
0.87	decimal	I = percent impervious area draining to the practice, in decimal form
0.83	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
0.83	ac-in	WQV= 1" x Rv x A
3,024	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")
Water Quality Flow (WQF)		
1	inches	P = amount of rainfall. For WQF in NH, P = 1".
0.83	inches	Q = water quality depth. Q = WQV/A
98	unitless	CN = unit peak discharge curve number. CN =1000/(10+5P+10Q–10*[Q^2 + 1.25*Q*P] $^{0.5}$)
0.2	inches	S = potential maximum retention. S = (1000/CN) - 10
0.032	inches	Ia = initial abstraction. Ia = 0.2S
6.0	minutes	T_c = Time of Concentration
700.0	cfs/mi^2/in	qu is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III
0.911	cfs	WQF = q_u x WQV. Conversion: to convert "cfs/mi^2/in * ac-in" to "cfs" multiply by 1mi^2/640ac

Fig. 1 –NHDES BMP Worksheet for WQF

Jellyfish Filter Design Summary

The Jellyfish for this site was sized to provide **5 Hi Flo and 1 Drain Down cartridge** in order to meet the water quality flowrate provided (calculations seen below). In order to house this number of cartridges, Contech Engineered Solutions (Contech) recommends a JF6-5-1, which is a 72" Precast Manhole Jellyfish Filter.

$$\underset{\boldsymbol{Hyd.\ Load}}{\boldsymbol{N_{cartridges}}} = Q_{Treat} \times 449\,{}^{gpm}/_{cfs} \leq Q_{\substack{specific \\ (cartridges)}}$$

$$0.62\ cfs \times 449\,{}^{gpm}/_{cfs} \leq (x)80\,{}^{gpm}/_{ft^2} + (y)40\,{}^{gpm}/_{ft^2}$$

$$\underset{\boldsymbol{Hyd.\ Load}}{\boldsymbol{N_{cartridges}}} = [x = 5; y = 1]$$

Hydraulic Loading Requires: (5) Hi Flo, (1) Drain Down Cartridges

Maintenance:

Contech offers a network of Preferred Service Providers that have the capability to perform all necessary inspections, compliance reporting and cleaning services. Contech recommends inspecting the system annually and maintaining the system at the recommendation of the annual inspection. Full maintenance is typically required every 24-36 months. Please contact Contech's Maintenance Department for all questions regarding maintenance at (503) 258-3157 or visit our website at www.ContechES.com.

Thank you for the opportunity to present this information to you and your client.

Sincerely,

Pat Valentine P.E.
Stormwater Design Engineer
Contech Engineered Solutions, LLC.

Responses to TAC Traffic Comments
Proposed Office Building at 111 Maplewood Avenue
Portsmouth, NH

TO: Eric Eby, PE
Parking and Transportation Engineer
Department of Public Works
City of Portsmouth, NH

FROM: Vinod Kalikiri, PE, PTOE

DATE: April 16, 2019

Tighe & Bond prepared a detailed traffic evaluation dated March 18, 2019 for the above referenced project as part of the Site Review and Subdivision submittal to the City of Portsmouth Technical Advisory Committee (TAC). This memorandum includes revised analysis based on feedback provided by the City Traffic Engineer on the original traffic study.

Specifically, the following revisions were made to the original analysis and the underlying analytical assumptions.

- Traffic diversion assumptions related to the US Route 1 Bypass Bridge project were removed from the No-Build and Build analysis.
- Future conditions traffic associated with the Deer Street Associates (DSA) development and the Harbor Corp Redevelopment, as well as any traffic improvements by the two projects within the study area were assumed to be in place only in the 2030 analysis.
- Trip distribution assumptions for the commercial component of the project were revised to be consistent with the corresponding assumptions included in the DSA traffic study.
- In addition, newly available permanent traffic count station data from NHDOT were reviewed to confirm if the seasonal adjustment factor used in the original study was too high. The seasonal adjustment factor was not revised based on the review of the new permanent count station data.

Revised capacity analysis summary tabulation is presented in Tables 1 and 2 for signalized and unsignalized study intersections, respectively. Also included in the attachment to this memorandum are revised traffic volume networks and Synchro analysis worksheets resulting from the above outlined revisions.

Overall, while the revisions to the analytical assumptions changed some of the traffic volumes, the overall finding of the original study that certain movements at the study locations are expected to be constrained with or without the project related traffic remains valid. A review of the analysis results indicated that the exclusive pedestrian phase at the intersection significantly contributes to the reduced capacity. As part of the Maplewood Avenue corridor road diet project, newer signal timing may be implemented by the City's signal design consultant which may be better suited for the future conditions. Since new signal timings are not yet available, analysis of the 2020 No-Build and Build conditions were based on existing timings provided by the City. It is unclear if the road diet project will also include replacement of the exclusive pedestrian phase with a concurrent phase. Signal timing changes and/or phasing changes as part of the road diet project has the potential to provide some capacity enhancement at the intersection in the short term. As discussed in the original study, signal

phasing and geometric improvements are also proposed by other private development projects in the longer term, which will provide additional capacity at the intersection.

Compared to the area roadway traffic volumes, the additional traffic estimated for the project at the various study intersections, including the Maplewood Avenue/Deer Street signalized intersection, is nominal. The Site Plans show the elimination of one of the unsignalized curb cuts for the east parcel, which promotes access management. Further, as shown in the Site Plans, the project will implement significant enhancements to the pedestrian accommodations around the Site. The limited additional traffic estimated for the project do not warrant any significant capacity enhancements at study intersections. The proponent will continue to work with the City staff during the project review to further refine the proposed pedestrian and streetscape enhancements to the area.

\\tighebond.com\data\Data\Projects\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Traffic\Memos\2019-04-16 Traffic Responses.docx

TABLE 1: Signalized Intersection Operations Summary

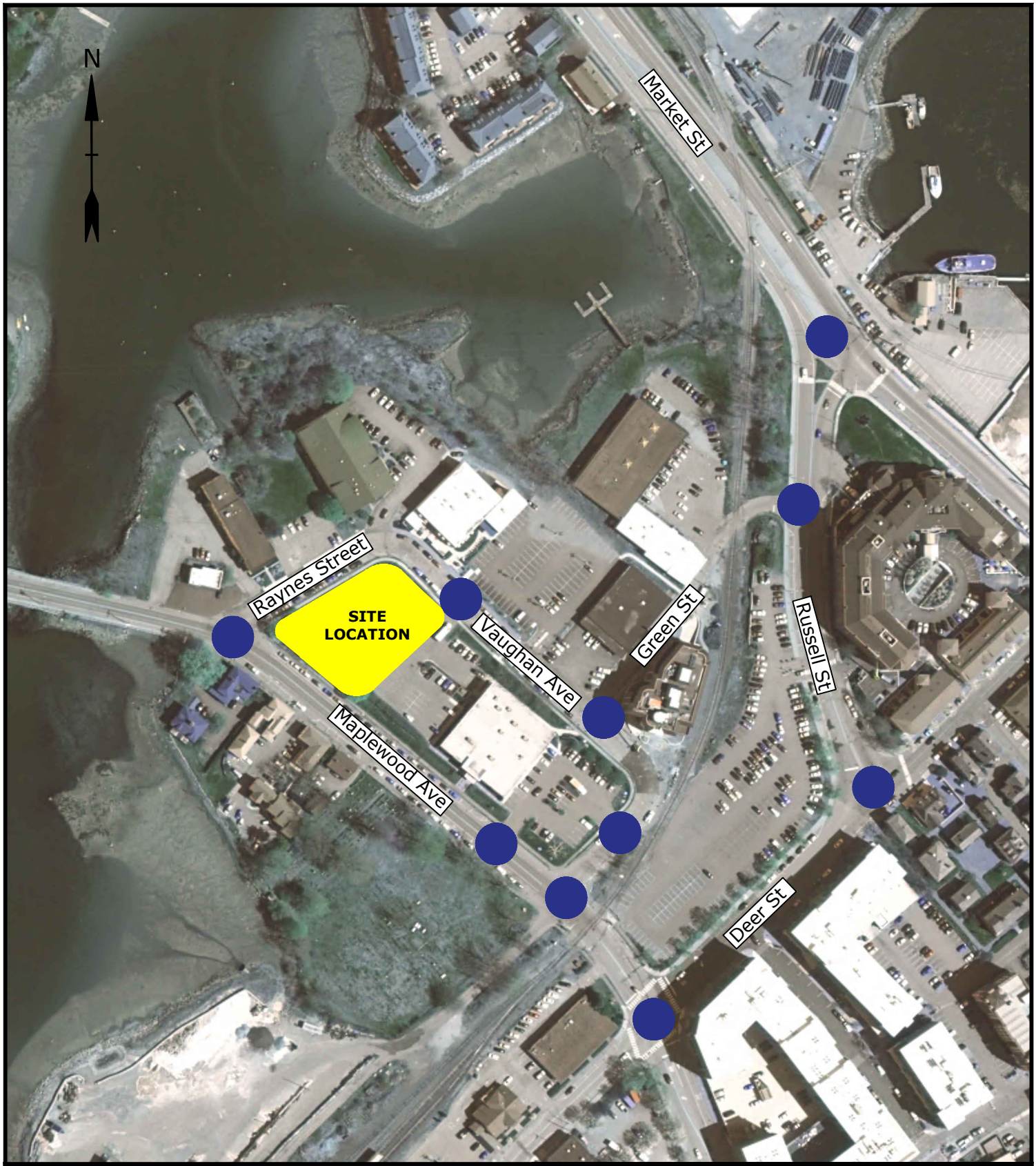
Intersection / Lane Group	2020 No Build					2020 Build					2030 No Build					2030 Build				
	V/C	Del	LOS	50th Q	95th Q	V/C	Del	LOS	50th Q	95th Q	V/C	Del	LOS	50th Q	95th Q	V/C	Del	LOS	50th Q	95th Q
Maplewood Ave / Deer St																				
Deer St EBL/T/R	1.14	>120	F	~274	#274	>1.2	>120	F	~465	#430	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Deer St EBL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	>1.2	>120	F	~205	#194	>1.2	>120	F	~261	#253
Deer St EBT/R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.78	43	D	161	162	0.84	47	D	183	186
Deer St WBL	>1.2	>120	F	~264	#340	>1.2	>120	F	~306	#381	>1.2	>120	F	~280	#328	>1.2	>120	F	~335	#405
Deer St WBT/R	0.41	36	D	109	146	0.42	36	D	113	149	0.73	40	D	151	185	0.69	37	D	148	188
Maplewood Ave NBL	0.04	12	B	5	16	0.05	12	B	7	19	0.33	21	C	16	38	0.37	22	C	18	40
Maplewood Ave NBT	0.50	18	B	210	296	0.51	18	B	220	309	0.84	38	D	313	#492	0.89	44	D	327	#514
Maplewood Ave NBR	0.14	13	B	0	33	0.14	13	B	2	35	0.17	19	B	0	46	0.17	20	B	0	46
Maplewood Ave SBL	0.14	9	A	15	28	0.14	9	A	15	28	0.42	19	B	27	51	0.49	21	C	29	51
Maplewood Ave SBT/R	0.48	11	B	178	220	0.49	12	B	183	226	1.02	67	E	~439	#573	1.07	84	F	~463	#585
Overall Intersection	0.77	60	E			0.88	111	F			>1.2	106	F			>1.2	>120	F		

LOS	level-of-service
Del	Average intersection delay, measured in seconds
v/c	Volume to capacity ratio
50th Q and 95th Q	Percentile queues measured in feet
#	95th percentile volume exceeds capacity, queue may be longer
~	Volume exceeds capacity. Queues are shown after two signal cycles

TABLE 2: Unsignalized Intersection Operations Summary

Intersection / Lane Group	2020 No Build				2020 Build				2030 No Build				2030 Build			
	V/C	Del	LOS	95th Q	V/C	Del	LOS	95th Q	V/C	Del	LOS	95th Q	V/C	Del	LOS	95th Q
Maplewood Ave / Raynes Ave:																
Maplewood Ave SBL/T	0.1	10	A	0.2	0.1	10	A	0.3	0.1	10	B	0.3	0.1	11	B	0.4
Raynes Ave WBL/R	0.4	26	D	1.9	0.5	32	D	2.9	0.7	70	F	4.6	0.9	107	F	7.0
Maplewood Ave / Kennebunk Bank Driveway:																
Maplewood Ave SBL/T	0.0	9	A	0.0	NA	NA	NA	NA	0.0	10	A	0.0	NA	NA	NA	NA
Kennebunk Bank WBL/R	0.1	18	C	0.2	NA	NA	NA	NA	0.1	27	D	0.4	NA	NA	NA	NA
Maplewood Ave / Vaughan St:																
Maplewood Ave SBL/T	0.0	9	A	0.1	0.0	10	A	0.1	0.0	10	B	0.1	0.0	11	B	0.1
Vaughan St WBL/R	0.3	30	D	1.2	0.6	47	E	2.9	0.5	68	F	2.6	1.0	>120	F	6.5
Vaughan St / Kennebunk Bank Driveway:																
Vaughan St EBL/T	0.0	7	A	0.0	0.0	8	A	0.0	0.0	7	A	0.0	0.0	8	A	0.0
Kennebunk Bank SBL/R	0.0	9	A	0.0	0.1	10	A	0.2	0.0	9	A	0.0	0.1	10	A	0.2
Vaughan St / Green St:																
Vaughan St SBL/T	0.1	7	A	0.1	0.0	8	A	0.1	0.0	7	A	0.1	0.0	8	A	0.1
Green St WBL/R	0.2	9	A	0.2	0.1	9	A	0.2	0.1	9	A	0.2	0.1	9	A	0.2
Vaughan St / Site Driveway:																
Vaughan St NBL/T	0.0	7	A	0.0	0.0	8	A	0.1	0.0	8	A	0.0	0.0	8	A	0.1
Site Driveway EBL/R	0.0	10	A	0.1	0.1	10.2	B	0.5	0.0	10	A	0.1	0.2	10	B	0.5
Deer St / Russell St:																
Deer St EBL/T	0.2	8	A	0.7	0.2	8	A	0.8	0.3	9	A	1.2	0.3	9	A	1.3
Russell St SBL/R	0.5	13	B	2.8	0.5	14	B	3.4	1.0	47	E	14.3	1.0	58	F	17.0
Green St / Russell St:																
Russell St NBL/T	0.0	9	A	0.0	0.0	9	A	0.0	0.0	9	A	0.0	0.0	9	A	0.0
Green St EBL	0.2	19	C	1.0	0.3	22	C	1.3	0.4	32	D	1.9	0.5	40	E	2.7
Russell St / Market St:																
Russell St EBL	>1.2	>120	F	24.4	>1.2	>120	F	27.9	>1.2	>120	F	47.5	>1.2	>120	F	51.2
Russell St EBR	0.0	11	B	0.0	0.0	11	B	0.0	0.0	11	B	0.0	0.0	11	B	0.0

LOS	level-of-service
Del	Average intersection delay, measured in seconds
v/c	Volume to capacity ratio
95th Q	Percentile queues measured in vehicles



Legend

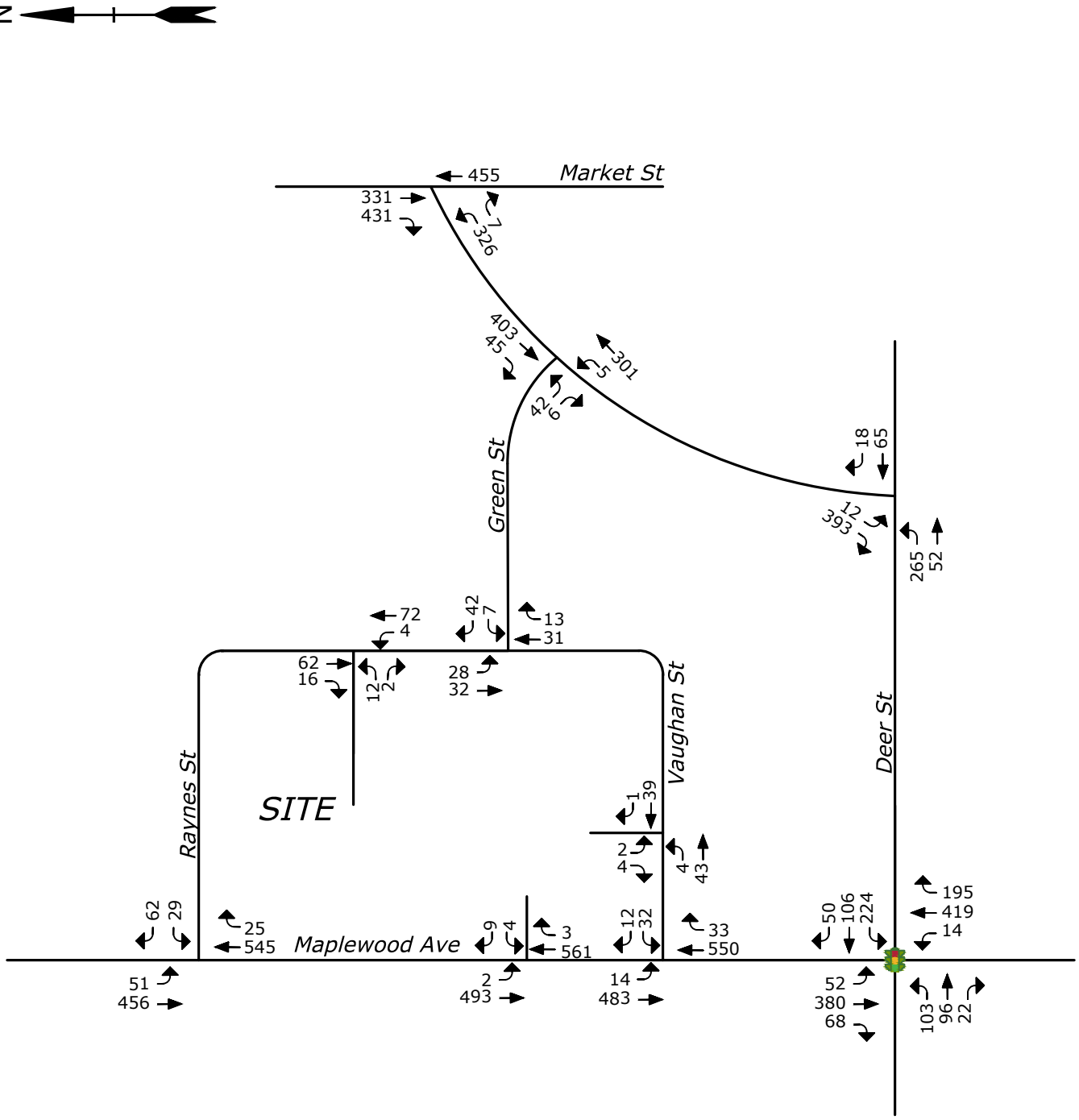
Study Area Location

Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

Study Area

DATE: 03/18/2019
SCALE: 1" = 200'
FIGURE 1

Tighe&Bond
www.tighebond.com



LEGEND

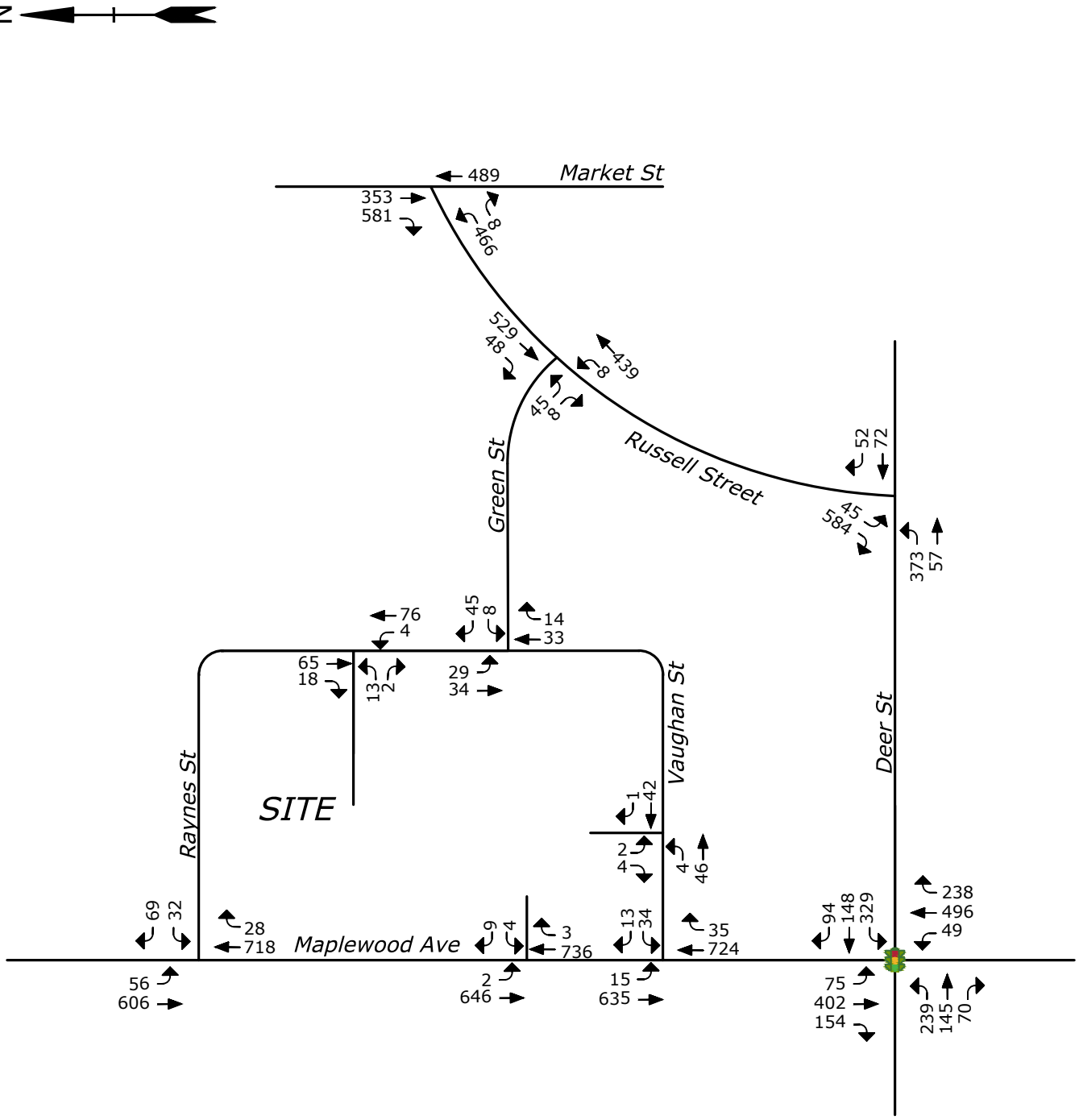
TRAFFIC SIGNAL

Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

2020 No Build Peak Hour Traffic Volumes

DATE: 03/18/2019
SCALE: No Scale
FIGURE 2

Tighe&Bond
www.tighebond.com



LEGEND

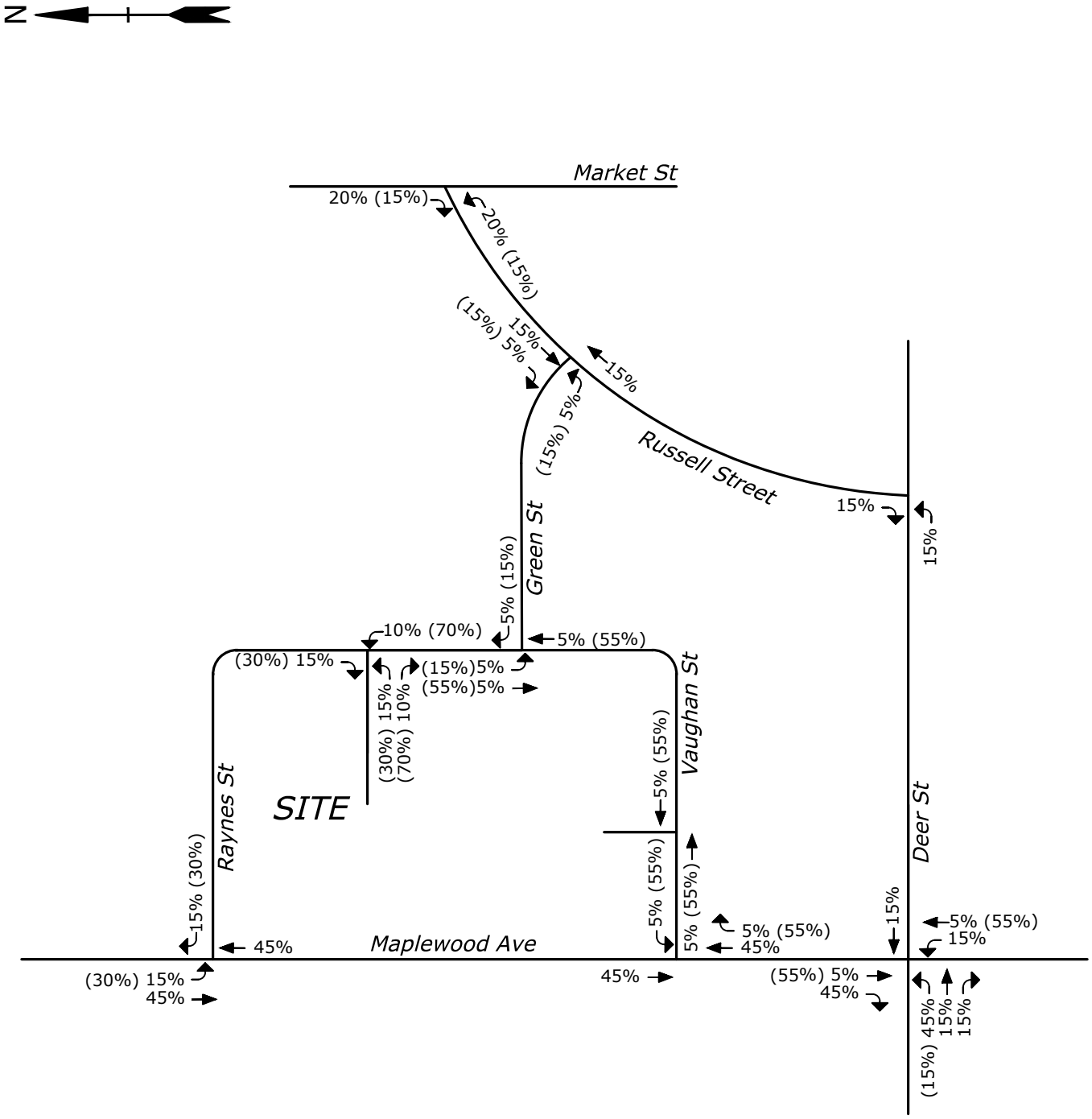
TRAFFIC SIGNAL

Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

2030 No Build Peak Hour Traffic Volumes

DATE: 03/18/2019
SCALE: No Scale
FIGURE 3

Tighe&Bond
www.tighebond.com



LEGEND

XX Office Trips
(XX) Retail Trips

Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

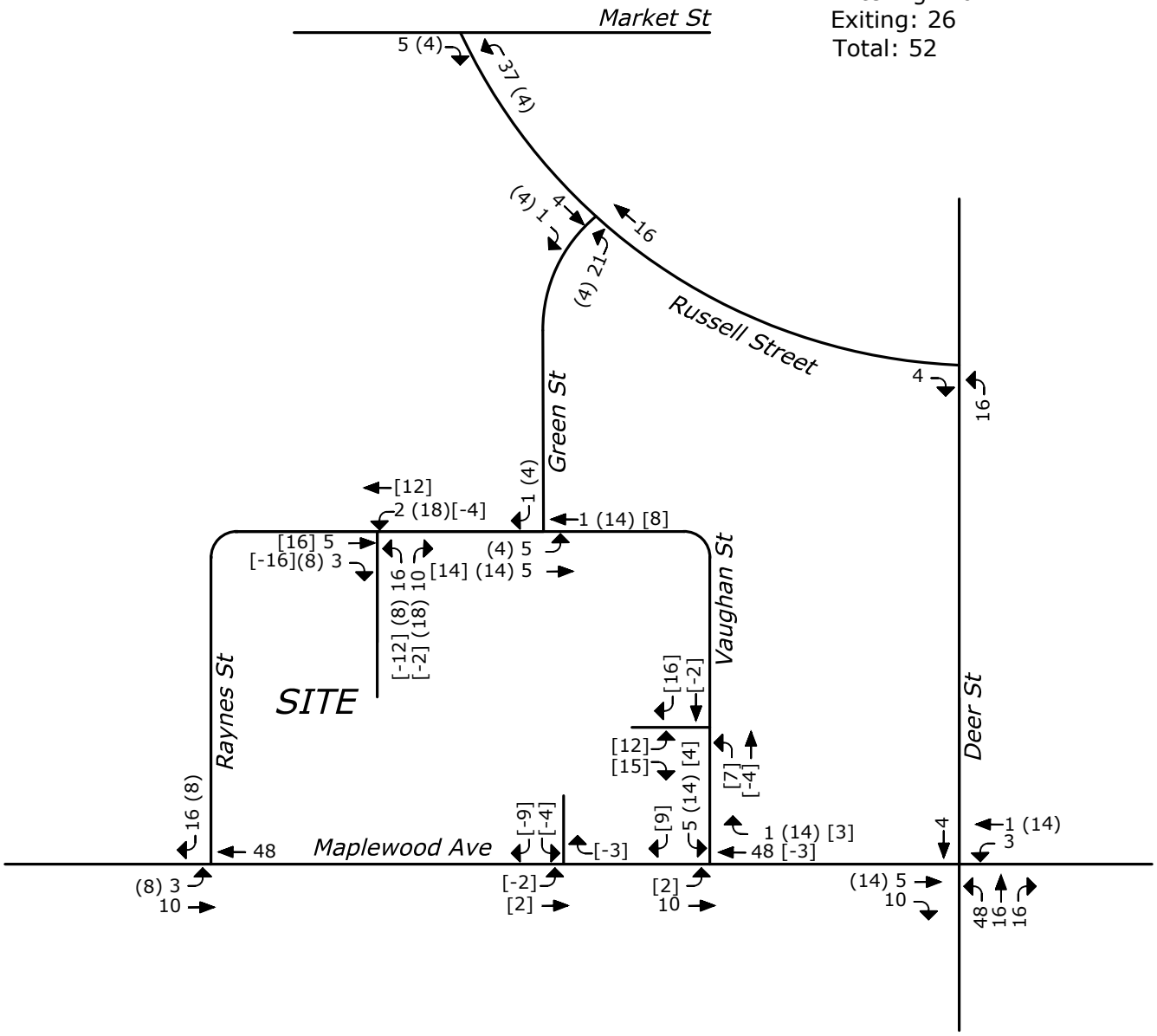
Trip Distribution

DATE: 03/18/2019
SCALE: No Scale
FIGURE 4

Tighe&Bond
www.tighebond.com

Office Generated Trips
Entering: 23
Exiting: 106
Total: 129

Retail Generated Trips
Entering: 26
Exiting: 26
Total: 52



LEGEND

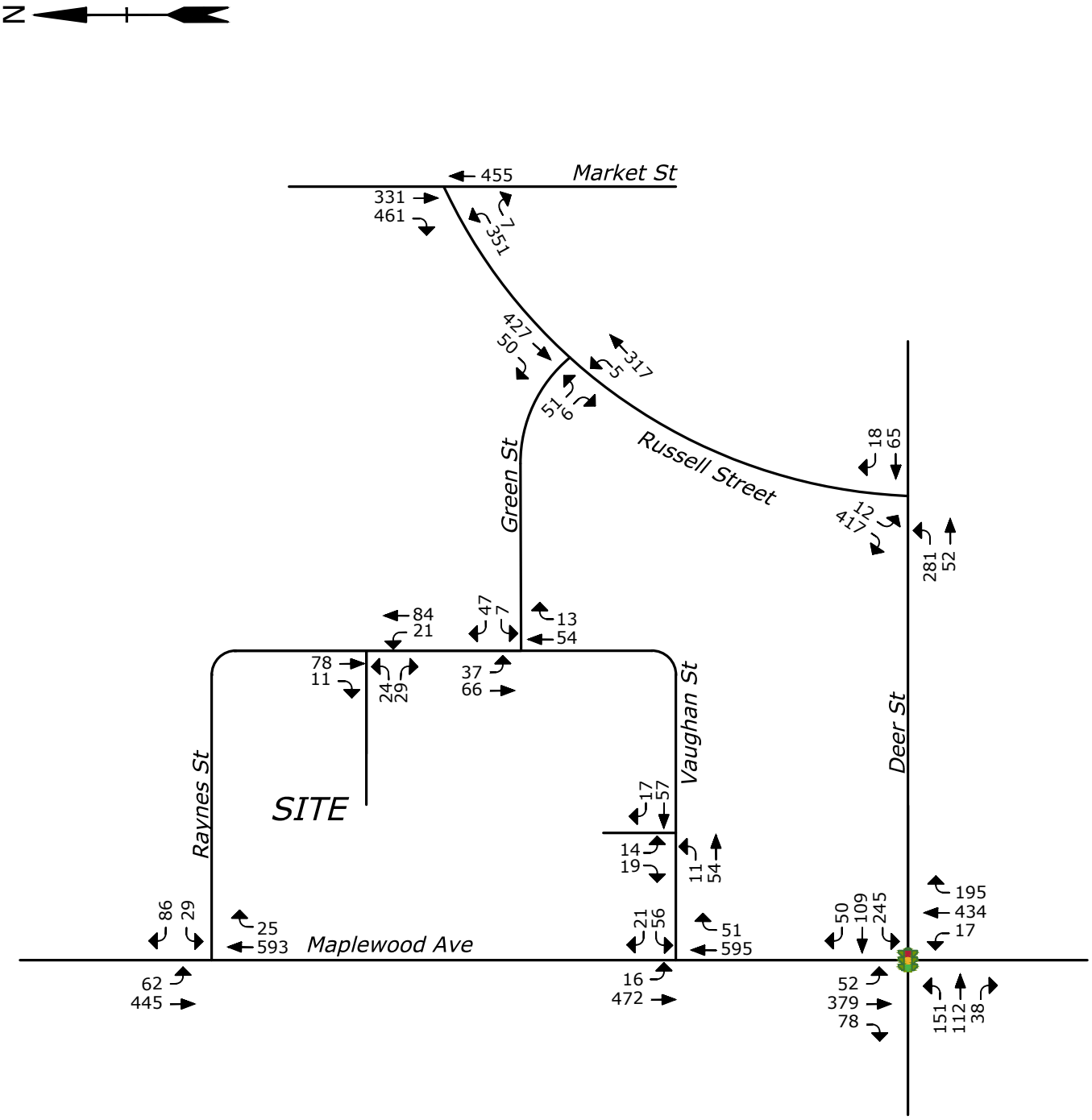
XX Office Trips
(XX) Retail Trips
[XX] Driveway Redistribution

Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

Site Generated Trips

DATE: 03/18/2019
SCALE: No Scale
FIGURE 5

Tighe&Bond
www.tighebond.com



LEGEND

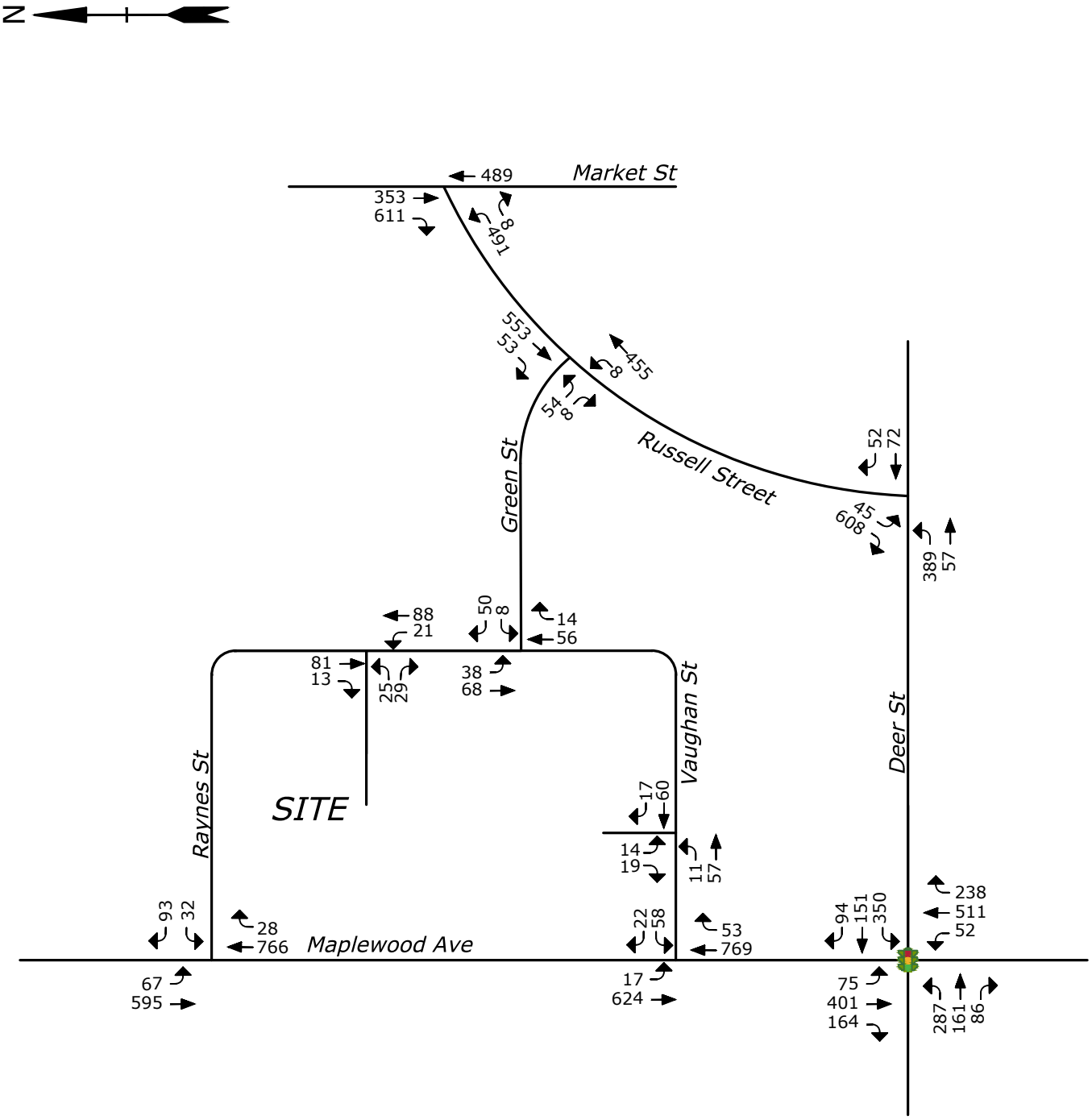
TRAFFIC SIGNAL

Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

2020 Build Peak Hour Traffic Volumes

DATE: 03/18/2019
SCALE: No Scale
FIGURE 6

Tighe&Bond
www.tighebond.com



LEGEND

TRAFFIC SIGNAL

Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

2030 Build Peak Hour Traffic Volumes

DATE: 03/18/2019
SCALE: No Scale
FIGURE 7

Tighe&Bond
www.tighebond.com

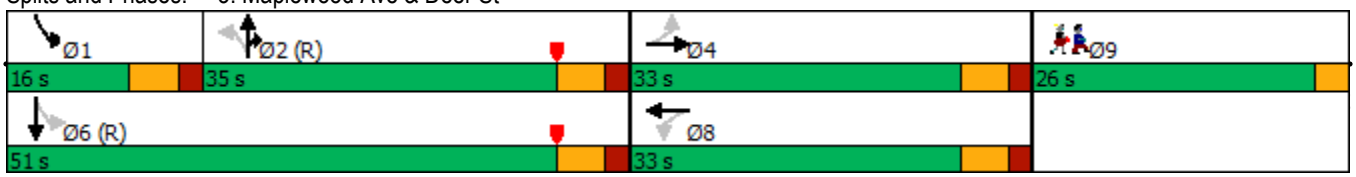
Capacity Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	96	22	224	106	50	14	419	195	52	380	68
Future Volume (vph)	103	96	22	224	106	50	14	419	195	52	380	68
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	334	0	295	205	0	16	482	224	63	546	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	11.0	16.0	
Total Split (s)	33.0	33.0		33.0	33.0		35.0	35.0	35.0	16.0	51.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		31.8%	31.8%	31.8%	14.5%	46.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	Max	Max		None	None		C-Max	C-Max	C-Max	None	C-Max	
v/c Ratio		1.14		1.27	0.43		0.04	0.49	0.22	0.13	0.48	
Control Delay		134.2		187.5	34.5		13.4	18.3	2.4	7.9	11.5	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		134.2		187.5	34.5		13.4	18.3	2.4	7.9	11.5	
Queue Length 50th (ft)		~274		~264	109		5	210	0	15	178	
Queue Length 95th (ft)		#274		#340	146		16	296	33	28	220	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)		293		232	480		454	988	998	503	1138	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		1.14		1.27	0.43		0.04	0.49	0.22	0.13	0.48	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	24%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	96	22	224	106	50	14	419	195	52	380	68
Future Volume (vph)	103	96	22	224	106	50	14	419	195	52	380	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.99		1.00	0.95		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1856		1770	1891		1711	1801	1636	1711	1760	
Flt Permitted		0.62		0.51	1.00		0.46	1.00	1.00	0.35	1.00	
Satd. Flow (perm)		1181		947	1891		829	1801	1636	629	1760	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	156	145	33	295	139	66	16	482	224	63	463	83
RTOR Reduction (vph)	0	4	0	0	16	0	0	0	103	0	4	0
Lane Group Flow (vph)	0	330	0	295	189	0	16	482	121	63	542	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.0		27.0	27.0		59.2	59.2	59.2	71.0	71.0	
Effective Green, g (s)		27.0		27.0	27.0		59.2	59.2	59.2	71.0	71.0	
Actuated g/C Ratio		0.25		0.25	0.25		0.54	0.54	0.54	0.65	0.65	
Clearance Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		4.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		289		232	464		446	969	880	463	1136	
v/s Ratio Prot					0.10			0.27	0.07	0.01	c0.31	
v/s Ratio Perm		0.28		c0.31			0.02			0.08		
v/c Ratio		1.14		1.27	0.41		0.04	0.50	0.14	0.14	0.48	
Uniform Delay, d1		41.5		41.5	34.8		12.0	16.0	12.7	8.9	10.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		97.2		151.5	0.8		0.2	1.8	0.3	0.1	1.4	
Delay (s)		138.7		193.0	35.6		12.1	17.8	13.0	9.0	11.4	
Level of Service		F		F	D		B	B	B	A	B	
Approach Delay (s)		138.7			128.5			16.2			11.2	
Approach LOS		F			F			B			B	

Intersection Summary			
HCM 2000 Control Delay	59.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	43	39	1	2	4
Future Vol, veh/h	4	43	39	1	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	63	58	1	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	59	0	-	0	134	59
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	75	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1545	-	-	-	860	1007
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1545	-	-	-	857	1007
Mov Cap-2 Maneuver	-	-	-	-	857	-
Stage 1	-	-	-	-	960	-
Stage 2	-	-	-	-	948	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	951
HCM Lane V/C Ratio	0.004	-	-	-	0.013
HCM Control Delay (s)	7.3	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	265	52	65	18	12	393
Future Vol, veh/h	265	52	65	18	12	393
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	294	58	74	20	13	437

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	94	0	-	0	730	84
Stage 1	-	-	-	-	84	-
Stage 2	-	-	-	-	646	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1500	-	-	-	389	975
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1500	-	-	-	310	975
Mov Cap-2 Maneuver	-	-	-	-	310	-
Stage 1	-	-	-	-	749	-
Stage 2	-	-	-	-	522	-

Approach	EB	WB	SB
HCM Control Delay, s	6.7	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1500	-	-	-	917
HCM Lane V/C Ratio	0.196	-	-	-	0.491
HCM Control Delay (s)	8	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.7	-	-	-	2.8

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	9	561	3	2	493
Future Vol, veh/h	4	9	561	3	2	493
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	58	58	78	78	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	16	719	4	2	580

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1305	721	0	0	723	0
Stage 1	721	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	177	427	-	-	879	-
Stage 1	482	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	176	427	-	-	879	-
Mov Cap-2 Maneuver	176	-	-	-	-	-
Stage 1	481	-	-	-	-	-
Stage 2	557	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	297	879	-
HCM Lane V/C Ratio	-	-	0.075	0.003	-
HCM Control Delay (s)	-	-	18.1	9.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	63.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	326	6	0	455	331	431
Future Vol, veh/h	326	6	0	455	331	431
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	402	7	0	641	394	513

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1035	394	-	0	-	0
Stage 1	394	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 257	655	0	-	-	-
Stage 1	681	-	0	-	-	-
Stage 2	525	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 257	655	-	-	-	-
Mov Cap-2 Maneuver	~ 257	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	525	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 302.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	257	655	-	-
HCM Lane V/C Ratio	-	1.566	0.011	-	-
HCM Control Delay (s)	-	$ 307.9	10.6	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	24.4	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	62	545	25	51	456
Future Vol, veh/h	29	62	545	25	51	456
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	78	681	31	57	512

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1323	697	0	0	712	0
Stage 1	697	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	172	441	-	-	888	-
Stage 1	494	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	157	441	-	-	888	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	450	-	-	-	-	-
Stage 2	533	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.4	0	0.9
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	280	888	-
HCM Lane V/C Ratio	-	-	0.406	0.065	-
HCM Control Delay (s)	-	-	26.4	9.3	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.9	0.2	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	12	550	33	14	483
Future Vol, veh/h	32	12	550	33	14	483
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	16	696	42	17	575

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1326	717	0	0	738	0
Stage 1	717	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	172	430	-	-	868	-
Stage 1	484	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	167	430	-	-	868	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	470	-	-	-	-	-
Stage 2	543	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.3	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	200	868	-
HCM Lane V/C Ratio	-	-	0.293	0.019	-
HCM Control Delay (s)	-	-	30.3	9.2	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.2	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	2	4	72	62	16
Future Vol, veh/h	12	2	4	72	62	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	5	5	94	89	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	205	101	112	0	-	0
Stage 1	101	-	-	-	-	-
Stage 2	104	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	783	954	1478	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	920	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	780	954	1478	-	-	-
Mov Cap-2 Maneuver	780	-	-	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	920	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1478	-	801	-	-
HCM Lane V/C Ratio	0.004	-	0.04	-	-
HCM Control Delay (s)	7.4	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	7	5	301	403	45
Future Vol, veh/h	42	7	5	301	403	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	12	6	354	480	54

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	873	507	534	0	-	0
Stage 1	507	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	321	566	1034	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	319	566	1034	-	-	-
Mov Cap-2 Maneuver	319	-	-	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.1	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1034	-	340	-	-
HCM Lane V/C Ratio	0.006	-	0.248	-	-
HCM Control Delay (s)	8.5	0	19.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	42	31	13	28	32
Future Vol, veh/h	7	42	31	13	28	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	45	38	16	46	52

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	190	46	0	0	54	0
Stage 1	46	-	-	-	-	-
Stage 2	144	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	799	1023	-	-	1551	-
Stage 1	976	-	-	-	-	-
Stage 2	883	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	774	1023	-	-	1551	-
Mov Cap-2 Maneuver	774	-	-	-	-	-
Stage 1	946	-	-	-	-	-
Stage 2	883	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.4
HCM LOS	A		

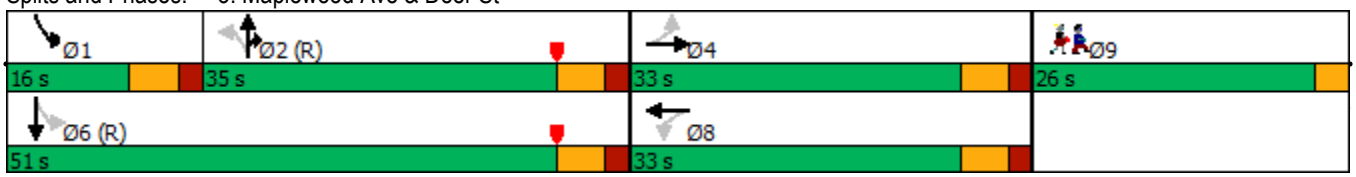
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	978	1551	-
HCM Lane V/C Ratio	-	-	0.054	0.03	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	112	38	245	109	50	17	434	195	52	379	78
Future Volume (vph)	151	112	38	245	109	50	17	434	195	52	379	78
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	457	0	322	209	0	20	499	224	63	557	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	11.0	16.0	
Total Split (s)	33.0	33.0		33.0	33.0		35.0	35.0	35.0	16.0	51.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		31.8%	31.8%	31.8%	14.5%	46.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	None	C-Max	
v/c Ratio		1.61		1.41	0.44		0.04	0.51	0.22	0.14	0.49	
Control Delay		319.7		240.2	34.9		13.5	18.7	2.6	7.9	11.7	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		319.7		240.2	34.9		13.5	18.7	2.6	7.9	11.7	
Queue Length 50th (ft)		~465		~306	113		7	220	2	15	183	
Queue Length 95th (ft)		#430		#381	149		19	309	35	28	226	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)		284		229	479		450	988	996	492	1136	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		1.61		1.41	0.44		0.04	0.51	0.22	0.13	0.49	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	24%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	112	38	245	109	50	17	434	195	52	379	78
Future Volume (vph)	151	112	38	245	109	50	17	434	195	52	379	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.98		1.00	0.95		1.00	1.00	0.85	1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1846		1770	1893		1711	1801	1636	1711	1755	
Flt Permitted		0.60		0.50	1.00		0.46	1.00	1.00	0.34	1.00	
Satd. Flow (perm)		1140		933	1893		820	1801	1636	607	1755	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	229	170	58	322	143	66	20	499	224	63	462	95
RTOR Reduction (vph)	0	5	0	0	15	0	0	0	101	0	4	0
Lane Group Flow (vph)	0	452	0	322	194	0	20	499	123	63	553	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.0		27.0	27.0		59.2	59.2	59.2	71.0	71.0	
Effective Green, g (s)		27.0		27.0	27.0		59.2	59.2	59.2	71.0	71.0	
Actuated g/C Ratio		0.25		0.25	0.25		0.54	0.54	0.54	0.65	0.65	
Clearance Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		279		229	464		441	969	880	450	1132	
v/s Ratio Prot					0.10			c0.28	0.08	0.01	c0.32	
v/s Ratio Perm		c0.40		0.35			0.02			0.08		
v/c Ratio		1.62		1.41	0.42		0.05	0.51	0.14	0.14	0.49	
Uniform Delay, d1		41.5		41.5	34.9		12.0	16.2	12.7	9.0	10.1	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		295.7		206.8	0.6		0.2	2.0	0.3	0.1	1.5	
Delay (s)		337.2		248.3	35.5		12.2	18.2	13.0	9.2	11.6	
Level of Service		F		F	D		B	B	B	A	B	
Approach Delay (s)		337.2			164.5			16.5			11.4	
Approach LOS		F			F			B			B	

Intersection Summary			
HCM 2000 Control Delay	110.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	54	57	17	14	19
Future Vol, veh/h	11	54	57	17	14	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	79	85	25	28	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	110	0	-	0	209	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1480	-	-	-	779	958
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1480	-	-	-	770	958
Mov Cap-2 Maneuver	-	-	-	-	770	-
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	914	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1480	-	-	-	868
HCM Lane V/C Ratio	0.011	-	-	-	0.076
HCM Control Delay (s)	7.5	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	9.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	281	52	65	81	12	417
Future Vol, veh/h	281	52	65	81	12	417
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	312	58	74	92	13	463

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	166	0	-	0	802	120
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	682	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1412	-	-	-	353	931
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	502	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1412	-	-	-	273	931
Mov Cap-2 Maneuver	-	-	-	-	273	-
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	502	-

Approach	EB	WB	SB
HCM Control Delay, s	7	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1412	-	-	-	872
HCM Lane V/C Ratio	0.221	-	-	-	0.547
HCM Control Delay (s)	8.3	0	-	-	14
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.8	-	-	-	3.4

Intersection	
Int Delay, s/veh	76.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	351	7	0	455	331	461
Future Vol, veh/h	351	7	0	455	331	461
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	433	9	0	641	394	549

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1035	394	-	0	-	0
Stage 1	394	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 257	655	0	-	-	-
Stage 1	681	-	0	-	-	-
Stage 2	525	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 257	655	-	-	-	-
Mov Cap-2 Maneuver	~ 257	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	525	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 352.2	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	257	655	-	-
HCM Lane V/C Ratio	-	1.686	0.013	-	-
HCM Control Delay (s)	-	$ 359	10.6	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	27.9	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	86	593	25	62	445
Future Vol, veh/h	29	86	593	25	62	445
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	108	741	31	70	500

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1397	757	0	0	772	0
Stage 1	757	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	155	408	-	-	843	-
Stage 1	463	-	-	-	-	-
Stage 2	525	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	137	408	-	-	843	-
Mov Cap-2 Maneuver	137	-	-	-	-	-
Stage 1	410	-	-	-	-	-
Stage 2	525	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.2	0	1.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	272	843	-
HCM Lane V/C Ratio	-	-	0.528	0.083	-
HCM Control Delay (s)	-	-	32.2	9.7	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.9	0.3	-

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	21	595	51	16	472
Future Vol, veh/h	56	21	595	51	16	472
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	28	753	65	19	562

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1386	786	0	0	818	0
Stage 1	786	-	-	-	-	-
Stage 2	600	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	158	392	-	-	810	-
Stage 1	449	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	153	392	-	-	810	-
Mov Cap-2 Maneuver	153	-	-	-	-	-
Stage 1	434	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.8	0	0.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	184	810	-
HCM Lane V/C Ratio	-	-	0.558	0.024	-
HCM Control Delay (s)	-	-	46.8	9.6	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	2.9	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	29	21	84	78	11
Future Vol, veh/h	24	29	21	84	78	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	66	27	109	111	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	282	119	127	0	-	0
Stage 1	119	-	-	-	-	-
Stage 2	163	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	708	933	1459	-	-	-
Stage 1	906	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	694	933	1459	-	-	-
Mov Cap-2 Maneuver	694	-	-	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	866	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	1.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1459	-	807	-	-
HCM Lane V/C Ratio	0.019	-	0.149	-	-
HCM Control Delay (s)	7.5	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	6	6	317	427	50
Future Vol, veh/h	51	6	6	317	427	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	10	7	373	508	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	925	538	568	0	-	0
Stage 1	538	-	-	-	-	-
Stage 2	387	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	299	543	1004	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	296	543	1004	-	-	-
Mov Cap-2 Maneuver	296	-	-	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	686	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.8	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1004	-	311	-	-
HCM Lane V/C Ratio	0.007	-	0.316	-	-
HCM Control Delay (s)	8.6	0	21.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1.3	-	-

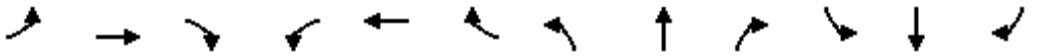
Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	47	54	13	37	66
Future Vol, veh/h	7	47	54	13	37	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	51	67	16	61	108

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	305	75	0	0	83	0
Stage 1	75	-	-	-	-	-
Stage 2	230	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	687	986	-	-	1514	-
Stage 1	948	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	657	986	-	-	1514	-
Mov Cap-2 Maneuver	657	-	-	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	926	1514	-
HCM Lane V/C Ratio	-	-	0.063	0.04	-
HCM Control Delay (s)	-	-	9.1	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

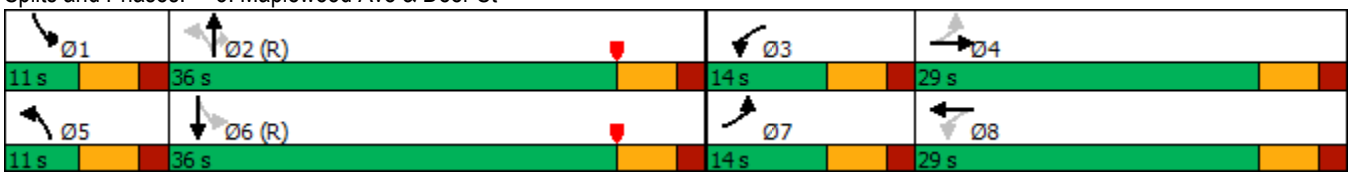


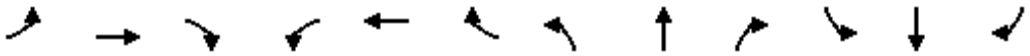
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	145	70	329	148	94	49	496	238	75	402	154
Future Volume (vph)	239	145	70	329	148	94	49	496	238	75	402	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	13	13	12	14	14	11	11	13	11	11	11
Storage Length (ft)	0		0	0		100	0		0	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		363			453			585			231	
Travel Time (s)		9.9			12.4			16.0			5.3	
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	362	326	0	433	319	0	56	570	274	91	678	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		11.0	29.0		11.0	28.0	28.0	11.0	25.0	
Total Split (s)	14.0	29.0		14.0	29.0		11.0	36.0	36.0	11.0	36.0	
Total Split (%)	15.6%	32.2%		15.6%	32.2%		12.2%	40.0%	40.0%	12.2%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
v/c Ratio	1.41	0.79		1.62	0.75		0.30	0.82	0.34	0.38	0.98	
Control Delay	233.3	44.9		315.9	40.5		17.7	38.7	4.2	18.3	60.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	233.3	44.9		315.9	40.5		17.7	38.7	4.2	18.3	60.7	
Queue Length 50th (ft)	~205	161		~280	151		16	313	0	27	~439	
Queue Length 95th (ft)	#194	162		#328	185		38	#492	46	51	#573	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	256	487		268	503		189	699	803	242	690	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.41	0.67		1.62	0.63		0.30	0.82	0.34	0.38	0.98	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	

Offset: 41 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	145	70	329	148	94	49	496	238	75	402	154
Future Volume (vph)	239	145	70	329	148	94	49	496	238	75	402	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.94		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1831		1770	1871		1711	1801	1636	1711	1726	
Flt Permitted	0.29	1.00		0.28	1.00		0.12	1.00	1.00	0.18	1.00	
Satd. Flow (perm)	511	1831		522	1871		213	1801	1636	327	1726	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	362	220	106	433	195	124	56	570	274	91	490	188
RTOR Reduction (vph)	0	20	0	0	27	0	0	0	171	0	14	0
Lane Group Flow (vph)	362	306	0	433	292	0	56	570	103	91	664	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	27.2	19.2		27.2	19.2		38.5	33.8	33.8	39.1	34.1	
Effective Green, g (s)	27.2	19.2		27.2	19.2		38.5	33.8	33.8	39.1	34.1	
Actuated g/C Ratio	0.30	0.21		0.30	0.21		0.43	0.38	0.38	0.43	0.38	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	255	390		268	399		169	676	614	218	653	
v/s Ratio Prot	0.13	0.17		c0.14	0.16		0.02	0.32		c0.02	c0.38	
v/s Ratio Perm	0.30			c0.34			0.12		0.06	0.16		
v/c Ratio	1.42	0.78		1.62	0.73		0.33	0.84	0.17	0.42	1.02	
Uniform Delay, d1	29.5	33.4		29.4	33.0		19.6	25.7	18.7	17.8	27.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	210.3	9.9		293.7	7.2		1.2	12.2	0.6	1.3	39.4	
Delay (s)	239.8	43.3		323.1	40.3		20.8	37.9	19.3	19.1	67.3	
Level of Service	F	D		F	D		C	D	B	B	E	
Approach Delay (s)		146.7			203.1			31.2			61.6	
Approach LOS		F			F			C			E	

Intersection Summary			
HCM 2000 Control Delay	105.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	46	42	1	2	4
Future Vol, veh/h	4	46	42	1	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	68	63	1	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	64	0	-	0	144	64
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	80	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1538	-	-	-	849	1000
Stage 1	-	-	-	-	959	-
Stage 2	-	-	-	-	943	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1538	-	-	-	846	1000
Mov Cap-2 Maneuver	-	-	-	-	846	-
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	943	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1538	-	-	-	943
HCM Lane V/C Ratio	0.004	-	-	-	0.013
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	27.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	373	57	72	52	45	584
Future Vol, veh/h	373	57	72	52	45	584
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	414	63	82	59	50	649

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	141	0	-	0	1003	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	891	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1442	-	-	-	268	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	401	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1442	-	-	-	188	941
Mov Cap-2 Maneuver	-	-	-	-	188	-
Stage 1	-	-	-	-	641	-
Stage 2	-	-	-	-	401	-

Approach	EB	WB	SB
HCM Control Delay, s	7.4	0	47.1
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1442	-	-	-	731
HCM Lane V/C Ratio	0.287	-	-	-	0.956
HCM Control Delay (s)	8.5	0	-	-	47.1
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	1.2	-	-	-	14.3

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	9	736	3	2	646
Future Vol, veh/h	4	9	736	3	2	646
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	58	58	78	78	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	16	944	4	2	760

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1710	946	0	0	948	0
Stage 1	946	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	100	317	-	-	724	-
Stage 1	377	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	100	317	-	-	724	-
Mov Cap-2 Maneuver	100	-	-	-	-	-
Stage 1	375	-	-	-	-	-
Stage 2	460	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.5	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	190	724	-
HCM Lane V/C Ratio	-	-	0.118	0.003	-
HCM Control Delay (s)	-	-	26.5	10	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	171.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	466	8	0	489	353	581
Future Vol, veh/h	466	8	0	489	353	581
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	575	10	0	689	420	692

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1109	420	-	0	-	0
Stage 1	420	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 232	633	0	-	-	-
Stage 1	663	-	0	-	-	-
Stage 2	~ 498	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 232	633	-	-	-	-
Mov Cap-2 Maneuver	~ 232	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	~ 498	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 699.7	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	232	633	-	-
HCM Lane V/C Ratio	-	2.48	0.016	-	-
HCM Control Delay (s)	-	$ 711.5	10.8	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	47.5	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	69	718	28	56	606
Future Vol, veh/h	32	69	718	28	56	606
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	86	898	35	63	681

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1723	916	0	0	933	0
Stage 1	916	-	-	-	-	-
Stage 2	807	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	98	330	-	-	734	-
Stage 1	390	-	-	-	-	-
Stage 2	439	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	84	330	-	-	734	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	336	-	-	-	-	-
Stage 2	439	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	69.5	0	0.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	171	734	-
HCM Lane V/C Ratio	-	-	0.738	0.086	-
HCM Control Delay (s)	-	-	69.5	10.4	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	4.6	0.3	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	13	724	35	15	635
Future Vol, veh/h	34	13	724	35	15	635
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	17	916	44	18	756

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1730	938	0	0	960	0
Stage 1	938	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	97	321	-	-	717	-
Stage 1	381	-	-	-	-	-
Stage 2	446	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	93	321	-	-	717	-
Mov Cap-2 Maneuver	93	-	-	-	-	-
Stage 1	365	-	-	-	-	-
Stage 2	446	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	67.7	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	116	717	-
HCM Lane V/C Ratio	-	-	0.54	0.025	-
HCM Control Delay (s)	-	-	67.7	10.1	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	2.6	0.1	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	2	4	76	65	18
Future Vol, veh/h	13	2	4	76	65	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	5	5	99	93	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	215	106	119	0	-	0
Stage 1	106	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	773	948	1469	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	770	948	1469	-	-	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1469	-	790	-	-
HCM Lane V/C Ratio	0.004	-	0.043	-	-
HCM Control Delay (s)	7.5	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	8	8	439	529	48
Future Vol, veh/h	45	8	8	439	529	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	14	9	516	630	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1193	659	687	0	-	0
Stage 1	659	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	206	464	907	-	-	-
Stage 1	515	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	203	464	907	-	-	-
Mov Cap-2 Maneuver	203	-	-	-	-	-
Stage 1	508	-	-	-	-	-
Stage 2	588	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.1	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	907	-	222	-	-
HCM Lane V/C Ratio	0.01	-	0.412	-	-
HCM Control Delay (s)	9	0	32.1	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	1.9	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	45	33	14	29	34
Future Vol, veh/h	8	45	33	14	29	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	48	41	17	48	56

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	202	50	0	0	58	0
Stage 1	50	-	-	-	-	-
Stage 2	152	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	787	1018	-	-	1546	-
Stage 1	972	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	762	1018	-	-	1546	-
Mov Cap-2 Maneuver	762	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	876	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.4
HCM LOS	A		

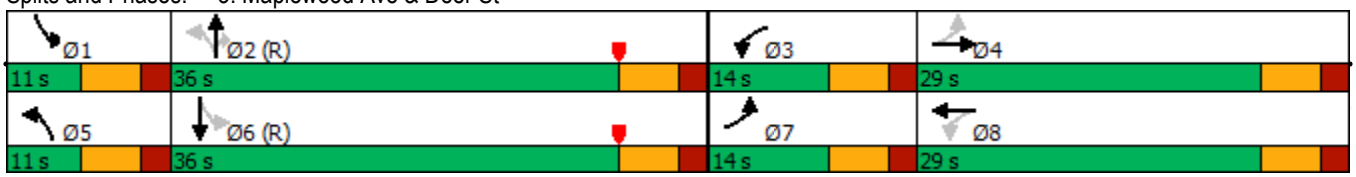
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	969	1546	-
HCM Lane V/C Ratio	-	-	0.059	0.031	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

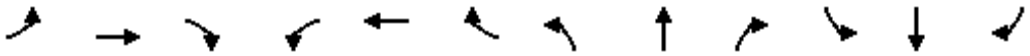
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	287	161	86	350	151	94	52	511	238	75	401	164
Future Volume (vph)	287	161	86	350	151	94	52	511	238	75	401	164
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	435	374	0	461	323	0	60	587	274	91	689	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		11.0	29.0		11.0	28.0	28.0	11.0	25.0	
Total Split (s)	14.0	29.0		14.0	29.0		11.0	36.0	36.0	11.0	36.0	
Total Split (%)	15.6%	32.2%		15.6%	32.2%		12.2%	40.0%	40.0%	12.2%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
v/c Ratio	1.60	0.85		1.83	0.71		0.33	0.86	0.35	0.44	1.03	
Control Delay	308.5	48.6		409.1	37.3		18.9	43.2	4.2	21.4	73.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	308.5	48.6		409.1	37.3		18.9	43.2	4.2	21.4	73.8	
Queue Length 50th (ft)	~261	183		~335	148		18	327	0	29	~463	
Queue Length 95th (ft)	#253	186		#405	188		40	#514	46	51	#585	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	272	487		252	502		183	680	788	205	668	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.60	0.77		1.83	0.64		0.33	0.86	0.35	0.44	1.03	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 41 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	287	161	86	350	151	94	52	511	238	75	401	164
Future Volume (vph)	287	161	86	350	151	94	52	511	238	75	401	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.94		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1824		1770	1873		1711	1801	1636	1711	1722	
Flt Permitted	0.32	1.00		0.22	1.00		0.12	1.00	1.00	0.15	1.00	
Satd. Flow (perm)	548	1824		414	1873		220	1801	1636	269	1722	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	435	244	130	461	199	124	60	587	274	91	489	200
RTOR Reduction (vph)	0	22	0	0	25	0	0	0	174	0	16	0
Lane Group Flow (vph)	435	352	0	461	298	0	60	587	100	91	673	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	28.7	20.7		28.7	20.7		37.1	32.8	32.8	37.5	33.0	
Effective Green, g (s)	28.7	20.7		28.7	20.7		37.1	32.8	32.8	37.5	33.0	
Actuated g/C Ratio	0.32	0.23		0.32	0.23		0.41	0.36	0.36	0.42	0.37	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	272	419		252	430		161	656	596	184	631	
v/s Ratio Prot	0.14	0.19		c0.16	0.16		0.02	0.33		c0.02	c0.39	
v/s Ratio Perm	0.37			c0.42			0.14		0.06	0.18		
v/c Ratio	1.60	0.84		1.83	0.69		0.37	0.89	0.17	0.49	1.07	
Uniform Delay, d1	29.0	33.1		28.0	31.7		20.9	27.0	19.4	19.2	28.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	286.3	13.7		388.4	5.1		1.5	17.1	0.6	2.1	55.0	
Delay (s)	315.3	46.8		416.3	36.9		22.3	44.1	20.0	21.3	83.5	
Level of Service	F	D		F	D		C	D	B	C	F	
Approach Delay (s)		191.2			260.0			35.5			76.2	
Approach LOS		F			F			D			E	

Intersection Summary			
HCM 2000 Control Delay	136.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	57	60	17	14	19
Future Vol, veh/h	11	57	60	17	14	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	84	90	25	28	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	115	0	-	0	219	103
Stage 1	-	-	-	-	103	-
Stage 2	-	-	-	-	116	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1474	-	-	-	769	952
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	909	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1474	-	-	-	761	952
Mov Cap-2 Maneuver	-	-	-	-	761	-
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	909	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1474	-	-	-	860
HCM Lane V/C Ratio	0.011	-	-	-	0.077
HCM Control Delay (s)	7.5	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	33.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	389	57	72	52	45	608
Future Vol, veh/h	389	57	72	52	45	608
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	432	63	82	59	50	676

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	141	0	-	0	1039	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	927	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1442	-	-	-	255	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	385	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1442	-	-	-	176	941
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	385	-

Approach	EB	WB	SB
HCM Control Delay, s	7.5	0	57.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1442	-	-	-	724
HCM Lane V/C Ratio	0.3	-	-	-	1.002
HCM Control Delay (s)	8.6	0	-	-	57.8
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1.3	-	-	-	16.6

Intersection	
Int Delay, s/veh	190.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	491	8	0	489	353	611
Future Vol, veh/h	491	8	0	489	353	611
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	606	10	0	689	420	727

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1109	420	-	0	-	0
Stage 1	420	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 232	633	0	-	-	-
Stage 1	663	-	0	-	-	-
Stage 2	~ 498	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 232	633	-	-	-	-
Mov Cap-2 Maneuver	~ 232	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	~ 498	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 758.4	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	232	633	-	-
HCM Lane V/C Ratio	-	2.613	0.016	-	-
HCM Control Delay (s)	-	$ 770.6	10.8	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	51.2	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	9.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	93	766	28	67	595
Future Vol, veh/h	32	93	766	28	67	595
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	116	958	35	75	669

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1795	976	0	0	993	0
Stage 1	976	-	-	-	-	-
Stage 2	819	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	88	305	-	-	696	-
Stage 1	365	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	73	305	-	-	696	-
Mov Cap-2 Maneuver	73	-	-	-	-	-
Stage 1	303	-	-	-	-	-
Stage 2	433	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	106.7	0	1.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	168	696	-
HCM Lane V/C Ratio	-	-	0.93	0.108	-
HCM Control Delay (s)	-	-	106.7	10.8	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	7	0.4	-

Intersection	
Int Delay, s/veh	9.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	58	22	769	53	17	624
Future Vol, veh/h	58	22	769	53	17	624
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	29	973	67	20	743

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1790	1007	0	0	1040	0
Stage 1	1007	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	89	292	-	-	669	-
Stage 1	353	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	84	292	-	-	669	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	335	-	-	-	-	-
Stage 2	450	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	171.9	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	104	669	-
HCM Lane V/C Ratio	-	-	1.026	0.03	-
HCM Control Delay (s)	-	-	171.9	10.5	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	6.5	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	29	21	88	81	13
Future Vol, veh/h	25	29	21	88	81	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	66	27	114	116	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	294	126	135	0	-	0
Stage 1	126	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	697	924	1449	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	683	924	1449	-	-	-
Mov Cap-2 Maneuver	683	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	862	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1449	-	794	-	-
HCM Lane V/C Ratio	0.019	-	0.155	-	-
HCM Control Delay (s)	7.5	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	8	8	455	553	53
Future Vol, veh/h	54	8	8	455	553	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	14	9	535	658	63

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1243	690	721	0	-	0
Stage 1	690	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	193	445	881	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	190	445	881	-	-	-
Mov Cap-2 Maneuver	190	-	-	-	-	-
Stage 1	491	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	40.2	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	881	-	205	-	-
HCM Lane V/C Ratio	0.011	-	0.521	-	-
HCM Control Delay (s)	9.1	0	40.2	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0	-	2.7	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	50	56	14	38	68
Future Vol, veh/h	8	50	56	14	38	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	54	69	17	62	111

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	313	78	0	0	86	0
Stage 1	78	-	-	-	-	-
Stage 2	235	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	680	983	-	-	1510	-
Stage 1	945	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	650	983	-	-	1510	-
Mov Cap-2 Maneuver	650	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	804	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	918	1510	-
HCM Lane V/C Ratio	-	-	0.068	0.041	-
HCM Control Delay (s)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Tighe&Bond
Engineers | Environmental Specialists

K-0076-019
April 16, 2019

Mr. Dexter Legg, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Waiver Request for Dumpster Location
Proposed 4-story Office Building – 111 Maplewood Avenue

Dear Chairman Legg:

On behalf of RW Norfolk Holdings, LLC (applicant), this letter is provided to request a waiver from Section 9.3(6) of the Site Plan Review Regulations which indicates a dumpster shall be 20-feet from a lot line. The dumpster for the existing 1-story office building to remain will be relocated and is less than 20-feet from a proposed lot line associated with the project's Subdivision application.

The project will subdivide the existing 2.33-acre parcel into two (2) proposed properties. The proposed parcel to the west will consist of the 4-story proposed office building with ground floor commercial space. The proposed parcel to the east will consist of the existing 1-story office building to remain. The applicant intends to retain ownership of both parcels once the property is subdivided.

The dumpster for the existing 1-story building will be relocated as part of the project to provide better access for trash removal. While the dumpster will meet the 10-foot setback requirement of the Zoning Ordinance, it will not meet the 20-foot setback requirement of the Site Plan Regulations due to the location of the internal lot line that is proposed to create two (2) lots. The dumpster will be accessed via a driveway easement located on the proposed west parcel. The new dumpster location on the proposed east parcel will be adjacent to this driveway. Trash removal vehicles will have direct access to the dumpster when they enter the site from this driveway and then will be able turn around within the driveway to exit the site without conflict to off-street parking.

It should be noted the dumpster meets the 20-foot setback requirement for the exterior lot lines along the street. The dumpster simply doesn't meet the 20-foot setback for the proposed interior lot line is will creating two (2) lots that will both be owned by the applicant.

If you have any questions, please feel free to contact me by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,

TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Senior Project Manager

Tighe&Bond
Engineers | Environmental Specialists

K-0076-019
April 16, 2019

Mr. Dexter Legg, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Conditional Use Permit for Excess Community Space
Proposed 4-Story Office Building – 111 Maplewood Avenue

Dear Chairman Legg:

On behalf of RW Norfolk Holdings, LLC (applicant), this letter is provided to request that a Conditional Use Permit be granted by the Planning Board to allow the excess Community Space provided by the above referenced project be credited to the applicant for use in another development in the same Overlay District as allowed by Section 10.5A46.23 of the Zoning Ordinance.

The proposed project will include the construction of a 4-story, 74,000 SF office building with ground floor commercial space. The proposed project is located in the North End Incentive Overlay District. As per Section 10.5A46, the maximum building height can be increased 1-story up to 10-feet in this overlay district. The maximum building height on a portion of this parcel according to the Regulating Plan is 50ft. The project is proposing to provide community spaces that exceeds 20% of the total proposed lot area in order to increase the maximum allowed building height to 60ft.

As depicted in the enclosed Community Space Exhibit, the project proposes to provide three (3) types of community space as defined by Section 10.5A45.10 of the Zoning Ordinance. The project will provide a 6,863 SF pedestrian alley, a 2,744 SF pocket park and a 2,300 SF wide sidewalk community space. These community spaces total 11,907 SF where only 8,556 SF is required to meet 20% of the proposed lot size of 42,778 SF.

The applicant respectfully requests a Conditional Use Permit to bank the additional 3,351 SF of Community Space for potential future development in this overlay district. The applicant agrees to execute a Prospective Development Incentive Agreement (PDIA) with the City in order to document the terms of the Conditional Use Permit.

If you have any questions, please feel free to contact me by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,

TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Senior Project Manager

PROPOSED OFFICE BUILDING - 111 MAPLEWOOD - SITE REVIEW COMMENT RESPONSE **Date: April 16, 2019**

City of Portsmouth TAC: Comments from E-Mail, April 1, 2019:			
	TAC Comment	**Applicant Response**	**Sheet**
1	There seems to be a few conservative assumptions, which may be part of the reason that such poor LOS is forecast for the future conditions. I would like to see the existing traffic volume network and the appendix materials. The Route 1 Bypass bridge was open in January when the counts were done, so there shouldn't have been a need to estimate rerouting of traffic due to the bridge. The 60% from Maplewood seems a little high, as does the trip gen for the retail portion. Also, the 19% seasonal adjustment may be a little high. Will parking spaces under the building be reserved? If not, the dead end aisle for the 10 spaces along the Raynes Ave side will create circulation problems.	A memorandum of "Responses to TAC Traffic Comments" is enclosed and includes revised analysis based on feedback provided by the City Traffic Engineer on the original traffic study dated March 18, 2019. Also, at this time, it is anticipated that the basement level parking will be restricted to passes provided to the tenants.	Traffic Memo & C-102.3
2	Appropriate contribution to improvements to the Russell St intersection will be required	As per Note #21 on the Site Plan, the value of a fair share contribution towards off-site public improvement projects shall be agreed upon between the Applicant and City prior to final approvals.	C-102.1 & C-102.2
3	All remaining existing lighting standard lights on Maplewood (in project area) Raynes Ave and Vaughan St to be removed as part of this approval	All street lighting on Maplewood, Raynes and Vaughan are to be removed and replaced as part of this project. The notations on the demolition plans have been revised to note the number of existing fixtures that are to be removed.	C-101.1 & C-101.2
4	Provide updated plans to City for construction of sewer this spring indicating sewer lateral locations	The City's sewer construction plans previously prepared by the applicant's engineer will be updated to include sewer lateral locations for this project prior to the sewer upgrades that will be constructed this Spring by the City. In addition, Note #31 has been added to the Utility Plan to indicate this.	C-104.1
5	Appropriate contribution for City Sewer construction project may be required, coordinate with DPW	As per Note #21 on the Site Plan, the value of a fair share contribution towards off-site public improvement projects shall be agreed upon between the Applicant and City prior to final approvals.	C-102.1 & C-102.2
6	Is there internal bypass for high flows in the stormwater unit?	Confirmed, there is an internal bypass in the stormwater unit. It should also be noted these revised plans include a different stormwater unit than previously shown due elevation constraints driven by utilities in the roadway. A design memorandum prepared by Contech, the stormwater unit manufacturer, has been included in the latest drainage analysis.	C-103.1 & Drainage Analysis
7	Add additional CB drains in Vaughan St/Raynes Ave as determined to be needed by DPW to maintain a crowned road section.	Note #22 has been added to the Site Plan indicating that the Applicant shall work with the City to confirm project scope and timing as it relates to the City's Complete Streets Improvement Project that is being designed by the City's consultant.	C-102.1 & C-102.2
8	There are gas and telephone lines going through proposed planters, please revise	Proposed gas and communications services shown on Raynes Ave have been revised to avoid conflict with the proposed street trees.	C-104.1
9	Actual locations of utility lines to site to be approved by City of Portsmouth	Confirmed.	C-104.1
10	8" Domestic water is oversized	Service connections have not been sized yet. A note has been added to indicate that final water service size and location shall be coordinated with the Building Drawings and DPW prior to construction.	C-104.1
11	Reclamation of Raynes Ave and overlay of all remaining bindered areas in the Raynes/Vaughan Area to be provided, details approved by DPW	As per Note #21 on the Site Plan, the value of a fair share contribution towards off-site public improvement projects shall be agreed upon between the Applicant and City prior to final approvals.	C-102.1 & C-102.2
12	There are 3 different types of lights specified within 200' of each other, consider revising on site lights to match Vaughan area	On-site lights have been revised to march the fixtures in the Vaughan Street area.	L-101
13	Landscape details to meet City Standards and be approved by City including tree root zones if determined to be needed	The project's landscape architect consulted with the Planning Department on the proposed streetscape design.	L-501
14	Street trees to be approved by City of Portsmouth	Agreed.	L-101

15	Lighting Cabinet to meet City standards, all lights in this area to be fed from this new cabinet including lights already installed	Lighting conduit layout has been coordinated with DPW and plans have been revised to include lighting conduit that will connect to the new cabinet to be installed across the street as part of the AC Hotel project.	C-104.1 & 104.2
16	Please confirm what surface material is proposed for the pedestrian alley	Materials are identified in the legend Materials Legend on the Landscape Plan.	L-101
17	It appears that the applicant is proposing to provide more than 20% community space as required by the ordinance. Is it the applicant's intention to bank the community space towards a future development?	Confirmed, a Conditional Use Permit is requested to bank the additional community space towards future development. Note #23 has been added to the Site Plan indicating the applicant shall execute a Prospective Development Incentive Agreement (PDIA) with the City prior to construction for the excess community space.	C-102.1
18	Correct proposed number of stories on plan Sheet C-102	The number of stories has been revised on all sheets.	C-102, C-102.1
19	Are the dumpsters intended to be used for use by both properties?	Exterior dumpster shown on the Site Plan is for the existing office building only. Trash from the proposed building will be stored in a trash room located inside the building.	C-102.1
20	Dumpster location needs to be set back at least 10' per zoning and 20' per site plan review regulations. If 20' is not possible, a waiver will need to be requested.	The dumpster meets the zoning setback requirements. A waiver is requested to allow the dumpster to be less than 20ft from the proposed property line.	C-102.1 & Waiver Request
21	The proposed community space should be adjusted to avoid public access easement that does not align with the pedestrian circulation patterns on the proposed alleyway connector.	The proposed community space has been revised to include the entire entry plaza as part of the pedestrian alleyway.	C-102 & Community Space Exhibit
22	The proposed building should be listed as a 4 story building given the 4th story does not qualify as a penthouse.	The number of stories has been revised on all sheets.	C-102, C-102.1
23	Pending HDC approval, the building elevations should be included in the plan set.	Confirmed, the latest elevations submitted to HDC are enclosed with the plans.	Building Elevations

City of Portsmouth TAC: Additional site related comments from meeting on April 2, 2019 (not previously noted above)			
	TAC Comment	**Applicant Response**	**Sheet**
2	If on-site maintenance of community space is to be done by the City, materials will need to be approved by DPW. If maintenance will be performed by owner, any materials can be used.	Proposed materials for the community space are depicted on the Landscape Plan. At this time, the applicant anticipates that on-site maintenance will be performed by the applicant.	L-101
5	City to clarify Maplewood Avenue complete streets sidewalk material	The project's landscape architect consulted with the Planning Department on the proposed streetscape design.	L-101
8	Adjust the layout of street trees to not interfere with car doors opening.	The location of the street trees has been revised to not interfere with car doors opening.	C-102.1 & L-101
9	Coordinate with the Planning department for guidance on raised tree planters and street tree recommendations.	The project's landscape architect consulted with the Planning Department on the proposed streetscape design.	L-101
11	Review alignment of lights along Maplewood Avenue to make sure they are at a consistent distance off the curb line and check for conflicts with car door swing.	The light fixtures along Maplewood Avenue have been revised to be along the back of curb and have been aligned to avoid conflicts with door swings.	C-102.1 & L-101
12	Confirm whether mechanical equipment such as a generator will be installed on the roof or ground surface. If on the ground surface, the equipment shall be shown on the Site Plan and shall meet any applicable setbacks required by building code.	At this time, it is anticipated that mechanical equipment will be housed on the roof and will be screened.	C-102.3
14	Building is classified as 5 stories per building code. Might need an elevator lobby in the basement level.	The Basement Level Plan has been revised include an elevator lobby.	C-102.3
17	Will SOE (if required) will have impacts in ROW? If so, a the applicant shall provide the design to DPW for review prior to construction.	Note 20 has been added to the Site Plan indicating that a Temporary Support of Excavation (SOE) Plan, if necessary, shall be prepared by the applicant's contractor prior to construction. If the SOE design impacts the City's Right of Way, the SOE Plan shall be included in the Construction Management and Mitigation Plan (CMMP) for review and approval by the City. If licenses are required for the SOE, the applicant will be required to obtain these from the City prior to construction.	C-102.1

18	Confirm on-street loading zone designated from 6-9a on Vaughan Street will be needed for building operations. If necessary, on-street loading zone will need to go through Parking and Traffic Safety (PTS) Committee prior to Planning Board.	Confirmed, the applicant has requested to be placed on the next PTS agenda.	C-102.1
20	Low phosphorus, slow release nitrogen fertilizer to be specified on landscaping plan.	Note 2 on the Planting Notes indicates that low phosphorus, slow release nitrogen fertilizer to be used for planting beds.	L-501