SITE DEVELOPMENT PLANS

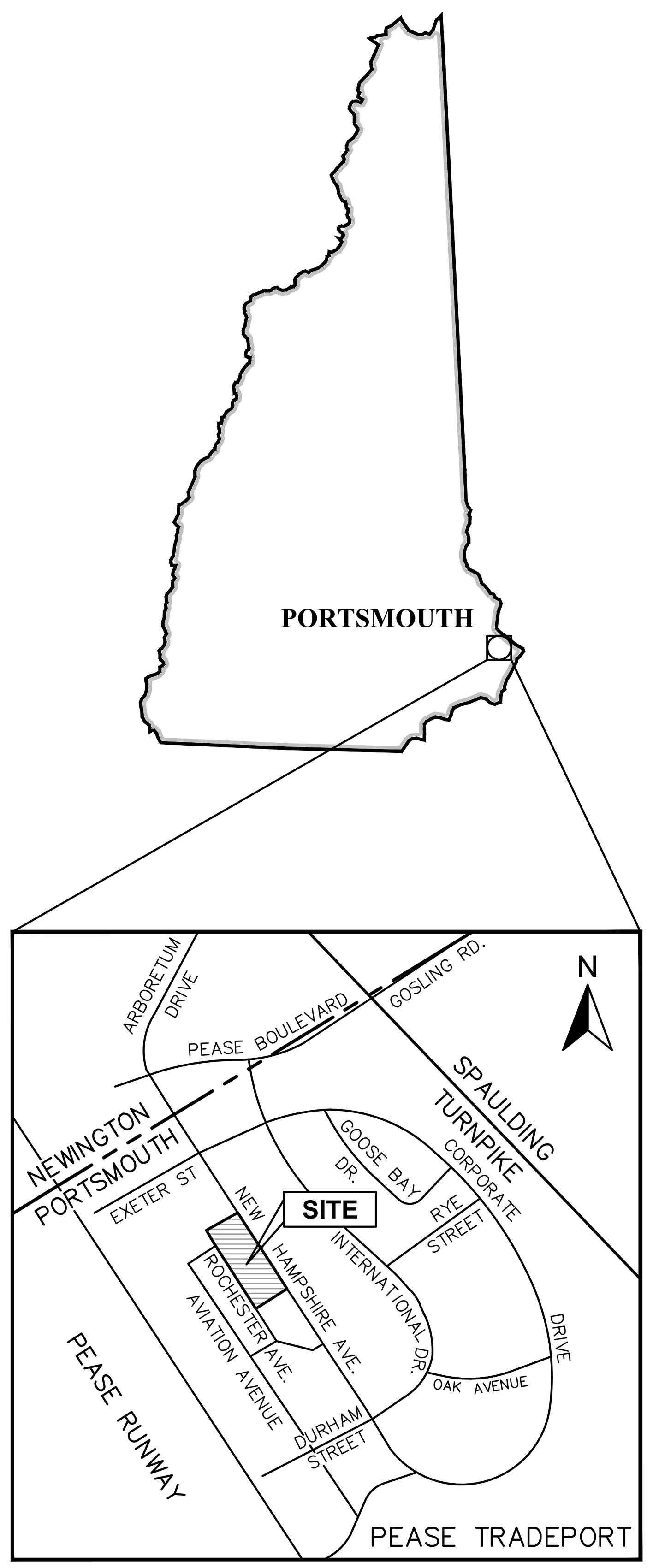
FOR A

PROPOSED 4 STORY OFFICE BUILDING

100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

TWO INTERNATIONAL
GROUP

LAST REVISED: DECEMBER 4, 2018



LOCATION MAP
NOT TO SCALE

PROPOSED FRONT BUILDING ELEVATION
NOT TO SCALE

OWNER
PEASE DEVELOPMENT AUTHORITY
55 INTERNATIONAL DRIVE
PORTSMOUTH, NH 03801

APPLICANT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

LOT INFORMATION
100 NEW HAMPSHIRE AVENUE
(FORMERLY 80 ROCHESTER)
PORTSMOUTH, NH 03801

TAX MAP 308 LOT 1 & 2
474,995± S.F. (10.9± ACRES)
INDUSTRIAL ZONE

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ARCHITECT
MARGULIES PERRUZZI ARCHITECTS
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(617) 482-3232

SURVEYOR & SOIL MAPPING
FIELDSTONE LAND CONSULTANTS, PLLC
206 ELM STREET
MILFORD, NH 03055
(603) 672-5456

ISSUED FOR SITE PLAN REVIEW

UTILITY CONTACTS:

WATER:
CITY OF PORTSMOUTH DPW
680 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
CONTACT: TERRY DESMARIS
(603) 427-1550

SANITARY SEWER:
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680 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
CONTACT: JOHN ADAMS
(603) 427-1550

STORMWATER (DRAINAGE):
CITY OF PORTSMOUTH DPW
680 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
CONTACT: DAVE DESFOSSES
(603) 427-1530

ELECTRIC SERVICE:
EVERSOURCE ENERGY
1700 LAFAYETTE ROAD
PORTSMOUTH, NH 03801
CONTACT: MICHAEL BUSBY
(603) 436-7708

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

GAS SERVICE:
UNITIL NORTHERN UTILITIES, INC
375 WEST ROAD
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CONTACT: DAVID BEAULIEU
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CABLE SERVICE:
COMCAST
180 GREENLEAF AVE
PORTSMOUTH, NH 03801
CONTACT: MIKE COLLINS
(603) 266-2278

CONTACT DIG SAFE
72 HOURS PRIOR
TO CONSTRUCTION
DIGSAFE.COM
DIAL 811

STATE OF NEW HAMPSHIRE
SHAWN M. TOBEY
No. 14121
LICENSED
PROFESSIONAL ENGINEER
12/4/18

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE: AS SHOWN
ORIGINAL DATE: NOVEMBER 16, 2018
DESIGNED BY SMT
DRAWN BY SMT
CHECKED BY WRD

CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

TITLE SHEET
C1

PROJECT NO. 556912

SHEET 1 OF 15

GENERAL NOTES:

1. THE SURFACE FEATURES AND TOPOGRAPHY ARE THE RESULT OF AN ON THE GROUND SURVEY CONDUCTED DURING THE MONTH OF SEPTEMBER 2018 BY FIELDSTONE LAND CONSULTANTS, PLLC. SEE DWG C3 FOR ADDITIONAL EXISTING CONDITIONS INFORMATION.
2. THE CONTRACTOR SHALL VERIFY AND DETERMINE THE LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS PRIOR TO THE START OF ANY CONSTRUCTION. THE CONTRACTOR SHALL LOCATE THE UTILITIES SHOWN AND THE POSSIBLE EXISTENCE OF OTHER UNDERGROUND UTILITIES BY PROVIDING OBSERVATION TEST PITS. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION SHALL BE AGREED TO BY THE ENGINEER BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT "DIGSAFE" (DIAL 811), THE PEASE DEVELOPMENT AUTHORITY AND CITY OF PORTSMOUTH AT LEAST 72 HOURS BEFORE DIGGING.
3. WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN CASE OF CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWING AND/OR SPECIFICATION, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATIONS.
4. THIS PROJECT IS TO BE CONSTRUCTED TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS, AND SHALL MEET THE STANDARDS OF THE PEASE DEVELOPMENT AUTHORITY AND CITY OF PORTSMOUTH.
5. WHEN PREPARING THE EXISTING SITE FOR THE PROPOSED DEVELOPMENT, ALL MATERIALS REMOVED SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL GOVERNING AGENCIES.
6. THE CONTRACTOR SHALL PERFORM ALL THE CLEARING AND GRUBBING NECESSARY WITHIN THE CONSTRUCTION AREA, LIMITING THE AMOUNT OF CLEARING AND GRUBBING TO THE GREATEST EXTENT POSSIBLE.
7. BEFORE ANY DEWATERING IS PERFORMED, COORDINATION BETWEEN THE APPLICANT, PDA, NHDES AND THE AIR FORCE IS REQUIRED TO DETERMINE PROPER PROCEDURES AND IF PERMITTING IS REQUIRED.
8. CONTRACTOR SHALL PROTECT AND MAINTAIN EXISTING BENCHMARKS AND BOUNDS. ALL BENCHMARKS AND BOUNDS DISTURBED BY THE CONTRACTOR SHALL BE RE-ESTABLISHED BY A NEW HAMPSHIRE REGISTERED LAND SURVEYOR AT NO EXPENSE TO THE OWNER.
9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ANY EXCAVATION SAFEGUARDS, NECESSARY BARRICADES, POLICE DETAILS, ETC., FOR TRAFFIC CONTROL AND SITE SAFETY. ALL EXCAVATIONS SHALL BE THOROUGHLY SECURED ON A DAILY BASIS BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION OPERATIONS.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR THE CONDITIONS OF THE SITE.
11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ALL WORK IS DONE IN ACCORDANCE WITH OSHA REQUIREMENTS.
12. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS (PIPE, CASTINGS, STRUCTURES, ETC.) TO THE INSPECTING ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
13. ALL SIGNAGE SHALL BE SUBMITTED TO THE PDA BOARD OF DIRECTORS FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
14. THE APPLICANT SHALL BE RESPONSIBLE TO PERFORM A RADIO-STRENGTH TEST WITH A MOTOROLA SERVICE SHOP TO ENSURE SUFFICIENT SIGNAL STRENGTH WITHIN ANY STRUCTURE INCLUDED IN THE PROJECT TO SUPPORT ADEQUATE RADIO COVERAGE FOR EMERGENCY PERSONNEL. THE EXPENSE FOR THE TEST SHALL BE THE RESPONSIBILITY OF THE APPLICANT, WHETHER OR NOT THE TEST INDICATES THAT AMPLIFIERS ARE NECESSARY TO ENSURE THIS COMMUNICATION. IF THE TEST INDICATES THAT AMPLIFIERS ARE REQUIRED, THAT COST, TOO, SHALL BE THE RESPONSIBILITY OF THE APPLICANT. ALL TESTING AND INSTALLATIONS SHALL BE COORDINATED BETWEEN THE APPLICANT AND THE POLICE/FIRE COMMUNICATIONS SUPERVISOR.
15. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS, FEES, TEMPORARY UTILITIES AND COORDINATION WITH ALL AGENCIES IN OBTAINING ACCESS TO THE SITE AND PERFORMING ALL WORK REQUIRED FOR THIS PROJECT.
16. CONTRACTOR TO OBTAIN A NPDES CONSTRUCTION GENERAL PERMIT NOI PRIOR TO CONSTRUCTION.
17. THE CONTRACTOR SHALL ACQUIRE A PDA DIG PERMIT BEFORE ANY DISTURBANCE CAN TAKE PLACE. ALLOW 7 CALENDAR DAYS FOR PROCESSING.
18. TWO 7460-1 APPLICATIONS, IF APPLICABLE, SHALL BE FILED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ONE FOR THE BUILDING AND THE OTHER FOR A CRANE DURING CONSTRUCTION.
19. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE LATEST EDITIONS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AMERICANS WITH DISABILITIES (ADA) ACT, AND STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS.
20. NO WELDED WIRE FABRIC SHALL BE USED IN CONCRETE SIDEWALKS.
21. ALL PROPOSED SITE FEATURES SHALL BE LAID OUT IN THE FIELD USING SURVEY EQUIPMENT. AN AUTOCAD FILE OF THE EXISTING AND PROPOSED FEATURES WITH CONTROL POINTS WILL BE PROVIDED TO THE CONTRACTOR FOR CONSTRUCTION LAYOUT.
22. SYMBOLS OF PROPOSED STRUCTURES SUCH AS CATCH BASINS AND DRAIN MANHOLES ARE EXAGGERATED FOR CLARITY ON THESE DRAWINGS. THE CENTER OF THE SYMBOL MAY NOT BE THE ACTUAL CENTER OF THE STRUCTURE IF LOCATED ALONG THE CURB. THE CONTRACTOR SHALL ADJUST FOR THIS DURING CONSTRUCTION LAYOUT.
23. UPON COMPLETION OF CONSTRUCTION AND PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY AND RELEASE OF BOND, THE APPLICANT SHALL SUBMIT A LETTER TO THE PEASE DEVELOPMENT AUTHORITY, SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER, STATING CONSTRUCTION HAS BEEN COMPLETED IN CONFORMANCE WITH THE APPROVED PLANS.
24. THE CONTRACTOR SHALL SUBMIT AS-BUILT PLANS ON REPRODUCIBLE MYLAR AND IN DIGITAL FORMAT (AUTOCAD .DWG FORMAT) ON CD TO THE OWNER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A REGISTERED NEW HAMPSHIRE LAND SURVEYOR OR PROFESSIONAL ENGINEER. AN ELECTRONIC FILE OF THE SITE LAYOUT SHALL BE SUBMITTED TO THE CITY OF PORTSMOUTH'S GIS DEPARTMENT.

DRAINAGE NOTES:

1. THE STORM DRAINAGE SYSTEM SHALL BE CONSTRUCTED TO LINE AND GRADE AS SHOWN ON THE PLANS. ALL PIPE MATERIALS SHALL BE AS SPECIFIED ON THE PLANS. CONSTRUCTION METHODS SHALL CONFORM TO NHDOT STANDARD SPECIFICATIONS, SECTION 603. CATCH BASINS AND DRAIN MANHOLES SHALL CONFORM TO SECTION 604. ALL CATCH BASIN GRATES SHALL BE TYPE B AND CONFORM TO NHDOT STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED.
2. PROPOSED RIM ELEVATIONS OF DRAINAGE MANHOLES AND CATCH BASINS ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
3. THE CONTRACTOR SHALL INSTALL BELL TRAPS/OIL SEPARATOR HOODS ON ALL CATCH BASIN OUTLETS.
4. THE CONTRACTOR SHALL PROVIDE FOR THE HANDLING OF EXISTING FLOWS FROM SERVICE CONNECTIONS AND MAINLINE PIPES. THE EXISTING DRAINS MAY HAVE ACTIVE FLOW AND THE CONTRACTOR SHALL MAINTAIN CONTINUOUS FLOW WITHOUT RESTRICTIONS.
5. THE CONTRACTOR SHALL STABILIZE ANY AND ALL DITCHES, SWALES AND PONDS PRIOR TO DIRECTING STORMWATER RUN-OFF TO THEM.
6. WHEN CONNECTING NEW PIPES TO EXISTING STRUCTURES SUCH AS MANHOLES AND CATCH BASINS, THE STRUCTURE SHALL BE COMPLETELY CLEANED OUT. THE HOLE MADE IN THE STRUCTURE SHALL BE AS SMALL AS NECESSARY. THE STRUCTURE SHALL BE REPAIRED TO MATCH ITS ORIGINAL TYPE OF CONSTRUCTION. THE JOINT BETWEEN THE STRUCTURE AND THE PIPE SHALL BE MADE WATERTIGHT BY FILLING THE JOINT WITH MORTAR.
7. THE CONTRACTOR SHALL CLEAN THE ENTIRE STORMWATER SYSTEM OF ALL SEDIMENT AND DEBRIS, WITHIN THE LIMIT OF WORK UPON COMPLETION OF CONSTRUCTION.
8. ALL DRAIN PIPES SHALL HAVE A MINIMUM GROUND COVER OF 3'. IF THE REQUIRED COVER CANNOT BE OBTAINED, INSTALL 4" OF RIGID INSULATION ABOVE THE DRAIN LINE.
9. ALL PROPOSED CATCH BASINS SHALL BE DEEP SUMP CATCH BASINS WITH 4' SUMPS.
10. THE PROPOSED STORMWATER TREATMENT DEVISED AND UNDERGROUND CHAMBER SYSTEM SHALL BE MAINTAINED ACCORDING TO THE STORMWATER INSPECTION AND MAINTENANCE MANUAL PREPARED UNDER THE NHDES ALTERATION OF TERRAIN PERMIT. THE STRUCTURES SHALL BE INSPECTED IN THE SPRING AND FALL.
11. THE SNOW & ICE MANAGEMENT CONTRACTOR MUST BE GREEN SNOWPRO CERTIFIED BY THE UNH TECHNOLOGY TRANSFER CENTER AND ALSO BE A NEW HAMPSHIRE CERTIFIED SALT APPLICATOR.

EARTHWORK & GRADING NOTES:

1. GRADE AWAY FROM BUILDING WALLS AT 2% MINIMUM (TYPICAL).
2. PROVIDE UNIFORM SLOPE BETWEEN CONTOURS AND/OR SPOT ELEVATIONS.
10. SPOT GRADES SHOWN ARE PAVEMENT ELEVATIONS AT THE CURBLINE UNLESS OTHERWISE NOTED.
11. EARTH SLOPES SHALL BE NO STEEPER THAN 2:1 (HORIZONTAL:VERTICAL) AND SHALL BE FLATTER WHERE SHOWN.
12. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL ROOTS AND STUMPS FOR TREES THAT ARE REMOVED.
13. GENERAL FILL BEYOND PAVED AREAS SHALL BE FREE OF BRUSH RUBBISH, STUMPS, AND STONES LARGER THAN 8". FILL SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 8" IN THICKNESS. THE DRY DENSITY AFTER COMPACTION SHALL NOT BE LESS THAN 95% OF THE STANDARD PROCTOR TEST AND DONE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM D698.
14. AFTER THE AREAS TO BE TOPSOILED HAVE BEEN BROUGHT TO GRADE, THE SUBGRADE SHALL BE LOOSENED BY SCARIFYING TO A DEPTH OF AT LEAST 2" TO ENSURE BONDING OF THE TOPSOIL AND SUBSOIL.
15. FILL OR TOPSOIL SHALL NEITHER BE PLACED NOR COMPACTED WHILE IN A FROZEN OR MUDDY CONDITION OR WHILE SUBGRADE IS FROZEN.
16. FINISH PAVEMENT SURFACES AND LAWN AREAS SHALL BE FREE OF LOW SPOTS AND PONDING AREAS.
17. ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS THAT DO NOT HAVE A SURFACE TREATMENT SPECIFICALLY SPECIFIED SHALL BE RESTORED TO A MINIMUM OF 4" OF SEEDED TOPSOIL, FERTILIZER, AND MULCH.
18. THE CONTRACTOR SHALL REMOVE, CONTAIN, TEST AND DISPOSE OF EXCAVATED SOILS IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS DIVISION 200 – EARTHWORK.

EXTERIOR LIGHTS:

1. THE SOURCE OF EXTERIOR LIGHTING SHALL NOT BE ARRANGED IN SUCH A MANNER AS TO BE DETRIMENTAL TO ADJACENT PROPERTIES OR CREATE A HAZARD ON PUBLIC WAYS.
2. OUTSIDE LIGHTS MUST BE MADE UP OF A LIGHT SOURCE AND REFLECTOR SO THAT, ACTING TOGETHER, THE LIGHT BEAM IS CONTROLLED AND NOT DIRECTED ACROSS A PROPERTY LINE SO AS TO CONSTITUTE A NUISANCE.
3. ANY PULSATING, FLASHING, ROTATING, OSCILLATING, OR OTHER TYPE OF LIGHTING INTENDED AS AN ATTENTION-GETTING DEVICE SHALL BE EXPRESSLY PROHIBITED, EXCEPT FOR AVIATION-RELATED PURPOSES.
4. FLOOD LIGHTS, SPOT LIGHTS, OR OTHER LIGHTING DEVICES SHALL BE ARRANGED OR SHIELDED SO AS NOT TO INTERFERE WITH THE SAFE OPERATION OF VEHICLES OR AIRCRAFT.
5. ALL PROPOSED LIGHTING SHALL BE DARK SKY FRIENDLY.
6. COORDINATE LIGHT POLE BASE LOCATIONS WITH, CONDUIT ROUTING, CONDUIT SIZE AND POWER SUPPLY FOR SITE LIGHTING WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS.

UTILITY NOTES:

1. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES OWNING UTILITIES, EITHER OVERHEAD OR UNDERGROUND, WITHIN THE CONSTRUCTION AREA AND SHALL COORDINATE WITH THE UTILITY COMPANIES FOR RELOCATING AND/OR SUPPORTING THEIR UTILITIES IN ACCORDANCE WITH THE SPECIFICATIONS.
2. THE CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO EXISTING FACILITIES AT ALL TIMES. IF ANY DISRUPTION MUST OCCUR, CONTRACTOR SHALL NOTIFY AND COORDINATE WITH FACILITY AT LEAST 72 HOURS IN ADVANCE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF EXISTING UTILITIES AND STRUCTURES DAMAGED OR REMOVED BY THE CONTRACTOR DURING THEIR OPERATIONS.
4. THE CONTRACTOR SHALL COORDINATE MATERIALS AND INSTALLATION SPECIFICATIONS WITH THE INDIVIDUAL UTILITY AGENCIES/COMPANIES, AND ARRANGE FOR ALL INSPECTIONS.
5. FINAL ELEVATIONS OF UTILITY STRUCTURES ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES, AND OTHER UTILITIES TO FINISHED GRADE WITHIN LIMITS OF WORK.
6. DURING EXCAVATION, IT IS ANTICIPATED THAT EXISTING UTILITIES AND SEWERS WILL BE EXPOSED. THE CONTRACTOR SHALL PROVIDE PROTECTION AND SUPPORT OF THESE FACILITIES AND REPAIR ANY DAMAGE CAUSED BY THE WORK IN A MANNER SATISFACTORY TO THE OWNER.
7. THE SEWER SYSTEM SHALL HAVE A MINIMUM GROUND COVER OF 4' WHEN CROSS COUNTRY AND A MINIMUM GROUND COVER OF 6' WHEN BENEATH PAVEMENT. IF THE REQUIRED MINIMUM AMOUNT OF COVER CANNOT BE OBTAINED, INSTALL 4" OF RIGID INSULATION ABOVE THE SEWER LINE.
8. ALL ELECTRIC MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE AS WELL AS STATE AND LOCAL CODES.
9. INSTALL NYLON PULL ROPES IN UNDERGROUND CONDUITS TO FACILITATE PULLING CABLES.
10. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL HANDHOLES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
11. THE CONTRACTOR SHALL REVIEW THE LOCATION OF ALL OVERHEAD WIRES WITHIN THE PROJECT AREA IN THE FIELD TO DETERMINE THEIR IMPACT ON CONSTRUCTION MEANS AND METHODS.
12. THE NUMBER, TYPE, AND SIZE OF UTILITY CONDUITS SHALL BE DETERMINED BY THE UTILITY COMPANY.
13. THE EXACT LOCATION AND SIZE OF NEW UTILITY SERVICES SHALL BE DETERMINED BY THE UTILITY COMPANY.
14. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL CODES.
15. THE PROPOSED BUILDING WILL BE SERVED BY SPRINKLER SYSTEMS.
16. ALL ON-SITE UTILITIES SHALL BE UNDERGROUND.
17. BACKFLOW PREVENTORS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
18. CONTRACTOR TO COORDINATE UNDERGROUND ELECTRIC, INCLUDING BUT NOT LIMITED TO SIZE, LOCATION, MATERIAL, CONDUIT, AND HAND HOLES.
19. SPRINKLER SYSTEM SHALL BE MONITORED OFF-SITE THROUGH A DIALER. CONTRACTOR TO COORDINATE WITH A THIRD PARTY.

CONSTRUCTION SEQUENCE:

1. INSTALL SILT SOCKS, INLET PROTECTION BARRIERS AND CONSTRUCTION ENTRANCES AS SHOWN ON THE PLANS, PRIOR TO THE START OF ANY CONSTRUCTION.
2. REMOVE AND DISPOSE OF EXISTING PAVEMENT, SITE STRUCTURES, UTILITIES AND VEGETATION AS SHOWN ON THE PLANS.
3. STRIP THE TOPSOIL AND STOCKPILE ONSITE. CONSTRUCT A SILT SOCK PERIMETER AROUND ALL STOCKPILES.
4. CONSTRUCT BUILDING FOOTINGS AND FOUNDATION WALLS.
5. CONSTRUCT AND STABILIZE CUT AND FILL SLOPES. APPLY TEMPORARY (OR PERMANENT) SEED AND MULCH WITHIN 72 HOURS OF THEIR CONSTRUCTION.
6. INSTALL ALL DRAINAGE INCLUDING UNDERGROUND CHAMBER SYSTEM, STORMWATER FILTRATION DEVISES, WATER, SEWER, ELECTRIC, TELECOM AND GAS UTILITIES.
7. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES. MINIMIZE EXTENT AND DURATION OF EXPOSURE OF DISTURBED AREAS.
8. CONSTRUCT BUILDING, BACKFILL AND INSTALL BINDER PAVING COURSE.
9. INSTALL VERTICAL GRANITE CURBING AND POUR CONCRETE SIDEWALKS.
10. INSTALL LANDSCAPE PLANTINGS.
11. INSTALL SCREENED LOAM (4" MIN.) ON ALL DISTURBED SURFACES AND APPLY PERMANENT SEEDING.
12. INSTALL FINISH PAVEMENT, PAVEMENT MARKINGS AND SIGNAGE.
13. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.
14. CLEAN THE ENTIRE STORMWATER SYSTEM OF ALL SEDIMENT AND DEBRIS, WITHIN THE LIMIT OF WORK.

ABBREVIATIONS:

ABAN	ABANDONED
AC	ASBESTOS CONCRETE
ADJ	ADJUST
APPROX	APPROXIMATE
B=	BOTTOM=
BC	BOTTOM OF CURB
BERM	BITUMINOUS CONCRETE BERM
BIT CONC	BITUMINOUS CONCRETE
BLDG	BUILDING
BS	BOTTOM OF SLOPE
BWLL	BROKEN WHITE LANE LINE
BW	BOTTOM OF WALL
CB	CATCH BASIN
CBRND	CATCH BASIN ROUND
CBSQ	CATCH BASIN SQAURE
CI	CAST IRON
CICL	CAST IRON CEMENT LINED
CIP	CAST IN PLACE
℄	CENTER LINE
CLF	CHAIN LINK FENCE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CP	CONCRETE PIPE
CR	CONDENSATE RETURN
DHW	DESIGN HIGH WATER
DI	DUCTILE IRON
DICL	DUCTILE IRON CEMENT LINED
DIA	DIAMETER
DMH	DRAIN MANHOLE
DWG	DRAWING
DYCL	DOUBLE YELLOW CENTER LINE
EL, ELEV	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATION
EMH	ELECTRIC MANHOLE
EXIST	EXISTING
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
FM	FORCE MAIN
GC	GRANITE CURB
GG	GAS GATE
GM	GAS METER
GR	GUARDRAIL
GW	GUY WIRE
HDPE	HIGH DENSITY POLYETHYLENE
HH	HAND HOLE
HORIZ	HORIZONTAL
HR	HANDRAIL
HVAC	HEAT VENT AIR CONDITIONING
HYD	HYDRANT
INV	INVERT
I=	INVERT=
IP	IRON PIPE
LP	LIGHT POLE
LS	LANDSCAPED
LT	LEFT
MC	METAL COVER
MAX	MAXIMUM
MHW	MEAN HIGH WATER
MIN	MINIMUM
NO, #	NUMBER
NTS	NOT TO SCALE
OCS	OUTLET CONTROL STRUCTURE
OH	OVERHANG
PB	PULL BOX
PERF	PERFORATED
PL	PLASTIC
PROP	PROPOSED
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PVI	POST VALVE INDICATOR
R=	RIM=
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
(rec)	RECORD
RET	RETAINING
RT	RIGHT
SGC	SLOPED GRANITE CURB
SMH	SEWER MANHOLE
SHWT	SEASONAL HIGH WATER TABLE
SS	SANITARY SEWER
ST	STEAM
STA	STATION
STMH	STEAM MANHOLE
SW	SIDEWALK
SWEL	SOLID WHITE EDGE LINE
SWLL	SOLID WHITE LANE LINE
TC	TOP OF CURB
TCB	TRAFFIC CONTROL BOX
TEL	TELEPHONE
TL	TRAFFIC LIGHT
TMH	TELEPHONE MANHOLE
TRANS	TRANSFORMER
TS	TOP OF SLOPE
TW	TOP OF WALL
TYP	TYPICAL
UP	UTILITY POLE
VC	VITRIFIED CLAY
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
W	WATER
WC	WYE CONNECTION
WF	WETLAND FLAG
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE
		RIGHT OF WAY
		BUILDING SETBACK
		PARKING SETBACK
		SURVEY MONUMENT
		EDGE OF PAVEMENT
		EDGE OF CONCRETE
CC	CC	CONCRETE CURB
SGC	SGC	SLOPED GRANITE CURB
VGC	VGC	VERTICAL GRANITE CURB
		SAWCUT
		BUILDING
EN	EN	BUILDING ENTRANCE
		BOLLARD
		SIGN
		TREE
		FENCE
		SILT SOCK
		DRAINAGE FLOW
		SWALE
98	98	MINOR CONTOUR
100	100	MAJOR CONTOUR
10	10	PARKING COUNT
SWL	SWL	SINGLE WHITE LINE
DYL	DYL	DOUBLE YELLOW LINE
		STOP LINE
		CROSSWALK
		ACCESSIBLE CURB RAMP
		DETECTABLE WARNING PANEL
		ACCESSIBLE PARKING
VAN	VAN	VAN-ACCESSIBLE PARKING
97.5	97.5	SPOT ELEVATION
		KSAT TEST LOCATION
		TEST PIT LOCATION
		MONITORING WELL
	D	DRAIN
S	S	SEWER
OHW	OHW	OVERHEAD WIRE
W	W	WATER
FP	FP	FIRE PROTECTION
G	G	GAS
UE	UE	UNDERGROUND ELECTRIC
ST	ST	STEAM
T	T	TELEPHONE
		CATCH BASIN
		DOUBLE CATCH BASIN
D	D	DRAIN MANHOLE
		PLUG OR CAP
CO	CO	CLEANOUT
		HEADWALL
S	S	SEWER MANHOLE
WSO	WSO	WATER SHUT-OFF
WV	WV	WATER VALVE & BOX
TSV	TSV	TAPPING SLEEVE,VALVE&BOX
HYD	HYD	FIRE HYDRANT
		THRUST BLOCK
PIV	PIV	POST INDICATOR VALVE
GV	GV	GAS GATE
E	E	ELECTRIC MANHOLE
		LIGHT POLE
T	T	TRANSFORMER PAD
		UTILITY POLE
		GUY POLE
		GUY WIRE & ANCHOR
T	T	TELEPHONE MANHOLE
		INLET PROTECTION
		STONE CHECK DAM
		TREE TO BE REMOVED
		STABILIZED CONSTRUCTION ENTRANCE
		STRUCTURE TO BE REMOVED
		PAVEMENT TO BE REMOVED
		BITUMINOUS CONCRETE PAVING
		CONCRETE
		POROUS PAVERS

STATE OF NEW HAMPSHIRE
SHAWN M. TOBEY
No. 14121
LICENSED PROFESSIONAL ENGINEER
12/4/18

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

Hoyle, Tanner & Associates, Inc.
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

Pease International Tradeport

ORIGINAL DATE: NOVEMBER 16, 2018

SCALE: AS SHOWN

CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

NOTES, ABBREVIATIONS AND LEGEND

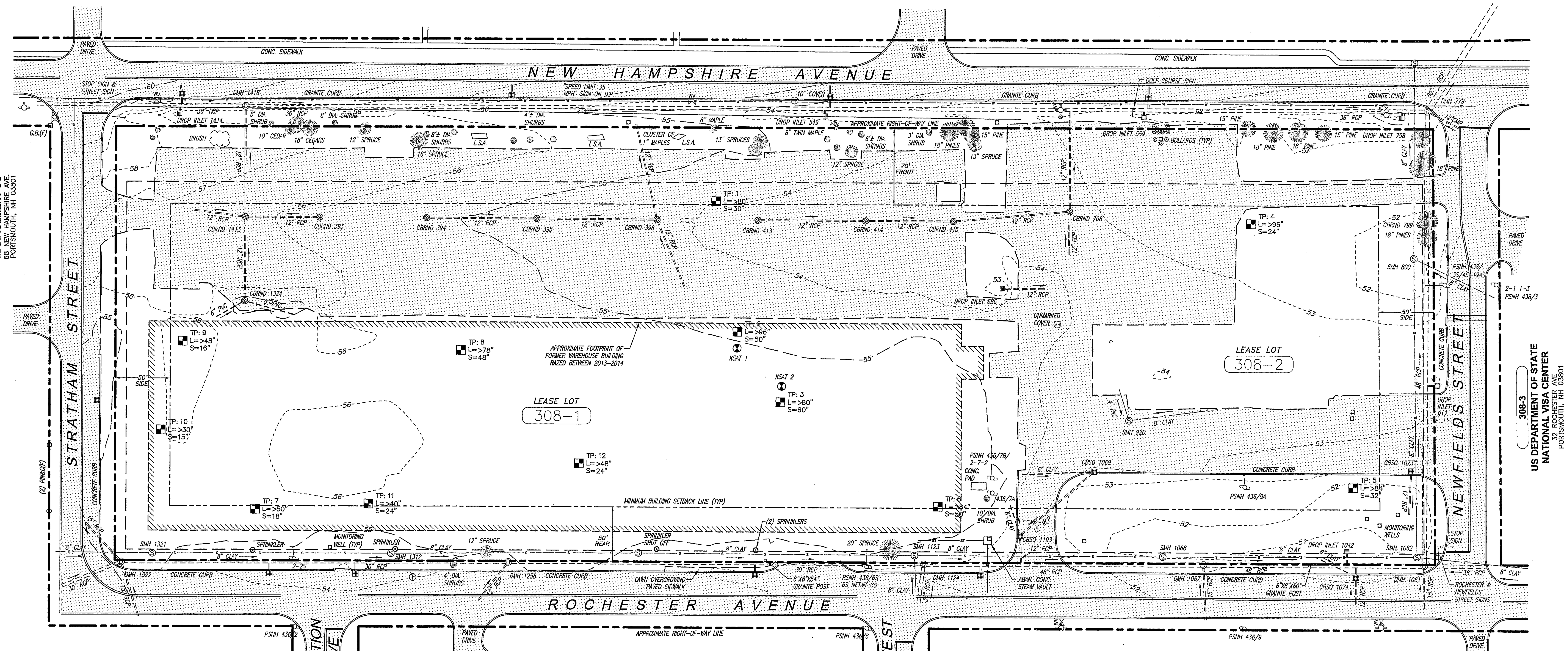
C2

PROJECT NO. 556912

306-3
85 NH AVE LLC
85 NEW HAMPSHIRE AVE
PORTSMOUTH, NH 03801

308-4
SEACOAST MEDIA GROUP
111 NEW HAMPSHIRE AVE
PORTSMOUTH, NH 03801

312-2
PEASE DEVELOPMENT AUTHORITY
INTERNATIONAL DRIVE
PORTSMOUTH, NH 03801



307-0
PEASE DEVELOPMENT AUTHORITY
EXETER ST.
PORTSMOUTH, NH 03801

308-5
PEASE DEVELOPMENT AUTHORITY
5 ROCHESTER AVE.
PORTSMOUTH, NH 03801

308-6
PEASE DEVELOPMENT AUTHORITY
75 ROCHESTER AVE.
PORTSMOUTH, NH 03801

308-4
PEASE DEVELOPMENT AUTHORITY
7 LEE ST.
PORTSMOUTH, NH 03801

308-0
PEASE DEVELOPMENT AUTHORITY
AVIATION AVE
PORTSMOUTH, NH 03801

GRAPHIC SCALE
(IN FEET)
1 inch = 50 ft.

EXISTING DRAINAGE TABLE

CBRND 393
RIM=55.86
SUMP=52.49
INV.OUT=55.24

CBRND 394
RIM=55.21
SUMP=51.67
INV.OUT=52.17

CBRND 395
RIM=54.54
SUMP=50.90
INV.IN-50.89
INV.OUT=50.88

CBRND 396
RIM=54.01
SUMP=50.01
INV.IN=49.83
INV.IN=50.16(S36°W)
INV.OUT=50.11(N46°W)

CBRND 413
RIM=53.74
SUMP=50.15
INV.IN=INACCESSIBLE
INV.OUT=50.14

CBRND 414
RIM=53.45
SUMP=49.83
INV.IN=49.85
INV.OUT=49.55

CBRND 415
RIM=53.27
SUMP=48.92
INV.IN=49.01
INV.OUT=49.03

CBRND 708
RIM=53.06
SUMP=48.10
INV.IN=48.28
INV.IN=48.29(S66°W)
INV.OUT=48.11(N56°E)

CBRND 799
RIM=50.75
SUMP=45.04
INV.OUT=45.18

CBRND 1324
RIM=54.83
SUMP=52.27
INV.IN=52.90(N61°W)
INV.IN=52.81(S16°E)
INV.OUT=52.32(N59°E)

CBRND 1413
RIM=56.36
SUMP=51.80
INV.IN=51.73(N26°W)
INV.IN=51.71(CBRND 1324)
INV.IN=51.73(S39°E)
INV.OUT=51.61(DMH 1416)

CBSQ 1069
RIM=53.00
SUMP=49.00
INV.IN=49.12(N66°W)
INV.OUT=48.11(CBSQ 1193)

CBSQ 1073
RIM=52.09
SUMP=48.59
INV.OUT=48.39

CBSQ 1074
RIM=50.62
SUMP=46.07
INV.IN=46.14(12"RCP)
INV.IN=46.10(6"CLAY)
INV.OUT=46.07(12"RCP)

CBSQ 1193
RIM=52.61
SUMP=48.56
INV.IN=48.80(N41°E)
INV.IN=48.38(CBSQ 1069)
INV.OUT=48.37(S56°W)

DROP INLET 549
RIM=53.97
SUMP=49.47
INV.OUT=49.02(12"RCP)

DROP INLET 559
RIM=52.45
SUMP=48.05
INV.OUT=47.50(12"RCP)

DROP INLET 686
RIM=52.40
SUMP=49.89
INV.OUT=49.88(12"RCP)

DROP INLET 758
RIM=49.54
SUMP=45.89
INV.OUT=45.84(12"RCP)

DROP INLET 917
RIM=53.15
SUMP=50.79
INV.OUT=50.79(10"CMP)

DROP INLET 1042
RIM=50.79
SUMP=47.69
INV.OUT=47.46(10"CMP)

DROP INLET 1414
RIM=56.21
SUMP=53.54
INV.OUT=53.21(12"RCP)

DMH 1061
RIM=52.02
SUMP=44.37
INV.IN=44.60(DMH 1067)
INV.IN=44.57(S59°W)
INV.IN=44.62(S31°E)
INV.OUT=44.49 (DMH 779)

DMH 779
RIM=51.93
SUMP=41.54
INV.IN=42.87 (DMH 1061)
INV.IN=INACCESSIBLE(S14°E)
INV.IN=43.31(DMH 1416)
INV.OUT=42.17(S79°E)

DMH 1067
RIM=52.35
SUMP=45.70
INV.IN=45.95(DMH 1124)
INV.IN=45.90(S56°W)
INV.OUT=45.81 (DMH 1061)

DMH 1124
RIM=54.01
SUMP=46.80
INV.IN=46.61(DMH 1258)
INV.IN=46.76(S66°W)
INV.OUT=46.56(DMH 1067)

DMH 1258
RIM=54.91
SUMP=47.57
INV.IN=47.45(DMH 1322)
INV.IN=47.54(N84°W)
INV.OUT=47.37(DMH 1124)

DMH 1322
RIM=55.14
SUMP=48.40
INV.IN=48.57(N54°W)
INV.IN=48.62(S41W)
INV.IN=48.74(N16°E)
INV.OUT=48.24(DMH 1258)

DMH 1416
RIM=58.30
SUMP=48.77
INV.IN=48.76(N31°W)
INV.IN=50.47(CBRND 1413)
INV.OUT=48.65(DMH 779)

EXISTING SEWER TABLE

SMH 800
RIM=51.36
SHELF=42.47
TROUGH=41.84
INV.IN=41.76(SMH 1062)
INV.IN=47.07(S06°E)
INV.OUT=41.71(SMH 784)

SMH 920
RIM=53.49
SHELF=43.96
TROUGH=43.66
INV.IN=45.54(N33°E)
INV.OUT=43.39(S04°E)

SMH 1062
RIM=51.84
SHELF=43.60
TROUGH=42.77
INV.IN=42.80(N76°W)
INV.IN=42.78(SMH1068)
INV.IN=42.78(S26°E)
INV.OUT=42.79

SMH 1068
RIM=52.16
SHELF=44.36
TROUGH=43.77
INV.IN=43.66(N12°W)
INV.OUT=43.39(SMH 1062)

SMH 1123
RIM=54.64
SHELF=45.31
TROUGH=44.74
INV.IN=44.66
INV.IN=44.72(S04°W)
INV.OUT=44.60

SMH 1312
RIM=54.60
SHELF=47.39
TROUGH=46.79
INV.IN=46.81(SMH 1321)
INV.OUT=46.75(SMH 1543)

SMH 1321
RIM=55.03
SHELF=49.75
TROUGH=49.24
INV.IN=49.28(N31°W)
INV.OUT=49.21(SMH 1312)

NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS ON TAX MAP LOT 308–1 IN PORTSMOUTH, NH.
2. THE OWNER OF RECORD FOR TAX MAP LOT 308–1 & 308–2 IS PEASE DEVELOPMENT AUTHORITY – 80 ROCHESTER AVENUE, PORTSMOUTH, NH 03801. THE DEED REFERENCE FOR THE PARCEL IS BK.4227 PG.0001 AND BK.4564 PG.985 IN THE R.C.R.D..
3. ZONING FOR THE PARCELS IS THE PEASE INDUSTRIAL DISTRICT (PI). ZONING REQUIREMENTS:

LOT AREA – 5 ACRES
FRONT SETBACK – 70 FT.
SIDE SETBACK – 50 FT.
REAR SETBACK – 50 FT.

4. THE SURFACE FEATURES AND TOPOGRAPHY SHOWN ARE THE RESULT OF AN ON THE GROUND SURVEY CONDUCTED DURING THE MONTH OF SEPTEMBER 2018 BY THIS OFFICE. HORIZONTAL ORIENTATION IS BASED ON REFERENCE PLAN#1 AND VERTICAL DATUM IS NAVD88. THE REFERENCE BENCHMARK IS A STANDARD NHDOT DISK STAMPED "379–0690", LOCATED 0.55 MILES SOUTH ALONG NEW HAMPSHIRE AVENUE FROM THE JUNCTION OF NEW HAMPSHIRE AVENUE AND PEASE BOULEVARD, SET IN THE TOP OF A 4 FT. LONG, 5 IN. SQUARE GRANITE MONUMENT ENCASED FLUSH IN THE CONCRETE SIDEWALK AND LEVEL WITH THE ROAD. ELEVATION = 55.81'.
5. SURVEY FEATURES SHOWN BEYOND THE CENTERLINE OF THE SURROUNDING ROADWAYS ARE BASED ON AERIAL IMAGERY AND ARE SHOWN FOR REFERENCE ONLY.
6. APPROXIMATE RIGHT OF WAY INFORMATION SHOWN WAS DEVELOPED ENTIRELY FROM THE REFERENCE PLANS CITED HEREON. ADDITIONAL RIGHTS MAY EXIST BEYOND THE LIMITS OF THE RIGHT OF WAY SHOWN.
7. THE SUBJECT PARCEL IS NOT LOCATED IN A FLOOD HAZARD AREA AS DETERMINED FROM THE FLOOD INSURANCE STUDY (FIRM), ROCKINGHAM COUNTY, CITY OF PORTSMOUTH, NEW HAMPSHIRE, COMMUNITY NO. 330139, PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, MAP NUMBER: 33015C0260E, DATED MAY 17, 2005.
8. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN COMPILED IN PART FROM PLANS OF RECORD AND FIELD LOCATION. THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE CONSIDERED APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO ANY EXCAVATION OR CONSTRUCTION ACTIVITIES.

REFERENCE PLANS:

1. "LOT LINE ADJUSTMENT PLAN – FOR LAND OWNED BY – PEASE DEVELOPMENT AUTHORITY – FOR LAND LEASED TO – 68 NH AVE, LLC – & KNOWN AS – PORTSMOUTH TAX MAP 307 LOT 1 – LOCATED AT – #68 NEW HAMPSHIRE AVENUE – PEASE INTERNATIONAL TRADEPORT – PORTSMOUTH, N.H. – COUNTY OF ROCKINGHAM", SCALE:1"=40', DATED JULY 22, 2014 AND REVISED THROUGH JULY 30, 2014 BY KNIGHT HILL LAND SURVEYING SERVICES, INC. AND RECORDED AS PLAN #D–38389 IN THE R.C.R.D.
2. "SUBDIVISION PLAN", SCALE:1"=60', DATED MAY 25, 2001 AND REVISED THROUGH JULY 26, 2001 BY KIMBALL CHASE AND RECORDED AS PLAN #D–29196 IN THE R.C.R.D.
3. "SUBDIVISION PLAN – 68 NEW HAMPSHIRE AVENUE", SCALE:1"=40', DATED SEPTEMBER 29, 1998 AND REVISED THROUGH OCTOBER 8, 1998 BY KIMBALL CHASE AND RECORDED AS PLAN #D–26777 IN THE R.C.R.D.
4. "SUBDIVISION PLAN – DEPICTING – PORTSMOUTH TAX MAP 306 – LOT 3", SCALE:1"=50', DATED MAY 16, 2005 AND REVISED THROUGH AUGUST 1, 2005 BY KNIGHT HILL LAND SURVEYING SERVICES, INC. AND RECORDED AS PLAN #D–33592 IN THE R.C.R.D.

CERTIFICATION:

"I HEREBY CERTIFY THAT THE EXISTING IMPROVEMENTS SHOWN ARE THE RESULT OF A FIELD SURVEY PERFORMED BY THIS OFFICE IN SEPTEMBER 2018.

DATE: 12/4/18

STATE OF NEW HAMPSHIRE
LICENSED LAND SURVEYOR
No. 946
MICHAEL D. PLOOF
SIGNATURE

LEGEND:

RIGHT-OF-WAY LINE	G.B.(F) GRANITE BOUND FOUND
BUILDING SETBACK LINE	I.P.(F) IRON PIN FOUND
EDGE OF PAVED ROAD	CATCH BASIN (SQUARE)
EDGE OF GRAVEL ROAD	CATCH BASIN (ROUND)
CURB LINE	DRAIN MANHOLE
55 5' CONTOUR INTERVAL	SEWER MANHOLE
53 1' CONTOUR INTERVAL	WATER HYDRANT
CULVERT	WV WATER VALVE
OH OVERHEAD UTILITY LINE	WATER SHUT-OFF
U/G UNDERGROUND UTILITY LINE	GAS VALVE
G GAS LINE	TELEPHONE POLE W/ GUY WIRE
W WATER LINE	SINGLE SIGN POST
S SEWER LINE	BOLLARD
308-1 TAX MAP & LOT NUMBER	MONITORING WELL
TP: 12 L=>48" S=24" TEST PIT LOCATION & DATA	EXISTING BUILDING
TREES	

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

DESIGNED BY	DRAWN BY	CHECKED BY
MDP	MDP	MDP

ORIGINAL DATE: NOVEMBER 16, 2018
SCALE: AS SHOWN

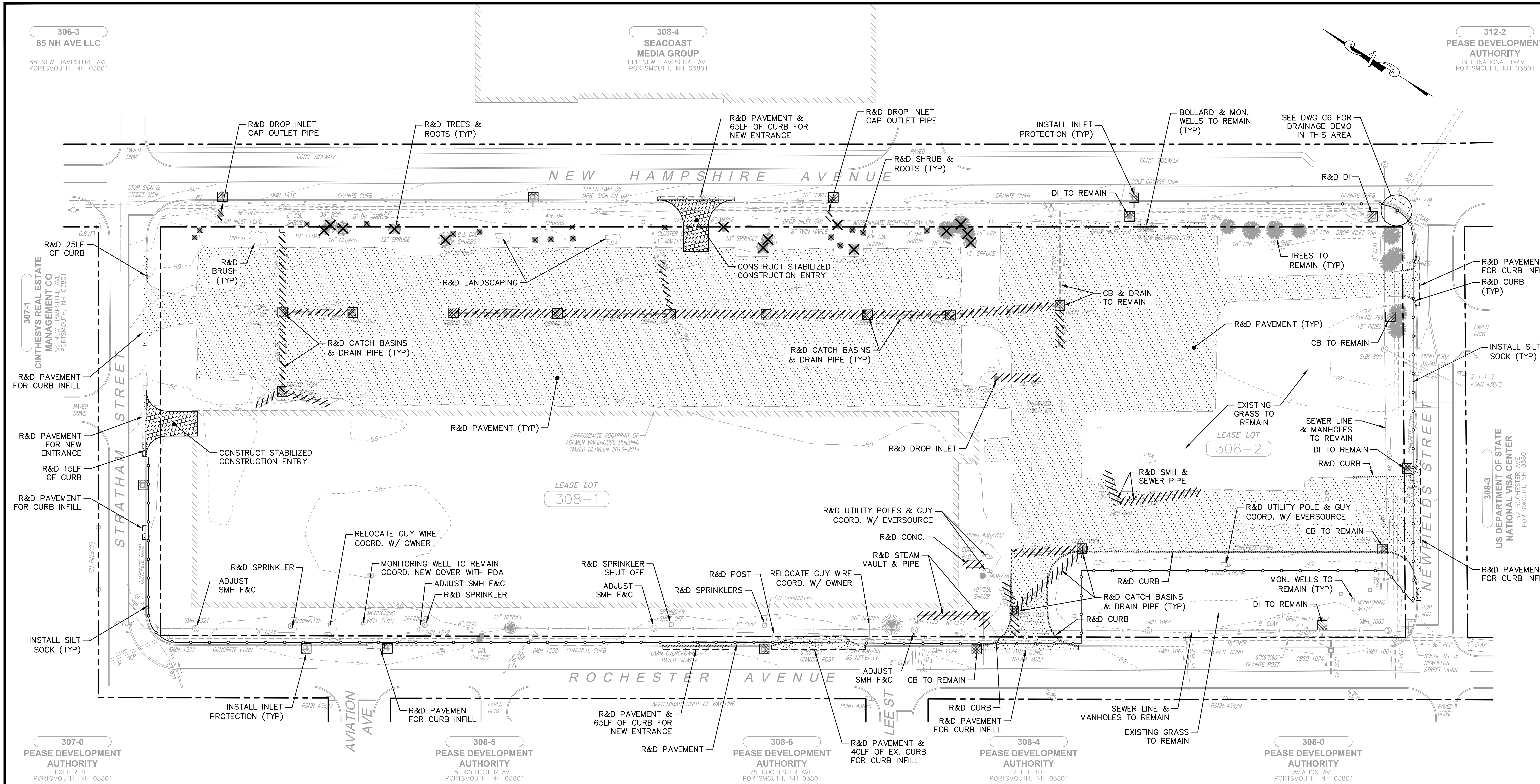
Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

CLIENT: TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT: PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

EXISTING CONDITIONS PLAN
C3

PROJECT NO. 556912



EXISTING DRAINAGE TABLE

CBRND 393
RIM=55.86
SUMP=52.49
INV.OUT=55.24

CBRND 394
RIM=55.21
SUMP=51.67
INV.OUT=52.17

CBRND 395
RIM=54.54
SUMP=50.90
INV.IN–50.89
INV.OUT=50.88

CBRND 396
RIM=54.01
SUMP=50.01
INV.IN=49.83
INV.IN=50.16(S36°W)
INV.OUT=50.11(N46°W)

CBRND 413
RIM=53.74
SUMP=50.15
INV.IN=INACCESSIBLE
INV.OUT=50.14

CBRND 414
RIM=53.45
SUMP=49.83
INV.IN=49.85
INV.OUT=49.55

CBRND 415
RIM=53.27
SUMP=48.92
INV.IN=49.01
INV.OUT=49.03

CBRND 708
RIM=53.06
SUMP=48.10
INV.IN=48.28
INV.IN=48.29(S66°W)
INV.OUT=48.11(N56°E)

CBRND 799
RIM=50.75
SUMP=45.04
INV.OUT=45.18

CBRND 1324
RIM=54.83
SUMP=52.27
INV.IN=52.90(N61°W)
INV.IN=52.81(S16°E)
INV.OUT=52.32(N59°E)

CBRND 1413
RIM=56.36
SUMP=51.80
INV.IN=51.73(N26°W)
INV.IN=51.71(CBRND 1324)
INV.IN=51.73(S39°E)
INV.OUT=51.61(DMH 1416)

CBSQ 1069
RIM=53.00
SUMP=49.00
INV.IN=49.12(N66°W)
INV.OUT=48.11(CBSQ 1193)

CBSQ 1073
RIM=52.09
SUMP=48.59
INV.OUT=48.39

CBSQ 1074
RIM=50.62
SUMP=46.07
INV.IN=46.14(12"RCP)
INV.IN=46.10(6"CLAY)
INV.OUT=46.07(12"RCP)

CBSQ 1193
RIM=52.61
SUMP=48.56
INV.IN=48.80(N41°E)
INV.IN=48.38(CBSQ 1069)
INV.OUT=48.37(S56°W)

DROP INLET 549
RIM=53.97
SUMP=49.47
INV.OUT=49.02(12"RCP)

DROP INLET 559
RIM=52.45
SUMP=48.05
INV.OUT=47.50(12"RCP)

DROP INLET 686
RIM=52.40
SUMP=49.89
INV.OUT=49.88(12"RCP)

DROP INLET 758
RIM=49.54
SUMP=45.89
INV.OUT=45.84(12"RCP)

DROP INLET 917
RIM=53.15
SUMP=50.79
INV.OUT=50.79(10"CMP)

DROP INLET 1042
RIM=50.79
SUMP=47.69
INV.OUT=47.46(10"CMP)

DROP INLET 1414
RIM=56.21
SUMP=53.54
INV.OUT=53.21(12"RCP)

DMH 1061
RIM=52.02
SUMP=44.37
INV.IN=44.60(DMH 1067)
INV.IN=44.57(S59°W)
INV.IN=44.62(S31°E)
INV.OUT=44.49 (DMH 779)

DMH 779
RIM=51.93
SUMP=41.54
INV.IN=42.87 (DMH 1061)
INV.IN=INACCESSIBLE(S14°E)
INV.IN=43.31(DMH 1416)
INV.OUT=42.17(S79°E)

DMH 1067
RIM=52.35
SUMP=45.70
INV.IN=45.95(DMH 1124)
INV.IN=45.90(S56°W)
INV.OUT=45.81 (DMH 1061)

DMH 1124
RIM=54.01
SUMP=46.80
INV.IN=46.61(DMH 1258)
INV.IN=46.76(S66°W)
INV.OUT=46.56(DMH 1067)

DMH 1258
RIM=54.91
SUMP=47.57
INV.IN=47.45(DMH 1322)
INV.IN=47.54(N84°W)
INV.OUT=47.37(DMH 1124)

DMH 1322
RIM=55.14
SUMP=48.40
INV.IN=48.57(N54°W)
INV.IN=48.62(S41W)
INV.IN=48.74(N16°E)
INV.OUT=48.24(DMH 1258)

DMH 1416
RIM=58.30
SUMP=48.77
INV.IN=48.76(N31°W)
INV.IN=50.47(CBRND 1413)
INV.OUT=48.65(DMH 779)

EXISTING SEWER TABLE

SMH 800
RIM=51.36
SHELF=42.47
TROUGH=41.84
INV.IN=41.76(SMH 1062)
INV.IN=47.07(S06°E)
INV.OUT=41.71(SMH 784)

SMH 920
RIM=53.49
SHELF=43.96
TROUGH=43.66
INV.IN=45.54(N33°E)
INV.OUT=43.39(S04°E)

SMH 1062
RIM=51.84
SHELF=43.60
TROUGH=42.77
INV.IN=42.80(N76°W)
INV.IN=42.78(SMH1068)
INV.IN=42.78(S26°E)
INV.OUT=42.79

SMH 1068
RIM=52.16
SHELF=44.36
TROUGH=43.77
INV.IN=43.66(N12°W)
INV.OUT=43.39(SMH 1062)

SMH 1123
RIM=54.64
SHELF=45.31
TROUGH=44.74
INV.IN=44.66
INV.IN=44.72(S04°W)
INV.OUT=44.60

SMH 1312
RIM=54.60
SHELF=47.39
TROUGH=46.79
INV.IN=46.81(SMH 1321)
INV.OUT=46.75(SMH 1543)

SMH 1321
RIM=55.03
SHELF=49.75
TROUGH=49.24
INV.IN=49.28(N31°W)
INV.OUT=49.21(SMH 1312)

DEMOLITION NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C10–C15 FOR CONSTRUCTION DETAILS.
3. INSTALL ALL EROSION CONTROL MEASURES PRIOR TO THE START OF ANY SITE DEMOLITION OR CONSTRUCTION.
4. THE CONTRACTOR SHALL REMOVE ALL UTILITIES, MAINS AND SERVICES UNCOVERED DURING CUT OPERATIONS OR WITHIN 36" OF FINISHED GRADE.
5. ALL EXISTING MONITORING WELLS ARE TO REMAIN. COORDINATE WITH PDA TO CUT AND LOWER WELL COVERS TO BE FLUSH WITH THE FINISHED SURFACE.

GRAPHIC SCALE

50 0 25 50 60

(IN FEET)
1 inch = 50 ft.

STATE OF NEW HAMPSHIRE
SHAWN M. TOBEY
No. 14121
LICENSED PROFESSIONAL ENGINEER
12/4/18

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
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1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

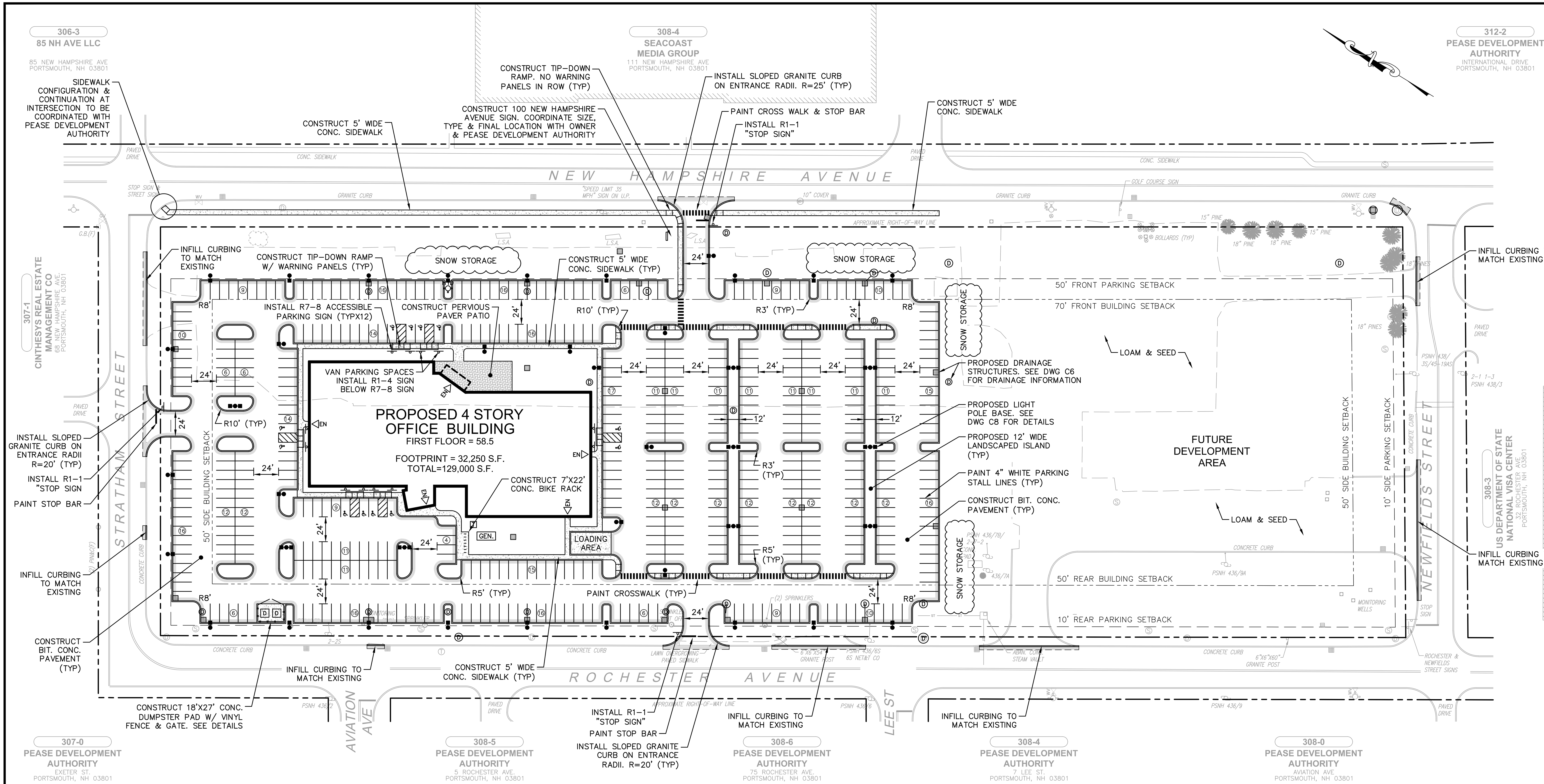
PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

DEMOLITION PLAN

C4

PROJECT NO. 556912

SHEET 4 OF 15



SITE DATA

1. OWNER OF RECORD: PEASE DEVELOPMENT AUTHORITY
   55 INTERNATIONAL DRIVE
   PORTSMOUTH, NH 03801
2. APPLICANT: TWO INTERNATIONAL GROUP
   1 NEW HAMPSHIRE AVENUE, SUITE 123
   PORTSMOUTH, NH 03801

SUBJECT LOT ADDRESS: 100 NEW HAMPSHIRE AVENUE
(FORMERLY 80 ROCHESTER AVENUE)
PORTSMOUTH, NH 03801

3. SUBJECT LOT ID: TAX MAP 308 LOT 1 & 2
4. LOT AREA: 474,995± S.F (10.9± ACRES)
5. ZONING: INDUSTRIAL ZONE
6. BUILDING DIMENSIONS: MAIN BUILDINGS = 120' X 120'
   CONNECTOR = 30'± X 115'±
   FOOTPRINT = 32,250 S.F.
   TOTAL BUILDING = 129,000 S.F.
7. PARKING: BUSINESS OFFICE:
   1 SPACES/250 S.F. GROSS FLOOR AREA
   129,000 S.F./250 S.F = 516 SPACES
8. ACCESSIBLE PARKING: 501 TO 1,000 SPACES = 2% OF TOTAL
   516 X .02 = 11 REQ'D
9. VAN ACCESSIBLE: 1 PER 6 OF TOTAL. 11/6 = 2 REQ'D
10. AREA OF DISTURBANCE: 419,500± S.F. ONSITE
    41,200± S.F. OFFSITE (IN ROW)
11. IMPERVIOUS COVER: EXISTING SITE = 327,555 SF
    DEVELOPED SITE = 216,235 SF
    −111,320 SF
12. OPEN SPACE CALC: TOTAL LOT SIZE = 10.9 AC.
    TOTAL UPLAND AREA = 10.9 AC.
    WETLAND OPEN SPACE = 0.00 AC.
    OPEN REQ'D. 10.9 X 25% = 2.73 AC.

DIMENSIONAL REQUIREMENTS (INDUSTRIAL ZONE)

REGULATION	REQUIRED	PROVIDED
LOT AREA:	10.0 AC.	10.9 AC.
LOT FRONTAGE:	200 FT.	1,200± FT.
FRONT YARD SETBACK:	70 FT.	129± FT.
SIDE YARD SETBACK:	50 FT.	143± FT.
REAR YARD SETBACK:	50 FT.	115± FT.
FRONT PARKING SETBACK:	50 FT.	52 FT.
SIDE PARKING SETBACK:	10 FT.	12 FT.
REAR PARKING SETBACK:	10 FT.	13 FT.
PARKING:	516 SPACES	517 SPACES
ACCESSIBLE PARKING:	11 SPACES	12 SPACES
VAN ACCESSIBLE PARKING:	2 SPACES	2 SPACES
STALL DIMENSIONS:	8.5 FT. WIDE (160 S.F.)	9.0 FT. WIDE (162 S.F.)
AISLE WIDTH (90° PARKING):	24 FT.	24 FT.
OPEN SPACE (UPLAND):	25% (2.73 AC.)	54% (5.94 AC.)

SITE NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C10–C15 FOR CONSTRUCTION DETAILS.
3. ALL CURBING SHALL BE VERTICAL GRANITE, WITH THE EXCEPTION OF THE RADII AT THE ENTRANCES WHERE THE CURB SHALL BE SLOPED GRANITE.
4. THE LOCATION OF PROPOSED BUILDING ENTRANCES ARE APPROXIMATE AND SHALL BE COORDINATED WITH THE ARCHITECTURAL PLANS.
5. COORDINATE ALL WORK ADJACENT TO THE PROPOSED BUILDING WITH THE ARCHITECTURAL DRAWINGS.
6. PAVEMENT ON THE SOUTHERN PORTION OF THE SITE SHALL BE REMOVED AND REPLACED WITH TEMPORARY LOAM & SEED UNTIL FUTURE DEVELOPMENT IS STARTED.
7. THE CONTRACTOR SHALL INSTALL DETECTABLE WARNING PANELS ON ALL TIP–DOWN RAMPS LOCATED WITHIN THE SUBJECT PARCEL AND AT STREET CROSSINGS IN THE ROW. THERE SHALL BE NOT DETECTABLE WARNING PANELS ON TIP–DOWN RAMPS IN THE RIGHT OF WAY AT DRIVEWAY CROSSINGS.

DRAINAGE MAINTENANCE NOTES:

1. THE PARKING AREAS SHALL BE SWEPT IN THE SPRINT TO REMOVE SEDIMENT FROM SNOW AND ICE MANAGEMENT ACTIVITIES.
2. CONTECH JELLYFISH FILTERS, CATCH BASINS, DRAIN MANHOLES AND DRAIN PIPES SHALL HAVE SEDIMENT REMOVED SEMI–ANNUALLY.

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

STATE OF NEW HAMPSHIRE
SHAWN M. TOBEY
No. 14121
LICENSED PROFESSIONAL ENGINEER
12/4/18

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

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Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE: AS SHOWN
ORIGINAL DATE: NOVEMBER 16, 2018

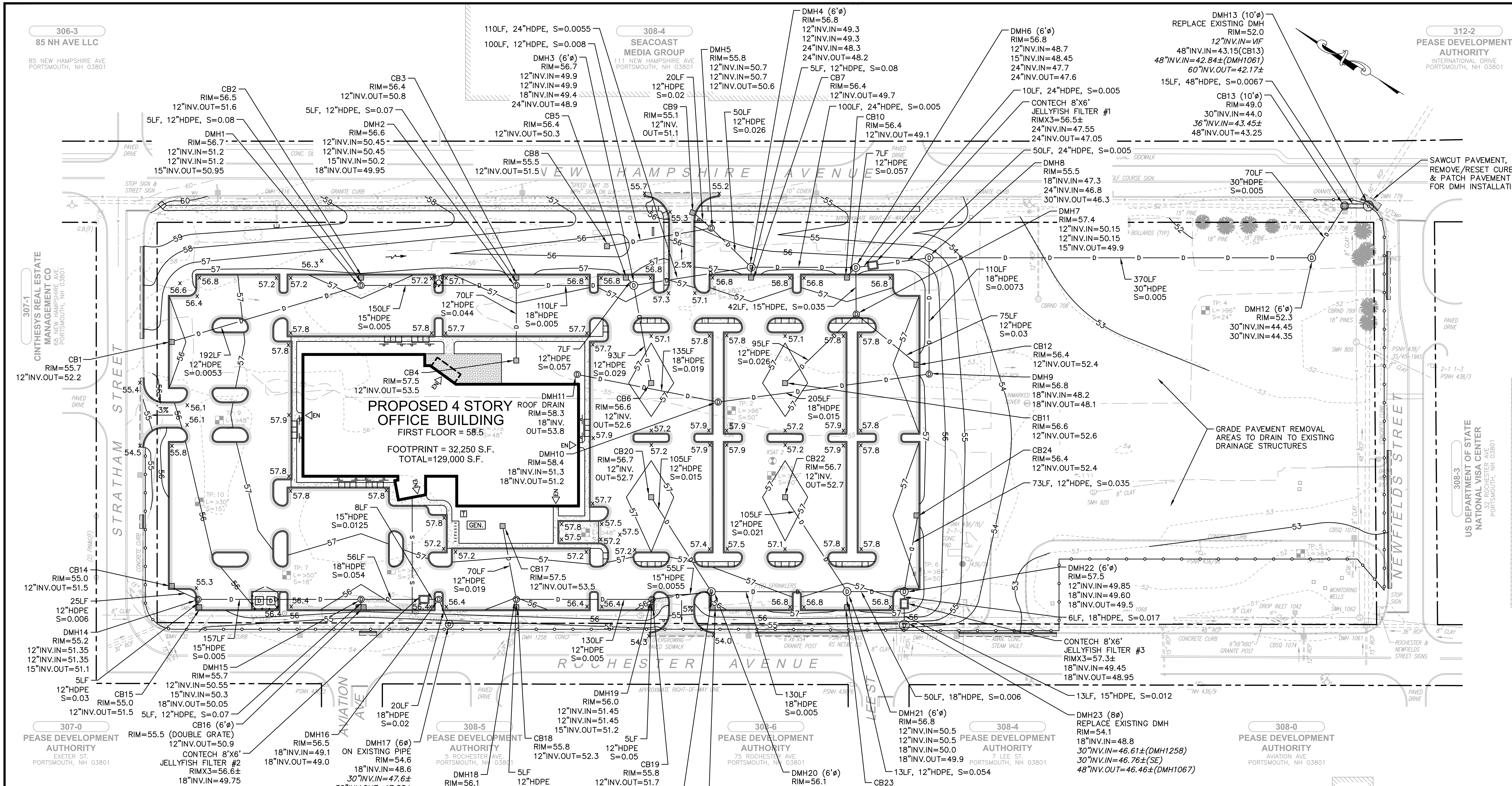
CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

SITE PLAN

C5

PROJECT NO. 556912



EXISTING DRAINAGE TABLE

CBRND 393
RIM=55.86
SUMP=52.49
INV.OUT=55.24

CBRND 394
RIM=55.21
SUMP=51.67
INV.OUT=52.17

CBRND 395
RIM=54.54
SUMP=50.90
INV.IN-50.89
INV.OUT=50.88

CBRND 396
RIM=54.01
SUMP=50.01
INV.IN=49.83
INV.IN=50.16(S36°W)
INV.OUT=50.11(N46°W)

CBRND 413
RIM=53.74
SUMP=50.15
INV.IN=INACCESSIBLE
INV.OUT=50.14

CBRND 414
RIM=53.45
SUMP=49.83
INV.IN=49.85
INV.OUT=49.55

CBRND 415
RIM=53.27
SUMP=48.92
INV.IN=49.01
INV.OUT=49.03

CBRND 708
RIM=53.06
SUMP=48.10
INV.IN=48.28
INV.IN=48.29(S66°W)
INV.OUT=48.11(N56°E)

CBRND 799
RIM=50.75
SUMP=45.04
INV.OUT=45.18

CBRND 1324
RIM=54.83
SUMP=52.27
INV.IN=52.90(N61°W)
INV.IN=52.81(S16°E)
INV.OUT=52.32(N59°E)

CBRND 1413
RIM=56.36
SUMP=51.80
INV.IN=51.73(N26°W)
INV.IN=51.71(CBRND 1324)
INV.IN=51.73(S39°E)
INV.OUT=51.61(DMH 1416)

CBSQ 1069
RIM=53.00
SUMP=49.00
INV.IN=49.12(N66°W)
INV.OUT=48.11(CBSQ 1193)

CBSQ 1073
RIM=52.09
SUMP=48.59
INV.OUT=48.39

CBSQ 1074
RIM=50.62
SUMP=46.07
INV.IN=46.14(12"RCP)
INV.IN=46.10(6"CLAY)
INV.OUT=46.07(12"RCP)

CBSQ 1193
RIM=52.61
SUMP=48.56
INV.IN=48.80(N41°E)
INV.IN=48.38(CBSQ 1069)
INV.OUT=48.37(S56°W)

DROP INLET 549
RIM=53.97
SUMP=49.47
INV.OUT=49.02(12"RCP)

DROP INLET 559
RIM=52.45
SUMP=48.05
INV.OUT=47.50(12"RCP)

DROP INLET 686
RIM=52.40
SUMP=49.89
INV.OUT=49.88(12"RCP)

DROP INLET 758
RIM=49.54
SUMP=45.89
INV.OUT=45.84(12"RCP)

DROP INLET 917
RIM=53.15
SUMP=50.79
INV.OUT=50.79(10"CMP)

DROP INLET 1042
RIM=50.79
SUMP=47.69
INV.OUT=47.46(10"CMP)

DROP INLET 1414
RIM=56.21
SUMP=53.54
INV.OUT=53.21(12"RCP)

DMH 1061
RIM=52.02
SUMP=44.37
INV.IN=44.60(DMH 1067)
INV.IN=44.57(S59°W)
INV.IN=44.62(S31°E)
INV.OUT=44.49 (DMH 779)

DMH 779
RIM=51.93
SUMP=41.54
INV.IN=42.87 (DMH 1061)
INV.IN=INACCESSIBLE(S14°E)
INV.IN=43.31(DMH 1416)
INV.OUT=42.17(S79°E)

DMH 1067
RIM=52.35
SUMP=45.70
INV.IN=45.95(DMH 1124)
INV.IN=45.90(S56°W)
INV.OUT=45.81 (DMH 1061)

DMH 1124
RIM=54.01
SUMP=46.80
INV.IN=46.61(DMH 1258)
INV.IN=46.76(S66°W)
INV.OUT=46.56(DMH 1067)

DMH 1258
RIM=54.91
SUMP=47.57
INV.IN=47.45(DMH 1322)
INV.IN=47.54(N84°W)
INV.OUT=47.37(DMH 1124)

DMH 1322
RIM=55.14
SUMP=48.40
INV.IN=48.57(N54°W)
INV.IN=48.62(S41W)
INV.IN=48.74(N16°E)
INV.OUT=48.24(DMH 1258)

DMH 1416
RIM=58.30
SUMP=48.77
INV.IN=48.76(N31°W)
INV.IN=50.47(CBRND 1413)
INV.OUT=48.65(DMH 779)

EXISTING SEWER TABLE

SMH 800
RIM=51.36
SHELF=42.47
TROUGH=41.84
INV.IN=41.76(SMH 1062)
INV.IN=47.07(S06°E)
INV.OUT=41.71(SMH 784)

SMH 920
RIM=53.49
SHELF=43.96
TROUGH=43.66
INV.IN=45.54(N33°E)
INV.OUT=43.39(S04°E)

SMH 1062
RIM=51.84
SHELF=43.60
TROUGH=42.77
INV.IN=42.80(N76°W)
INV.IN=42.78(SMH1068)
INV.IN=42.78(S26°E)
INV.OUT=42.79

SMH 1068
RIM=52.16
SHELF=44.36
TROUGH=43.77
INV.IN=43.66(N12°W)
INV.OUT=43.39(SMH 1062)

SMH 1123
RIM=54.64
SHELF=45.31
TROUGH=44.74
INV.IN=44.66
INV.IN=44.72(S04°W)
INV.OUT=44.60

SMH 1312
RIM=54.60
SHELF=47.39
TROUGH=46.79
INV.IN=46.81(SMH 1321)
INV.OUT=46.75(SMH 1543)

SMH 1321
RIM=55.03
SHELF=49.75
TROUGH=49.24
INV.IN=49.28(N31°W)
INV.OUT=49.21(SMH 1312)

GRADING & DRAINAGE NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C10–C15 FOR CONSTRUCTION DETAILS.
3. CONTECH JELLYFISH FILTERS FOR STORMWATER TREATMENT SHALL BE MODEL JFPD0806 OR APPROVED EQUAL.
4. DRAINAGE PIPES AND STRUCTURES TO BE REMOVED ARE NOT SHOWN ON THIS PLAN FOR CLARITY.
5. ALL DRAINAGE STRUCTURES HAVE AN INTERNAL DIAMETER OF 4'–0" UNLESS OTHERWISE SPECIFIED ON THE PLANS.
6. THE LOCATION OF PROPOSED BUILDING ENTRANCES ARE APPROXIMATE AND SHALL BE COORDINATED WITH THE ARCHITECTURAL PLANS.
7. INSTALL INLET PROTECTION ON ALL PROPOSED CATCH BASINS AFTER INSTALLATION. REMOVE WHEN CONSTRUCTION IS COMPLETED.

GRAPHIC SCALE
0 25 50 60
(IN FEET)
1 inch = 50 ft.

STATE OF NEW HAMPSHIRE
SHAWN M. TOBEY
No. 14121
LICENSED PROFESSIONAL ENGINEER
12/4/18

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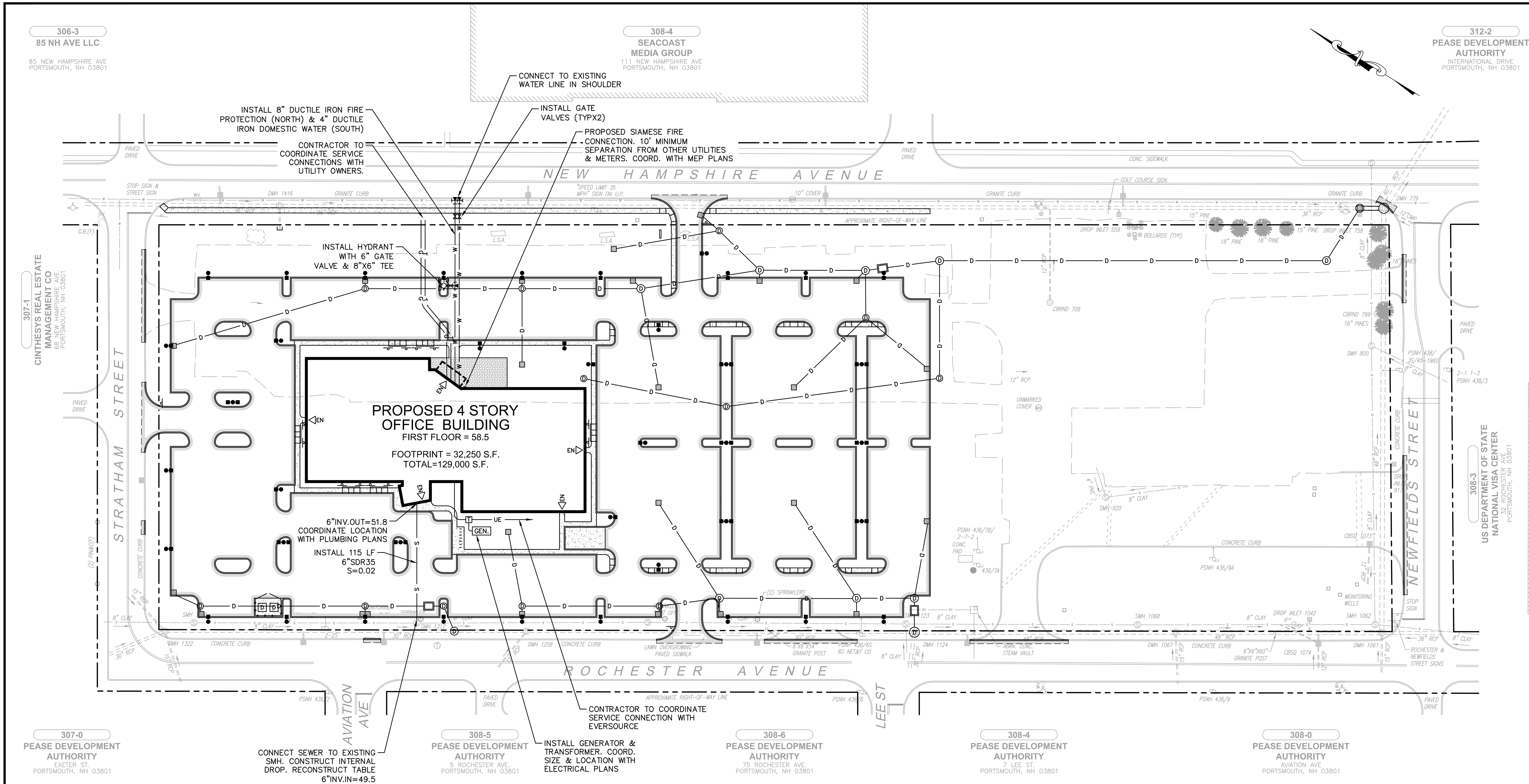
PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

GRADING, DRAINAGE & EROSION CONTROL PLAN

C6

PROJECT NO. 556912



EXISTING DRAINAGE TABLE

CBRND 393
RIM=55.86
SUMP=52.49
INV.OUT=55.24

CBRND 394
RIM=55.21
SUMP=51.67
INV.OUT=52.17

CBRND 395
RIM=54.54
SUMP=50.90
INV.IN–50.89
INV.OUT=50.88

CBRND 396
RIM=54.01
SUMP=50.01
INV.IN=49.83
INV.IN=50.16(S36°W)
INV.OUT=50.11(N46°W)

CBRND 413
RIM=53.74
SUMP=50.15
INV.IN=INACCESSIBLE
INV.OUT=50.14

CBRND 414
RIM=53.45
SUMP=49.83
INV.IN=49.85
INV.OUT=49.55

CBRND 415
RIM=53.27
SUMP=48.92
INV.IN=49.01
INV.OUT=49.03

CBRND 708
RIM=53.06
SUMP=48.10
INV.IN=48.28
INV.IN=48.29(S66°W)
INV.OUT=48.11(N56°E)

CBRND 799
RIM=50.75
SUMP=45.04
INV.OUT=45.18

CBRND 1324
RIM=54.83
SUMP=52.27
INV.IN=52.90(N61°W)
INV.IN=52.81(S16°E)
INV.OUT=52.32(N59°E)

CBRND 1413
RIM=56.36
SUMP=51.80
INV.IN=51.73(N26°W)
INV.IN=51.71(CBRND 1324)
INV.IN=51.73(S39°E)
INV.OUT=51.61(DMH 1416)

CBSQ 1069
RIM=53.00
SUMP=49.00
INV.IN=49.12(N66°W)
INV.OUT=48.11(CBSQ 1193)

CBSQ 1073
RIM=52.09
SUMP=48.59
INV.OUT=48.39

CBSQ 1074
RIM=50.62
SUMP=46.07
INV.IN=46.14(12"RCP)
INV.IN=46.10(6"CLAY)
INV.OUT=46.07(12"RCP)

CBSQ 1193
RIM=52.61
SUMP=48.56
INV.IN=48.80(N41°E)
INV.IN=48.38(CBSQ 1069)
INV.OUT=48.37(S56°W)

DROP INLET 549
RIM=53.97
SUMP=49.47
INV.OUT=49.02(12"RCP)

DROP INLET 559
RIM=52.45
SUMP=48.05
INV.OUT=47.50(12"RCP)

DROP INLET 686
RIM=52.40
SUMP=49.89
INV.OUT=49.88(12"RCP)

DROP INLET 758
RIM=49.54
SUMP=45.89
INV.OUT=45.84(12"RCP)

DROP INLET 917
RIM=53.15
SUMP=50.79
INV.OUT=50.79(10"CMP)

DROP INLET 1042
RIM=50.79
SUMP=47.69
INV.OUT=47.46(10"CMP)

DROP INLET 1414
RIM=56.21
SUMP=53.54
INV.OUT=53.21(12"RCP)

DMH 1061
RIM=52.02
SUMP=44.37
INV.IN=44.60(DMH 1067)
INV.IN=44.57(S59°W)
INV.IN=44.62(S31°E)
INV.OUT=44.49 (DMH 779)

DMH 779
RIM=51.93
SUMP=41.54
INV.IN=42.87 (DMH 1061)
INV.IN=INACCESSIBLE(S14°E)
INV.IN=43.31(DMH 1416)
INV.OUT=42.17(S79°E)

DMH 1067
RIM=52.35
SUMP=45.70
INV.IN=45.95(DMH 1124)
INV.IN=45.90(S56°W)
INV.OUT=45.81 (DMH 1061)

DMH 1124
RIM=54.01
SUMP=46.80
INV.IN=46.61(DMH 1258)
INV.IN=46.76(S66°W)
INV.OUT=46.56(DMH 1067)

DMH 1258
RIM=54.91
SUMP=47.57
INV.IN=47.45(DMH 1322)
INV.IN=47.54(N84°W)
INV.OUT=47.37(DMH 1124)

DMH 1322
RIM=55.14
SUMP=48.40
INV.IN=48.57(N54°W)
INV.IN=48.62(S41W)
INV.IN=48.74(N16°E)
INV.OUT=48.24(DMH 1258)

DMH 1416
RIM=58.30
SUMP=48.77
INV.IN=48.76(N31°W)
INV.IN=50.47(CBRND 1413)
INV.OUT=48.65(DMH 779)

EXISTING SEWER TABLE

SMH 800
RIM=51.36
SHELF=42.47
TROUGH=41.84
INV.IN=41.76(SMH 1062)
INV.IN=47.07(S06°E)
INV.OUT=41.71(SMH 784)

SMH 920
RIM=53.49
SHELF=43.96
TROUGH=43.66
INV.IN=45.54(N33°E)
INV.OUT=43.39(S04°E)

SMH 1062
RIM=51.84
SHELF=43.60
TROUGH=42.77
INV.IN=42.80(N76°W)
INV.IN=42.78(SMH1068)
INV.IN=42.78(S26°E)
INV.OUT=42.79

SMH 1068
RIM=52.16
SHELF=44.36
TROUGH=43.77
INV.IN=43.66(N12°W)
INV.OUT=43.39(SMH 1062)

SMH 1123
RIM=54.64
SHELF=45.31
TROUGH=44.74
INV.IN=44.66
INV.IN=44.72(S04°W)
INV.OUT=44.60

SMH 1312
RIM=54.60
SHELF=47.39
TROUGH=46.79
INV.IN=46.81(SMH 1321)
INV.OUT=46.75(SMH 1543)

SMH 1321
RIM=55.03
SHELF=49.75
TROUGH=49.24
INV.IN=49.28(N31°W)
INV.OUT=49.21(SMH 1312)

UTILITY NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C10–C15 FOR CONSTRUCTION DETAILS.
3. REFER TO MEP PLANS FOR ALL UTILITY SERVICE CONNECTION LOCATIONS TO THE BUILDING AND FOR THE SIZE OF UTILITY LINES.
4. CONFIRM DOMESTIC WATER SERVICE AND FIRE PROTECTION SERVICE SIZES WITH MEP PLANS PRIOR TO INSTALLATION.
5. COORDINATE LIGHT POLE BASE LOCATIONS, CONDUIT ROUTING, CONDUIT SIZE AND POWER SUPPLY WITH ELECTRICAL CONTRACTOR.

GRAPHIC SCALE
50 0 25 50 60
(IN FEET)
1 inch = 50 ft.

STATE OF NEW HAMPSHIRE
SHAWN M. TOBEY
No. 14121
LICENSED PROFESSIONAL ENGINEER
12/4/18

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AS SHOWN	NOVEMBER 16, 2018	SMT	SMT	WRD

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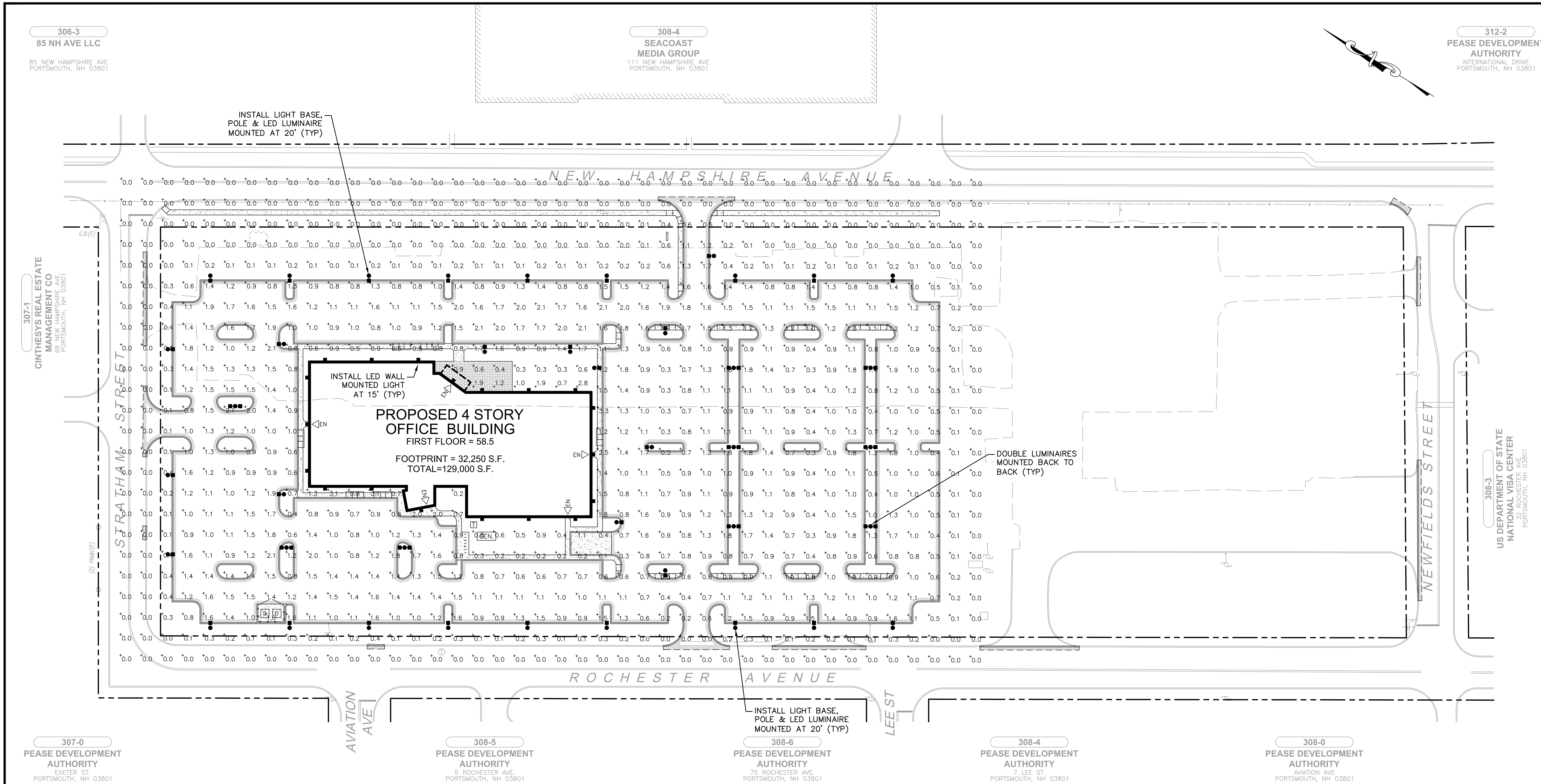
PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

UTILITY PLAN

C7

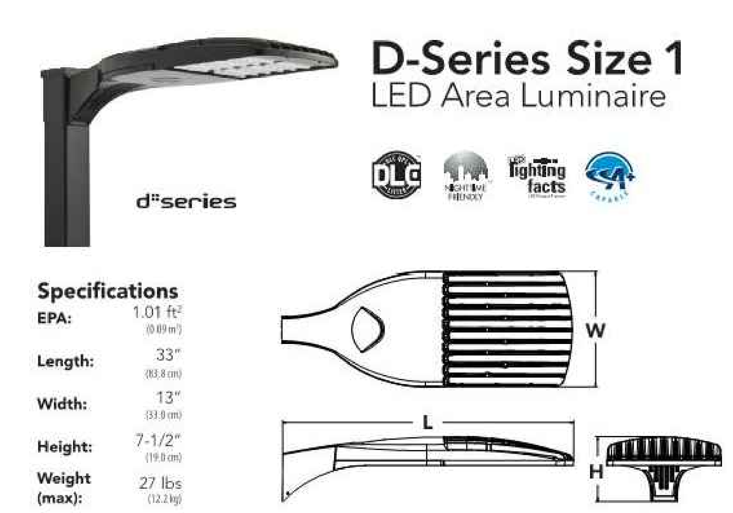
PROJECT NO. 556912

SHEET 7 OF 15



LIGHTING NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE GENERAL LOCATION OF SITE LIGHTING. THE CONTRACTOR SHALL SUBMIT A PHOTOMETRIC LIGHTING PLAN FROM THE LIGHTING DISTRIBUTOR FOR APPROVAL BEFORE CONSTRUCTION. THE CONTRACTOR MAY USE APPROVED EQUAL LIGHTING FIXTURES.
2. COORDINATE FINAL MOUNTING HEIGHT AND LOCATION OF ALL WALL LUMINAIRES WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS.
3. LIGHTING SPOTS SHOWN ARE MEASURED IN FOOT-CANDLES.
4. LIGHTING DESIGN PREPARED USING VISUAL PROFESSIONAL EDITION LIGHTING SOFTWARE VERSION 2.09.0105.
5. COORDINATE LIGHT POLE BASE LOCATIONS, CONDUIT ROUTING, CONDUIT SIZE AND POWER SUPPLY WITH ELECTRICAL CONTRACTOR.
6. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
7. REFER TO DWG C10-C15 FOR CONSTRUCTION DETAILS.



LUMINAIRE SCHEDULE								
SYMBOL	QTY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	LAMP	LUMENS	LLF	WATTS
	30	LITHONIA LIGHTING	DSX1 LED 30C 700 40K TFTM MVOLT HS MA	DSX 1 LED WITH (1) 30 LED LIGHT ENGINERS, TYPE TFTM OPTIC, 4000K, @ 700mA WITH HOUSE SIDE SHIELD FOR MAST ARM MOUNTING	LED	ABSOLUTE	1.00	68
	9	LITHONIA LIGHTING	DSX1 LED 30C 700 40K TFTM MVOLT HS MA	DSX 1 LED WITH (2) 30 LED LIGHT ENGINERS, MOUNTED BACK TO BACK, TYPE TFTM OPTIC, 4000K, @ 700mA WITH HOUSE SIDE SHIELD FOR MAST ARM MOUNTING	LED	ABSOLUTE	1.00	68
■	19	LITHONIA LIGHTING	OLWX1 LED 20W 40K DDB	20W 4000K LED WALL PACK	LED	ABSOLUTE	1.00	21.8

GRAPHIC SCALE
50 0 25 50 60
(IN FEET)
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DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

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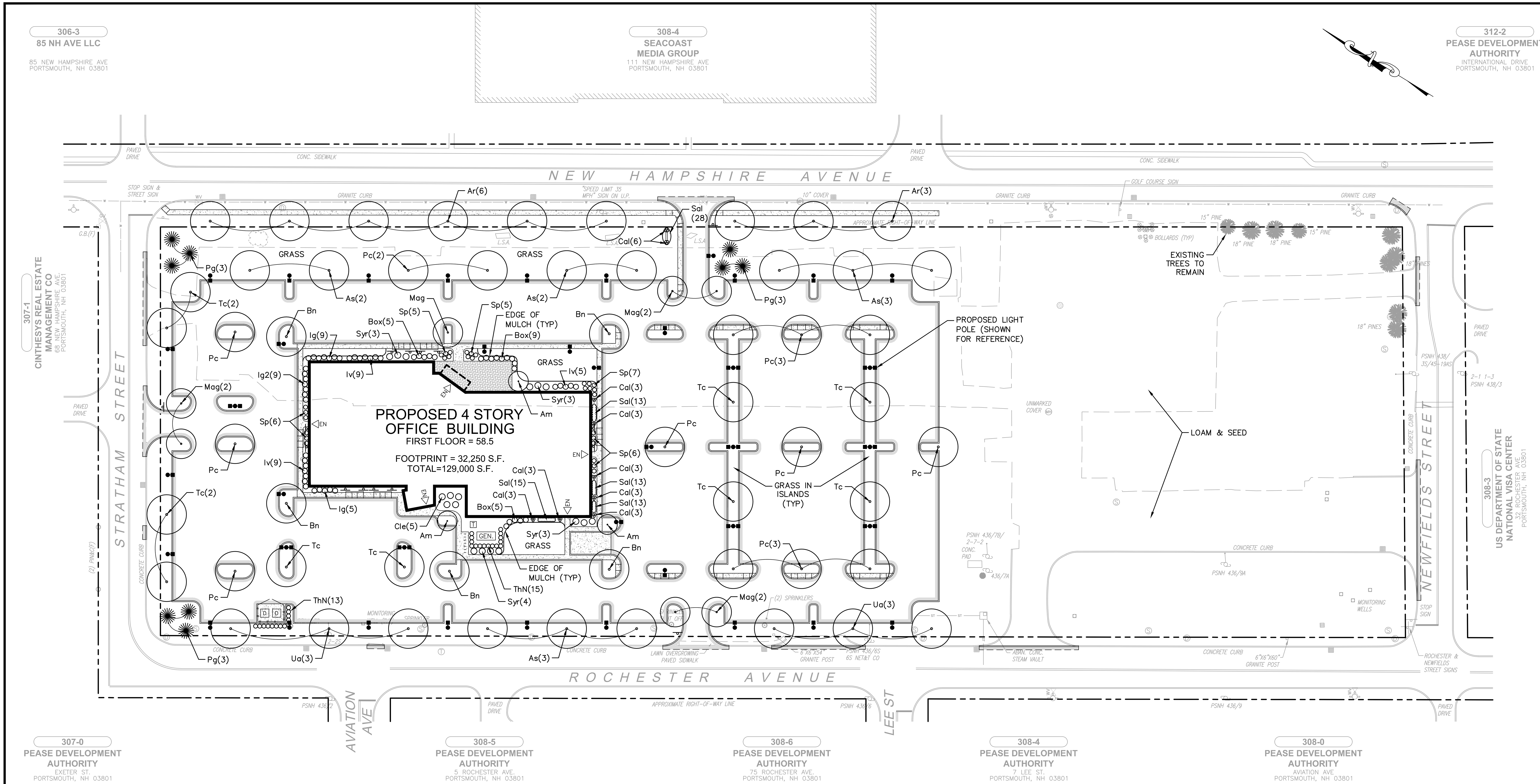
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

LIGHTING PLAN

C8

PROJECT NO. 556912



PLANT LIST

	SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SIZE	COMMENTS
TREES	Am	AMELANCHIER X GRANDIFLORA "AUTUMN BRILLIANCE"	AUTUMN BRILLIANCE SERVICEBERRY	3	7–8' HT.	MULTI–STEM, B&B
	Ar	ACER RUBRUM "OCTOBER GLORY"	OCTOBER GLORY RED MAPLE	9	2–2.5" CAL.	B&B
	As	ACER SACCHARUM "GREEN MOUNTAIN"	GREEN MOUNTAIN SUGAR MAPLE	10	2.5–3" CAL.	B&B
	Bn	BETULA NIGRA "HERITAGE"	HERITAGE RIVER BIRCH	5	10–12' HT.	CLUMP, B&B
	Mag	MAGNOLIA "BUTTERFLY"	BUTTERFLY MAGNOLIA	7	8–10' HT.	MULTI–STEM, B&B
	Pc	PYRUS CALLERYANA "NEW BRADFORD"	NEW BRADFORD FLOWERING PEAR	11	3–3.5" CAL.	B&B
	Pg	PICEA GLAUCA	WHITE SPRUCE	9	8–10' HT.	B&B
	Tc	TILIA CORDATE "GREENSPIRE"	GREENSPIRE LITTLELEAF LINDEN	10	3–3.5" CAL.	B&B
	ThN	THUJA OCCIDENTALIS "SMARAGD"	EMERALD GREEN ARBORVITAE	28	7–8' HT.	B&B
	Ua	ULMUS AMERICANA "PRINCETON"	PRINCETON AMERICAN ELM	6	3–3.5" CAL.	B&B

	SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SIZE	COMMENTS
SHRUBS	Box	BUXUS "GREEN VELVET"	GREEN VELVET BOXWOOD	19	5 GAL	
	Cle	CLETHRA AINFOLIA	SUMMERSWEET	5	5 GAL	FULL
	Ig	ILEX GLABRA "SHAMROCK"	SHAMROCK INKBERRY	14	5 GAL	FULL TO GROUND
	Ig2	ILEX GLABRA	INKBERRY	9	5 GAL	FULL TO GROUND
	Iv	ILEX VERTICILLATA "WINTER RED"	WINTER RED WINTERBERRY	14	3–4' HT.	B&B FULL
	Sp	SPIRAEA X BUMALDA "GOLDFLAME"	GOLDFLAME SPIREA	29	3 GAL	B&B
	Syr	SYRINGA MEYERI "PALIBIN"	DWARF KOREAN LILAC	13	3–4' HT.	B&B

	SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SIZE	COMMENTS
PLANTS	Cal	CALAMAGROSTIS ACUTIFOLIA "KARL FOERSTER"	FEATHER REED GRASS	29	1 GAL	
	Sal	SALVIA NEMOROSA "BLUE HILL"	DARK BLUE SALVIA	82	1 GAL	

LANDSCAPE NOTES:

1. ALL MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
2. ALL AREAS THAT DO NOT HAVE A SPECIFIED SURFACE TREATMENT SHALL BE GRASS.
3.
4. ALL TREES TO BE BALLED & BURLAPED.
5. MULCH FOR PLANTED AREAS TO BE AGED PINE BARK: PARTIALLY DECOMPOSED, DARK BROWN IN COLOR AND FREE OF WOOD CHIPS THICKER THAN 1/4 INCH. THE MULCH SHALL BE APPLIED TO A DEPTH OF 4".
6. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE.
7. THE CONTRACTOR SHALL LOCATE, VERIFY, AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTING AND UTILITIES SHALL BE IMMEDIATELY REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
8. NO SUBSTITUTION OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED UNTIL FORMAL ACCEPTANCE OF ALL THE PLANTING.
10. PRE–PURCHASE PLANT MATERIAL AND ARRANGE FOR DELIVERY TO MEET PROJECT SCHEDULE AS REQUIRED. IT MAY BE NECESSARY TO PRE DIG CERTAIN SPECIES WELL IN ADVANCE OF ACTUAL PLANTING DATES.

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

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SCALE:	ORIGINAL DATE:	DESIGNED BY	DRAWN BY	CHECKED BY
AS SHOWN	NOVEMBER 16, 2018	SMT	SMT	WRD

CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

LANDSCAPE PLAN

C9

PROJECT NO. 556912

SHEET 9 OF 15

EROSION CONTROL NOTES:

A. GENERAL NOTES

1. DURING CONSTRUCTION, AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND (5 ACRES MAXIMUM) SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE EXPOSURE SHOULD BE KEPT TO A MAXIMUM OF 72 HOURS BEFORE APPLYING TEMPORARY OR PERMANENT EROSION CONTROL MEASURES. ALL DITCHES AND SWALES ARE REQUIRED TO BE STABILIZED PRIOR TO DIRECT RECEIPT OF ANY FLOW. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
2. INSTALL SILT SOCKS WHERE SHOWN PRIOR TO CONSTRUCTION START. INSTALL INLET PROTECTION AT ALL EXISTING DRAINAGE STRUCTURES ADJACENT TO PROJECT. DO NOT REMOVE SILT BARRIERS UNTIL DISTURBED AREAS ARE FULLY COVERED WITH TURF OR OTHER APPLICABLE SURFACE MATERIAL. ALL PONDS ARE TO BE CONSTRUCTED AND STABILIZED PRIOR TO ANY OTHER DRAINAGE SYSTEM WORK, INCLUDING DITCH AND SWALE EXCAVATION.
3. EROSION AND SEDIMENT CONTROL PRACTICES INCLUDE THE USE OF THE FOLLOWING SILT FENCE BARRIERS, PERMANENT DETENTION/SEDIMENTATION POND BASIN, GRASS AND/OR ROCK LINED SWALES, DIVERSIONS WITH LEVEL SPREADERS. ALL EROSION CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS CONTAINED IN THE "NH STORMWATER MANUAL", VOLUME 3, DECEMBER 2008.
4. SEE PLANS FOR ADDITIONAL EROSION CONTROL MEASURES WHICH MAY BE REQUIRED.
5. CONSTRUCTION AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   a. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED
   b. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   c. A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
   d. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

B. VEGETATIVE MEASURES

1. TOPSOIL STOCKPILING: TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR LATER USE ON CRITICAL AREAS AND ALL OTHER AREAS TO BE SEEDED. THE STOCKPILE WILL NOT BE COMPACTED AND SHALL BE STABILIZED AGAINST EROSION WITH TEMPORARY SEEDING.
2. TEMPORARY SEEDING:
   a. BEDDING – REMOVE STONES AND TRASH THAT WILL INTERFERE WITH SEEDING THE AREA. WHERE FEASIBLE, TILL THE SOIL TO A DEPTH OF ABOUT 3" TO PREPARE SEED BED AND MIX THE FERTILIZER INTO THE SOIL.
   b. FERTILIZER – FERTILIZER SHOULD BE UNIFORMLY SPREAD OVER THE AREA PRIOR TO BEING TILLED INTO THE SOIL. A 10-10-10 MIX OF FERTILIZER SHOULD BE APPLIED AT A RATE OF 300 POUNDS PER ACRE (OR 7 POUNDS PER 1,000 S.F.).
   c. SEED MIXTURE – USE ANY OF THE FOLLOWING IN UPLAND AREAS:
   d. SEEDING RATE:

SPECIES	ACRE	1,000 S.F	PER ACRE RATES	DEPTH
WINTER RYE	112 LBS	2.5 LBS.	8/15-9/5	1 IN.
OATS	80 LBS.	2.0 LBS.	SPRING-5/15	1 IN.
ANNUAL RYE GRASS	40 LBS.	1.0 LBS.	4/15-9/15	0.25IN. W/MULCH

   e. MULCHING – WHERE IT IS IMPRACTICAL TO INCORPORATE FERTILIZER AND SEED INTO MOIST SOIL, THE SEEDED AREA SHALL BE MULCHED TO FACILITATE GERMINATION. MULCH IN THE FORM OF STRAW SHOULD BE APPLIED AT A RATE OF 70 TO 90 LBS. PER 1,000 S.F.
3. PERMANENT SEEDING:
   f. BEDDING – STONES LARGER THAN 4", TRASH, ROOTS, AND OTHER DEBRIS THAT WILL INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA SHOULD BE REMOVED. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF 4" TO PREPARE A SEEDBED AND MIX FERTILIZER INTO THE SOIL.
   g. FERTILIZER – LIME AND FERTILIZER SHOULD BE APPLIED EVENLY OVER THE AREA PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:

      AGRICULTURAL LIMESTONE @ 100 LBS. PER 1,000 S.F. 10-20-20 FERTILIZER @ 12 LBS. PER 1,000 S.F.

   h. SEEDING MIXTURE (RECOMMENDED)

SLOPE WORK

SPECIES	PER ACRE	PER 1,000 S.F	USE
CROWNVETCH	15	0.34	
PERENNIAL RYE GRASS	30	0.69	
CREEPING RED FESCUE	35	0.80	ALL SLOPE WORK
RED TOP	5	0.11	
ALSIKE CLOVER	5	0.11	
BIRDSFOOT TREFOIL	5	0.11	
TOTAL	95	2.18	

TREATMENT SWALES

SPECIES	PER ACRE	PER 1,000 S.F.	USE
TALL FESCUE	35	0.80	
SWITCH GRASS	35	0.80	TREATMENT SWALES
JAPANESE MILLET	90	2.00	
TOTAL	160	3.60	

   i. MULCHING – MULCH SHOULD BE USED ON HIGHLY ERODIBLE SOILS, ON CRITICALLY ERODING AREAS, AND ON AREAS WHERE CONSERVATION OF MOISTURE WILL FACILITATE PLANT ESTABLISHMENT.

TYPE	RATE PER 1,000 S.F.	USE AND COMMENTS
STRAW	70 TO 90 LBS.	MUST BE DRY AND FREE FROM MOLD. MAY BE USED WITH PLANTINGS
WOOD CHIPS OR BARK MULCH	460 TO 920 LBS.	USED MOSTLY WITH TREES AND SHRUB PLANTINGS
JUTE AND FIBROUS MATTING	AS PER MANUFACTURER SPECIFICATIONS	USED IN SLOPE AREAS, WATER COURSES AND OTHER AREAS
CRUSHED STONE		SPREAD MORE ¼" TO 1½" DIA THAN ½" THICK. EFFECTIVE IN CONTROLLING WIND AND WATER EROSION.

   j. SODDING – SODDING IS DONE WHERE IT IS DESIRABLE TO RAPIDLY ESTABLISH COVER ON A DISTURBED AREA. SODDING AN AREA MAY BE SUBSTITUTED FOR PERMANENT SEEDING PROCEDURES ANYWHERE ON SITE. BED PREPARATION, FERTILIZING, AND PLACEMENT OF SOD SHALL BE PERFORMED ACCORDING TO THE S.C.S. HANDBOOK.

C. STRUCTURAL MEASURES

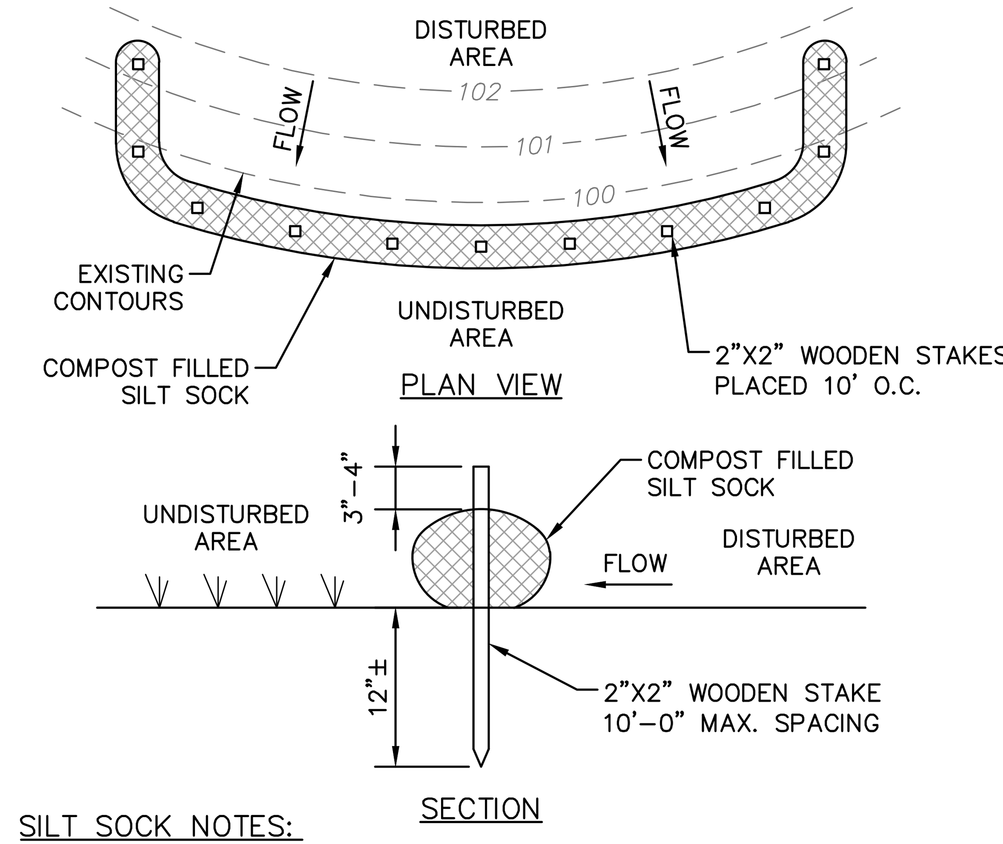
1. STRAW BALE BARRIERS/SILT SCREEN FENCES: STRAW BALE BARRIERS AND/OR SILT SCREEN FENCES ARE TO BE INSTALLED IN THE AREAS SHOWN ON THE PLAN. THEY ARE INTENDED PRIMARILY TO INTERCEPT AND FILTER SMALL VOLUMES OF "SHEET FLOWING" RUNOFF, OR AS SEDIMENT TRAPS IN SMALL SWALES. STRAW BALES HAVE A USEFUL LIFE OF 3 MONTHS WHEN WET, AND THEREFORE, MUST BE INSPECTED AND REPAIRED OR REPLACED PERIODICALLY. SILT SCREEN FENCES WILL FUNCTION 6 MONTHS OR LONGER IF KEPT FREE OF SEDIMENT ACCUMULATIONS (SEE DETAILS FOR ADDITIONAL INFORMATION).
2. SWALES: TEMPORARY AND/OR PERMANENT SWALES ARE TO BE INSTALLED AS SHOWN ON THE PLAN. SWALES ARE USED TO CONVERT SHEET FLOW TO CHANNEL FLOW AND CONVEY THE RUNOFF TO A PERMANENT CHANNEL, STORM DRAIN, OR DETENTION/SEDIMENT STRUCTURE. SWALES ARE INTENDED TO INTERCEPT RUNOFF AND DIVERT IT FROM AN EXPOSED NEWLY SEEDED SLOPE TOWARD AN ACCEPTABLE OUTLET OR TO REDUCE THE VELOCITY OF RUNOFF FLOWING DOWN FROM A DRAINAGE AREA.
3. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED OF 1.5 INCH STONE ACROSS THE FULL WIDTH OF THE VEHICLE INGRESS EGRESS AREA. THE STONE PAD SHOULD BE AT LEAST 50 FEET LONG, 25 FEET WIDE AND AT LEAST 6 INCHES THICK. ADDITIONAL STONE MAY HAVE TO BE ADDED PERIODICALLY TO MAINTAIN THE PROPER FUNCTIONING OF THE PAD.
4. CATCH BASIN SEDIMENT FILTER: STONE CATCH BASIN SEDIMENT FILTERS ARE TO BE INSTALLED IN THE AREAS SHOWN ON THE PLAN. THEY ARE INTENDED PRIMARILY FILTER SMALL VOLUMES OF "SHEET FLOWING" RUNOFF. CATCH BASIN SEDIMENT FILTERS SHALL BE CONSTRUCTED OF FILTER FABRIC BEING INSTALLED OVER INLET GRATE, AND 3/4" WASHED CRUSHED STONE, 12 INCHES THICK. CATCH BASIN SEDIMENT FILTERS WILL LAST LONGER IF KEPT FREE OF SEDIMENT ACCUMULATIONS (SEE DETAILS FOR ADDITIONAL INFORMATION).

D. MAINTENANCE

1. DURING THE PERIOD OF CONSTRUCTION AND/OR UNTIL LONG TERM VEGETATION IS ESTABLISHED:
   a. SEEDED AREAS WILL BE FERTILIZED AND WILL BE SEEDED AS NECESSARY TO INSURE VEGETATIVE ESTABLISHMENT.
   b. ADDITIONAL STONE MAY HAVE TO BE ADDED TO THE CONSTRUCTION ENTRANCE, ROCK LINED SWALES, ETC., PERIODICALLY TO MAINTAIN THE PROPER FUNCTIONING OF THE EROSION CONTROL STRUCTURE.
   c. ALL DIVERSION CHANNELS AND SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATION IS ESTABLISHED.
   d. ALL SILT SCREEN FENCES WILL BE CHECKED WEEKLY. NECESSARY REPAIRS WILL BE MADE TO CORRECT UNDERMINING OR DETERIORATION OF THE BARRIER.
   e. EROSION CONTROL MEASURES TO BE INSPECTED WEEKLY AND AFTER EVERY 0.5" OF RAINFALL.

E. WINTER CONSTRUCTION

1. ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, 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. 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.
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER NOVEMBER 15TH, 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.

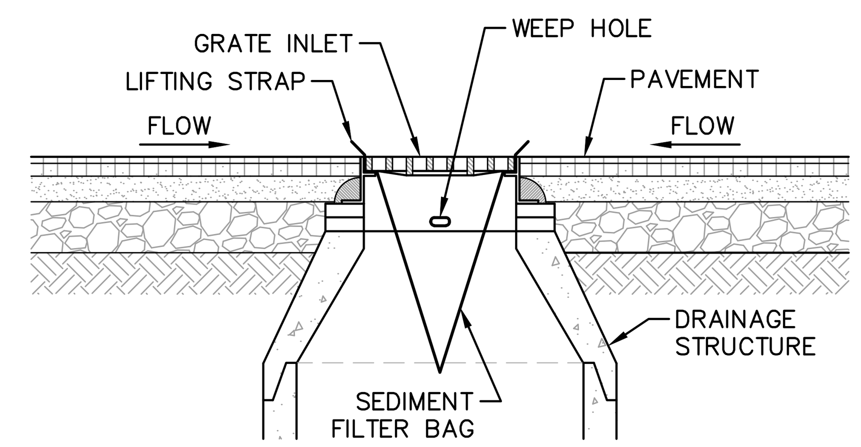


SILT SOCK NOTES:

1. INSTALL SILT SOCK AT THE TOE OF 2:1 OR STEEPER SLOPES ON THE DOWNHILL SIDE OF THE ROAD AND AROUND RIP-RAP APRONS. REFER TO THE SWPPP FOR ADDITIONAL INFORMATION.
2. SILT SOCK SHALL BE INSTALLED BEFORE ANY EARTH REMOVAL OR EXCAVATION TAKES PLACE.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED, AND THE MATERIAL REMOVED WHEN "BULGES" DEVELOP. DO NOT DEPOSIT THE MATERIAL NEAR WETLANDS OR WATERCOURSES.

1 / C10 **SILT SOCK EROSION CONTROL DETAIL**

SCALE: NONE



INLET PROTECTION NOTES:

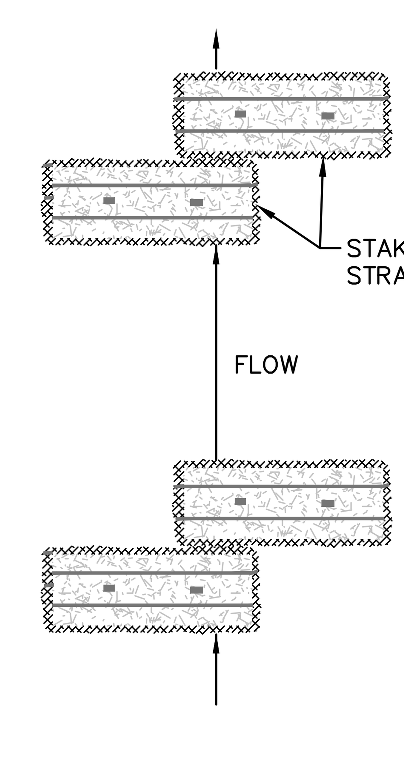
1. THE SEDIMENT FILTER BAG SHALL BE DESIGNED FOR CATCH BASIN INLET PROTECTION. FILTER FABRIC IS NOT AN ACCEPTABLE SEDIMENT FILTER BAG.
2. REMOVE DRAINAGE INLET GRATE AND PLACE SEDIMENT FILTER BAG AROUND THE FRAME, REPLACE GRATE AND SEDIMENT FILTER BAG IN POSITION OR FOLLOW MANUFACTURER'S RECOMMENDATIONS. LIFTING STRAPS SHALL BE EXPOSED AND READY FOR MAINTENANCE PROCEDURES.
3. INSPECT SEDIMENT FILTER BAG WEEKLY AND AFTER EVERY RAINFALL EVENT.
4. REPLACE, CLEAN OR REMOVE SEDIMENT FILTER BAG AS DIRECTED.

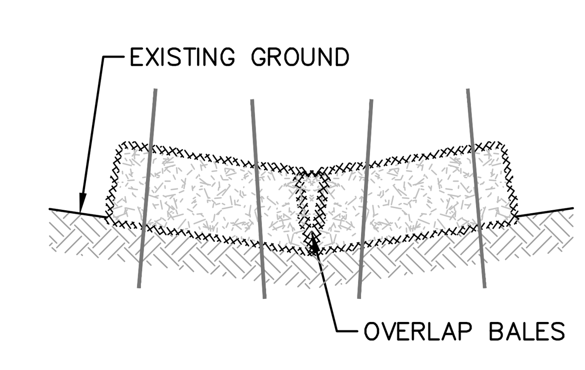
2 / C10 **INLET PROTECTION DETAIL**

SCALE: NONE

STRAW BALE CHECK DAM NOTES:

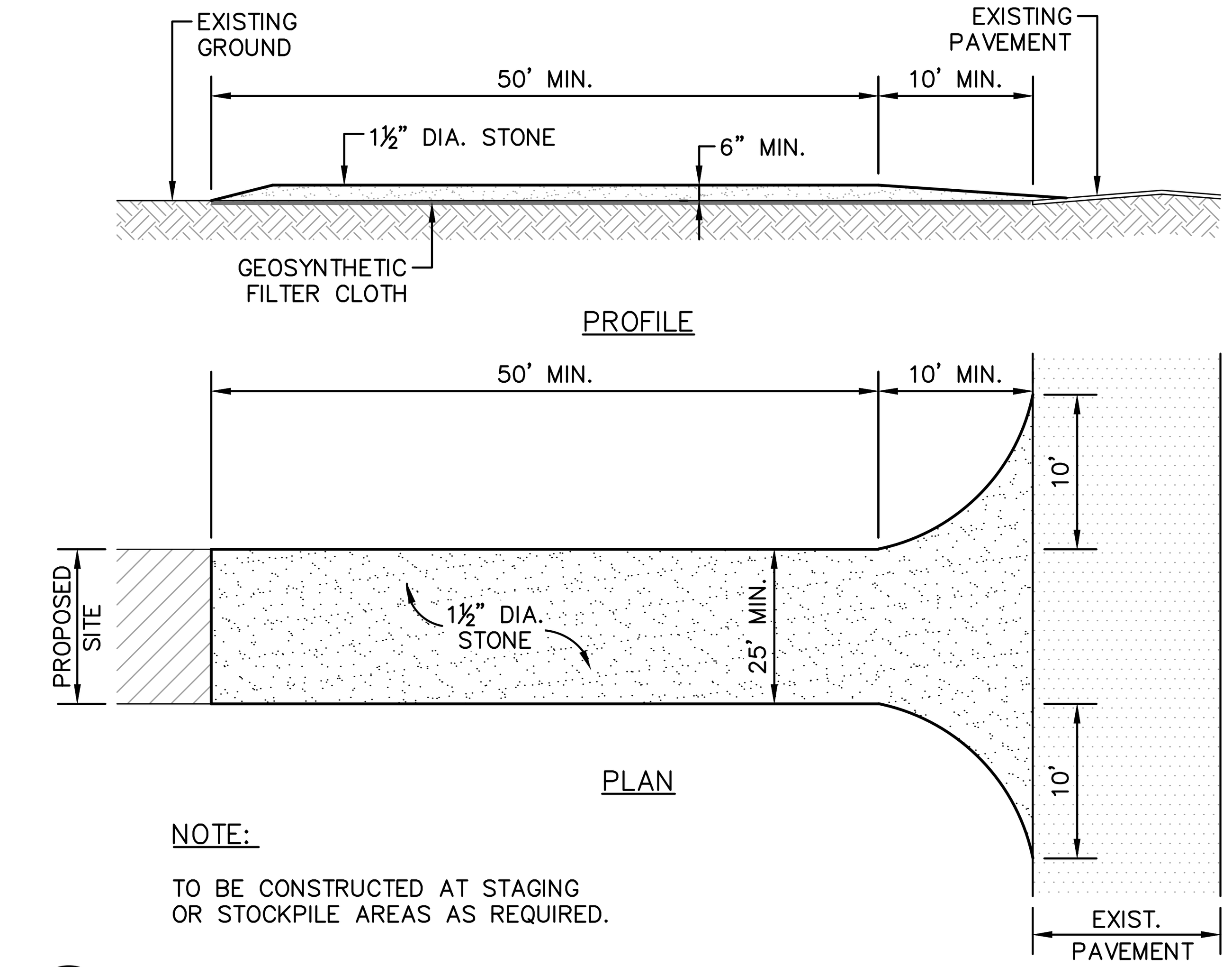
1. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
2. BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR REBARS DRIVEN THOUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARDS PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
3. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL-NESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.





3 / C10 **STRAW BALE CHECK DAM DETAIL (AS NEEDED)**

SCALE: NONE

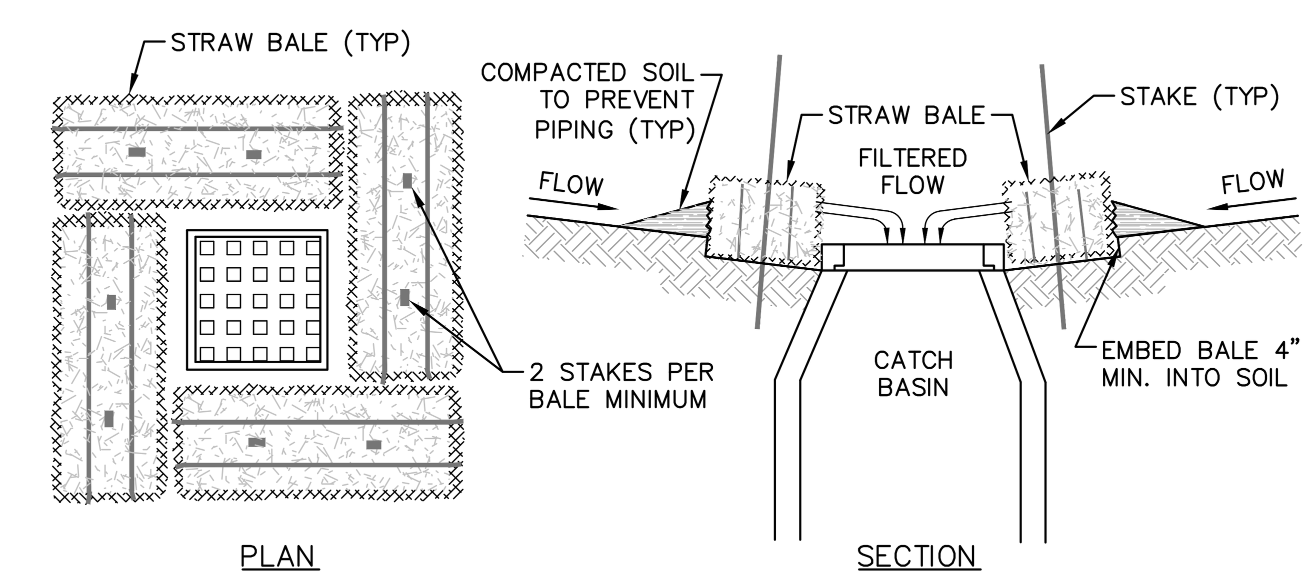


NOTE:

TO BE CONSTRUCTED AT STAGING OR STOCKPILE AREAS AS REQUIRED.

4 / C10 **STABILIZED CONSTRUCTION ENTRY DETAIL**

SCALE: NONE

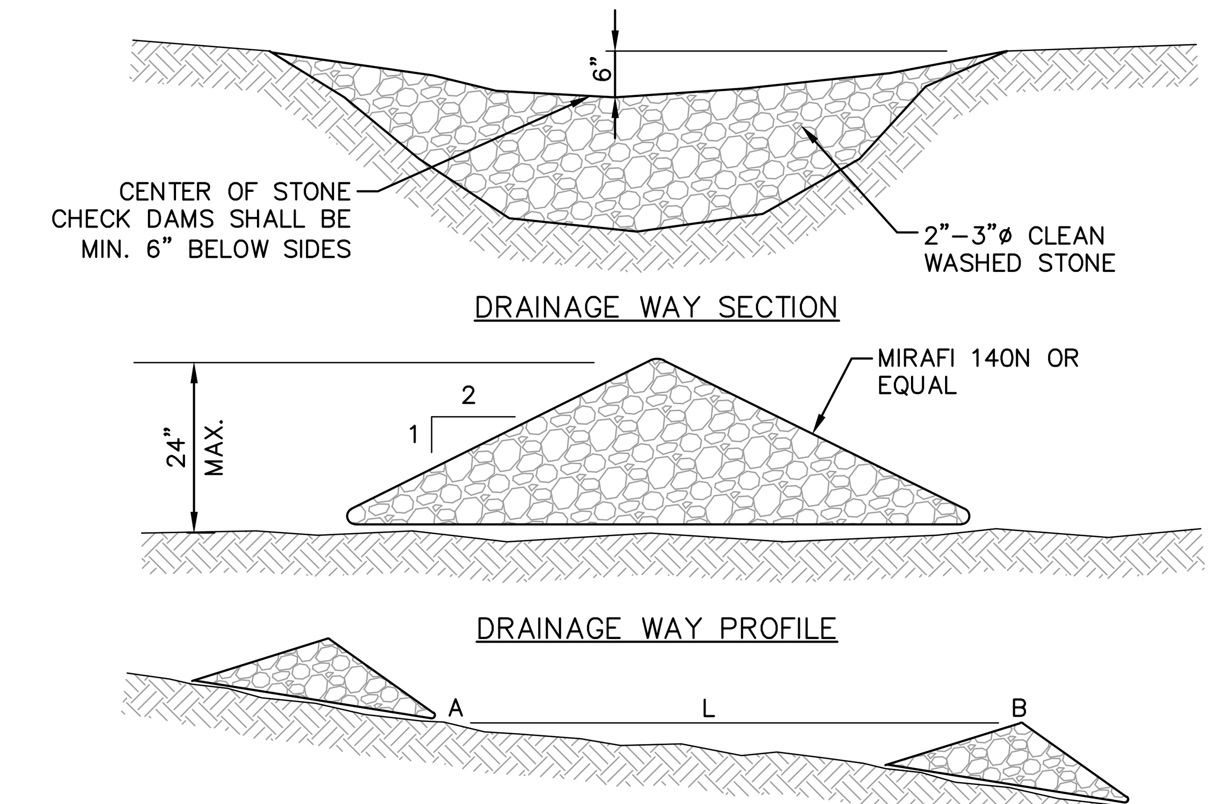


SEDIMENTATION CONTROL NOTES:

1. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
2. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
3. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR PURPOSE SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

5 / C10 **SEDIMENTATION CONTROL AT CATCH BASIN (AS NEEDED)**

SCALE: NONE



L = THE DISTANCE SUCH THAT THE ELEV. A = ELEV. B.

CHECK DAM SPACING

NOTES:

1. THE CONTRACTOR SHALL USE STONE CHECK DAMS AS NEEDED FOR TEMPORARY EROSION CONTROL DURING CONSTRUCTION.
2. REMOVE CHECK DAMS AFTER SITE IS STABILIZED.

6 / C10 **STONE CHECK DAM DETAIL (AS NEEDED)**

SCALE: NONE

STATE OF NEW HAMPSHIRE SHAWN M. TOBEY No. 14121 LICENSED PROFESSIONAL ENGINEER 12/4/18

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

CHECKED BY	DRAWN BY	DESIGNED BY
WRD	SMT	SMT

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Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

ORIGINAL DATE: NOVEMBER 16, 2018

SCALE: AS SHOWN

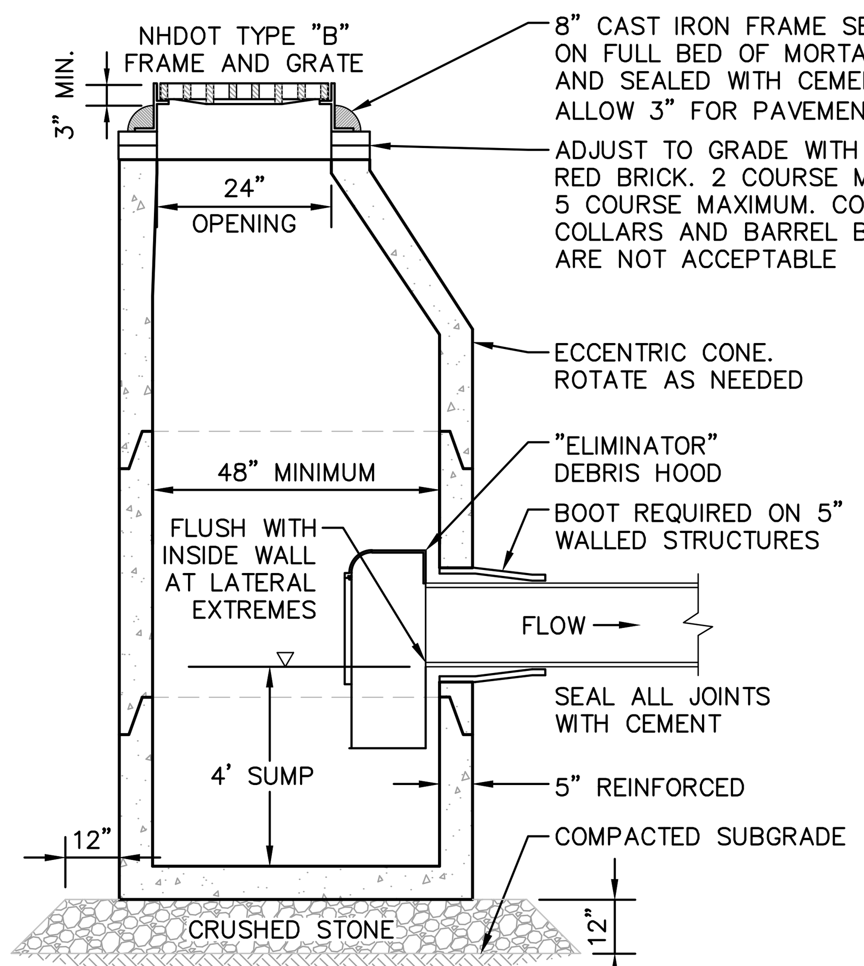
CLIENT: TWO INTERNATIONAL GROUP, 1 NEW HAMPSHIRE AVENUE, SUITE 123, PORTSMOUTH, NH 03801

PROJECT: PROPOSED 4 STORY OFFICE BUILDING, 100 NEW HAMPSHIRE AVENUE, PORTSMOUTH, NH

CONSTRUCTION DETAILS 1

C10

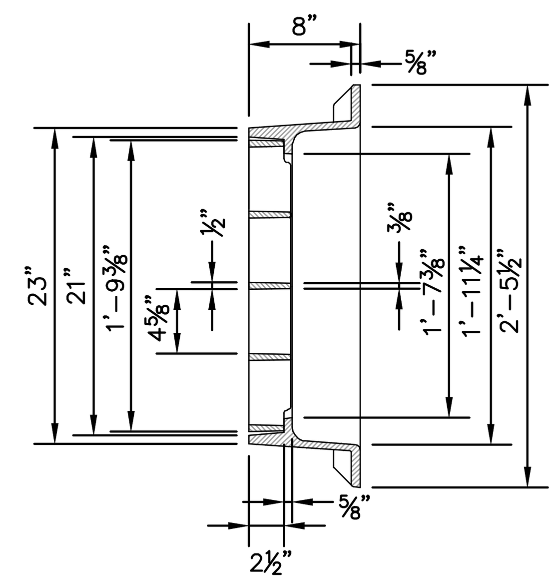
PROJECT NO. 556912



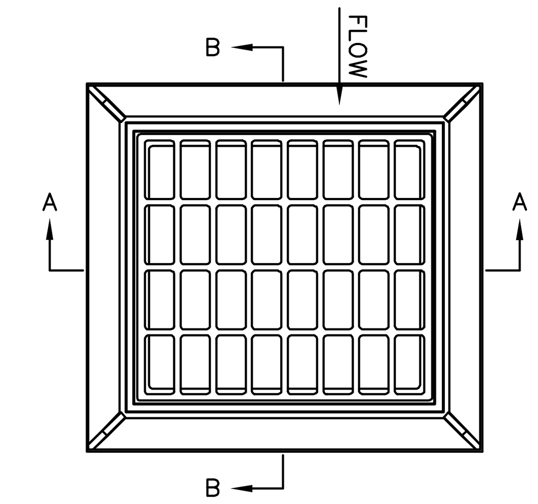
CATCH BASIN NOTES:

1. STRUCTURE SHALL BE DESIGNED FOR H-20 LOADING.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE IN THE CENTER OF THE WALL. STRUCTURE SHALL BE DESIGNED TO SUPPORT H-20 LOADINGS.
4. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ.IN. PER LINEAR FOOT.
5. SEAL ALL PRECAST JOINTS WITH BITUMASTIC SEAL.
6. RISERS OF 2", 3" AND 4" CAN BE USED TO REACH DESIRED DEPTH. 12" MAXIMUM RISER HEIGHT.

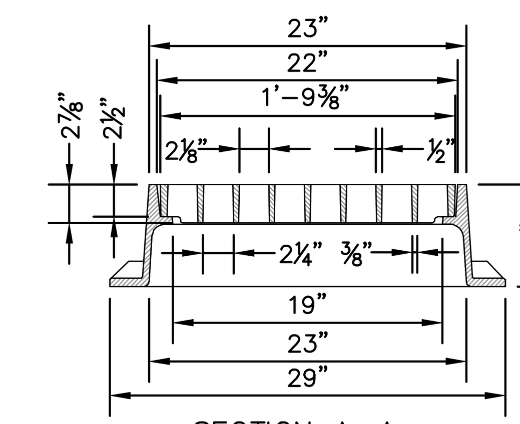
1 / C11 TYPICAL CATCH BASIN DETAIL
SCALE: NONE



SECTION B-B

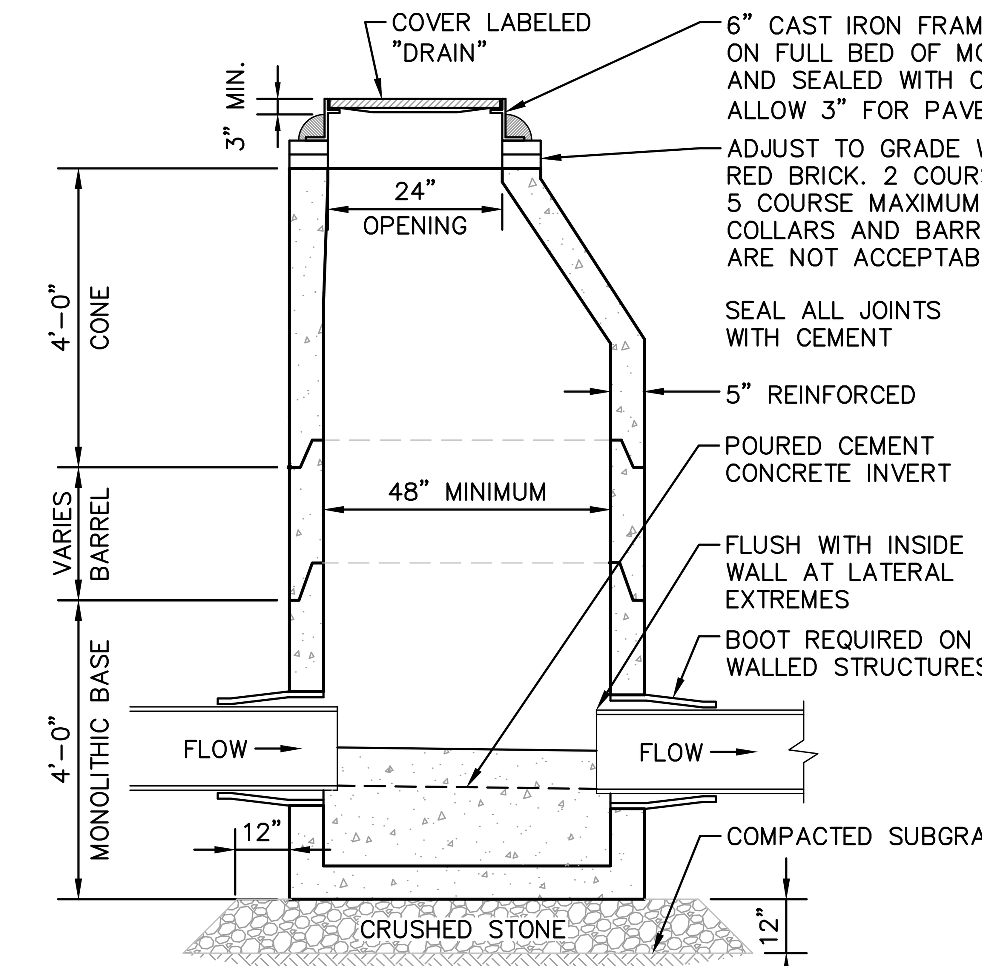


PLAN



SECTION A-A

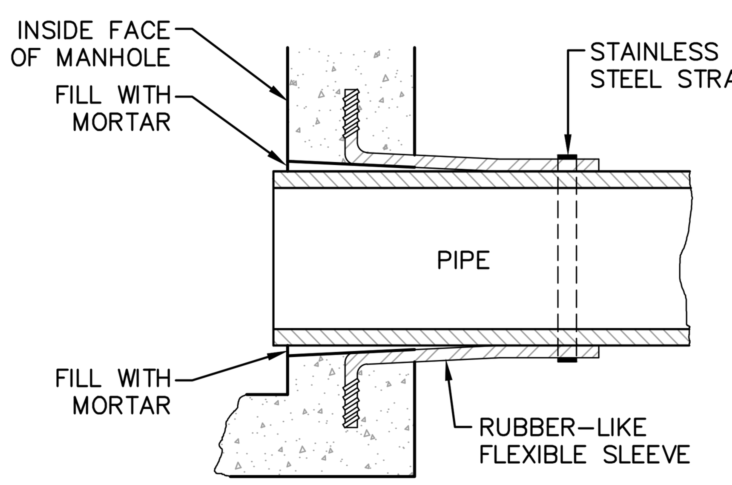
4 / C11 FRAME & GRATE TYPE "B" DETAIL
SCALE: NONE



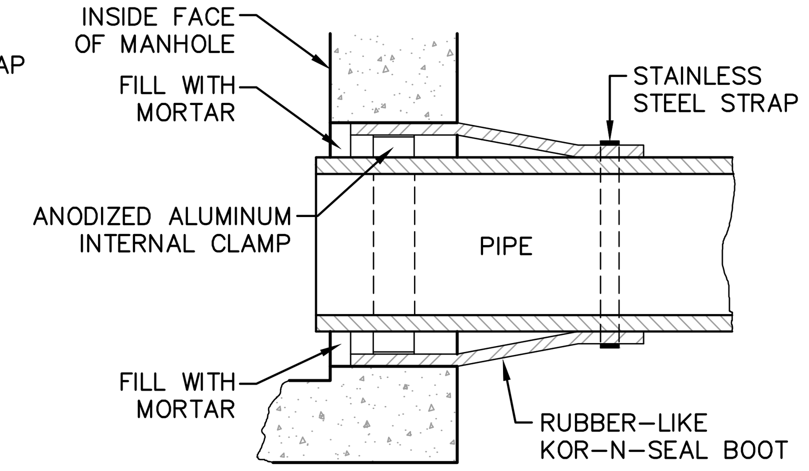
DRAIN MANHOLE NOTES:

1. STRUCTURE SHALL BE DESIGNED FOR H-20 LOADING.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE IN THE CENTER OF THE WALL. STRUCTURE SHALL BE DESIGNED TO SUPPORT H-20 LOADINGS.
4. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ.IN. PER LINEAR FOOT.
5. SEAL ALL PRECAST JOINTS WITH BITUMASTIC SEAL.
6. RISERS OF 2", 3" AND 4" CAN BE USED TO REACH DESIRED DEPTH. 12" MAXIMUM RISER HEIGHT.

5 / C11 DRAIN MANHOLE DETAIL
SCALE: NONE

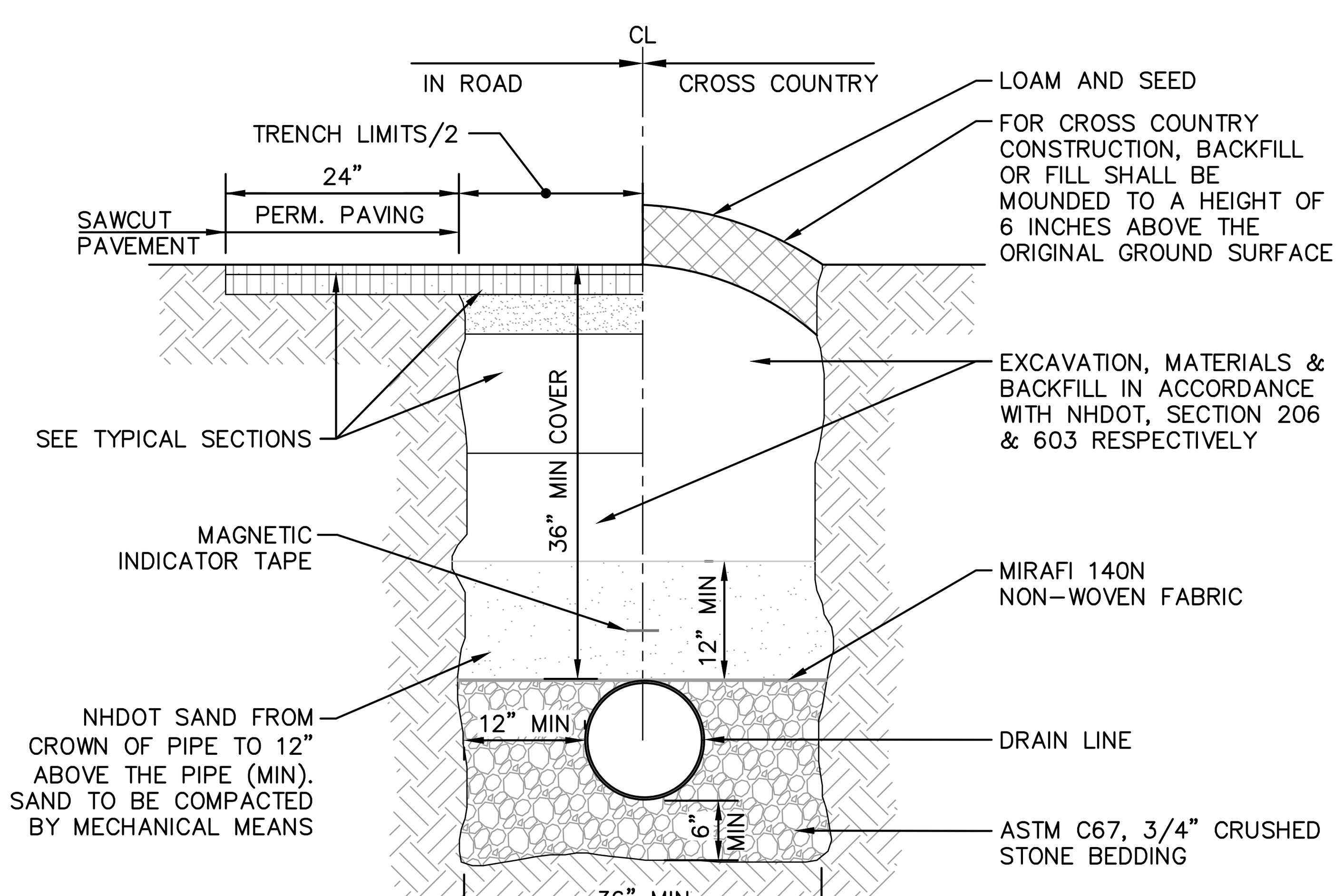


LOCK-JOINT FLEXIBLE MANHOLE SLEEVE
OR EQUAL

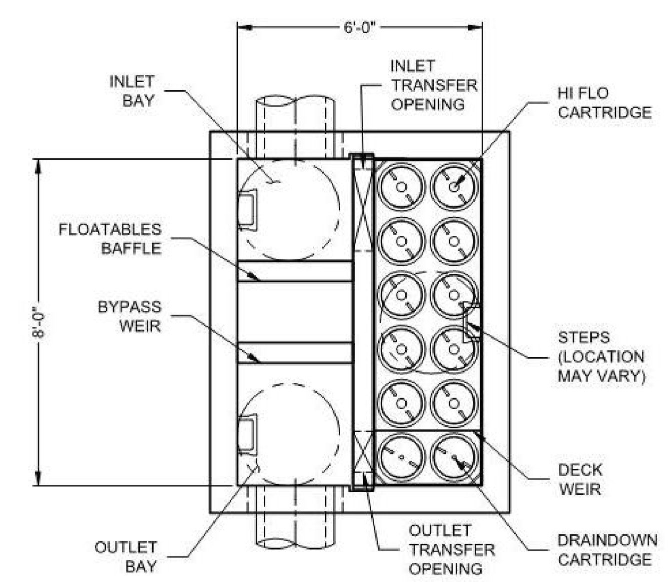


KOR-N-SEAL JOINT SLEEVE
OR EQUAL

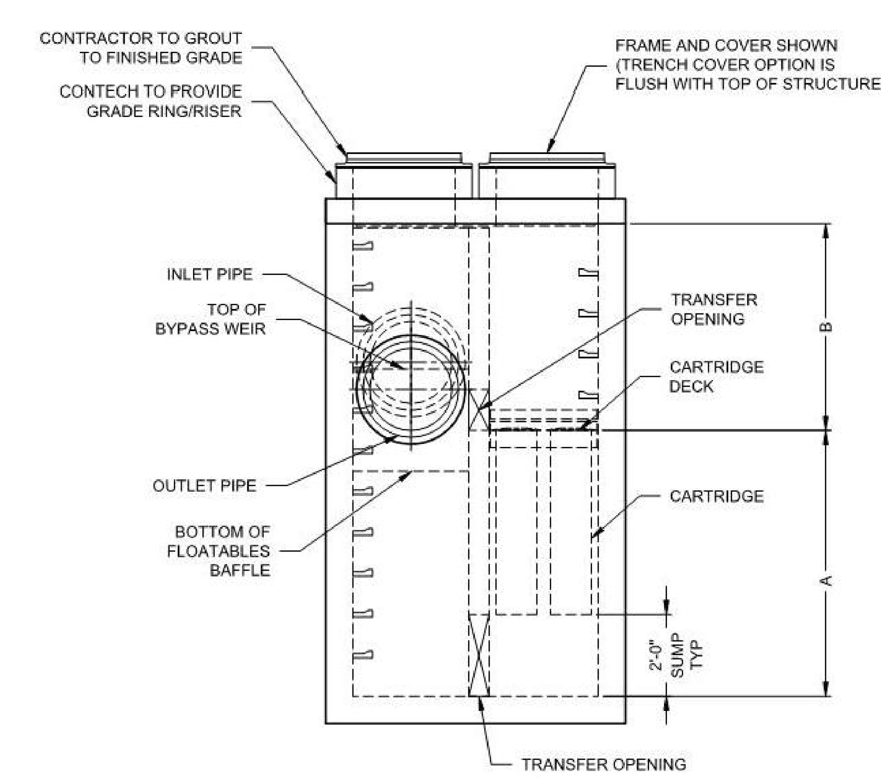
2 / C11 TYPICAL PIPE TO MANHOLE DETAILS
SCALE: NONE



3 / C11 DRAIN TENCH DETAIL
SCALE: NONE



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW

NOTE:

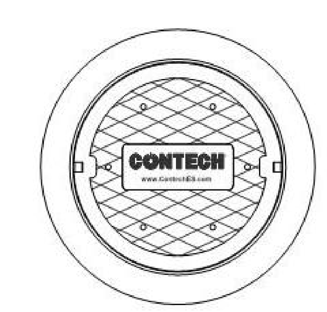
1. SEE DRAINAGE PLANS FOR INVERTS AT EACH TREATMENT STRUCTURE.

JELLYFISH DESIGN NOTES

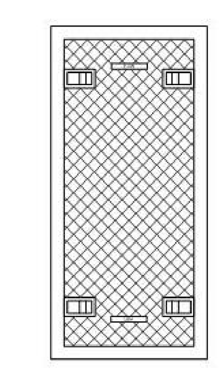
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.96	1.47	0.98	0.54
DECK TO INSIDE TOP (MIN) (B)	5.00	4.00	4.00	4.00



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



24" TRENCH COVER
(LENGTH VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	*
CARTRIDGE LENGTH	*

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

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' - 10', 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-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. 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.
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. 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.

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

JELLYFISH JFPD0806
STANDARD DETAIL
PEAK DIVERSION CONFIGURATION

6 / C11 CONTECH JELLYFISH JFPD0806 FILTER DETAILS
SCALE: NONE

STATE OF NEW HAMPSHIRE
SHAWN M. TOBEY
No. 14121
LICENSED PROFESSIONAL ENGINEER
12/4/18

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

DRAWN BY SMT | CHECKED BY WRD | DESIGNED BY SMT

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr., #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

ORIGINAL DATE: NOVEMBER 16, 2018
SCALE: AS SHOWN

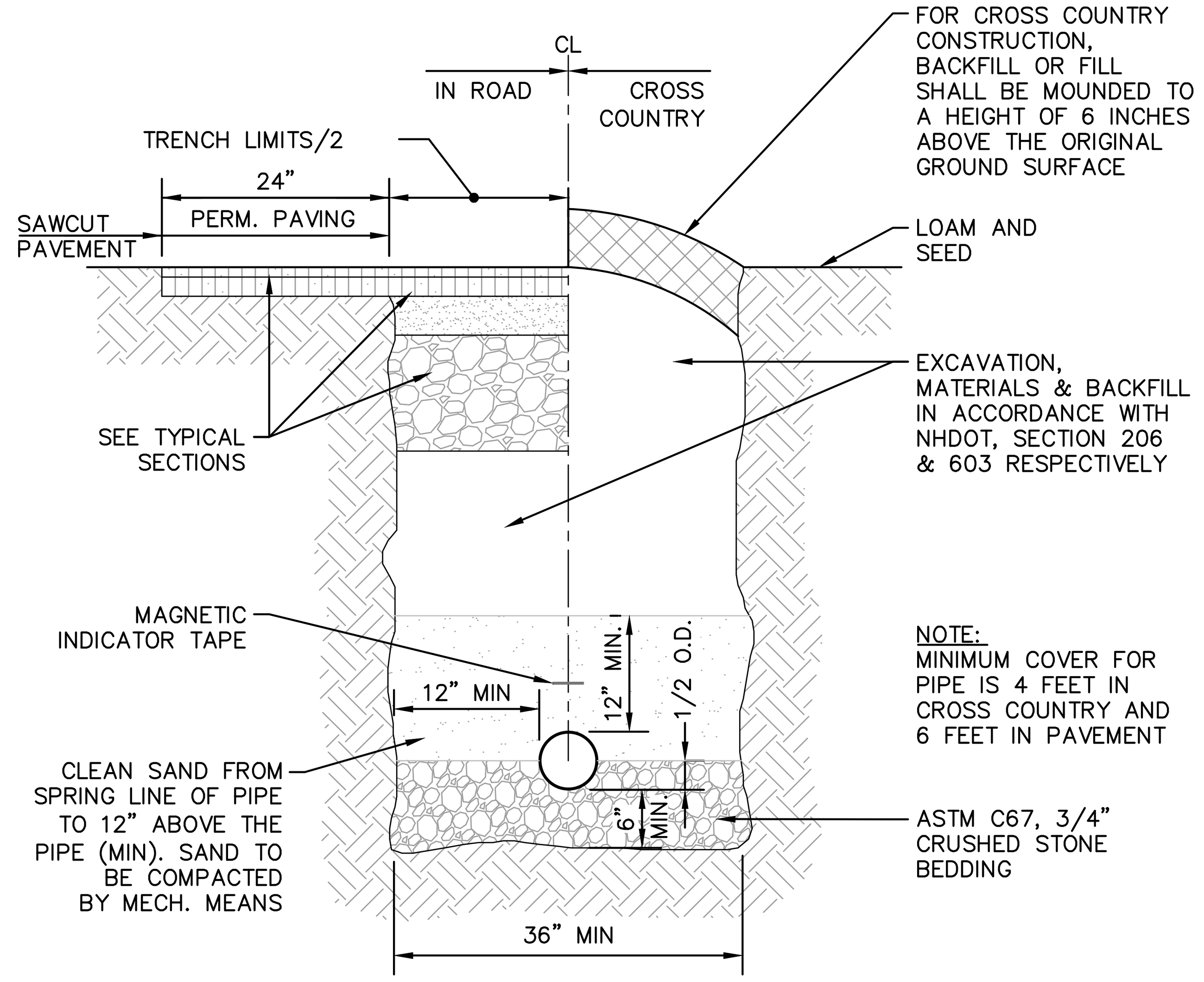
CLIENT: TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT: PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

CONSTRUCTION DETAILS 2

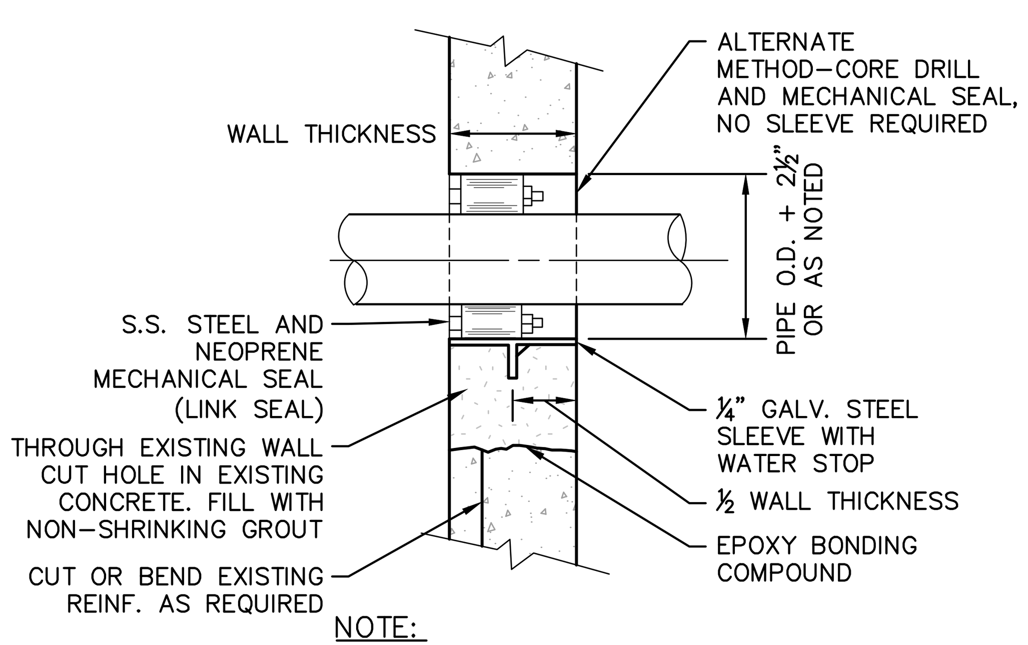
C11

PROJECT NO. 556912



1 SEWER TRENCH DETAIL (C12)

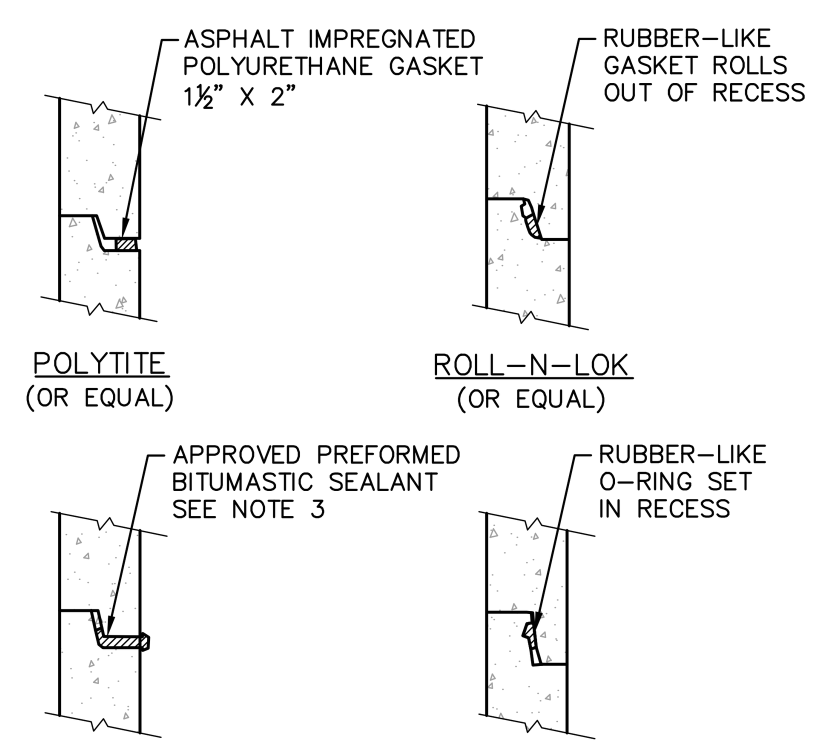
SCALE: NONE



NOTE:

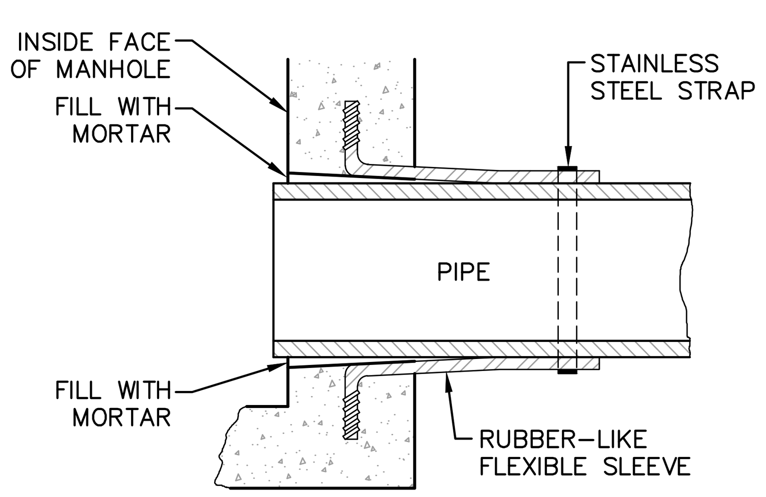
INSTALL SEALS FROM DRY SIDE OF PENETRATION. WET SIDE FILLED WITH WATERPROOF GROUT.

WALL SLEEVE DETAIL



NOTE:

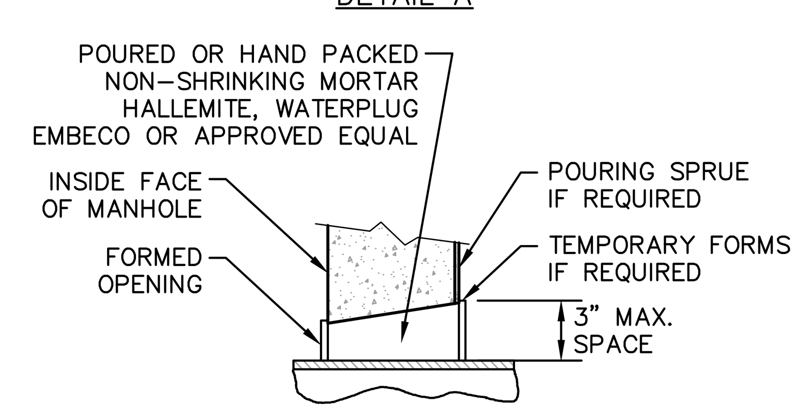
ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.



LOCK–JOINT FLEXIBLE MANHOLE SLEEVE

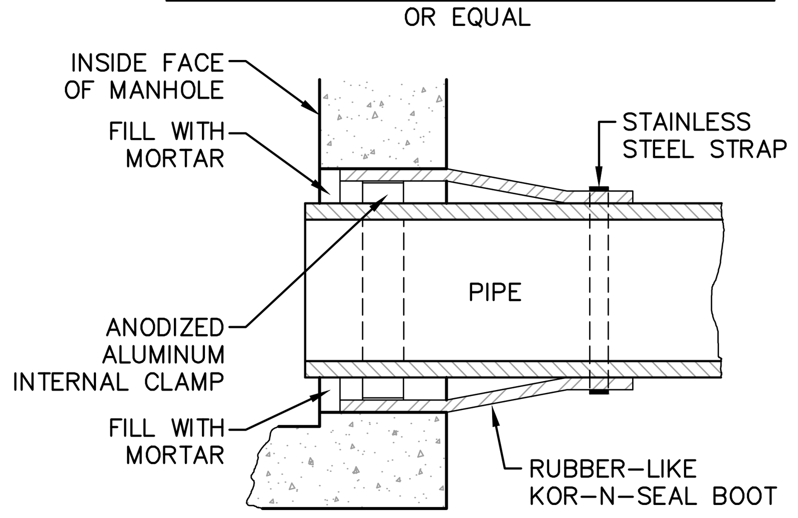
OR EQUAL

DETAIL A



NON–SHRINKING MORTAR

(SEE NOTE 4)



KOR–N–SEAL JOINT SLEEVE

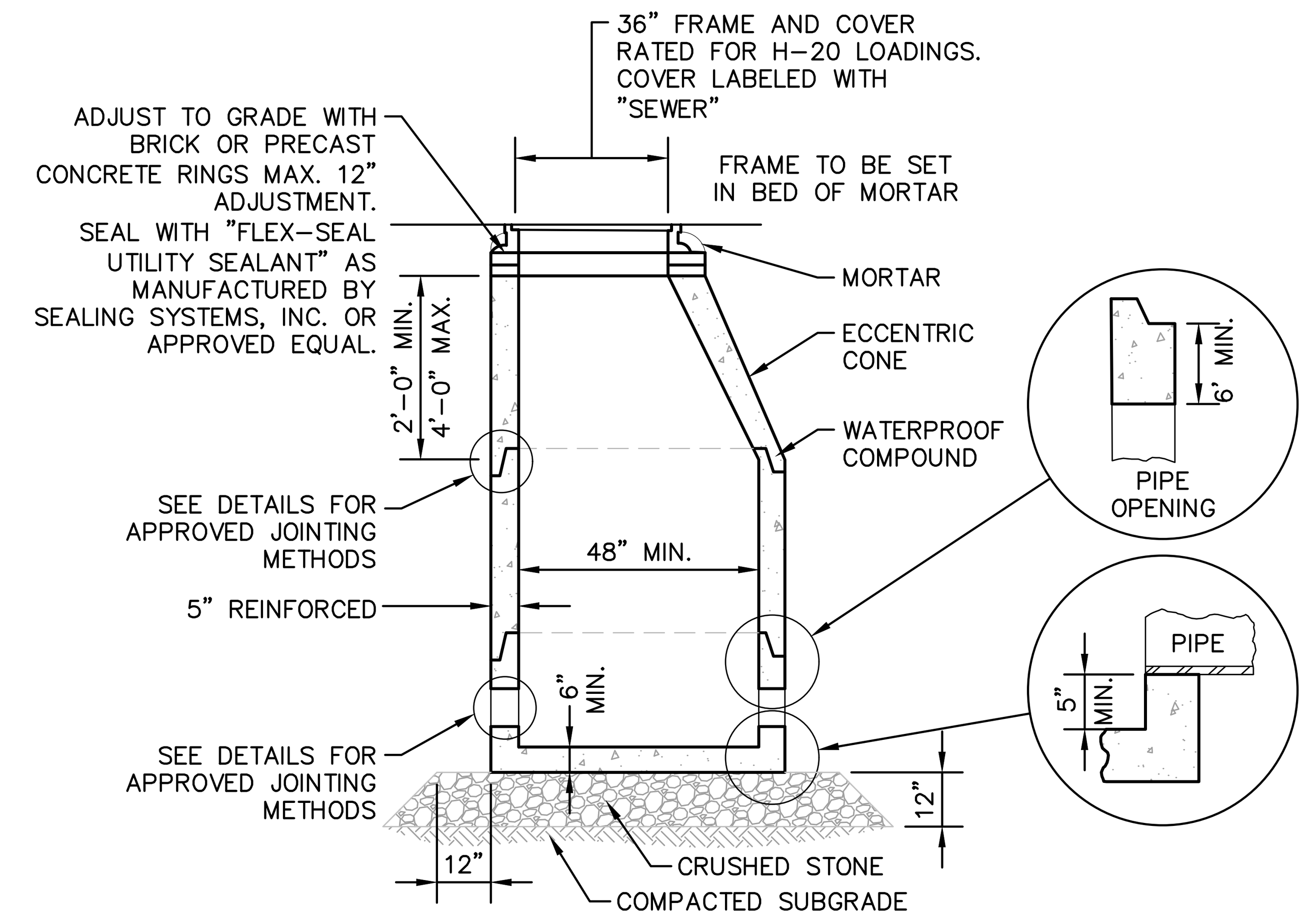
OR EQUAL

SLEEVE AND GASKET NOTES:

1. HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE ENGINEER, WHICH TYPE SHALL, IN GENERAL, DEPEND FOR WATERTIGHTNESS UPON AN ELASTOMERIC OR MASTIC–LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE ENGINEER AND IN GENERAL, WILL DEPEND FOR WATERTIGHTNESS UPON ELASTOMERIC SEALANT.
3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY.
4. NON–SHRINKING MORTAR SHALL ONLY BE USED WHERE SPECIFICALLY APPROVED BY THE ENGINEER.

2 SEWER MANHOLE JOINT AND PIPE CONNECTION DETAILS (C12)

SCALE: NONE



TYPICAL SECTION

SEWER NOTES:

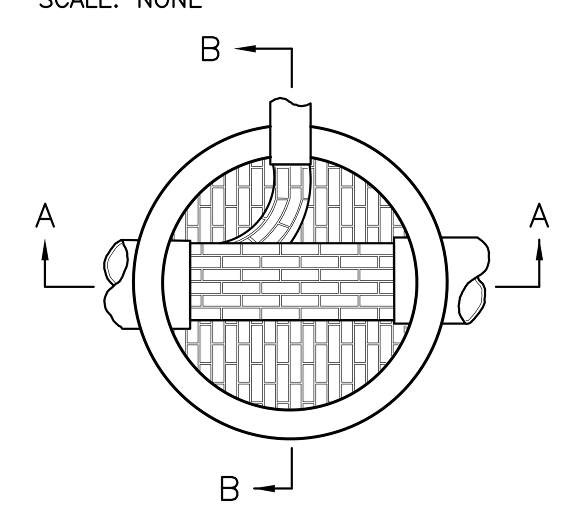
1. MANHOLES: THE MANHOLE, INCLUDING ALL COMPONENT PARTS, SHALL HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES MAY BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, WITH ADEQUATE JOINTING. IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H–20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.
2. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.
3. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER SHALL BE USED, WHERE INDICATED, HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H–20 LOADS. SEE DETAILS.
4. RISER SECTION: THE RISER SECTION SHALL HAVE THE EXTERIOR WRAPPED WITH WRAPIDSEAL MANHOLE ENCAPSULATION SYSTEM AS MANUFACTURED BY CCI PIPE PROTECTION PRODUCTS OR APPROVED EQUAL.

MANHOLE NOTES:

1. BASE SECTION TO BE FULL WALL THICKNESS AND MONOLITHIC TO A POINT 6" ABOVE THE PIPE CROWN.
2. THERE SHALL BE NO STEPS IN ANY OF THE SEWER MANHOLES

3 STANDARD SANITARY SEWER MANHOLE DETAIL (C12)

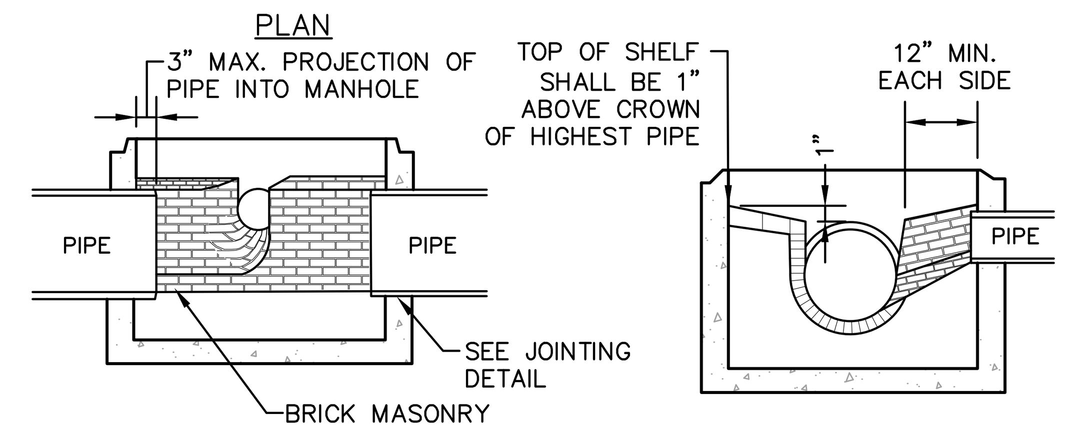
SCALE: NONE



PLAN

SHELF NOTES:

1. INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST
2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.

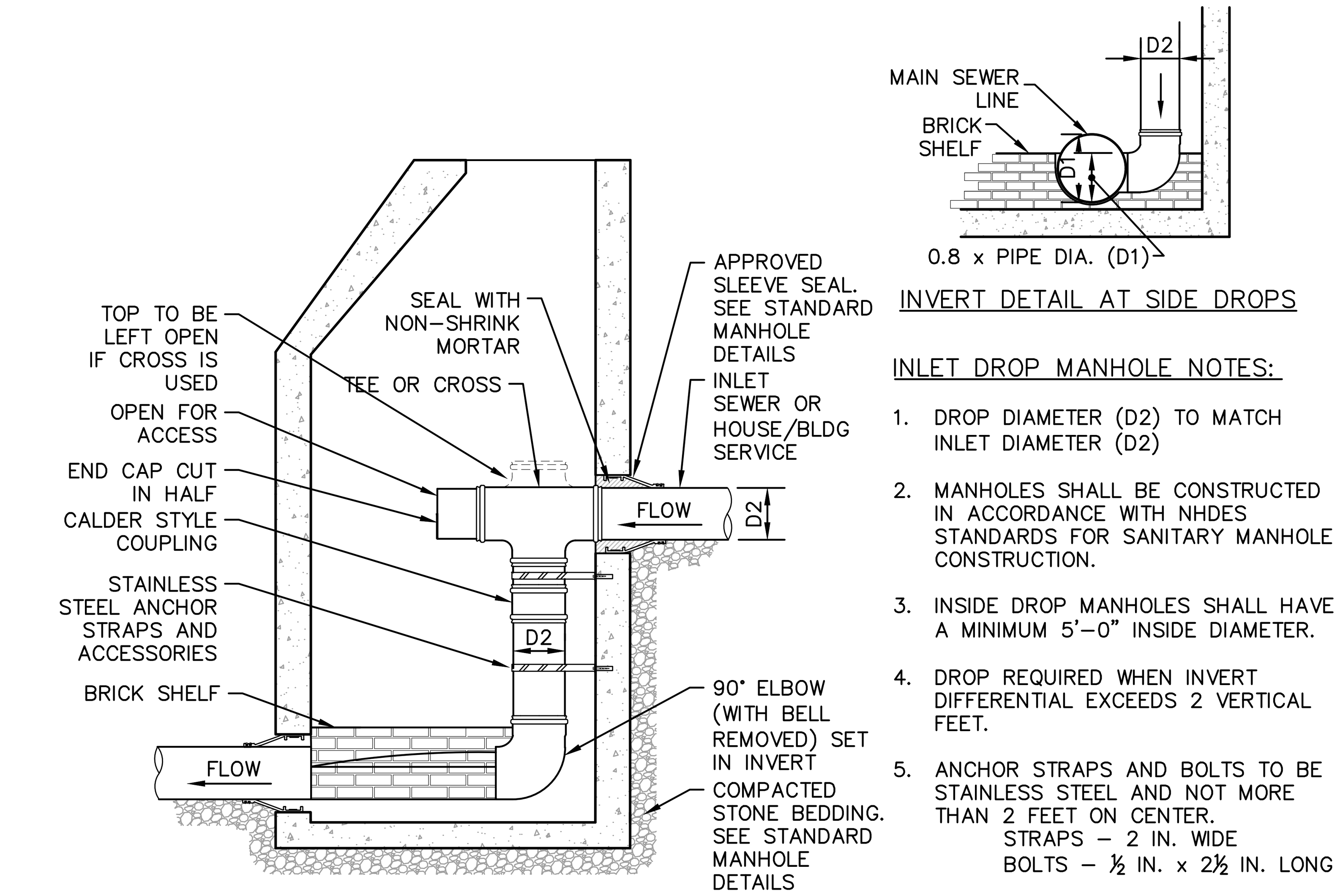


SECTION A–A

SECTION B–B

4 STANDARD SANITARY SEWER BRICK INVERT DETAILS (C12)

SCALE: NONE



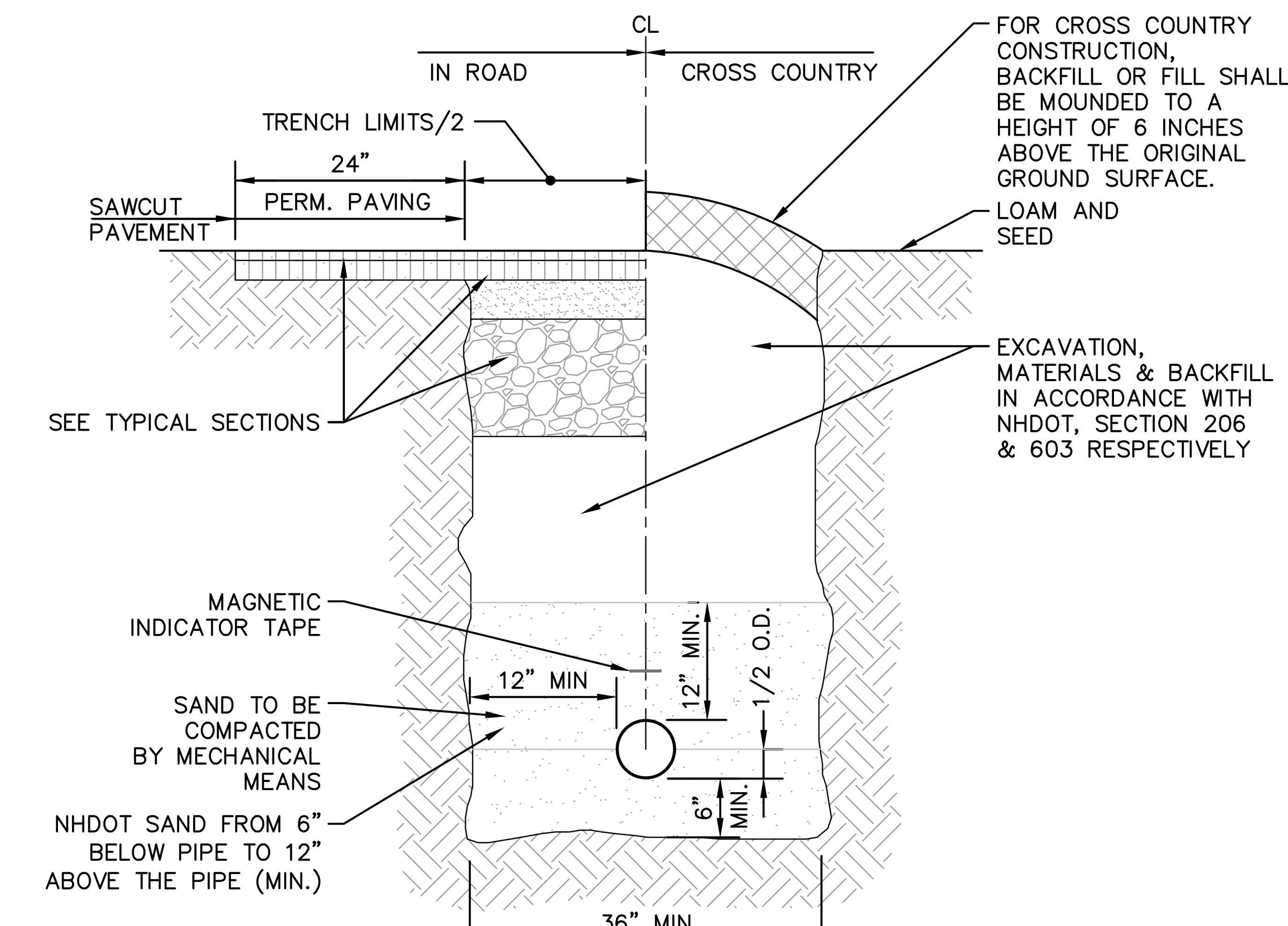
INVERT DETAIL AT SIDE DROPS

INLET DROP MANHOLE NOTES:

1. DROP DIAMETER (D2) TO MATCH INLET DIAMETER (D2)
2. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDES STANDARDS FOR SANITARY MANHOLE CONSTRUCTION.
3. INSIDE DROP MANHOLES SHALL HAVE A MINIMUM 5'–0" INSIDE DIAMETER.
4. DROP REQUIRED WHEN INVERT DIFFERENTIAL EXCEEDS 2 VERTICAL FEET.
5. ANCHOR STRAPS AND BOLTS TO BE STAINLESS STEEL AND NOT MORE THAN 2 FEET ON CENTER.
   STRAPS – 2 IN. WIDE
   BOLTS – ½ IN. x 2½ IN. LONG

5 INLET DROP SEWER MANHOLE DETAIL (C12)

SCALE: NONE

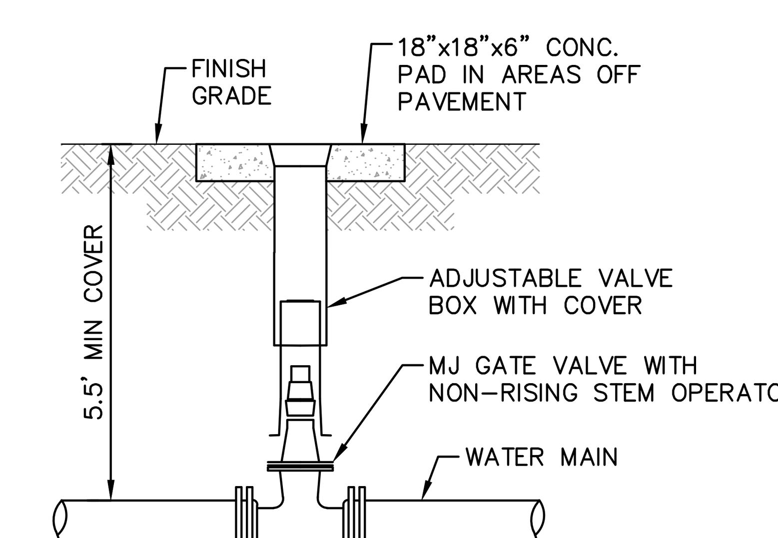


WATERLINE TRENCH NOTES:

1. APPROVED MATERIAL: SHALL BE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOPSOIL, CLUMPS MORE THAN 3" DIA., ALL EXCAVATED LEDGE ROCK, STUMPS OR ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.
2. SEWER AND WATER PIPING RUNNING APPROXIMATELY PARALLEL MUST BE SEPARATED BY A HORIZONTAL DISTANCE OF TEN FEET MINIMUM.
3. WATER MAINS ARE TO HAVE A MINIMUM COVER OF 5.5 FT.

6 WATER LINE TRENCH DETAIL (C12)

SCALE: NONE



7 GATE VALVE DETAIL (C12)

SCALE: NONE

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

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ORIGINAL DATE: NOVEMBER 16, 2018

SCALE: AS SHOWN

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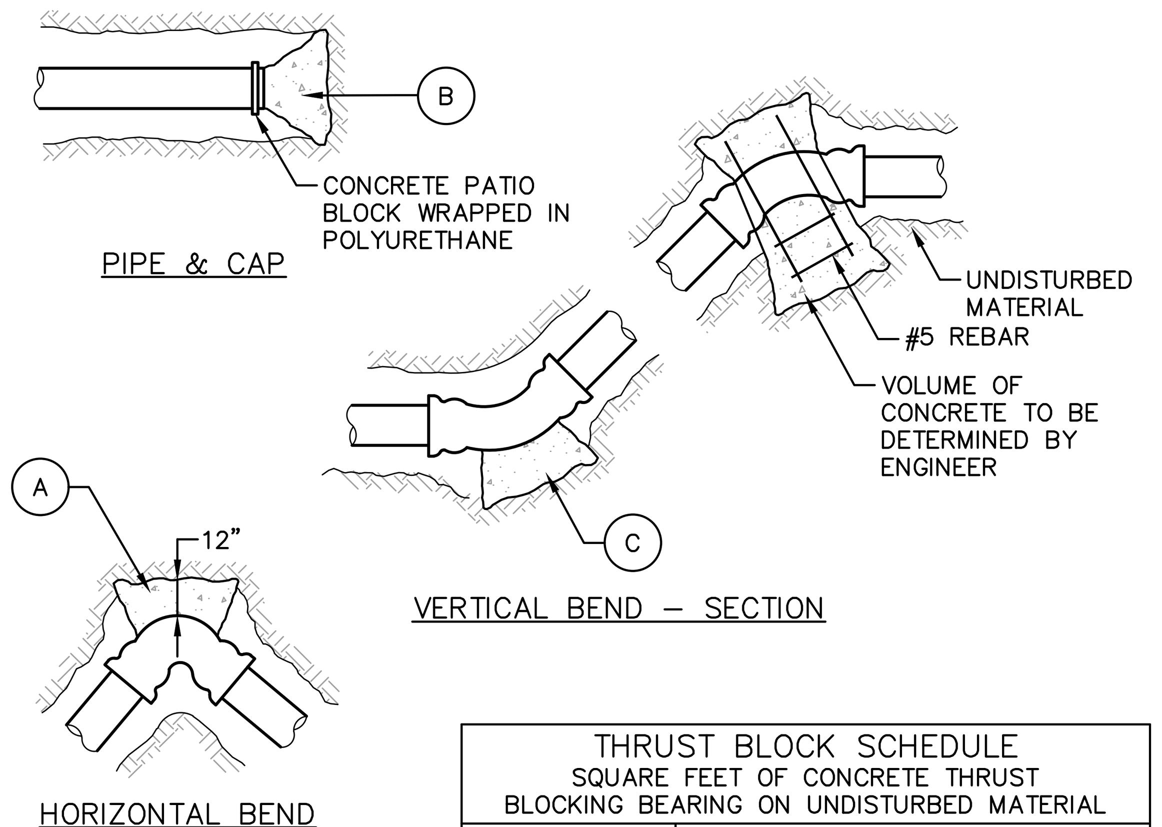
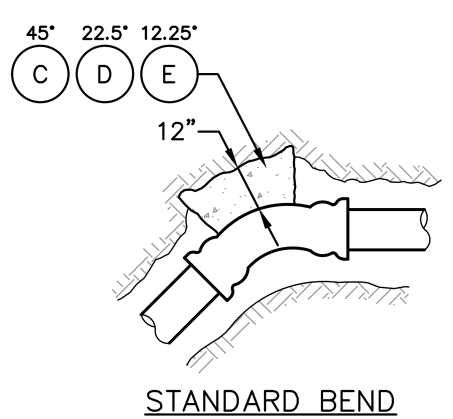
PROJECT: PROPOSED 4 STORY OFFICE BUILDING, 100 NEW HAMPSHIRE AVENUE, PORTSMOUTH, NH

CONSTRUCTION DETAILS 3

C12

PROJECT NO. 556912



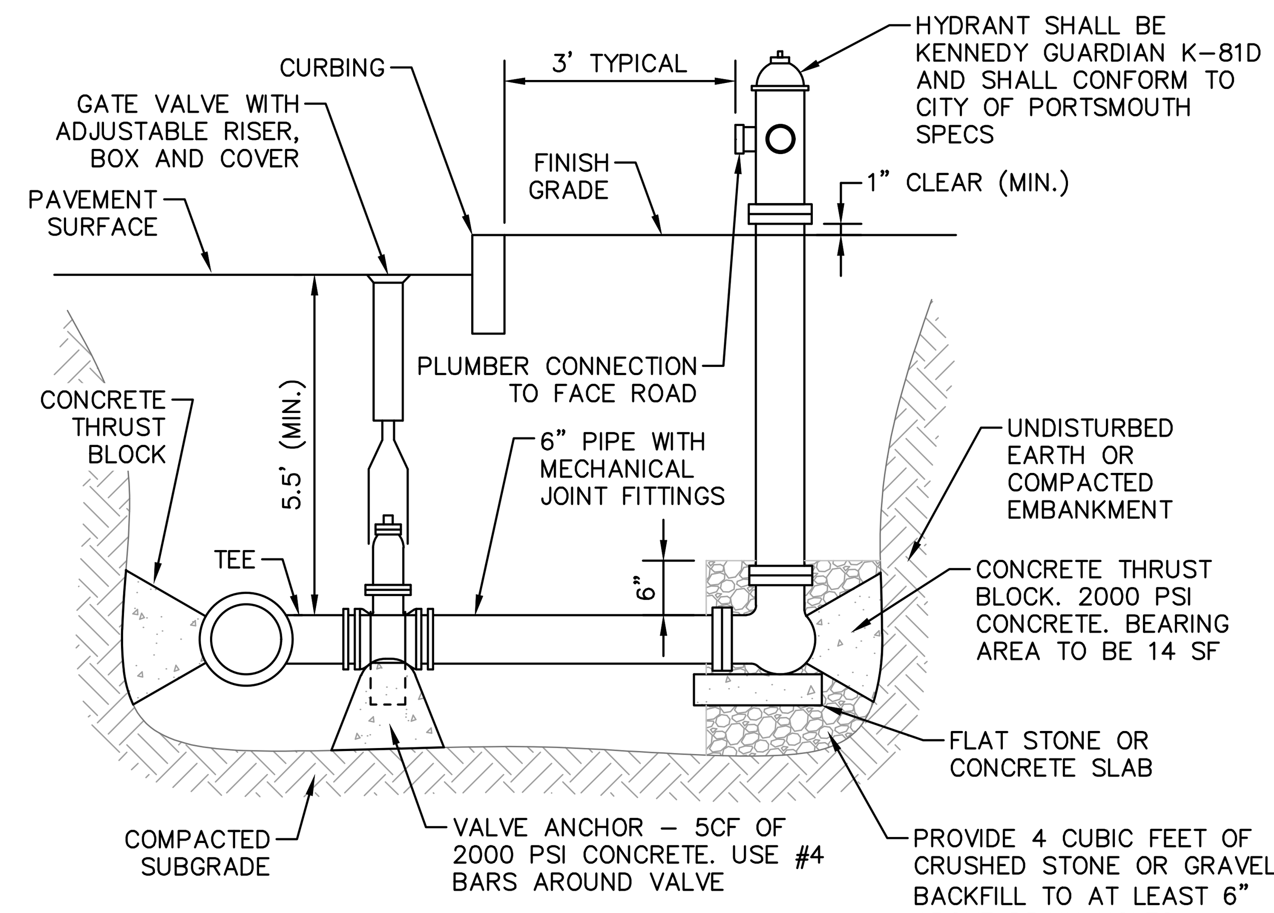


THRUST BLOCK SCHEDULE SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL						
REACTION TYPE		PIPE SIZE				
		1"–4"	6"	8"	10"	12"
TEST PRESSURE = 100 PSIG	A	0.89	2.19	3.92	5.57	8.62
	B	0.65	1.55	2.76	4.19	6.09
	C	0.48	1.19	2.12	3.01	4.66
	D	0.25	0.60	1.08	1.54	2.37
	E	0.13	0.30	0.54	0.77	1.19
OTHER TEST PRESSURES FOR THE ABOVE REACTIONS		TEST PRESSURE TO BE 200 PSI MINIMUM AT LOW END OF THE TEST SECTION. SQUARE FEET OF CONCRETE THRUST BLOCKING FOR OTHER TEST PRESSURES IS DIRECTLY PROPORTIONAL TO THE ABOVE TABLE.				

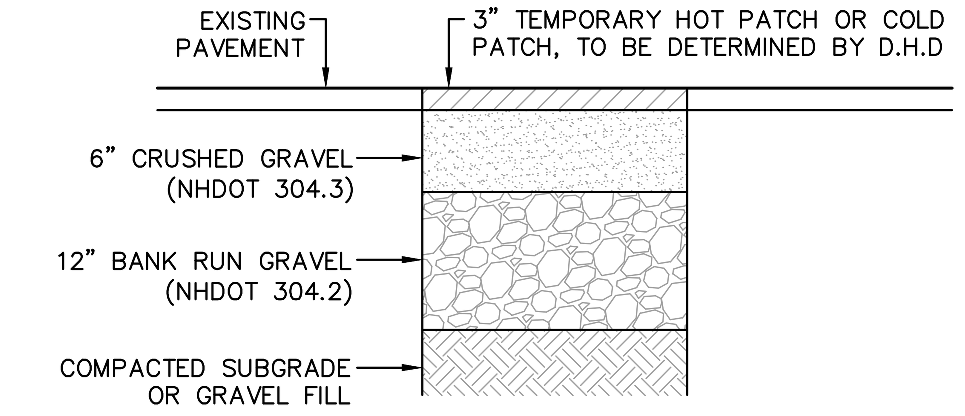
THRUST BOCK NOTES:

1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL. WHERE TRENCH 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 CONCRETE PATIO BLOCKS IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCK.
4. REQUIREMENTS OF THE ABOVE TABLE PRESUME MINIMUM SOIL BEARING OF 1 TON PER SQUARE FOOT AND MAY BE VARIED BY THE ENGINEER TO MEET OTHER CONDITIONS ENCOUNTERED.
5. RETAINER GLANDS ARE REQUIRED FOR ALL MECHANICAL JOINTS. THESE GLANDS DO NOT REDUCE THE REQUIREMENTS FOR THRUST RESTRAINT.
6. ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE OR BUILDING PAPER PRIOR TO INSTALLATION OF CONCRETE RESTRAINT.
7. THREADED RODS SHALL BE ANSI A242 FY50 PIPE RESTRAINT NUTS TO MATCH AIWA C111. THREADED RODS AND NUTS TO BE FIELD COATED WITH BITUMINOUS PAINT.
8. THRUST RESTRAINT IS REQUIRED FOR ALL TEES, BENDS, REDUCERS, CAPS PLUGS, OR CROSSES.
9. INSTALL LIFT HOOKS INTO THRUST BLOCKS AT END CAPS AND PLUGS.
10. ALL WATERLINE CONSTRUCTION SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF PORTSMOUTH WATER DIVISION CONSTRUCTION MANUAL

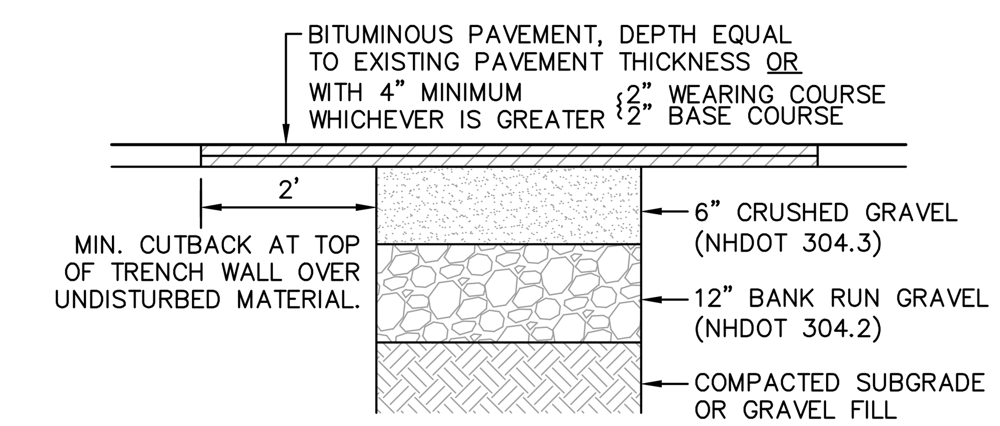
1 C13 WATER LINE THRUST BLOCK DETAILS
SCALE: NONE



2 C13 FIRE HYDRANT ASSEMBLY DETAIL
SCALE: NONE



TEMPORARY PAVEMENT REPAIR

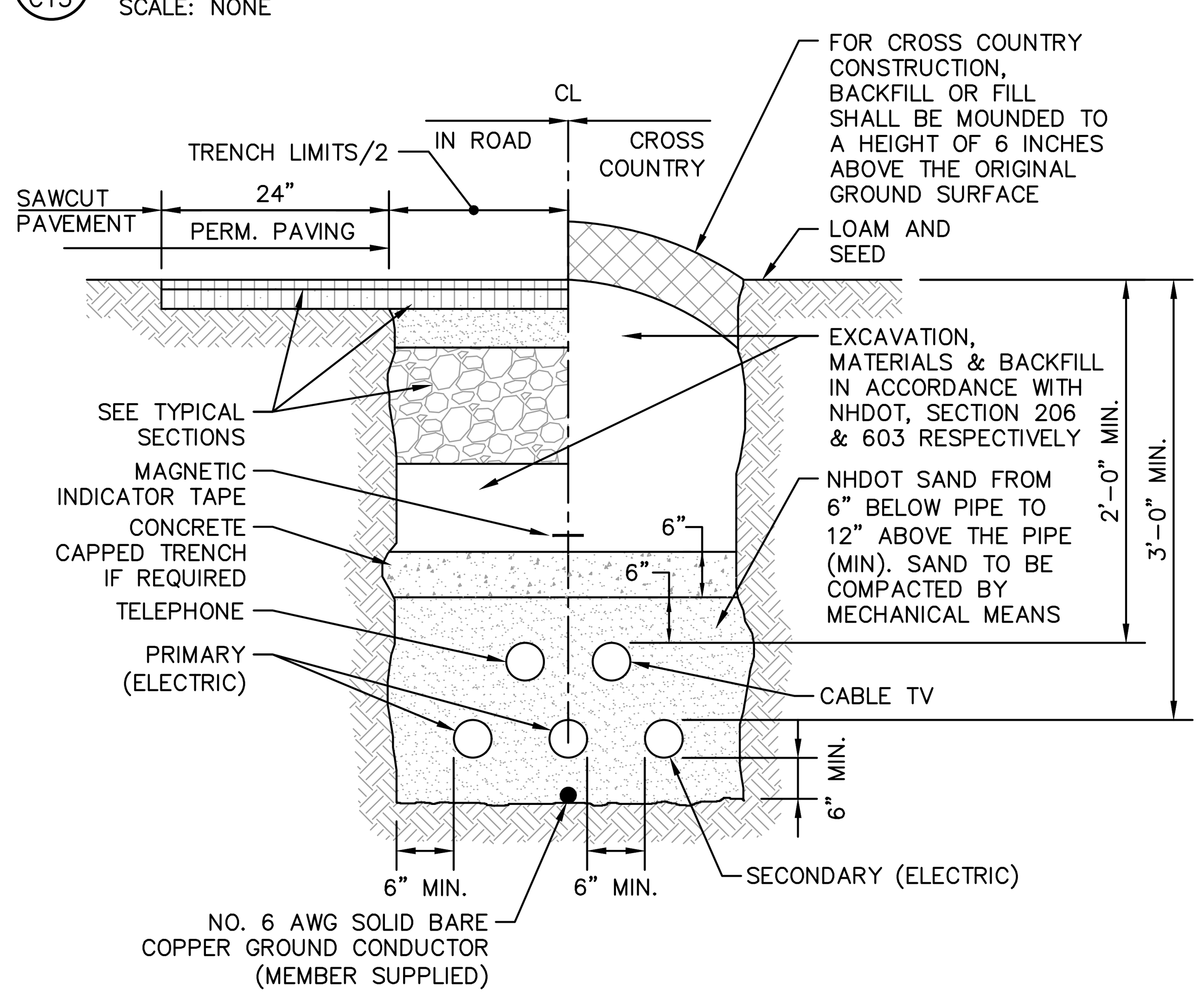


PERMANENT PAVEMENT REPAIR

PAVEMENT REPAIR NOTES:

1. MATERIALS SHOULD BE REPLACED IN-KIND, WITH MINIMUM THICKNESS AS SHOWN.
2. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REQUIREMENTS.
3. ROADWAY CONSTRUCTION SHALL CONFORM TO NHDOT STANDARD SPECIFICATIONS.
4. NOT FOR WINTER CONSTRUCTION.

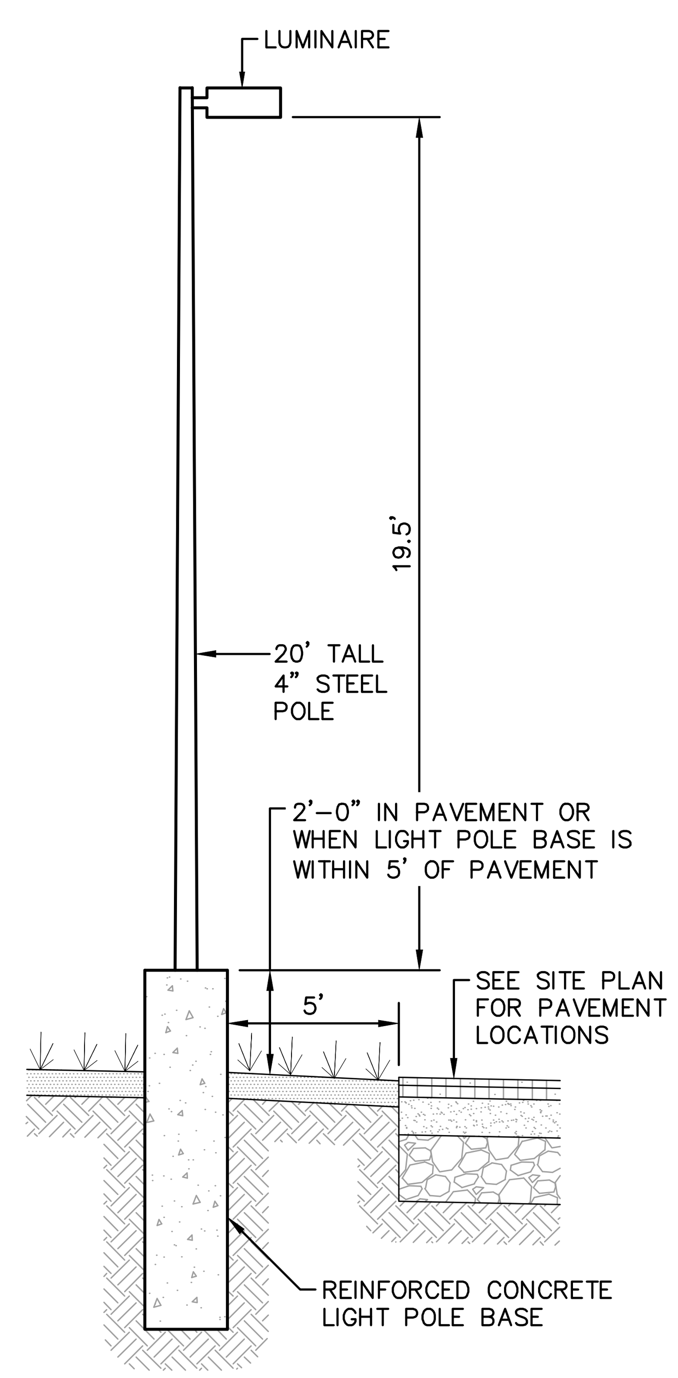
3 C13 PAVEMENT REPAIR DETAILS
SCALE: NONE



TRENCH NOTES:

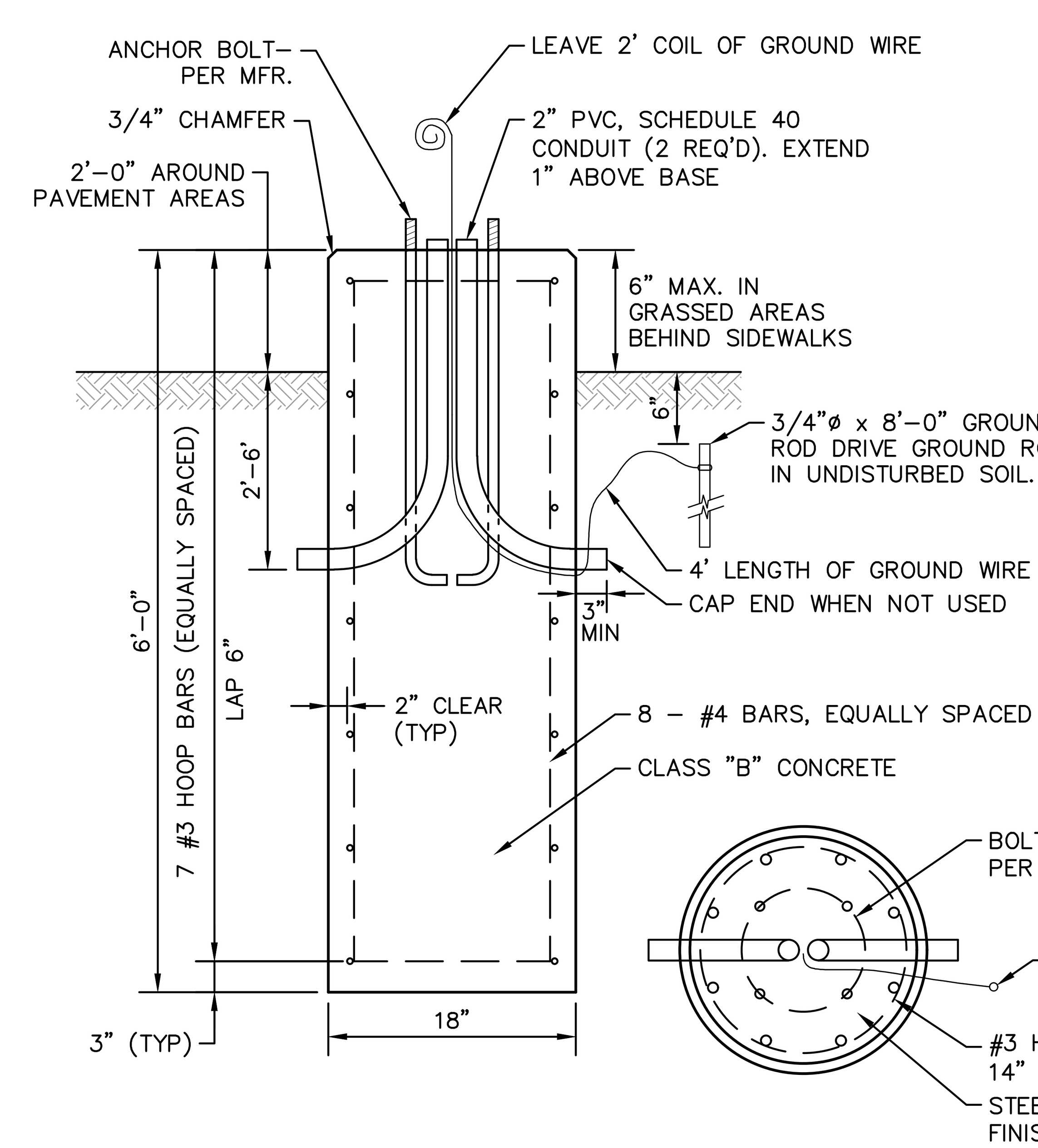
1. COORDINATE TRENCH DETAIL WITH ALL UTILITY OWNERS.
2. ELECTRICAL CONDUIT SHALL BE SCHEDULE 40 PVC
3. ALL PVC CONDUIT JOINTS SHALL BE CEMENTED.
4. A SUITABLE PULL CABLE, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED IN THE ELECTRICAL CONDUIT.
5. COORDINATE SIZE OF CONDUIT WITH OWNER.
6. DEPTH OF CONDUIT SHALL BE 36" TO INVERT.
7. TRENCH WIDTH AS REQUIRED TO MAINTAIN 6" MINIMUM SPACING BETWEEN ALL CONDUITS AND TRENCH SIDEWALLS.

4 C13 PRIMARY CIRCUIT W/ TELEPHONE AND/OR CABLE TV ELEC. TRENCH
SCALE: NONE



SECTION VIEW

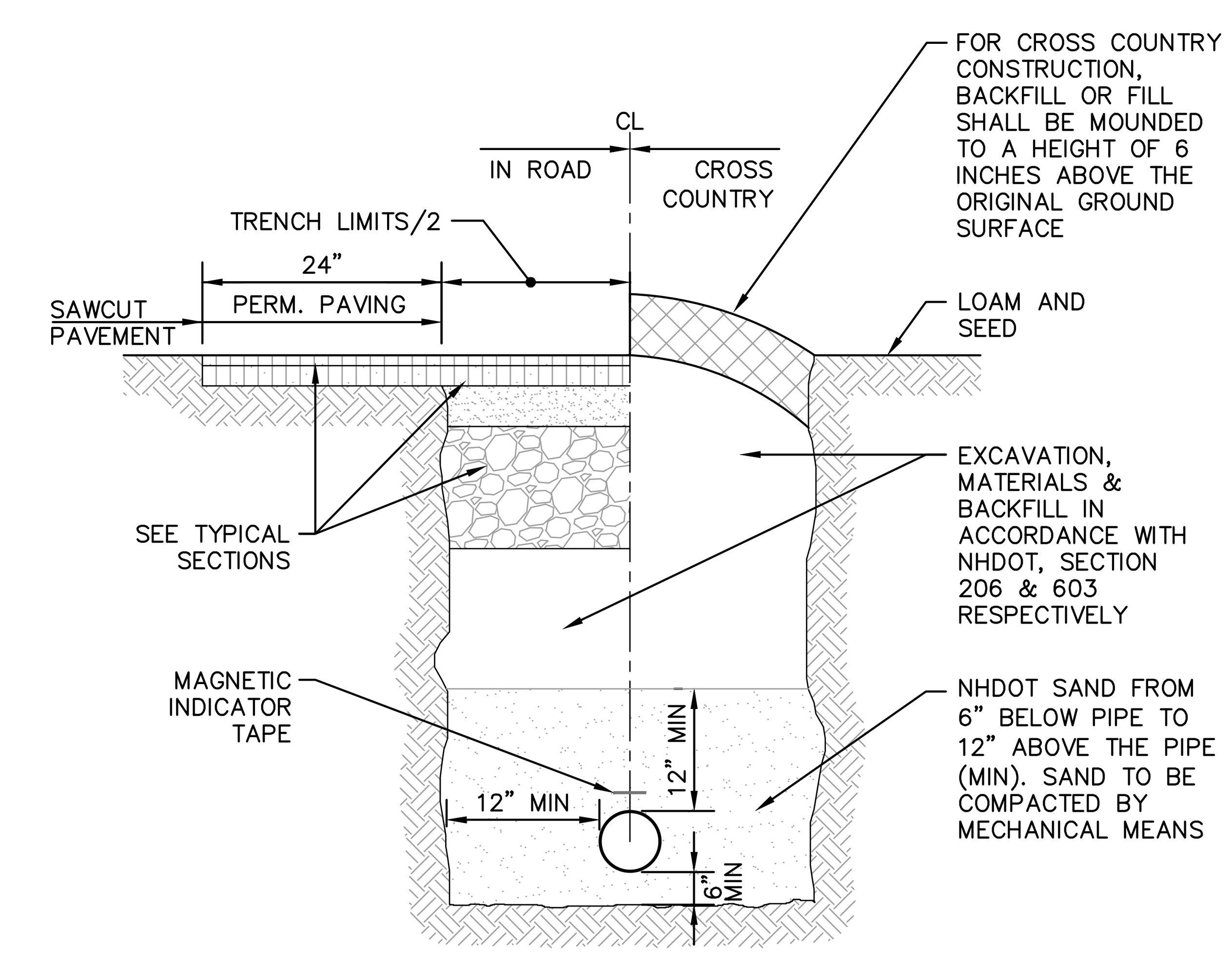
5 C13 TYPICAL LIGHT POLE DETAILS
SCALE: NONE



BASE SECTION VIEW

BASE PLAN VIEW

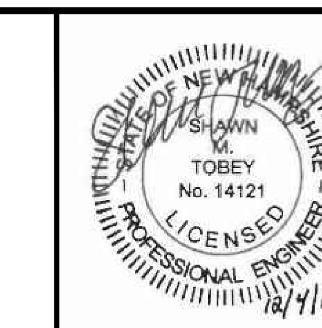
6 C13 TYPICAL LIGHT BASE POLE DETAILS
SCALE: NONE



TRENCH NOTES:

1. ELECTRICAL CONDUIT SHALL BE SCHEDULE 40 PVC AND SHALL CONFORM TO THE APPLICABLE SECTIONS OF NEMA TC-2-1990 AND BE UL LISTED.
2. ALL PVC CONDUIT JOINTS SHALL BE CEMENTED.
3. A SUITABLE PULL CABLE, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED IN THE ELECTRICAL CONDUIT.
4. COORDINATE SIZE OF CONDUIT WITH OWNER.
5. DEPTH OF CONDUIT SHALL BE 36" TO INVERT.

7 C13 ELECTRICAL/GAS TRENCH DETAIL
SCALE: NONE



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DRAWN BY	CHECKED BY
SMT	WRD

DESIGNED BY
SMT

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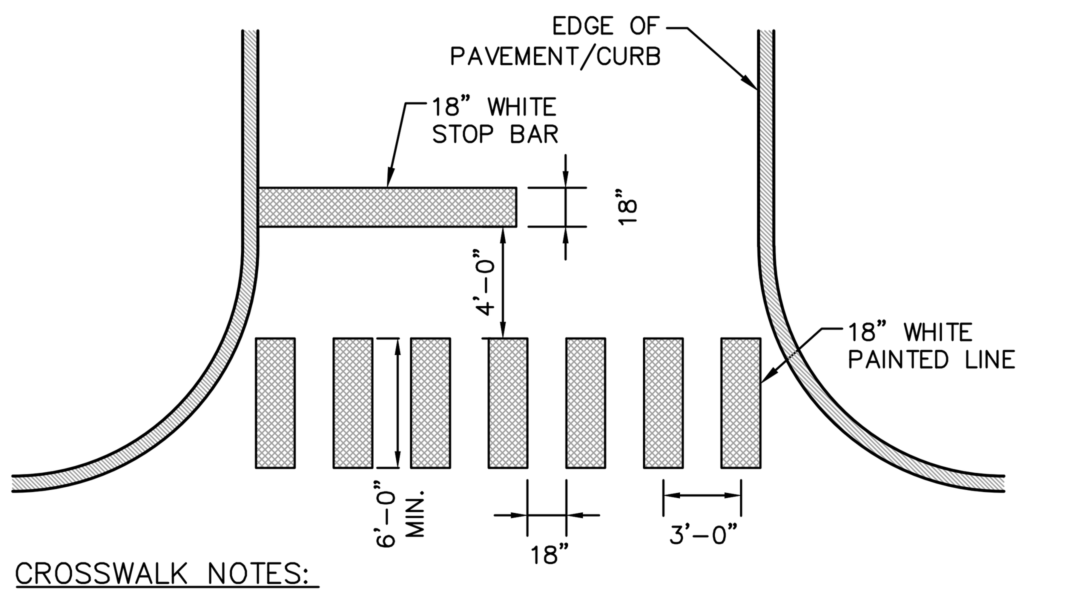
PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

CONSTRUCTION DETAILS 4

C13

PROJECT NO. 556912

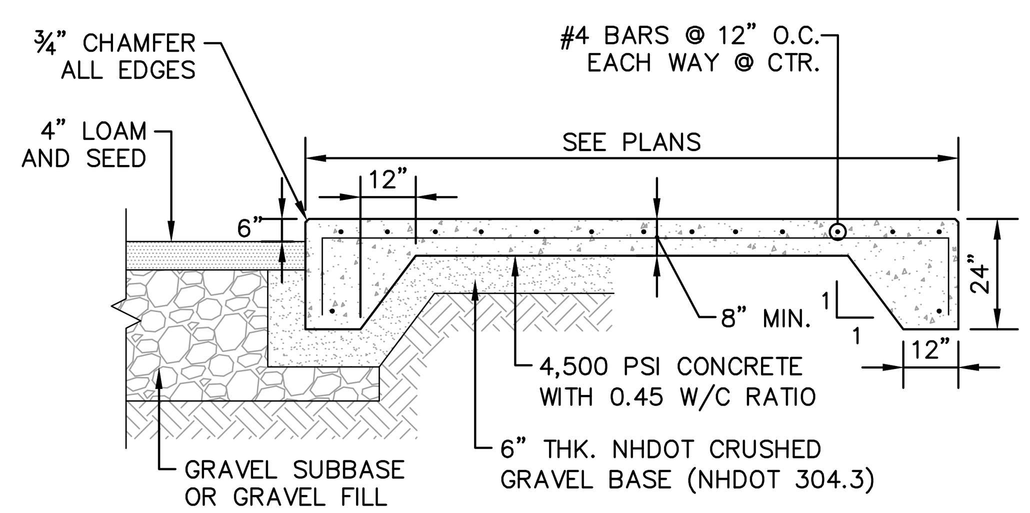


CROSSWALK NOTES:

1. CROSSWALK LINES SHALL BE CENTERED TO AVOID WHEEL MARKS.
2. ALL CROSSWALK LINES TO BE SAME LENGTH AND PROPERLY ALIGNED.
3. SEE PLANS FOR THE CROSSWALK LOCATIONS.

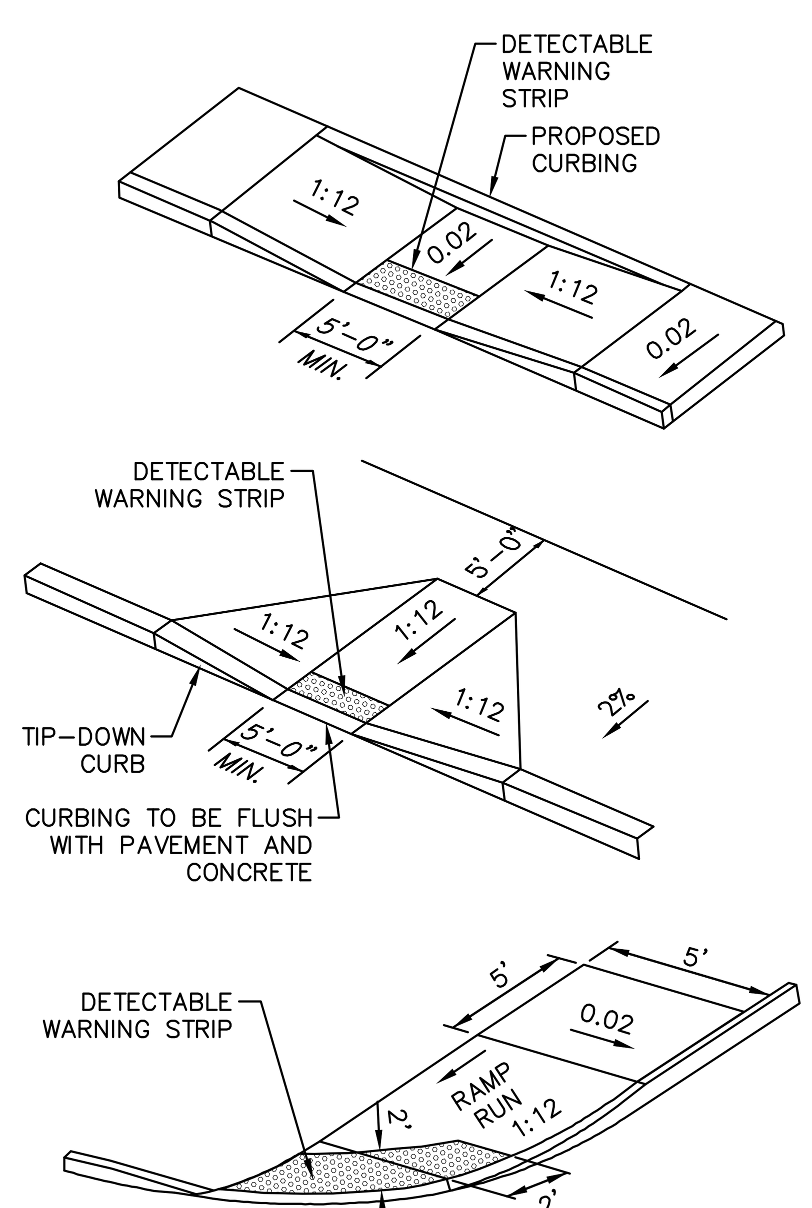
1 / C14 PAINTED CROSSWALK DETAIL

SCALE: NONE



2 / C14 TYPICAL EQUIPMENT PAD DETAIL

SCALE: NONE



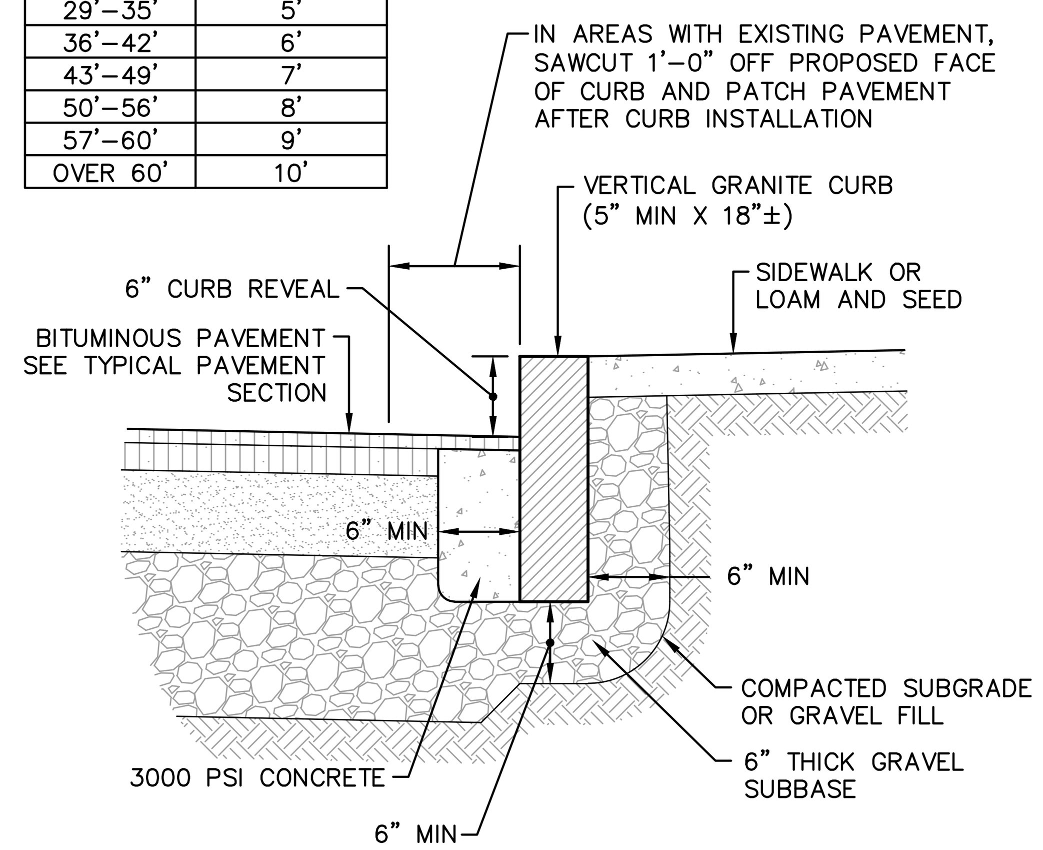
SIDEWALK RAMP NOTES:

1. SLOPE OF RAMP VARIES WITH SIDEWALK WIDTH AND HEIGHT, WITH A MAXIMUM SLOPE OF 1:12.
2. AN ADA DETECTABLE WARNING TRUNCATED DOME FINISH TO TRANSVERSE TO THE SLOPE OF THE RAMP AND WARPED SIDEWALK SHALL BE USED ON ALL RAMPS.
3. MAINTAIN THE NORMAL GUTTER PROFILE THROUGHOUT THE RAMP AREA. INTERCEPT DRAINAGE ALONG THE CURB IN ADVANCE OF THE RAMP.
4. FORM 1" (±1/8" TOLERANCE) CURB LIP IN SIDEWALK PAVING MATERIAL.

3 / C14 HANDICAP SIDEWALK RAMPS

SCALE: NONE

RADIUS	MAX LENGTH
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
OVER 60'	10'

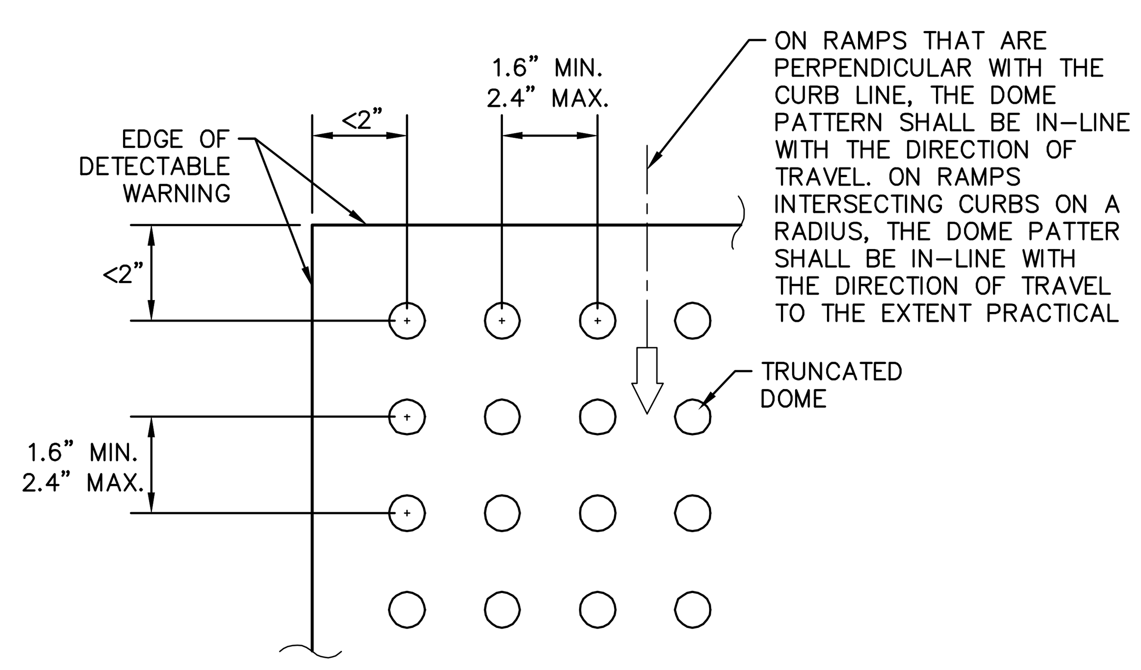


VERTICAL GRANITE CURB NOTES:

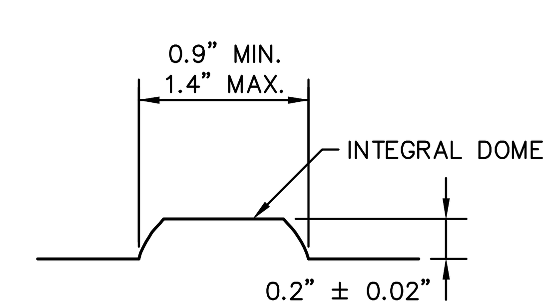
1. MINIMUM LENGTH OF CURB STONES – 3'
2. MAXIMUM LENGTH OF CURB STONES – 10'
3. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES – SEE CHART.
4. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
5. CURB ENDS TO BE TIPPED DOWN.

4 / C14 VERTICAL GRANITE CURB DETAIL

SCALE: NONE



PLAN VIEW



TRUNCATED DOME

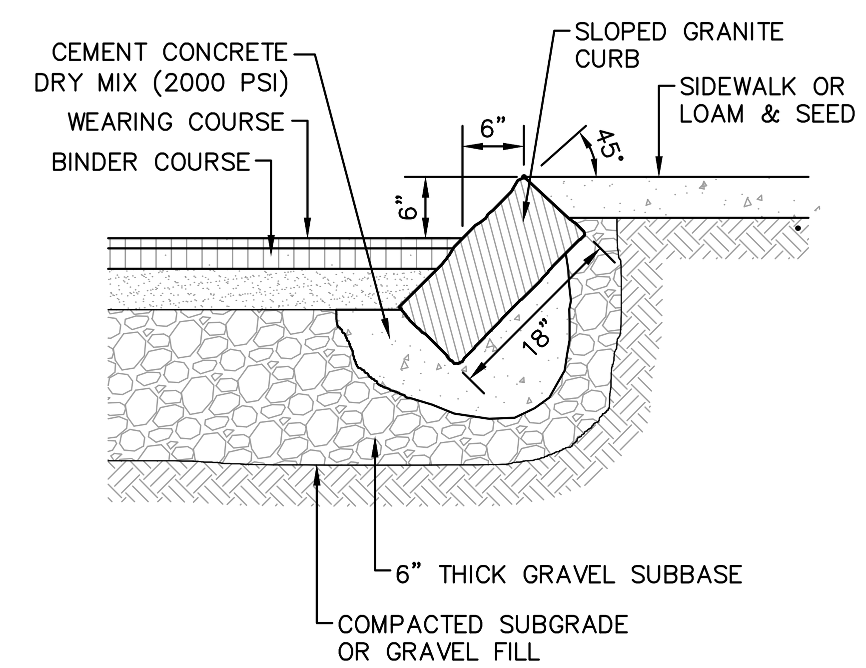
DETECTABLE WARNING NOTES:

1. BASE-TO-BASE SPACING SHALL BE 0.65" MINIMUM BETWEEN DOMES.
2. ALL SIDEWALK CURB RAMPS SHALL HAVE DETECTABLE WARNING SURFACES THAT EXTEND THE FULL WIDTH OF THE RAMP AND IN THE DIRECTION OF TRAVEL 24 INCHES FROM THE BACK OF CURB.
3. THE TOP WIDTH OF THE DOME SHALL BE A MINIMUM OF 50% AND A MAXIMUM OF 65% OF THE BASE DIAMETER.
4. WARNING PANELS TO BE CAST IRON AND PAINTED YELLOW.

5 / C14 TYPICAL DETECTABLE WARNING DETAILS

SCALE: NONE

RADIUS	MAX LENGTH
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
OVER 60'	10'

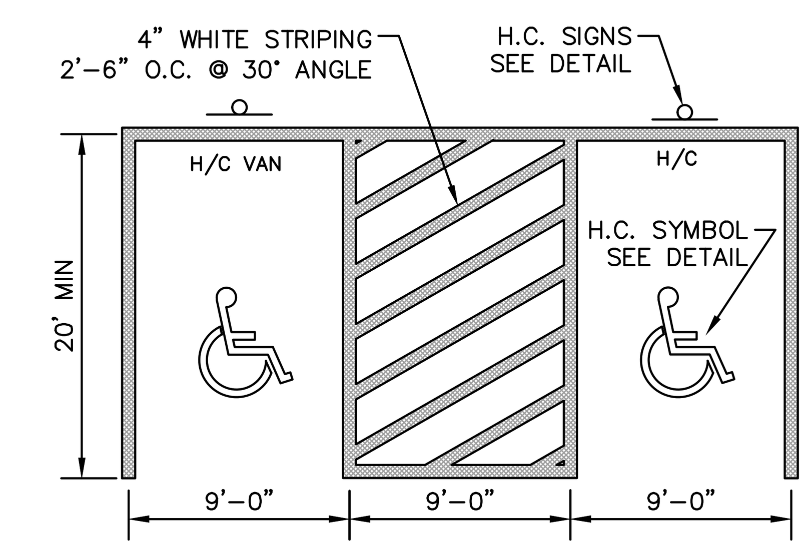


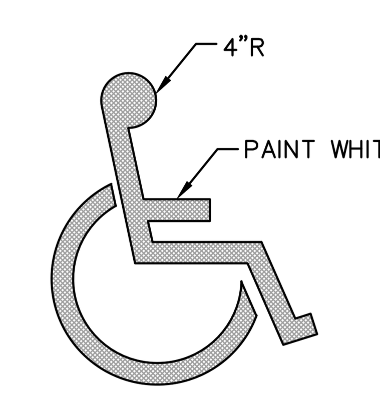
SLOPED GRANITE CURB NOTES:

1. MINIMUM LENGTH OF CURB STONES – 3'
2. MAXIMUM LENGTH OF CURB STONES – 10'
3. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES – SEE CHART.
4. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
5. CURB ENDS TO BE TIPPED DOWN.

6 / C14 SLOPED GRANITE CURB DETAIL

SCALE: NONE





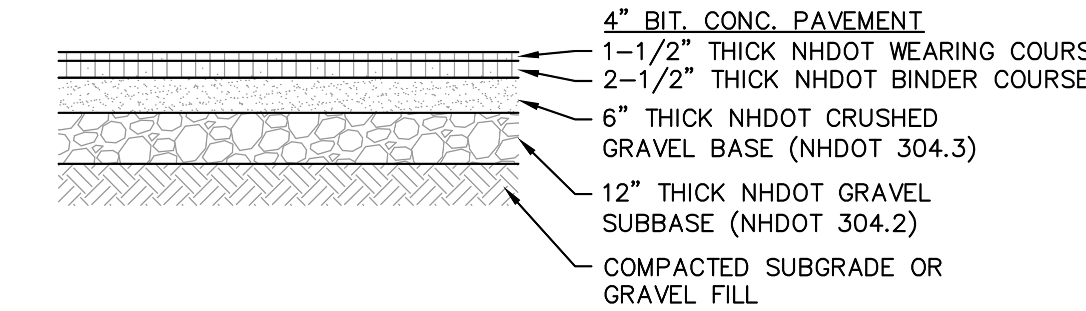
H.C. SYMBOL DETAIL

STALL LAYOUT NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE IN CONFORMANCE WITH THESE STANDARDS AND THE CURRENT EDITION OF MUTCD.
2. WIDTH OF LINES SHALL VARY NO MORE THAN ± 1/4 INCH FROM THAT SPECIFIED.
3. THE WET FILM THICKNESS OF A PAINTED LINE SHALL BE A MINIMUM OF 20 MILS THROUGHOUT THE ENTIRE WIDTH AND LENGTH OF LINE SPECIFIED. OVERSPRAY SHALL BE KEPT TO AN ABSOLUTE MINIMUM.
4. BROKEN LINES SHALL BEGIN AND END WITH THE NEAREST FULL CYCLE OF BROKEN LINE.
5. SOLID LONGITUDINAL LINES SHALL BEGIN AND END WITHIN ± 2 INCHES OFF A LAYOUT SYMBOL INDICATING THE END OF THE LINE, OR WITH A FULL CYCLE OF BROKEN LINE (IF APPROPRIATE).

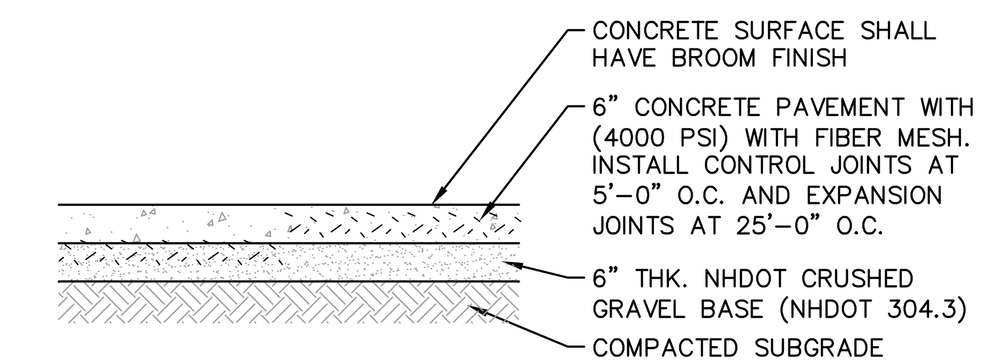
7 / C14 HANDICAP PARKING STALL LAYOUT

SCALE: NONE



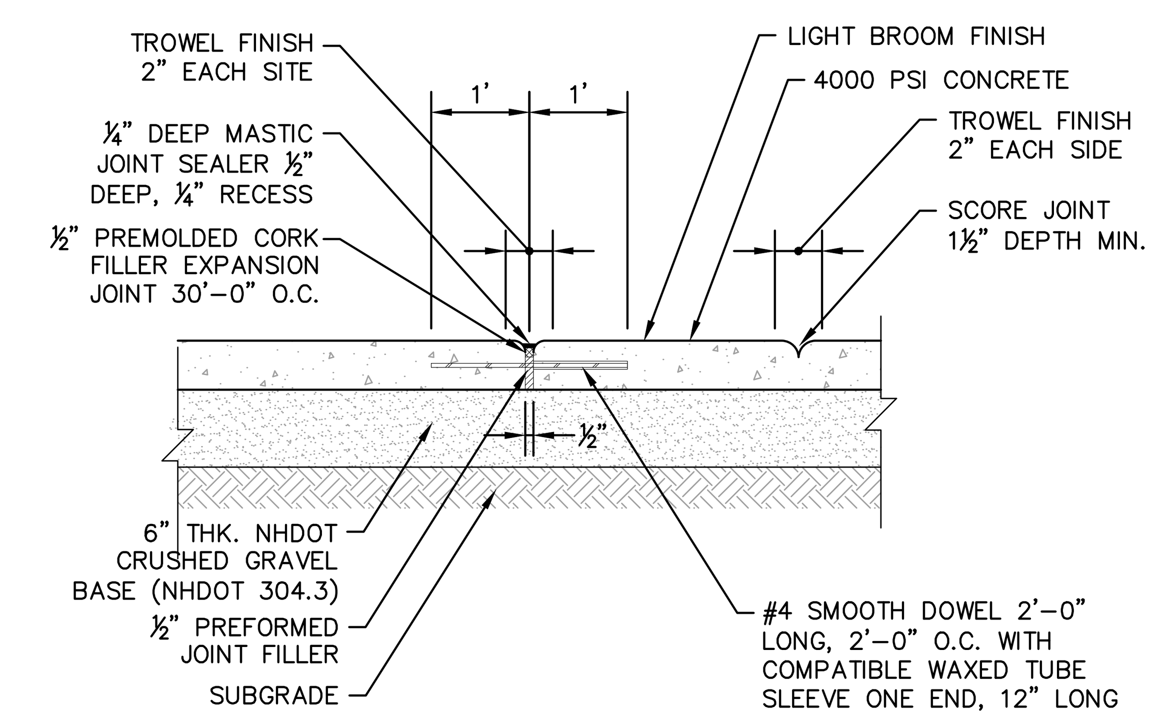
8 / C14 TYPICAL PAVEMENT SECTION

SCALE: NONE



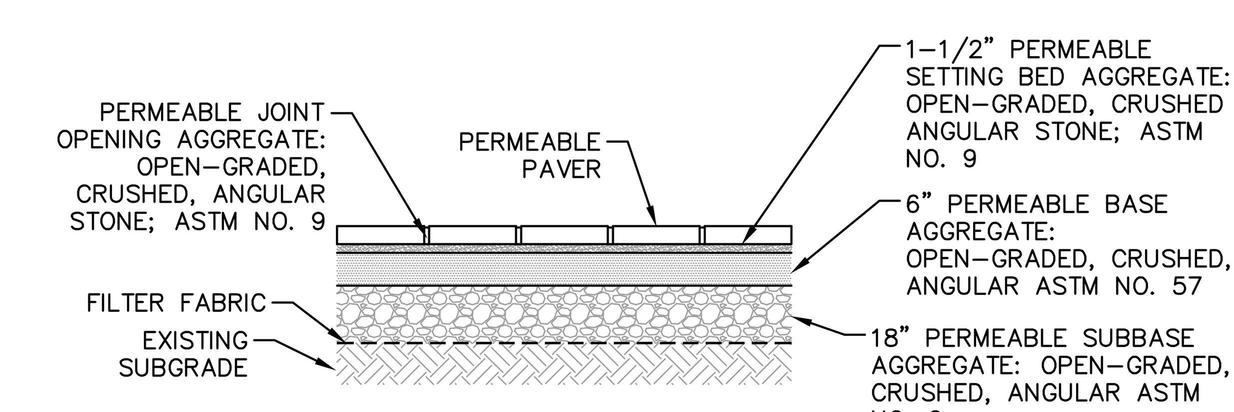
9 / C14 TYPICAL SIDEWALK SECTION

SCALE: NONE



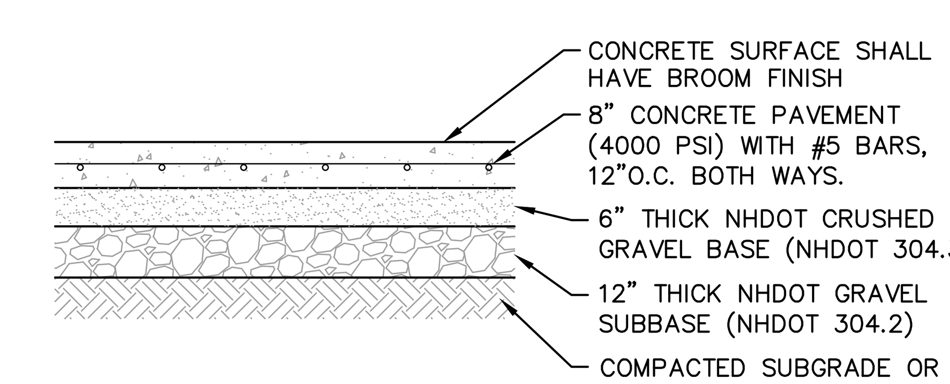
10 / C14 TYPICAL JOINT FOR CONCRETE WALKWAY

SCALE: NONE



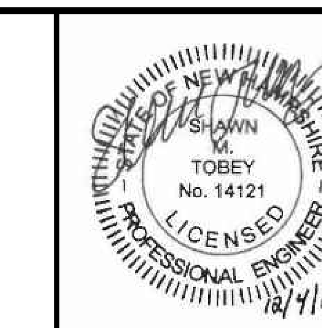
11 / C14 TYPICAL INTERLOCKING PAVER SECTION

SCALE: NONE



12 / C14 LOADING AREA CONCRETE PAVING SECTION

SCALE: NONE



REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr., #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

ORIGINAL DATE: NOVEMBER 16, 2018

SCALE: AS SHOWN

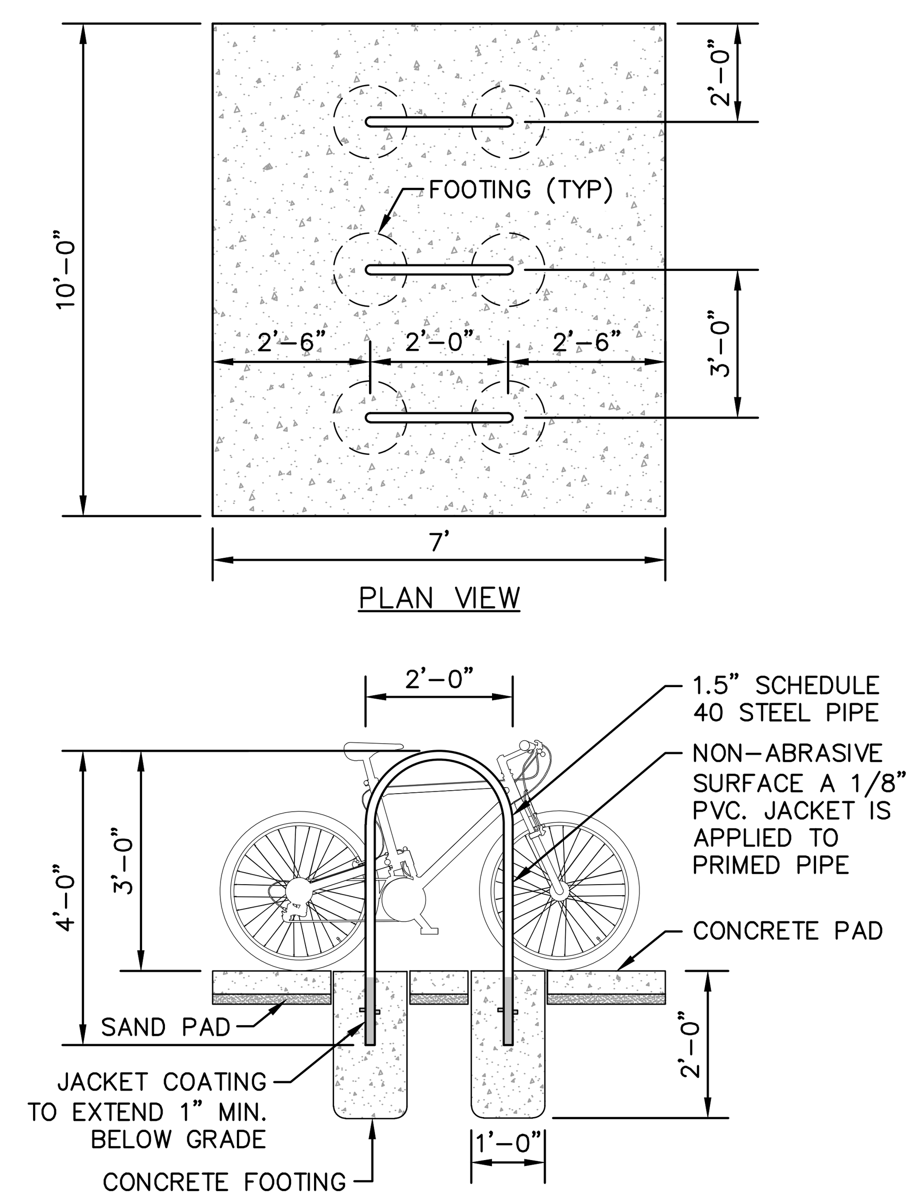
CLIENT: TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT: PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

CONSTRUCTION DETAILS 5

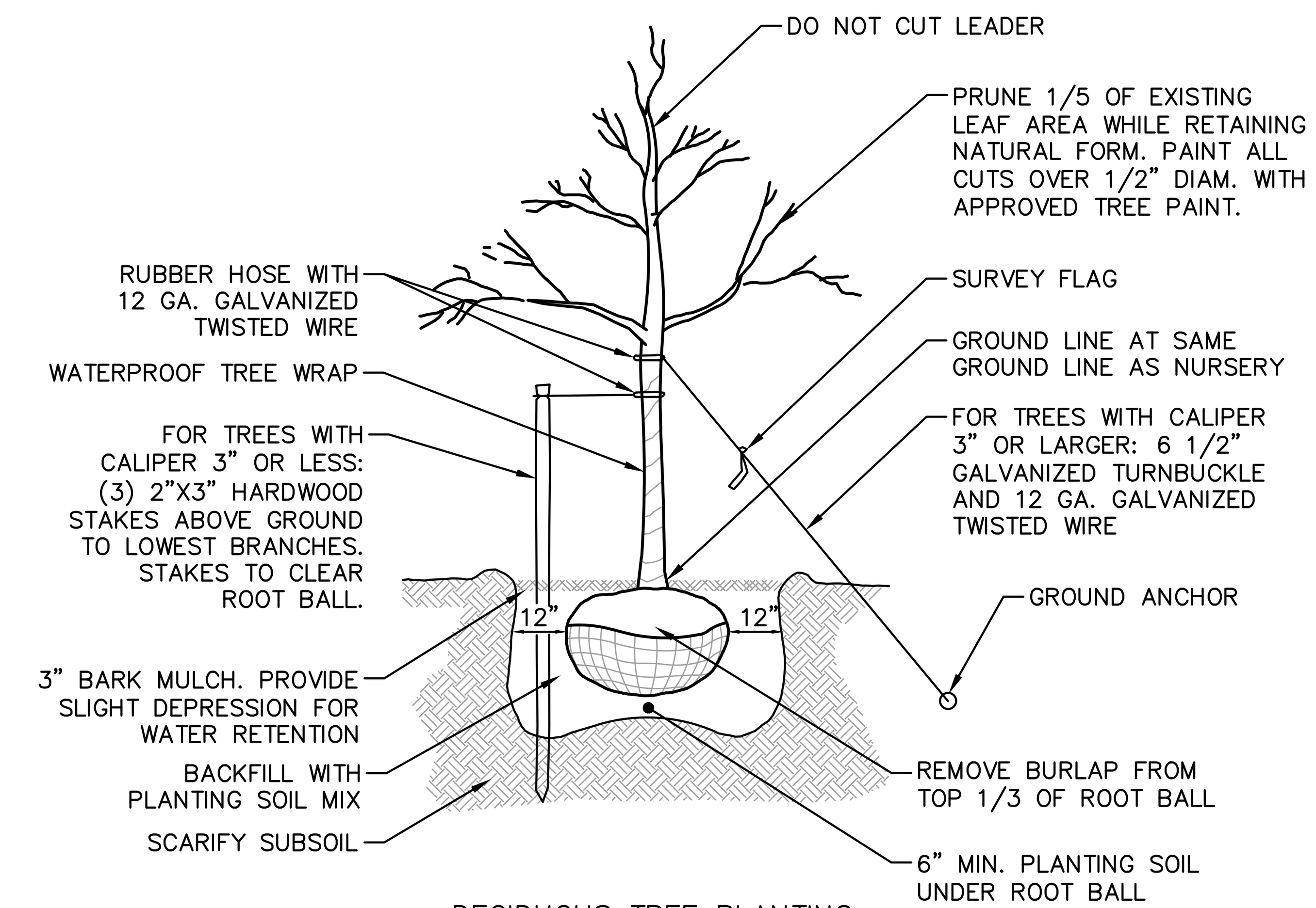
C14

PROJECT NO. 556912

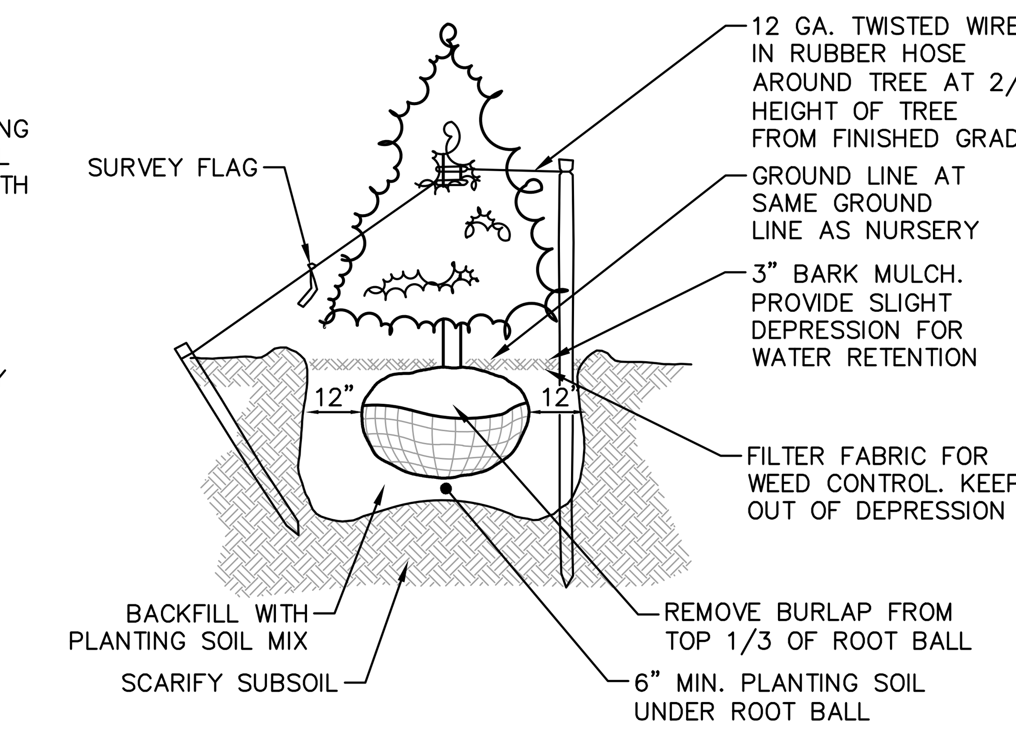


BICYCLE RACK NOTES:

1. BICYCLE RACK BY CYCLE SAFE, INC – MODEL U2RACK OR APPROVED EQUAL.
2. STEEL SHALL MEET ASTMD 2240 FOR HARDNESS



DECIDUOUS TREE PLANTING



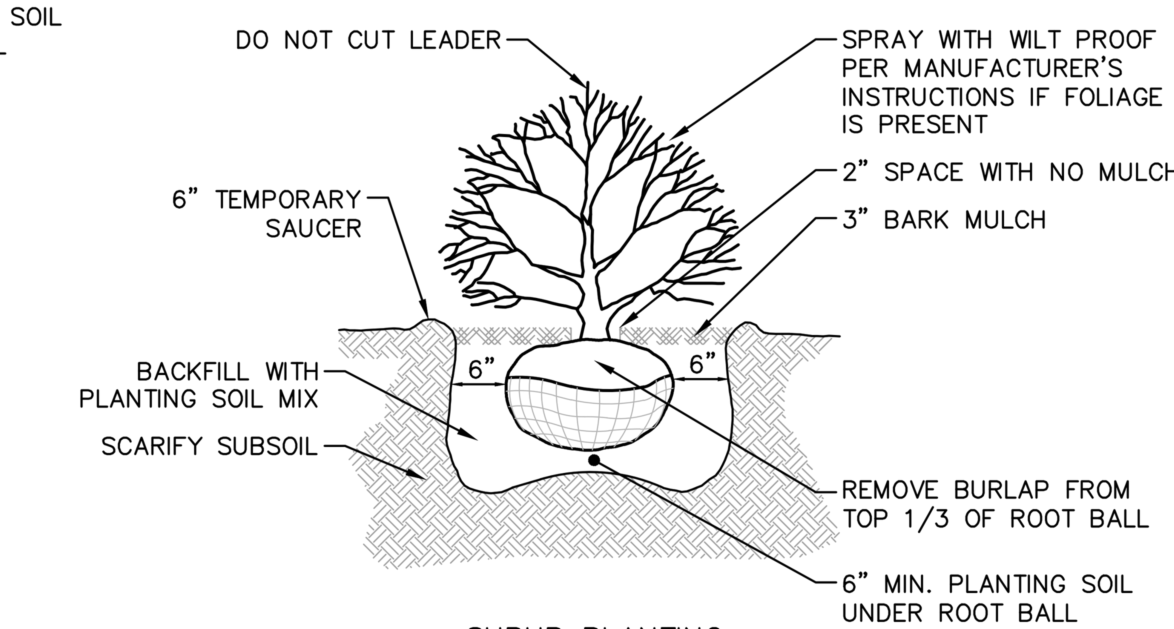
CONIFEROUS TREE PLANTING

FOR TREES 5' IN HEIGHT OR GREATER:

1. PROVIDE (3) 12 GA. GALVANIZED GUY WIRES @ 120 DEGREE SPACING WITH (6) 1/2" GALVANIZED TURNBUCKLE WIRE IN RUBBER HOSE AROUND TREE.
2. ATTACH TO TREE @ 1/2-2/3 HEIGHT OF TREE ABOVE GRADE.
3. ANCHOR WITH 2"X3' HARDWOOD STAKE BURIED BELOW GRADE AND CLEAR OF ROOT BALL.

FOR TREES LESS THAN 5' IN HEIGHT:

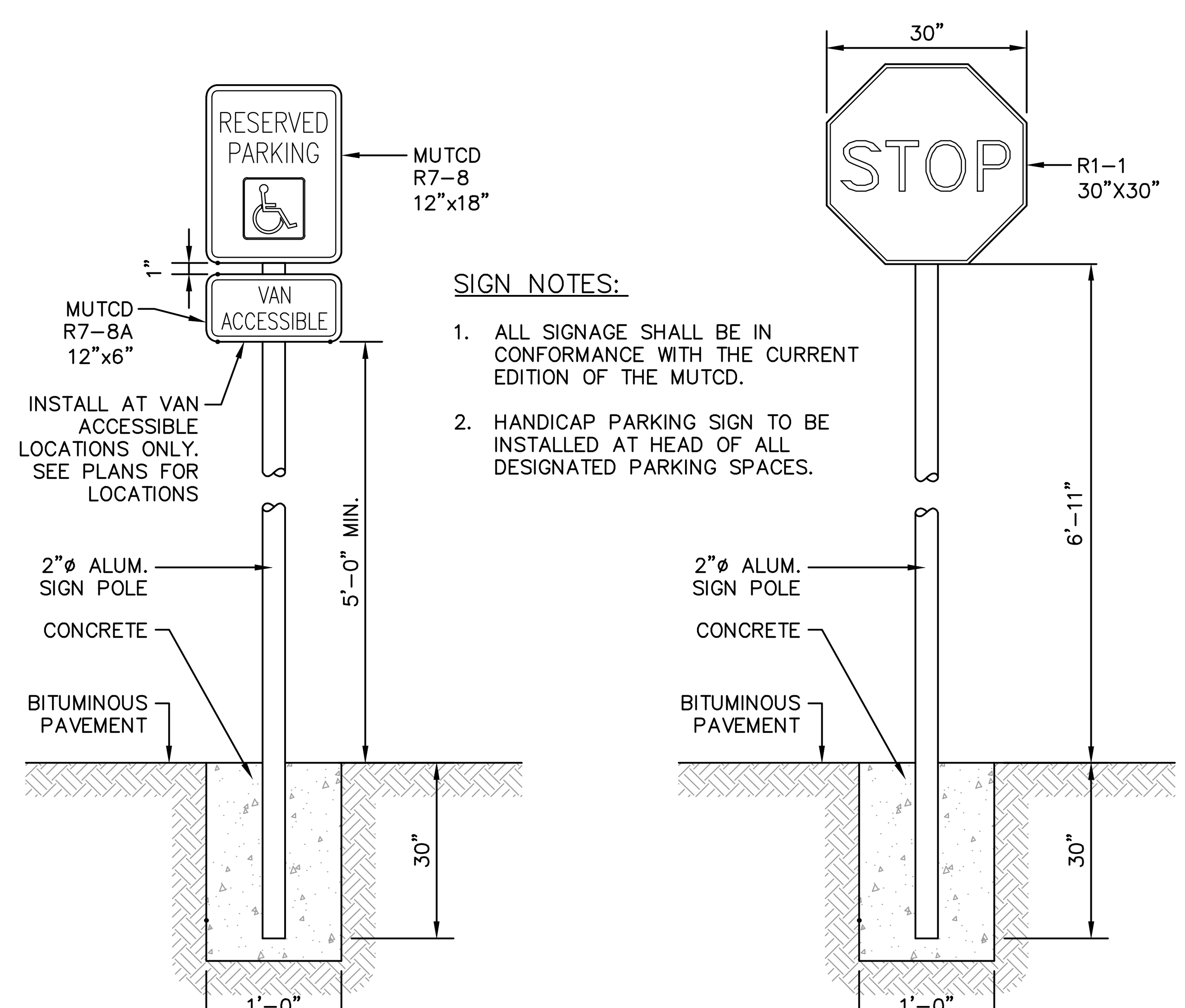
1. PROVIDE (3) 2"X3' HARDWOOD STAKES @ 120 DEGREE SPACING, MIN. 36" IN GROUND AND CLEAR OF ROOT BALL.



SHRUB PLANTING

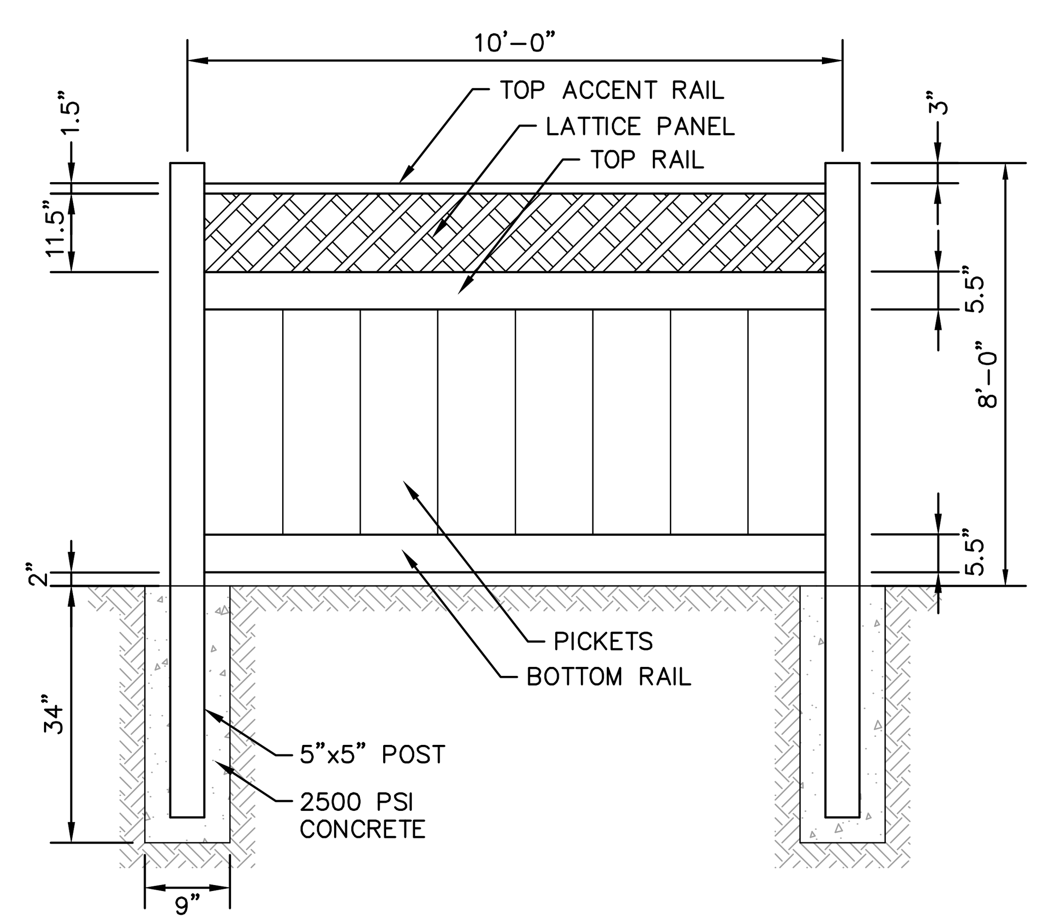
1 / C15 **BICYCLE RACK DETAIL**
SCALE: NONE

3 / C15 **TYPICAL TREE PLANTING DETAILS**
SCALE: NONE

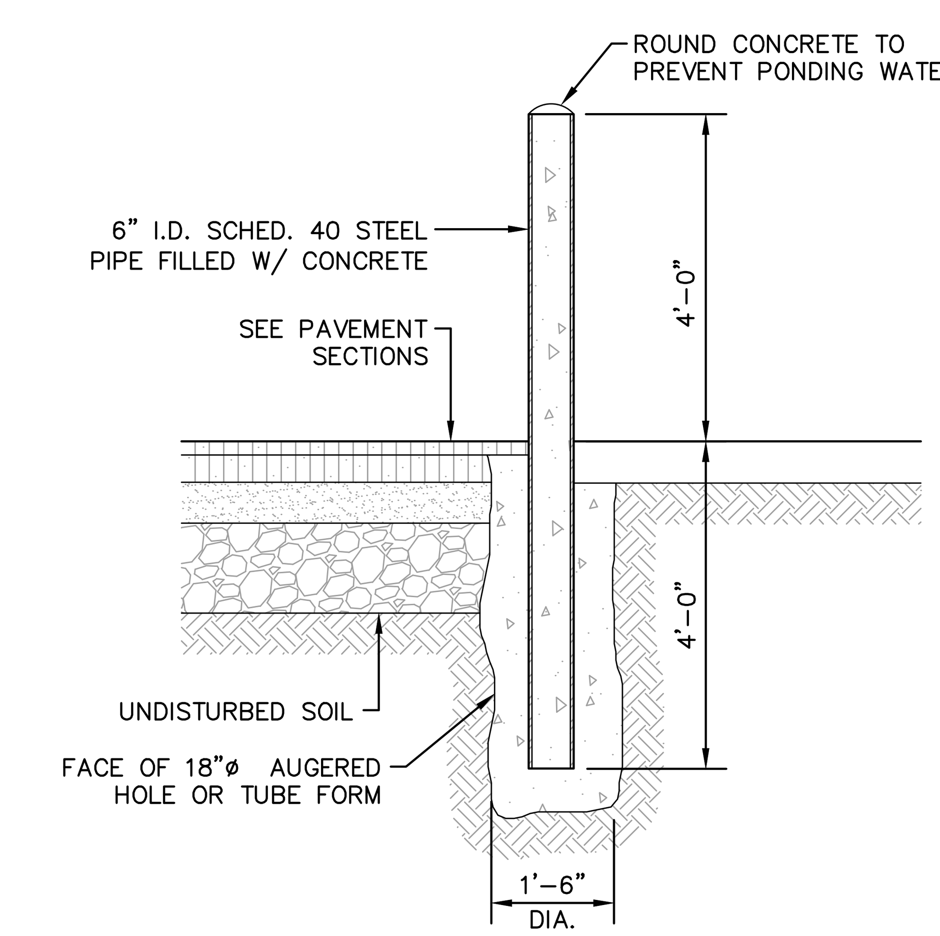


SIGN NOTES:

1. ALL SIGNAGE SHALL BE IN CONFORMANCE WITH THE CURRENT EDITION OF THE MUTCD.
2. HANDICAP PARKING SIGN TO BE INSTALLED AT HEAD OF ALL DESIGNATED PARKING SPACES.



4 / C15 **DUMPSTER VINYL FENCE DETAIL**
SCALE: NONE



6 / C15 **STEEL PIPE BOLLARD DETAIL**
SCALE: NONE

2 / C15 **TYPICAL SIGN MOUNTING DETAILS**
SCALE: NONE

STATE OF NEW HAMPSHIRE SHAWN M. TOBEY No. 14121 LICENSED PROFESSIONAL ENGINEER 12/4/18

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

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ORIGINAL DATE: NOVEMBER 16, 2018

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CLIENT
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PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

CONSTRUCTION DETAILS 6

C15

PROJECT NO. 556912

ALTERATION OF TERRAIN
PERMIT APPLICATION

FOR A

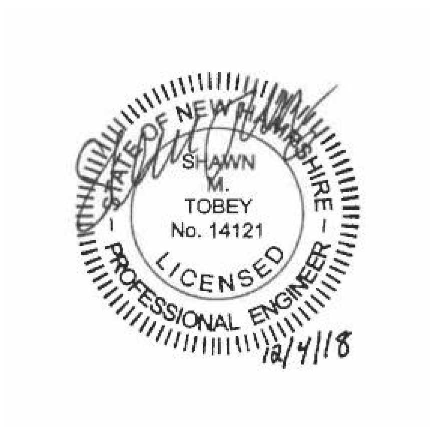
PROPOSED FOUR STORY OFFICE BUILDING

100 New Hampshire Avenue
Portsmouth, NH

December 4, 2018

Prepared for:

TWO INTERNATIONAL
GROUP



Prepared by:

Hoyle, Tanner
& Associates, Inc.

100 International Drive, Suite 360
Pease International Tradeport
Portsmouth, New Hampshire 03801

Table of Contents

AOT PERMIT APPLICATION FORM

ALTERATION OF TERRAIN PERMIT APPLICATION

Water Division/ Alteration of Terrain Bureau/ Land Resources Management
Check the Status of your Application: www.des.nh.gov/onestop

RSA/ Rule: RSA 485-A:17, Env-Wq 1500

Administrative Use Only	Administrative Use Only	Administrative Use Only	File Number:
			Check No.
			Amount:
			Initials:

1. APPLICANT INFORMATION (INTENDED PERMIT HOLDER)		
Applicant Name: Two International Group, LLC	Contact Name: Dan Plummer	
Email: dan@twointernationalgroup.com	Daytime Telephone: (603) 988-9732	
Mailing Address: 1 New Hampshire Avenue, Suite 101		
Town/City: Portsmouth	State: NH	Zip Code: 03801
2. APPLICANT'S AGENT INFORMATION If none, check here: ☐		
Business Name: Hoyle, Tanner & Associates, Inc.	Contact Name: Shawn Tobey	
Email: stobey@hoyletanner.com	Daytime Telephone: (603) 431-2520	
Address: 100 International Drive, Suite 360		
Town/City: Portsmouth	State: NH	Zip Code: 03801
3. PROPERTY OWNER INFORMATION (IF DIFFERENT FROM APPLICANT)		
Applicant Name: Pease Development Authority	Contact Name: Maria Stowell	
Email: m.stowell@peasedev.org	Daytime Telephone: (603) 433-6088	
Mailing Address: 55 International Drive		
Town/City: Portsmouth	State: NH	Zip Code: 03801
4. PROPERTY OWNER'S AGENT INFORMATION If none, check here: ☐		
Business Name:	Contact Name:	
Email:	Daytime Telephone:	
Address:		
Town/City:	State:	Zip Code:
5. CONSULTANT INFORMATION If none, check here: ☐		
Engineering Firm: Hoyle, Tanner & Associates, Inc.	Contact Name: Shawn Tobey	
Email: stobey@hoyletanner.com	Daytime Telephone: (603) 431-2520	
Address: 100 International Drive, Suite 360		
Town/City: Portsmouth	State: NH	Zip Code: 03801

6. PROJECT TYPE

☐ Excavation Only ☐ Residential ☒ Commercial ☐ Golf Course ☐ School ☐ Municipal
☐ Agricultural ☐ Land Conversion ☐ Other:

7. PROJECT LOCATION INFORMATION

Project Name: Proposed Four Story Office Building

Street/Road Address: 100 New Hampshire Avenue

Town/City: Portsmouth	County: Rockingham

Tax Map: 308	Block: N/A	Lot Number: 1 & 2	Unit: N/A

Location Coordinates: 43 04'47N 70 48'29W ☒ Latitude/Longitude ☐ UTM ☐ State Plane

Post-development, will the proposed project withdraw from or directly discharge to any of the following? If yes, identify the purpose.

1. Stream or Wetland Purpose:	☐ Yes ☒ No	☐ Withdrawal	☐ Discharge
2. Man-made pond created by impounding a stream or wetland Purpose:	☐ Yes ☒ No	☐ Withdrawal	☐ Discharge
3. Unlined pond dug into the water table Purpose:	☐ Yes ☒ No	☐ Withdrawal	☐ Discharge

Post-development, will the proposed project discharge to:

- A surface water impaired for phosphorus and/or nitrogen? ☒ No ☐ **Yes - include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen**
- A Class A surface water or Outstanding Resource Water? ☒ No ☐ **Yes - include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen**
- A lake or pond not covered previously? ☒ No ☐ **Yes - include information to demonstrate that project will not cause net increase in phosphorus in the lake or pond**

Is the project a High Load area? ☐ Yes ☒ No
If yes, specify the type of high load land use or activity: _____

Is the project within a Water Supply Intake Protection Area (WSIPA)? ☐ Yes ☒ No
Is the project within a Groundwater Protection Area (GPA)? ☐ Yes ☒ No
Will the well setbacks identified in Env-Wq 1508.02 be met? ☒ Yes ☐ No
Note: Guidance document titled "*Using NHDES's OneStop WebGIS to Locate Protection Areas*" is available online. For more details on the restrictions in these areas, read Chapter 3.1 in Volume 2 of the NH Stormwater Manual.

Is any part of the property within the 100-year floodplain? ☐ Yes ☒ No
If yes: Cut volume: _______ cubic feet within the 100-year floodplain
Fill volume: _______ cubic feet within the 100-year floodplain

☐ Project **IS** within **¼ mile of a designated river** Name of River:
☒ Project is **NOT** within ¼ mile of a designated river

☐ Project **IS** within **a Coastal/Great Bay Region community - include info required by Env-Wq 1503.08(l) if applicable**
☒ Project is **NOT** within a Coastal/Great Bay Region community

8. BRIEF PROJECT DESCRIPTION (PLEASE DO NOT REPLY "SEE ATTACHED")

The proposed project includes the construction of a four (4) story office building with a footprint of 32,250 SF and a total of 129,000 SF. The design also includes the construction of 517 parking spaces, 1 loading area, sidewalks, drainage infrastructure, supporting utilities, landscaping and lighting.

9. IF APPLICABLE, DESCRIBE ANY WORK STARTED PRIOR TO RECEIVING PERMIT

None

10. ADDITIONAL REQUIRED INFORMATION

A. Date a copy of the application was sent to the municipality as required by Env-Wq 1503.05(e)[1]: 12/4/2018.
(Attach proof of delivery)

B. Date a copy of the application was sent to the local river advisory committee if required by Env-Wq 1503.05(e)[2]: ___/___/___.
(Attach proof of delivery)

C. Type of plan required: ☐ Land Conversion ☒ Detailed Development ☐ Excavation, Grading & Reclamation ☐ Steep Slope

D. Additional plans required: ☒ Stormwater Drainage & Hydrologic Soil Groups ☐ Source Control ☐ Chloride Management

E. Total area of disturbance: 460700 square feet

F. Additional impervious cover as a result of the project: -44,980 square feet (use the "-" symbol to indicate a net reduction in impervious coverage).
Total final impervious cover: 216,235 square feet

G. Total undisturbed cover: 55,455 square feet

H. Number of lots proposed: 0

I. Total length of roadway: 0 linear feet

J. Name(s) of receiving water(s): t

K. Identify all other NHDES permits required for the project, and for each indicate whether an application has been filed and is pending, or if the required approval has been issued provide the permit number, registration date, or approval letter number, as applicable.

Type of Approval	Application Filed?	Status	
		Pending	If Issued:
1. Water Supply Approval	☐ Yes ☐ No ☒ N/A	☐	Permit number:
2. Wetlands Permit	☐ Yes ☐ No ☒ N/A	☐	Permit number:
3. Shoreland Permit	☐ Yes ☐ No ☒ N/A	☐	Permit number:
4. UIC Registration	☐ Yes ☐ No ☐ N/A	☐	Registration date:
5. Large/Small Community Well Approval	☐ Yes ☐ No ☒ N/A	☐	Approval letter date:
6. Large Groundwater Withdrawal Permit	☐ Yes ☐ No ☒ N/A	☐	Permit number:
7. Other:	☐ Yes ☐ No	☐	Permit number:

L. List all species identified by the Natural Heritage Bureau as threatened or endangered or of concern: None

M. Using NHDES's Web GIS OneStop program (www2.des.state.nh.us/gis/onestop/), with the Surface Water Impairment layer turned on, list the impairments identified for each receiving water. If no pollutants are listed, enter "N/A." CHLORIDE, DISSOLVED OXYGEN, ESTERICHIA COLI

N. Did the applicant/applicant's agent have a pre-application meeting with AOT staff? ☐ Yes ☒ No
If yes, name of staff member:

O. Will blasting of bedrock be required? ☐ Yes ☒ No If yes, estimated quantity of blast rock: _____ cubic yards
If yes, standard blasting BMP notes must be placed on the plans, available at:
http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-10-12.pdf

NOTE: If greater than 5,000 cubic yards of blast rock will be generated, a groundwater monitoring program must be developed and submitted to NHDES. Contact AOT staff for additional detail.

[1] Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the governing body of each municipality in which the project is proposed.

[2] Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the Local River Advisory Committee, if the project is within ¼ mile of a designated river.

11. CHECK ALL APPLICATION ATTACHMENTS THAT APPLY (SUBMIT WITH APPLICATION IN ORDER LISTED)

LOOSE:

- ☒ Signed application form: des.nh.gov/organization/divisions/water/aot/index.htm (with attached proof(s) of delivery)
- ☒ Check for the application fee: des.nh.gov/organization/divisions/water/aot/fees.htm
- ☒ Color copy of a USGS map with the property boundaries outlined (1" = 2,000' scale)
- ☐ If Applicant is not the property owner, proof that the applicant will have a legal right to undertake the project on the property if a permit is issued to the applicant.

BIND IN A REPORT IN THE FOLLOWING ORDER:

- ☒ Copy of the signed application form & application checklist (des.nh.gov/organization/divisions/water/aot/index.htm)
- ☒ Copy of the check
- ☒ Copy of the USGS map with the property boundaries outlined (1" = 2,000' scale)
- ☒ Narrative of the project with a summary table of the peak discharge rate for the off-site discharge points
- ☒ Web GIS printout with the "Surface Water Impairments" layer turned on - http://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx
- ☒ Web GIS printouts with the AOT screening layers turned on - http://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx
- ☒ NHB letter using DataCheck Tool – www.nhdfl.org/about-forests-and-lands/bureaus/natural-heritage-bureau/
- ☒ The Web Soil Survey Map with project's watershed outlined – websoilsurvey.nrcs.usda.gov
- ☒ Aerial photograph (1" = 2,000' scale with the site boundaries outlined)
- ☒ Photographs representative of the site
- ☒ Groundwater Recharge Volume calculations (one worksheet for each permit application): des.nh.gov/organization/divisions/water/aot/documents/bmp_worksh.xls
- ☒ BMP worksheets (one worksheet for each treatment system): des.nh.gov/organization/divisions/water/aot/documents/bmp_worksh.xls
- ☒ Drainage analysis, stamped by a professional engineer (see Application Checklist for details)
- ☐ Riprap apron or other energy dissipation or stability calculations
- ☒ Site Specific Soil Survey report, stamped and with a certification note prepared by the soil scientist that the survey was done in accordance with the Site Specific Soil Mapping standards, *Site-Specific Soil Mapping Standards for NH & VT, SSSNNE Special Publication No. 3*.
- ☐ Infiltration Feasibility Report (example online) [Env-Wq 1503.08(f)(3)]
- ☐ Registration and Notification Form for Storm Water Infiltration to Groundwater (UIC Registration-for underground systems only, including drywells and trenches): (http://des.nh.gov/organization/divisions/water/dwgb/dwspp/gw_discharge)
- ☒ Inspection and maintenance manual with, if applicable, long term maintenance agreements [Env-Wq 1503.08(g)]
- ☐ Source control plan

PLANS:

- ☒ One set of design plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details)
- ☒ Pre & post-development color coded soil plans on 11" x 17" (see Application Checklist for details)
- ☒ Pre & post-development drainage area plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details)

100-YEAR FLOODPLAIN REPORT:

- ☐ All information required in Env-Wq 1503.09, submitted as a separate report.

ADDITIONAL INFORMATION RE: NUTRIENTS, CLIMATE

- ☐ See Checklist for Details

☒ **REVIEW APPLICATION FOR COMPLETENESS & CONFIRM INFORMATION LISTED ON THE APPLICATION IS INCLUDED WITH SUBMITTAL.**

12. REQUIRED SIGNATURES

__ST__ By initialing here, I acknowledge that I am required by Env-Wq 1503.20(e) to submit a copy of all approved documents to the department in PDF format on a CD within one week after permit approval.

By signing below, I certify that:

- The information contained in or otherwise submitted with this application is true, complete, and not misleading to the best of my knowledge and belief;
- I understand that the submission of false, incomplete, or misleading information constitutes grounds for the department to deny the application, revoke any permit that is granted based on the information, and/or refer the matter to the board of professional engineers established by RSA 310-A:3 if I am a professional engineer; and
- I understand that I am subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641.

☐ **APPLICANT** ☒ **APPLICANT'S AGENT:**

Signature: Shawn Tobey Date: 12/4/18

Name (print or type): Shawn Tobey Title: Project Manager

☐ PROPERTY OWNER ☒ PROPERTY OWNER'S AGENT:

Signature: Daniel L Plummer Date: 11-29-18

Name (print or type): Dan Plummer Title: Manager

ATTACHMENT A:
ALTERATION OF TERRAIN PERMIT APPLICATION CHECKLIST

Check the box to indicate the item has been provided or provide an explanation why the item does not apply.

DESIGN PLANS

☒ Plans printed on 34 - 36” by 22 - 24” white paper

☒ PE stamp

☐ Wetland delineation

☒ Temporary erosion control measures

☒ Treatment for all stormwater runoff from impervious surfaces such as roadways (including gravel roadways), parking areas, and non-residential roof runoff. Guidance on treatment BMPs can be found in Volume 2, Chapter 4 of the NH Stormwater Management Manual.

☒ Pre-existing 2-foot contours

☒ Proposed 2-foot contours

☐ Drainage easements protecting the drainage/treatment structures

☒ Compliance with the Wetlands Bureau, RSA 482- A http://des.nh.gov/organization/divisions/water/wetlands/index.htm. Note that artificial detention in wetlands is not allowed.

☒ Compliance with the Comprehensive Shoreland Protection Act, RSA 483-B. http://des.nh.gov/organization/divisions/water/wetlands/cspa

☒ Benches. Benching is needed if you have more than 20 feet change in elevation on a 2:1 slope, 30 feet change in elevation on a 3:1 slope, 40 feet change in elevation on a 4:1 slope.

☐ Check to see if any proposed ponds need state Dam permits. http://des.nh.gov/organization/divisions/water/dam/documents/damdef.pdf

DETAILS

☒ Typical roadway x-section

☐ Detention basin with inverts noted on the outlet structure

☐ Stone berm level spreader

☐ Outlet protection – riprap aprons

☐ A general installation detail for an erosion control blanket

☒ Silt fences or mulch berm

☒ Storm drain inlet protection. Note that since hay bales must be embedded 4 inches into the ground, they are not to be used on hard surfaces such as pavement.

☒ Hay bale barriers

☒ Stone check dams

☒ Gravel construction exit

☒ Temporary sediment trap

☒ The treatment BMP’s proposed

☒ Any innovative BMP’s proposed

CONSTRUCTION SEQUENCE/EROSION CONTROL

☒ Note that 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.

☒ Note that perimeter controls shall be installed prior to earth moving operations.

☒ Note that temporary water diversion (swales, basins, etc) must be used as necessary until areas are stabilized.

☐ Note that ponds and swales shall be installed early on in the construction sequence (before rough grading the site).

☒ Note that all ditches and swales shall be stabilized prior to directing runoff to them.

☒ Note that all roadways and parking lots shall be stabilized within 72 hours of achieving finished grade.

☒ Note that all cut and fill slopes shall be seeded/loamed within 72 hours of achieving finished grade

☒ Note that all erosion controls shall be inspected weekly AND after every half-inch of rainfall.

☒ Note the limits on the open area allowed, see Env-Wq 1505.02 for detailed information.

Example note: The smallest practical area shall be disturbed during construction, but in no case shall exceed 5 acres at any one time before disturbed areas are stabilized.

☒ Note the definition of the word "stable"

Example note: An area shall be considered stable if one of the following has occurred:

- Base course gravels have been installed in areas to be paved.
- A minimum of 85 percent vegetated growth has been established.
- A minimum of 3 inches of non-erosive material such stone or riprap has been installed.
- Or, erosion control blankets have been properly installed.

☒ Note the limit of time an area may be exposed
Example note: All areas shall be stabilized within 45 days of initial disturbance.

☒ Provide temporary and permanent seeding specifications. (Reed canary grass is listed in the Green Book; however, this is a problematic species according to the Wetlands Bureau and therefore should not be specified)

☒ Provide winter construction notes that meet or exceed our standards.

Standard Winter Notes:

- All proposed vegetated areas that do not exhibit a minimum of 85 percent vegetative growth by October 15, or which are disturbed after October 15, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melt events.
- All ditches or swales which do not exhibit a minimum of 85 percent vegetative growth by October 15, or which are disturbed after October 15, shall be stabilized temporarily with stone or erosion control blankets appropriate for the design flow conditions.
- After 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.

☐ Note at the end of the construction sequence that "Lot disturbance, other than that shown on the approved plans, shall not commence until after the roadway has the base course to design elevation and the associated drainage is complete and stable." – This note is applicable to single/duplex family subdivisions, when lot development is not part of the permit.

DRAINAGE ANALYSES

Please double-side 8 ½" x 11" sheets where possible but, **do not** reduce the text such that more than one page fits on one side.

☒ PE stamp

☒ Rainfall amount obtained from the Northeast Regional Climate Center- http://precip.eas.cornell.edu/. Include extreme precipitation table as obtained from the above referenced website.

☒ Drainage analyses, in the following order:

- Pre-development analysis: Drainage diagram.
- Pre-development analysis: Area Listing and Soil Listing.
- Pre-development analysis: Node listing 1-year (if applicable), 2-year, 10-year and 50-year.
- Pre-development analysis: Full summary of the 10-year storm.
- Post-development analysis: Drainage diagram.
- Post-development analysis: Area Listing and Soil Listing.
- Post-development analysis: Node listing for the 2-year, 10-year and 50-year.
- Post-development analysis: Full summary of the 10-year storm.

☒ Review the Area Listing and Soil Listing reports

  - Hydrologic soil groups (HSG) match the HSGs on the soil maps provided.
  - There is the same or less HSG A soil area after development (check for each HSG).
  - There is the same or less “woods” cover in the post-development.
  - Undeveloped land was assumed to be in “good” condition.
  - The amount of impervious cover in the analyses is correct.

Note: A good check is to subtract the total impervious area used in the pre analysis from the total impervious area used in the post-analysis. For residential projects without demolition occurring, a good check is to take this change in impervious area, subtract out the roadway and divide the remaining by the number of houses/units proposed. Do these numbers make sense?

☐ Check the storage input used to model the ponds.

☐ Check to see if the artificial berms pass the 50-year storm, i.e., make sure the constructed berms on ponds are not overtopped.

☒ Check the outlet structure proposed and make sure it matches that modeled.

☒ Check to see if the total areas in the pre and post analyses are same.

☒ Confirm the correct NRCS storm type was modeled (Coos, Carroll & Grafton counties are Type II, all others Type III).

.

PRE- AND POST-DEVELOPMENT DRAINAGE AREA PLANS

☒ Plans printed on 34 - 36” by 22 - 24” on white paper.

☒ Submit these plans separate from the soil plans.

☒ A north arrow.

☒ A scale.

☒ Labeled subcatchments, reaches and ponds.

☒ Tc lines.

☒ A clear delineation of the subcatchment boundaries.

☐ Roadway station numbers.

☒ Culverts and other conveyance structures.

PRE AND POST-DEVELOPMENT COLOR-CODED SOIL PLANS

☒ 11” x 17”sheets suitable, as long as it is readable.

☒ Submit these plans separate from the drainage area plans.

☒ A north arrow.

☒ A scale.

☒ Name of the soil scientist who performed the survey and date the soil survey took place.

☒ 2-foot contours (5-foot contours if application is for a gravel pit) as well as other surveyed features.

☒ Delineation of the soil boundaries and wetland boundaries.

☒ Delineation of the subcatchment boundaries.

☒ Soil series symbols (e.g., 26).

☒ A key or legend which identifies each soil series symbol and its associated soil series name (e.g., 26 = Windsor).

☒ The hydrologic soil group color coding (A = Green, B = yellow, C= orange, D=red, Water=blue, & Impervious = gray).

Please note that excavation projects (e.g., gravel pits) have similar requirements to that above, however the following are common exceptions/additions:

☐ Drainage report is not needed if site does not have off-site flow.

☐ 5 foot contours allowed rather than 2 foot.

☐ No PE stamp needed on the plans.

☐ Add a note to the plans that the applicant must submit to the Department of Environmental Services a written update of the project and revised plans documenting the project status every five years from the date of the Alteration of Terrain permit.

☐ Add reclamation notes.

See NRCS publication titled: *Vegetating New Hampshire Sand and Gravel Pits* for a good resource, it is posted online at: http://des.nh.gov/organization/divisions/water/aot/categories/publications.

ADDITIONAL INFORMATION RE: NUTRIENTS, CLIMATE

☐ If project will discharge stormwater to a surface water impaired for phosphorus and/or nitrogen, include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen.

☐ If project will discharge stormwater to a Class A surface water or Outstanding Resource Water, include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen.

☐ If project will discharge stormwater to a lake or pond not covered previously, include information to demonstrate that project will not cause net increase in phosphorus in the lake or pond.

☐ If project is within a Coastal/Great Bay Region community, include info required by Env-Wq 1503.08(l) if applicable.

COPY OF APPLICATION FEE CHECK

TIG LLC
ONE NEW HAMPSHIRE AVE
SUITE 101
PORTSMOUTH, NH 03801-2904

54-207/114

555

DATE 12-3-18

PAY TO THE ORDER OF Treasurer, State of New Hampshire $ 2,250.00

Two thousand Two hundred Fifty and NO/100 DOLLARS

Security Features Included Details on Back

OPTIMA BANK & TRUST
Two Harbour Place
Portsmouth, NH 03801

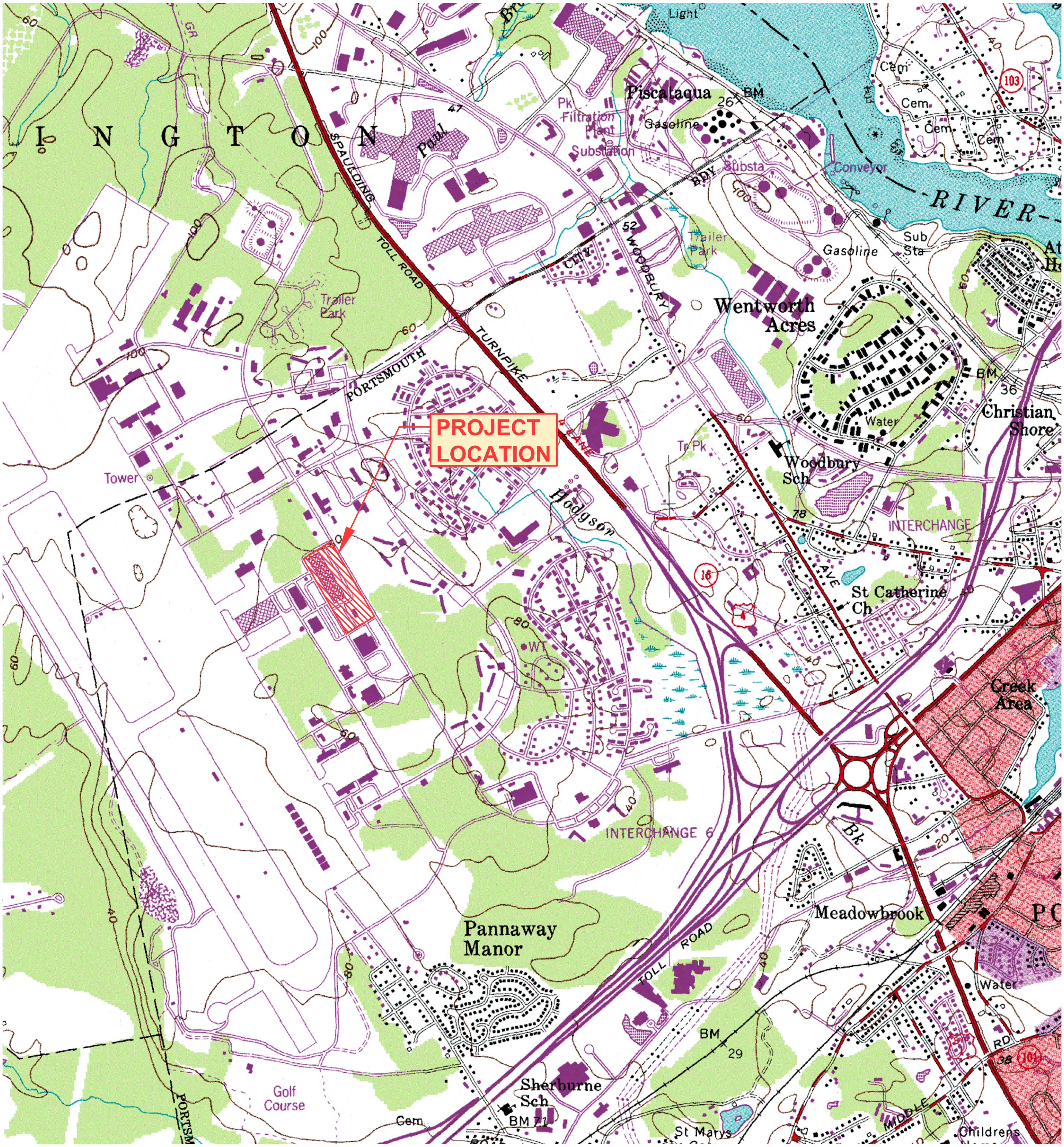
MEMO 100 NH Ave

MP

⑆011402079⑆ 20051408⑈ 0555

SPECIALTY BLUE

USGS LOCATION MAP



USGS MAP

N

PROPOSED FOUR STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH 03801
T□ O INTE□NATIONAL □□O□P□LL□

Hoyle, Tanner & Associates, Inc.

Pease International Tradeport

100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

DATE:	DEC 2018
SCALE:	FIGURE:
1"=2000'	1

PROJECT NARRATIVE

DRAINAGE STUDY

FOR A

PROPOSED FOUR STORY OFFICE BUILDING

100 New Hampshire Avenue
Pease International Tradeport
Portsmouth, New Hampshire

December 4, 2018

Prepared for:

TWO INTERNATIONAL
GROUP

STATE OF NEW HAMPSHIRE
SHAWN
M.
TOBEY
No. 14121
LICENSED
PROFESSIONAL ENGINEER
12/4/18

Prepared by:

Hoyle, Tanner
& Associates, Inc.

100 International Drive, Suite 360
Pease International Tradeport
Portsmouth, New Hampshire 03801

TABLE OF CONTENTS

PROJECT INTRODUCTION

The proposed project includes the construction of a four (4) story office building with a footprint of 32,250 SF and a total of 129,000 SF. The design also includes the construction of 517 parking spaces, sidewalks, drainage infrastructure, supporting utilities, landscaping and lighting. The site is located at 100 New Hampshire Avenue on the Pease International Tradeport in the City of Portsmouth, New Hampshire. The project parcel is 10.9± acres and is identified as Lots 1 and 2 on the City of Portsmouth Tax Map 308.

The site previously contained a warehouse and parking lot that were part of the Pease Air Force Base. The warehouse has since been demolished and the site now consists of abandoned parking lots surrounded by mowed grass. An existing drainage network, sewer mains, and abandoned steam lines also run through the site.

The project has been designed to meet the requirements of the New Hampshire Department of Environmental Services (NHDES) regulations for the Alteration of Terrain (AoT) permit. The design utilizes the existing hydrologic and hydraulic patterns, minimizes impacts to surrounding areas, and uses best management practices (BMP's) to provide stormwater treatment, groundwater recharge, channel protection and peak runoff control.

DRAINAGE ANALYSIS METHODOLOGY

To effectively analyze the pre- and post-development conditions for the project, a single design point was established at the convergence of stormwater runoff locations on the site. The area draining to this design point encompasses the full site and was broken down into single or multiple subcatchments depending on size and drainage patterns. The pre-development subcatchments were delineated from the existing conditions plan prepared by Fieldstone Land Consultants, PLLC dated December 4, 2018.

In accordance with NHDES regulations, rainfall precipitation data was obtained from the Northeast Regional Climate Center website (http://precip.eas.cornell.edu/) based on the project location. A summary of the rainfall events is shown in the table below.

STORM EVENT	24-HOUR RAINFALL (Inches)
1-Year Storm	2.65
2-Year Storm	3.20
10-Year Storm	4.89
25-Year Storm	6.16
50-Year Storm	7.38
100-Year Storm	8.84

Technical Release 20 (TR-20) by the Natural Resources Conservation Service was utilized for modeling the surface water hydrology of the site. The model begins with a rainfall depth uniformly imposed on the watershed over a specified time distribution, 24 hours in this analysis. The rainfall depth is converted to volume of runoff by using a Runoff CN. The determination of the CN is based on assessments of soil characteristics, vegetation type and condition, amount of impervious areas, interception and surface storage. Soil types and Hydrologic Soil Groups were determined from a site-specific soil map of the site prepared by Fieldstone Land Consultants, PLLC dated December 4, 2018. The calculated runoff is then transformed into a hydrograph by using unit hydrograph theory and routing procedures that depend on runoff travel time through each sub-watershed. Typically, various storage configurations and volumes are analyzed to adjust detention times and the hydrograph so that the downstream peak discharge is reduced to equal or less than pre-development conditions.

Time of Concentration (T_c) for each sub-area was computed based on physical characteristics including surface type, Manning's Roughness Coefficient, flow length, 2-Year/24-Hour rainfall values, and gradients of the land.

The overall site pre- and post-development hydrographs were calculated utilizing the method detailed in Technical Release 55 (TR-55) "*Urban Hydrology for Small Watersheds*" as published by the United States Department of Agriculture Soil Conservation Service, "SCS", and revised in June of 1986. Tabular hydrographs were computed based on CN, T_C, T_t, area and precipitation input values.

The SCS Method is based upon the SCS Runoff Equation:

$$Q = \frac{(P-Ia)^2}{(P-Ia)+S}$$

Where:

Q = Runoff in Inches
P = Rainfall in Inches
S = Potential Maximum Retention in Inches
Ia = Initial Abstraction in Inches

Note:

S = 1000/CN – 10
CN = Runoff Curve Number

Computations were executed using the "HydroCAD" release 9.1 for Windows computer software for storm sewer design and analysis from Applied Microcomputer System. The runoff analysis is based on the NHDES regulations and analyzes the 2, 10, 25, 50-year design storms using the SCS TR-55 method with Type-III, 24-hour storms. All runoff from the proposed development is accounted for in the analysis presented.

This drainage study includes summaries and calculations for the stormwater treatment, groundwater recharge, channel protection and peak pre- and post-development peak runoff rates for the proposed site development associated with this project.

PRE-DEVELOPMENT CONDITIONS

The 10.9-acre parcel is located in the industrial zone of the Pease International Tradeport. The site is defined by Stratham Street to the north, New Hampshire Avenue to the east, Newfields Street to the south and Rochester Avenue to the west. Based on FEMA flood insurance rate map for Rockingham County community panel number 33015C0260E dated May 17, 2005, the parcel is not located within a 100-year or 500-year flood zone.

2013 Google Aerial of the Site

Recent Aerial of the Site

Previously the site contained a large warehouse and parking as part of the Pease Air Force Base. The 2013 image above shows the old infrastructure located on the site, after the base was decommissioned. In 2014, the warehouse was demolished in advance of future construction, and the parking lots were abandoned. The surrounding areas of the parking lots are mowed grass fields.

For the purposes of this study, the site will be modelled based on 2013 conditions. The NHDES Alteration of Terrain Permit allows any previously impervious area within 10 years to be included in the pre-construction drainage calculations. A single design point was created to analyze stormwater runoff generated from the proposed development. A summary for the design point and associated watershed are described below.

Design Point 1 (DP1) is located at DMH 779, at the east corner of the site. The area draining to this design point encompasses the full site in addition to offsite flows. For the purposes of this model, only flows contributing from the proposed development site are being considered at the design point. The existing site contains 147,435 sf of grass, 186,350 sf of paved parking area, and 141,205 sf of what was formerly roof. The watershed is mostly flat with slopes less than 1% in most areas. 2013 roof stormwater would flow into roof drains which connect to the existing stormwater infrastructure that divides the site. Stormwater sheet flows across the site and collects in a number of existing basins where it is then conveyed to one of the three trunk lines surrounding the site, 30" RCP to the southwest, 48" RCP to the southeast, and 36" RCP to the northeast, which converge at the design point. Eight (8) key convergences along the trunk lines are modeled for timing purposes. The HydroCAD model does not include all offsite flow into these trunk lines as the full watershed is unknown.

The analysis criteria used for the SCS TR-20 hydraulic analysis of the pre-development conditions are as follows:

- Storm Event Frequency: 2, 10, 25, and 50-year, 24-Hour Storms
- Runoff Coefficients (CN)

>75% Grass cover, Good HSG D	= 80
Paved Parking, HSG D	= 98
Roofs, HSG D	= 98

The table below provides a summary of the peak runoff rates for each design point in the pre-development conditions.

PRE-DEVELOPMENT CONDITIONS	
	Design Point 1
Inflow Area	10.9 Acres
2-Year Peak Flow	27.70 cfs
10-Year Peak Flow	44.85 cfs
25-Year Peak Flow	58.26 cfs
50-Year Peak Flow	70.79 cfs

POST-DEVELOPMENT CONDITIONS

The proposed development was designed to discharge at the same design point as in the pre-development conditions. A summary for the design point and associated watershed is described below.

Design Point 1 (DP1) contains the same area as the pre-development design point, and consists of 258,760 sf of grass, 183,065 sf of paved parking area, and 33,170 sf of roof. Note that approximately 3.5 acres of the site will remain largely undeveloped at this time and although grass is proposed for the purposes of current construction, the site will be further developed at a later date. The watershed is still mostly flat with slopes less than 2% in most areas. Roof stormwater flows into roof drains which connect to new drain manholes at the east corner of the building. Stormwater collects in a number of new basins which intersect with the existing trunk lines in three (3) distinct locations, before converging at the design point. Nine (9) key convergences along the trunk lines, 3 for new infrastructure and 6 existing along the southern end of the site, are modeled for accuracy. DMH 1416 is no longer modeled in the post-development as there is no longer inflow from the site at that location.

The analysis criteria used for the SCS TR-20 hydraulic analysis of the post-development conditions are as follows:

- Storm Event Frequency: 2, 10, 25, and 50-year, 24-Hour Storms
- Runoff Coefficients (CN)

>75% Grass Cover, Good, HSG D	= 80
Paved Parking, HSG D	= 98
Roofs, HSG D	= 98

The table below provides a summary of the peak runoff rates for each design point in the post-development conditions.

POST-DEVELOPMENT CONDITIONS	
	Design Point 1
Inflow Area	10.9 Acres
2-Year Peak Flow	21.81 cfs
10-Year Peak Flow	36.78 cfs
25-Year Peak Flow	48.73 cfs
50-Year Peak Flow	60.00 cfs

The proposed development has been designed to provide stormwater treatment, peak runoff rate control and prevent erosion. During construction it is essential to provide Temporary Erosion Control as needed throughout the site. Temporary erosion control measures and their locations are shown on the enclosed Grading, Drainage and Erosion Control Plan and Detail Drawings, and will be included in the construction plans for implementation. Placement of various erosion control devices including silt socks will handle temporary erosion control. Existing drainage structures will be protected with inlet sediment bags. Grass swales will be stabilized with seeding and/or jute mats with check dams employed to detain sediment and reduce velocity.

WATER QUALITY CONTROL ANALYSIS

To provide water quality control, the proposed development will use two Best Management Practices (BMPs) to provide stormwater treatment from all impervious surfaces. The table below outlines the proposed pre-treatment and treatment practices for the proposed site development.

WATER QUALITY CONTROL			
Design Point	Pre-Treatment Method	Treatment Method	Treatment Description
1	Deep Sump Offline CB	Contech Jellyfish Filters	Stormwater pretreatment is provided by deep sump offline catch basins, which allow sediment retention within the basins. Stormwater treatment is provided by Contech Jellyfish filters at 3 locations, which collect additional sediment and provide treatment prior to discharge from the site.

This site, as previously developed had no stormwater treatment. Several traditional treatment methods, including treatment swales and underground infiltration chambers, were considered during design. Due to limited grade change, poor soils, and high groundwater table, these methods were determined to be infeasible for this site.

GROUNDWATER RECHARGE ANALYSIS

The NHDES Alteration of Terrain Permit requires groundwater recharge to protect groundwater resources by minimizing the loss of annual pre-development groundwater recharge as a result of the proposed development. Because of class D soils across the site, and based on the NHDES groundwater recharge calculation worksheet, no recharge volume is required.

CHANNEL PROTECTION ANALYSIS

The NHDES Alteration of Terrain Permit requires channel protection to protect stream channels, downstream receiving waters and wetlands from erosion and associated sedimentation resulting from urbanization within a watershed. To satisfy channel protections regulations each design point must meet one of the following criteria:

- If the 2-year, 24-hour post-development storm volume has not increased over the pre-development volume, then control the 2-year, 24-hour post-development peak flow rate to the 2-year, 24-hour pre-development peak flow rate.

- If the 2-year, 24-hour post-development storm volume has increased over the pre-development volume, then control the 2-year, 24-hour post-development peak flow rate to 50 percent of the 2-year, 24-hour pre-development peak flow rate.

The table below demonstrates that the design point exceeds the channel protection requirements. Design point 1 has decrease in the 2-year, 24-hour post-development storm volumes as well as a reduction in the 24-hour post-development peak flow rate, therefore no additional channel protection is required.

CHANNEL PROTECTION						
Design Point	Pre-Dev. 2-Year Storm Volume	Post-Dev. 2-Year Storm Volume	Volume Reduction	Pre-Dev. 2-Year Peak Flow	Post-Dev. 2-Year Peak Flow	Peak Flow Reduction. Must be 50% or Greater If Volume Is Not Reduced
1	96,334 cf	82,962 cf	Yes	27.70 cfs	21.81 cfs	5.89 cfs

PEAK RUNOFF CONTROL ANALYSIS

The proposed site design reduces peak flow rates leaving the site for the 24-hour, 2, 10, 25 and 50-year storm events. The tables below outline the reductions for each storm event at each of the four design points.

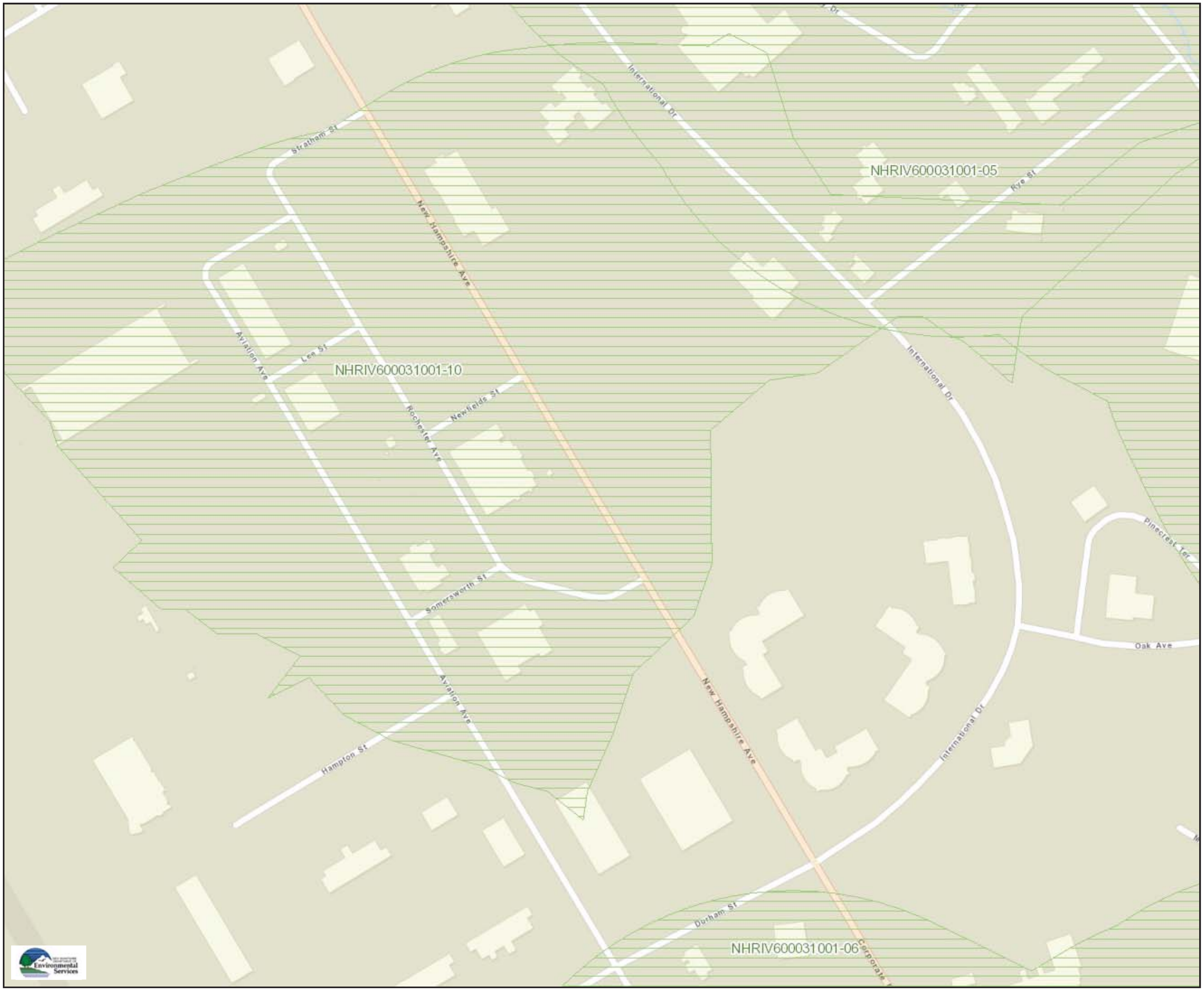
Design Point 1			
24-Hour Storm	Pre-Development Peak Flow Rate	Post-Development Peak Flow Rate	Reduction
2-Year	27.70 cfs	21.81 cfs	5.89 cfs
10-Year	44.85 cfs	36.78 cfs	8.07 cfs
25-Year	58.26 cfs	48.73 cfs	9.53 cfs
50-Year	70.79 cfs	60.00 cfs	10.79 cfs

CONCLUSION

As shown in the peak runoff control tables, the total peak flows leaving the site are reduced in all storm events analyzed. To be conservative, peak flows to all three trunk lines are reduced post-construction, and the new section of 48" pipe at proposed DMH13 ensures that all offsite flow is directed to a trunk line equal to pre-construction conditions. There is currently no treatment on the site, which discharges to Newfield's Ditch, a tributary of Hodgson Brook. The proposed stormwater treatment devices will improve stormwater quality as compared to current conditions. All channel protection requirements as outlined by AoT regulations have been met. Further development of the south end of the site will require an amendment to the AoT permit at a later date.

SURFACE WATER IMPAIRMENT MAP

Map By



Legend

Surface Waters with Impairn
2016 with Quarter Mile Buffe

Map Scale

1: 6,494

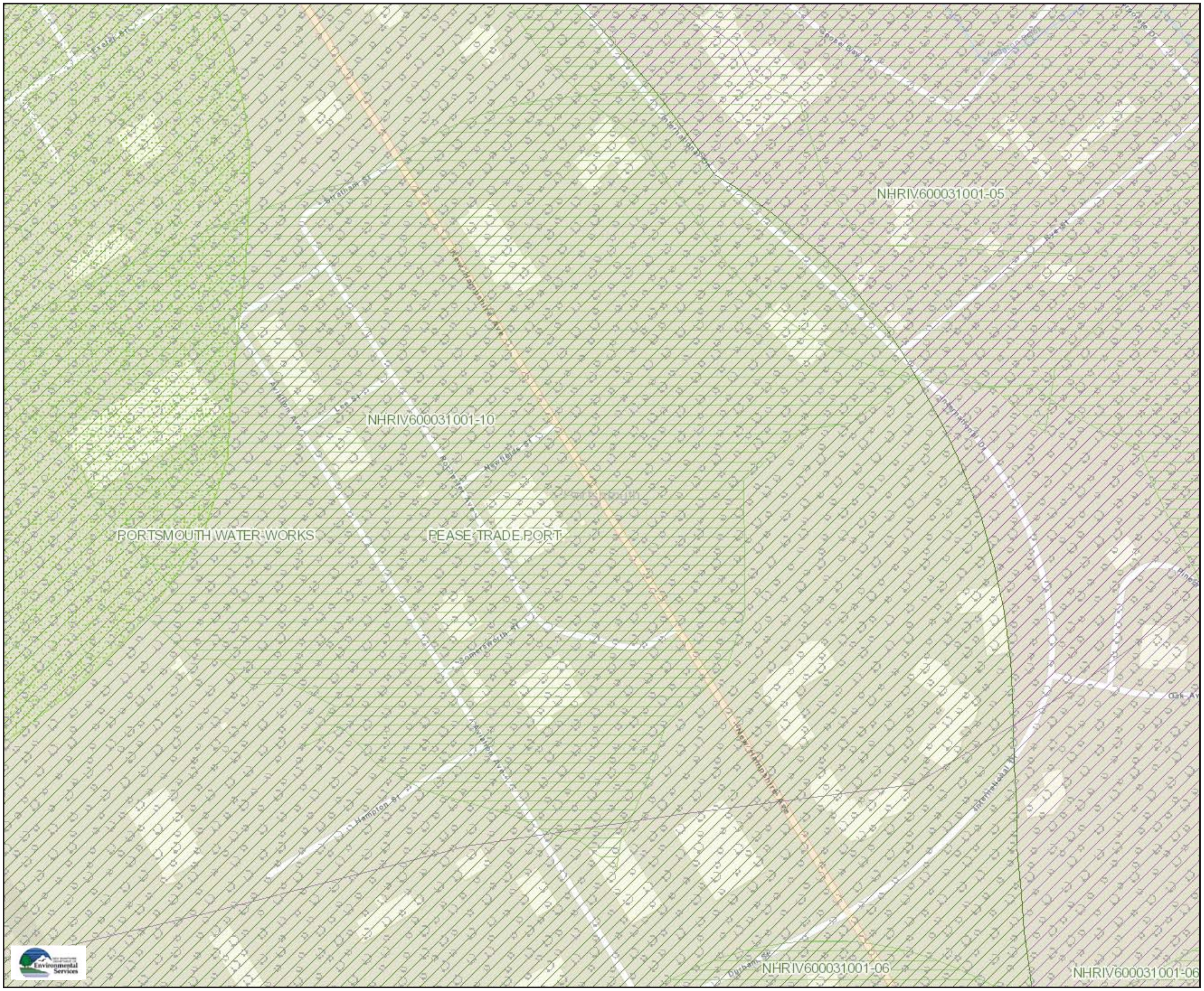
© NH DES, http://des.nh.gov

Map Generated: 11/29/2018

Notes

AOT SCREENING MAP

Map By



Legend

- Coastal and Great Bay Regi Communities
- Public Water Supply Wells
- Groundwater Classification / GA1
- Groundwater Classification / GA2
- Water Supply Intake Protect Areas
- Wellhead Protection Areas
- Lakes with a Quarter Mile Bu
- All Features
- All Lakes, with a Quarter Mil Buffer
- Outstanding Resource Wate Watersheds
- Surface Waters with Impairn 2016 with Quarter Mile Buffe
- Watersheds with Chloride Impairments 2016

Map Scale

1: 6,494

Map Generated: 11/29/2018

Notes

NATURAL HERITAGE BUREAU DETERMINATION LETTER

To: Michelle Stewart, Hoyle, Tanner & Associates, Inc.
100 International Drive
Suite 360
Portsmouth, NH 03801

From: NH Natural Heritage Bureau

Date: 11/27/2018 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau of request submitted 11/5/2018

NHB File ID: NHB18-3431 **Applicant:** Dan Plummer

Location: Portsmouth
Tax Maps: 308 Lots 1 and 2

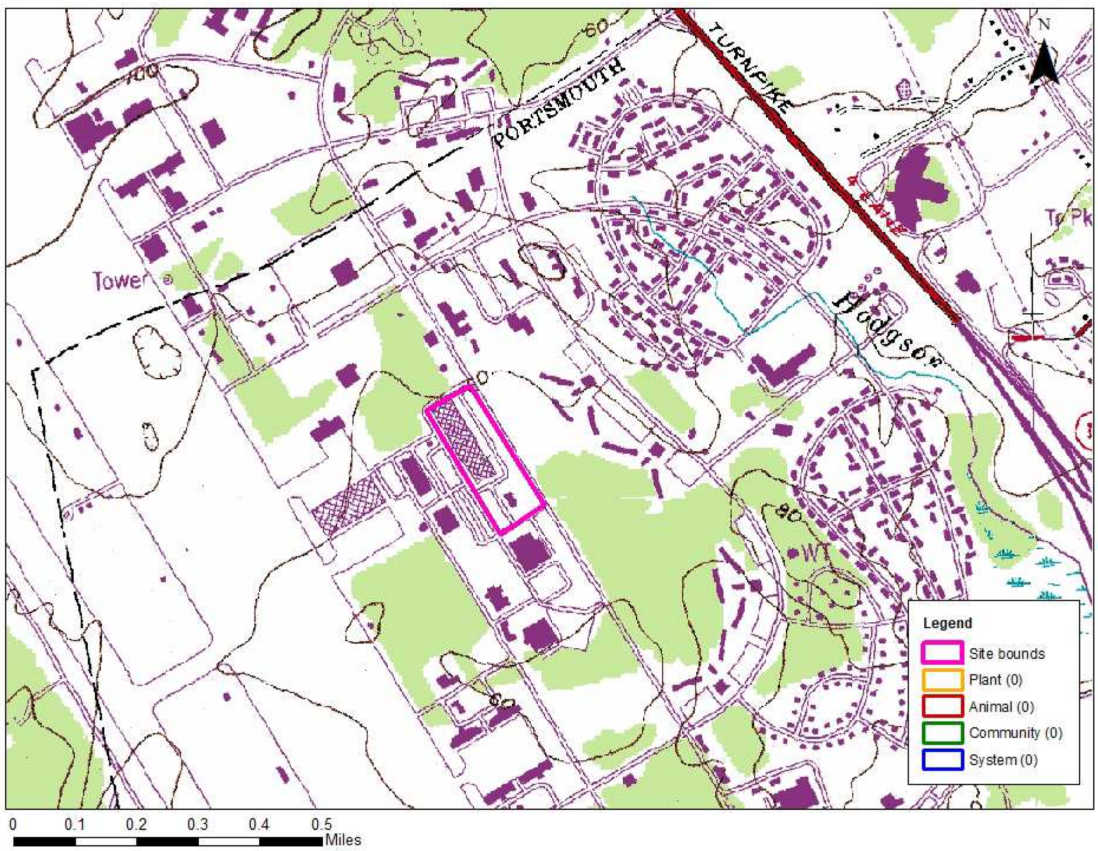
Project Description: The project includes the construction of a four (4) story office building. The design also includes the construction of parking spaces, loading docks, sidewalks, drainage infrastructure, supporting utilities, landscaping and lighting.

The NH Natural Heritage database has been checked by staff of the NH Natural Heritage Bureau and/or the NH Nongame and Endangered Species Program for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government.

It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 11/5/2018, and cannot be used for any other project.

MAP OF PROJECT BOUNDARIES FOR: **NHB18-3431**

NHB18-3431



WEB SOIL SURVEY MAP

Map Scale: 1:2,340 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 30, 60, 120, 180

Feet: 0, 100, 200, 400, 600

N

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 20, Sep 7, 2018

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

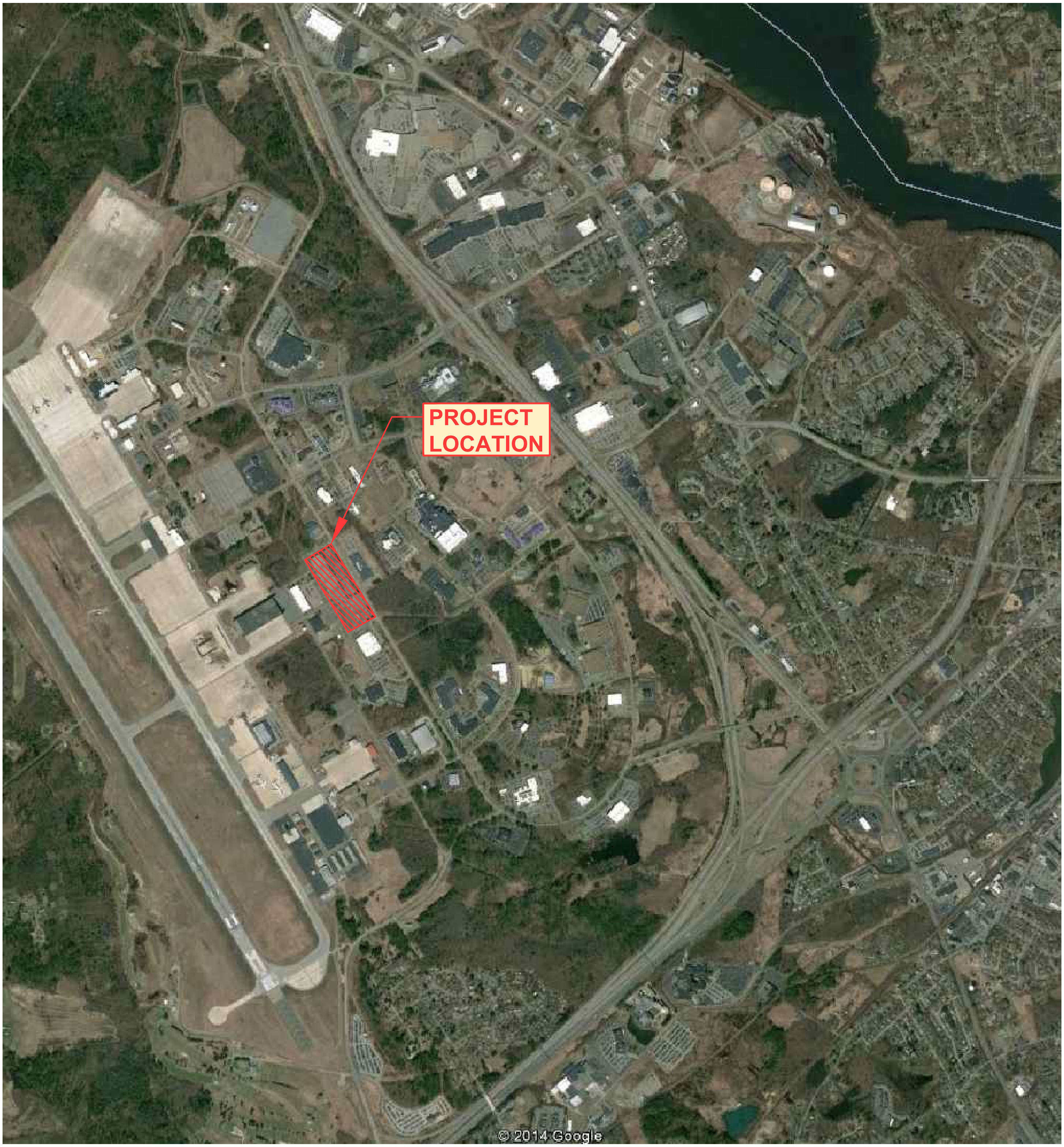
Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
699	Urban land	12.0	100.0%
Totals for Area of Interest		**12.0**	**100.0%**

AERIAL PHOTOGRAPH LOCATION MAP



AERIAL PHOTOGRAPH

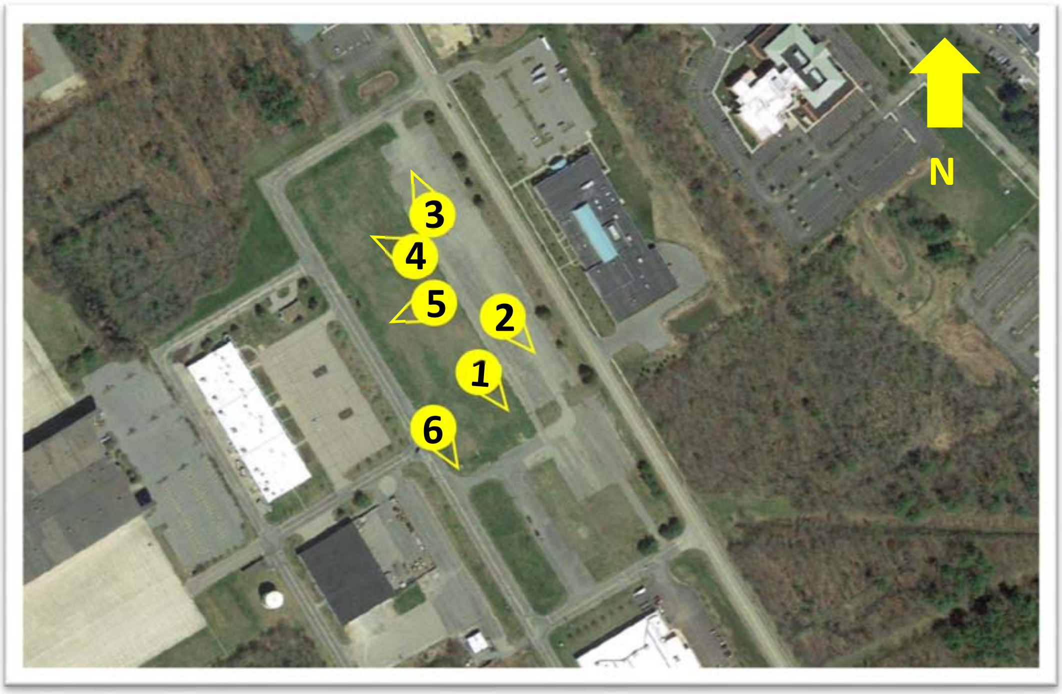
N

PROPOSED FOUR STORY OFFICE BUILDING 100 NEW HAMPSHIRE AVENUE PORTSMOUTH, NH 03801 T□ O INTE□NATIONAL □□O□P□LL□	Hoyle, Tanner & Associates, Inc. Pease International Tradeport 100 International Dr, #360, Portsmouth, NH 03801 Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com © Copyright 2018 Hoyle, Tanner & Associates, Inc.	DATE: DEC 2018 SCALE: 1"=2000'	FIGURE: 2

SITE PHOTOGRAPHS

Proposed Four Story Office Building
100 New Hampshire Avenue
Portsmouth, NH

Site Photographs



Site Photo Key

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photo 5:

Photo 6:

GROUNDWATER RECHARGE VOLUME CALCULATIONS

Groundwater Recharge Volume (GRV) Calculation

-	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
-	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
-	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
4.96	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.00	inches	Rd = weighted groundwater recharge depth	
0	ac-in	GRV = AI * Rd	
-	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12”)	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

No groundwater recharge is required due to poor existing soils.

BMP WORKSHEETS

Jellyfish Filter Design Summary

Proposed 4 Story Office Building – Two International Group: Jellyfish #1

Rockingham, NH

Information Provided:

- Total Contributing Drainage Area = 124,495 sf (2.86 Acres)
- Impervious cover = 83,199.60 sf (1.91 Acres)
- Design Storm = 1.00” Rainfall
- T_c = 6 minutes
- Unit Peak Discharge, qu = 650 cfs/mi^2/in (Type III Rainfall distribution curve)
- 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 1.89 cfs was calculated. See the WQF results from the sheet below:

Water Quality Volume (WQV)		
2.86	ac	A = Area draining to the practice
1.91	ac	A_I = Impervious area draining to the practice
0.67	decimal	I = percent impervious area draining to the practice, in decimal form
0.65	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
1.86	ac-in	WQV= 1” x Rv x A
6,759	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".
0.65	inches	Q = water quality depth. Q = WQV/A
96	unitless	CN = unit peak discharge curve number. CN =1000/(10+5P+10Q−10*[Q^2 + 1.25*Q*P]$^{0.5}$)
0.4	inches	S = potential maximum retention. S = (1000/CN) - 10
0.077	inches	Ia = initial abstraction. Ia = 0.2S
6.0	minutes	T_c = Time of Concentration
650.0	cfs/mi^2/in	qu is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III
1.891	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

CONTECH ENGINEERED SOLUTIONS

Jellyfish Filter Design Summary

The Jellyfish for this site was sized to provide **10 Hi Flo and 2 Drain Down cartridge** in order to meet the water quality flowrate requirement (calculations seen below). In order to house this number of cartridges, Contech Engineered Solutions (Contech) recommends a JFV-PD0806, which is an 8'x6' Precast Peak Diversion vault Jellyfish Filter.

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

$$1.89\, cfs \times 449\, {}^{gpm}/_{cfs} \leq (x)80\, {}^{gpm}/_{ft^2} + (y)40\, {}^{gpm}/_{ft^2}$$

$$\underset{\textbf{\textit{Hyd. Load}}}{\boldsymbol{N_{cartridges}}} = [x = 10; y = 2]$$

Hydraulic Loading Requires: (10) Hi Flo, (2) Drain Down Cartridges

<u>Maintenance:</u>

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,

Nicholas T. Busque, EIT
Stormwater Design Engineer
Contech Engineered Solutions, LLC.

CONTECH® ENGINEERED SOLUTIONS

Jellyfish Filter Design Summary

Proposed 4 Story Office Building – Two International Group: Jellyfish #2
Rockingham, NH

Information Provided:

- Total Contributing Drainage Area = 40,955 sf (0.94 Acres)
- Impervious cover = 37,897.20 sf (0.87 Acres)
- Design Storm = 1.00” Rainfall
- T_c = 6 minutes
- Unit Peak Discharge, qu = 650 cfs/mi^2/in (Type III Rainfall distribution curve)
- 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 0.84 cfs was calculated. See the WQF results from the sheet below:

Water Quality Volume (WQV)		
0.94	ac	A = Area draining to the practice
0.87	ac	A_I = Impervious area draining to the practice
0.93	decimal	I = percent impervious area draining to the practice, in decimal form
0.88	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
0.83	ac-in	WQV= 1” x Rv x A
3,013	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".
0.88	inches	Q = water quality depth. Q = WQV/A
99	unitless	CN = unit peak discharge curve number. CN =1000/(10+5P+10Q–10*[Q^2 + 1.25*Q*P]$^{0.5}$)
0.1	inches	S = potential maximum retention. S = (1000/CN) - 10
0.021	inches	Ia = initial abstraction. Ia = 0.2S
6.0	minutes	T_c = Time of Concentration
650.0	cfs/mi^2/in	qu is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III
0.843	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 requirement (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.

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

$$0.84\, cfs \times 449\, {}^{gpm}/_{cfs} \le (x)80\, {}^{gpm}/_{ft^2} + (y)40\, {}^{gpm}/_{ft^2}$$

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

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,

Nicholas T. Busque, EIT
Stormwater Design Engineer
Contech Engineered Solutions, LLC.

Jellyfish Filter Design Summary

Proposed 4 Story Office Building – Two International Group: Jellyfish #3

Rockingham, NH

Information Provided:

- Total Contributing Drainage Area = 67,075 sf (1.54 Acres)
- Impervious cover = 57,832.07 sf (1.33 Acres)
- Design Storm = 1.00" Rainfall
- T_c = 6 minutes
- Unit Peak Discharge, qu = 650 cfs/mi^2/in (Type III Rainfall distribution curve)
- 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 1.29 cfs was calculated. See the WQF results from the sheet below:

Water Quality Volume (WQV)		
1.54	ac	A = Area draining to the practice
1.33	ac	A_I = Impervious area draining to the practice
0.86	decimal	I = percent impervious area draining to the practice, in decimal form
0.83	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
1.27	ac-in	WQV= 1" x Rv x A
4,625	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
0.033	inches	Ia = initial abstraction. Ia = 0.2S
6.0	minutes	T_c = Time of Concentration
650.0	cfs/mi^2/in	qu is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III
1.294	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 **7 Hi Flo and 2 Drain Down cartridge** in order to meet the water quality flowrate requirement (calculations seen below). In order to house this number of cartridges, Contech Engineered Solutions (Contech) recommends a JFV-PD0806, which is an 8’x6’ Precast Peak Diversion vault Jellyfish Filter.

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

$$1.29\ cfs \times 449 \, {}^{gpm}\!/_{cfs} \leq (x)80 \, {}^{gpm}\!/_{ft^2} + (y)40 \, {}^{gpm}\!/_{ft^2}$$

$$\underset{\boldsymbol{Hyd.\ Load}}{\boldsymbol{N_{cartridges}}} = [x = 7; y = 2]$$

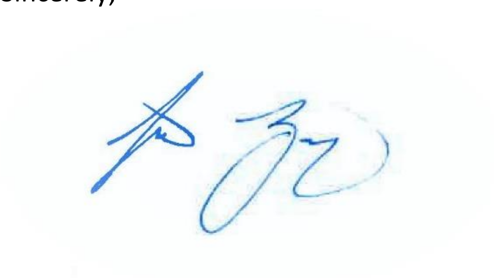
Hydraulic Loading Requires: (7) Hi Flo, (2) Drain Down Cartridges

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.

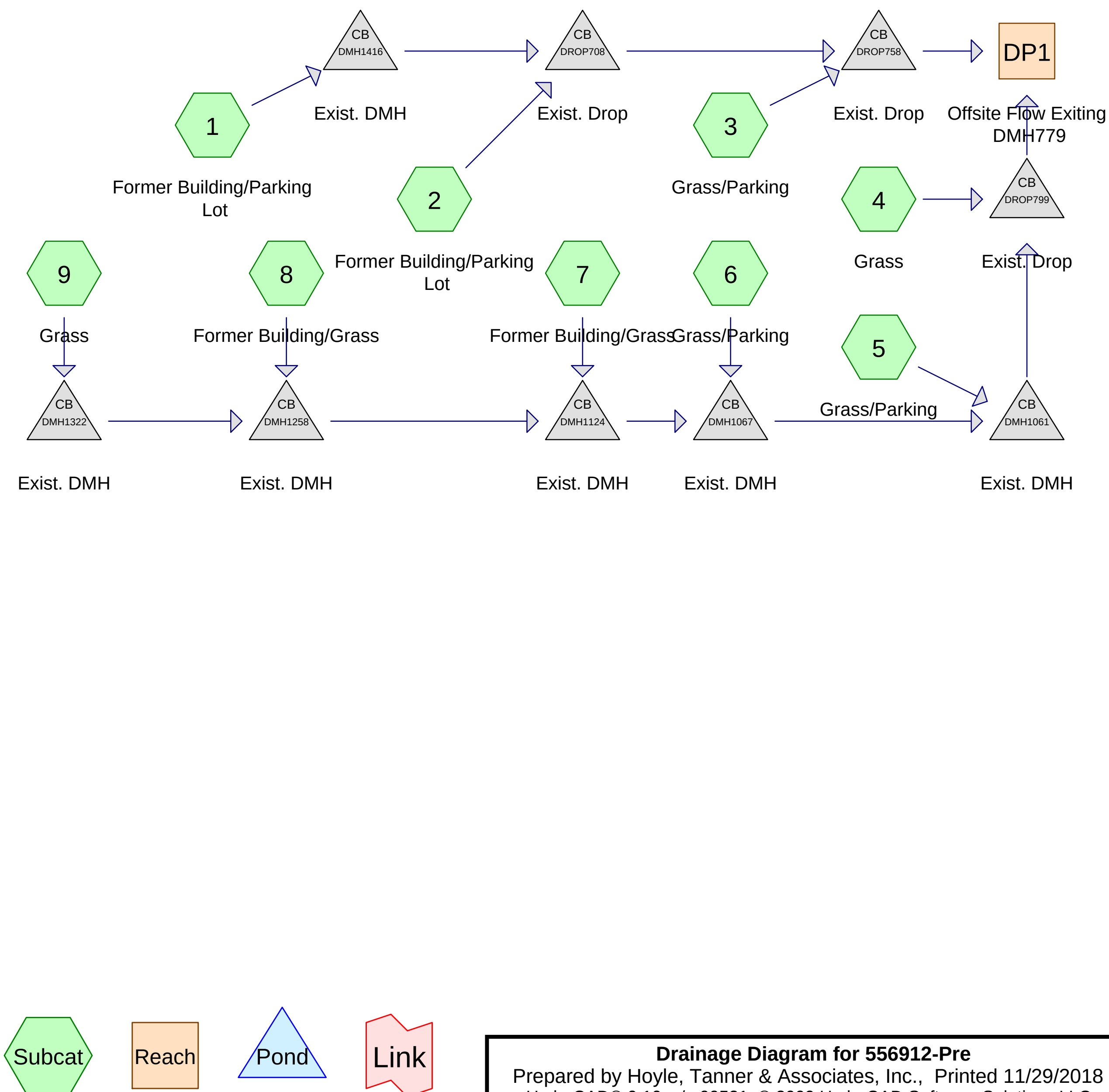
Thank you for the opportunity to present this information to you and your client.

Sincerely,



Nicholas T. Busque, EIT
Stormwater Design Engineer
Contech Engineered Solutions, LLC.

DRAINAGE ANALYSIS



Drainage Diagram for 556912-Pre
Prepared by Hoyle, Tanner & Associates, Inc., Printed 11/29/2018
HydroCAD® 9.10 s/n 00521 © 2009 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
147,440	80	>75% Grass cover, Good, HSG D (1, 2, 3, 4, 5, 6, 7, 8, 9)
186,350	98	Paved parking, HSG D (1, 2, 3, 5, 6)
141,205	98	Roofs, HSG D (1, 2, 7, 8)
474,995		**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
474,995	HSG D	1, 2, 3, 4, 5, 6, 7, 8, 9
0	Other	
474,995		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Former Building/Parking Runoff Area=46,030 sf 84.27% Impervious Runoff Depth>2.64"
Tc=6.0 min CN=95 Runoff=3.03 cfs 10,139 cf

Subcatchment 2: Former Runoff Area=171,325 sf 86.96% Impervious Runoff Depth>2.75"
Tc=8.0 min CN=96 Runoff=10.90 cfs 39,212 cf

Subcatchment 3: Grass/Parking Runoff Area=44,785 sf 81.61% Impervious Runoff Depth>2.64"
Tc=8.0 min CN=95 Runoff=2.78 cfs 9,861 cf

Subcatchment 4: Grass Runoff Area=41,665 sf 0.00% Impervious Runoff Depth>1.40"
Tc=8.0 min CN=80 Runoff=1.43 cfs 4,860 cf

Subcatchment 5: Grass/Parking Runoff Area=57,150 sf 48.89% Impervious Runoff Depth>2.08"
Tc=8.0 min CN=89 Runoff=2.93 cfs 9,902 cf

Subcatchment 6: Grass/Parking Runoff Area=14,185 sf 34.90% Impervious Runoff Depth>1.83"
Tc=6.0 min CN=86 Runoff=0.69 cfs 2,167 cf

Subcatchment 7: Former Building/Grass Runoff Area=49,565 sf 79.01% Impervious Runoff Depth>2.54"
Tc=6.0 min CN=94 Runoff=3.18 cfs 10,500 cf

Subcatchment 8: Former Building/Grass Runoff Area=40,205 sf 77.54% Impervious Runoff Depth>2.54"
Tc=6.0 min CN=94 Runoff=2.58 cfs 8,517 cf

Subcatchment 9: Grass Runoff Area=10,085 sf 0.00% Impervious Runoff Depth>1.40"
Tc=6.0 min CN=80 Runoff=0.37 cfs 1,177 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=27.70 cfs 96,334 cf
Outflow=27.70 cfs 96,334 cf

Pond DMH1061: Exist. DMH Peak Elev=46.07' Inflow=9.68 cfs 32,263 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=9.68 cfs 32,263 cf

Pond DMH1067: Exist. DMH Peak Elev=46.71' Inflow=6.81 cfs 22,361 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=6.81 cfs 22,361 cf

Pond DMH1124: Exist. DMH Peak Elev=47.56' Inflow=6.12 cfs 20,194 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=6.12 cfs 20,194 cf

Pond DMH1258: Exist. DMH Peak Elev=48.20' Inflow=2.95 cfs 9,694 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=2.95 cfs 9,694 cf

Pond DMH1322: Exist. DMH Peak Elev=48.53' Inflow=0.37 cfs 1,177 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.37 cfs 1,177 cf

Pond DMH1416: Exist. DMH Peak Elev=49.29' Inflow=3.03 cfs 10,139 cf
36.0" Round Culvert n=0.011 L=748.0' S=0.0050 '/' Outflow=3.03 cfs 10,139 cf

Pond DROP708: Exist. Drop Peak Elev=46.39' Inflow=13.86 cfs 49,350 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=13.86 cfs 49,350 cf

Pond DROP758: Exist. Drop Peak Elev=45.36' Inflow=16.64 cfs 59,211 cf
36.0" Round Culvert n=0.011 L=21.0' S=0.0048 '/' Outflow=16.64 cfs 59,211 cf

Pond DROP799: Exist. Drop Peak Elev=44.89' Inflow=11.07 cfs 37,123 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=11.07 cfs 37,123 cf

Total Runoff Area = 474,995 sf Runoff Volume = 96,334 cf Average Runoff Depth = 2.43"
31.04% Pervious = 147,440 sf 68.96% Impervious = 327,555 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Former Building/Parking Runoff Area=46,030 sf 84.27% Impervious Runoff Depth>4.28"
Tc=6.0 min CN=95 Runoff=4.77 cfs 16,410 cf

Subcatchment 2: Former Runoff Area=171,325 sf 86.96% Impervious Runoff Depth>4.39"
Tc=8.0 min CN=96 Runoff=16.98 cfs 62,667 cf

Subcatchment 3: Grass/Parking Runoff Area=44,785 sf 81.61% Impervious Runoff Depth>4.28"
Tc=8.0 min CN=95 Runoff=4.38 cfs 15,961 cf

Subcatchment 4: Grass Runoff Area=41,665 sf 0.00% Impervious Runoff Depth>2.77"
Tc=8.0 min CN=80 Runoff=2.86 cfs 9,609 cf

Subcatchment 5: Grass/Parking Runoff Area=57,150 sf 48.89% Impervious Runoff Depth>3.63"
Tc=8.0 min CN=89 Runoff=5.02 cfs 17,307 cf

Subcatchment 6: Grass/Parking Runoff Area=14,185 sf 34.90% Impervious Runoff Depth>3.33"
Tc=6.0 min CN=86 Runoff=1.23 cfs 3,941 cf

Subcatchment 7: Former Building/Grass Runoff Area=49,565 sf 79.01% Impervious Runoff Depth>4.17"
Tc=6.0 min CN=94 Runoff=5.06 cfs 17,212 cf

Subcatchment 8: Former Building/Grass Runoff Area=40,205 sf 77.54% Impervious Runoff Depth>4.17"
Tc=6.0 min CN=94 Runoff=4.11 cfs 13,962 cf

Subcatchment 9: Grass Runoff Area=10,085 sf 0.00% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=80 Runoff=0.74 cfs 2,327 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=44.85 cfs 159,396 cf
Outflow=44.85 cfs 159,396 cf

Pond DMH1061: Exist. DMH Peak Elev=46.55' Inflow=16.06 cfs 54,749 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=16.06 cfs 54,749 cf

Pond DMH1067: Exist. DMH Peak Elev=46.97' Inflow=11.13 cfs 37,441 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=11.13 cfs 37,441 cf

Pond DMH1124: Exist. DMH Peak Elev=47.85' Inflow=9.90 cfs 33,500 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=9.90 cfs 33,500 cf

Pond DMH1258: Exist. DMH Peak Elev=48.44' Inflow=4.84 cfs 16,288 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=4.84 cfs 16,288 cf

Pond DMH1322: Exist. DMH Peak Elev=48.65' Inflow=0.74 cfs 2,327 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.74 cfs 2,327 cf

Pond DMH1416: Exist. DMH Peak Elev=49.46' Inflow=4.77 cfs 16,410 cf
36.0" Round Culvert n=0.011 L=748.0' S=0.0050 '/' Outflow=4.77 cfs 16,410 cf

Pond DROP708: Exist. Drop Peak Elev=46.84' Inflow=21.64 cfs 79,077 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=21.64 cfs 79,077 cf

Pond DROP758: Exist. Drop Peak Elev=45.96' Inflow=26.02 cfs 95,038 cf
36.0" Round Culvert n=0.011 L=21.0' S=0.0048 '/' Outflow=26.02 cfs 95,038 cf

Pond DROP799: Exist. Drop Peak Elev=45.40' Inflow=18.87 cfs 64,358 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=18.87 cfs 64,358 cf

Total Runoff Area = 474,995 sf Runoff Volume = 159,396 cf Average Runoff Depth = 4.03"
31.04% Pervious = 147,440 sf 68.96% Impervious = 327,555 sf

Summary for Subcatchment 1: Former Building/Parking Lot

Runoff = 4.77 cfs @ 12.09 hrs, Volume= 16,410 cf, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
16,690	98	Roofs, HSG D
7,240	80	>75% Grass cover, Good, HSG D
22,100	98	Paved parking, HSG D
46,030	95	Weighted Average
7,240		15.73% Pervious Area
38,790		84.27% Impervious Area

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

Summary for Subcatchment 2: Former Building/Parking Lot

Runoff = 16.98 cfs @ 12.11 hrs, Volume= 62,667 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
54,180	98	Roofs, HSG D
22,335	80	>75% Grass cover, Good, HSG D
94,810	98	Paved parking, HSG D
171,325	96	Weighted Average
22,335		13.04% Pervious Area
148,990		86.96% Impervious Area

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

Summary for Subcatchment 3: Grass/Parking

Runoff = 4.38 cfs @ 12.11 hrs, Volume= 15,961 cf, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
8,235	80	>75% Grass cover, Good, HSG D
36,550	98	Paved parking, HSG D
44,785	95	Weighted Average
8,235		18.39% Pervious Area
36,550		81.61% Impervious Area

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

Summary for Subcatchment 4: Grass

Runoff = 2.86 cfs @ 12.12 hrs, Volume= 9,609 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
41,665	80	>75% Grass cover, Good, HSG D
41,665		100.00% Pervious Area

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

Summary for Subcatchment 5: Grass/Parking

Runoff = 5.02 cfs @ 12.11 hrs, Volume= 17,307 cf, Depth> 3.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
29,210	80	>75% Grass cover, Good, HSG D
27,940	98	Paved parking, HSG D
57,150	89	Weighted Average
29,210		51.11% Pervious Area
27,940		48.89% Impervious Area

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

Summary for Subcatchment 6: Grass/Parking

Runoff = 1.23 cfs @ 12.09 hrs, Volume= 3,941 cf, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
9,235	80	>75% Grass cover, Good, HSG D
4,950	98	Paved parking, HSG D
14,185	86	Weighted Average
9,235		65.10% Pervious Area
4,950		34.90% Impervious Area

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

Summary for Subcatchment 7: Former Building/Grass

Runoff = 5.06 cfs @ 12.09 hrs, Volume= 17,212 cf, Depth> 4.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
10,405	80	>75% Grass cover, Good, HSG D
39,160	98	Roofs, HSG D
49,565	94	Weighted Average
10,405		20.99% Pervious Area
39,160		79.01% Impervious Area

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

Summary for Subcatchment 8: Former Building/Grass

Runoff = 4.11 cfs @ 12.09 hrs, Volume= 13,962 cf, Depth> 4.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
9,030	80	>75% Grass cover, Good, HSG D
31,175	98	Roofs, HSG D
40,205	94	Weighted Average
9,030		22.46% Pervious Area
31,175		77.54% Impervious Area

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

Summary for Subcatchment 9: Grass

Runoff = 0.74 cfs @ 12.09 hrs, Volume= 2,327 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
10,085	80	>75% Grass cover, Good, HSG D
10,085		100.00% Pervious Area

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

Summary for Reach DP1: Offsite Flow Exiting DMH779

Inflow to DMH 779 from 36" CMP, outside E corner ROW

Inflow Area = 474,995 sf, 68.96% Impervious, Inflow Depth > 4.03" for 10-Yr event
Inflow = 44.85 cfs @ 12.10 hrs, Volume= 159,396 cf
Outflow = 44.85 cfs @ 12.10 hrs, Volume= 159,396 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond DMH1061: Exist. DMH

Inflow Area = 171,190 sf, 60.30% Impervious, Inflow Depth > 3.84" for 10-Yr event
Inflow = 16.06 cfs @ 12.09 hrs, Volume= 54,749 cf
Outflow = 16.06 cfs @ 12.09 hrs, Volume= 54,749 cf, Atten= 0%, Lag= 0.0 min
Primary = 16.06 cfs @ 12.09 hrs, Volume= 54,749 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 46.55' @ 12.09 hrs
Flood Elev= 52.02'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.49'	**48.0" Round Culvert** L= 308.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.49' / 43.26' S= 0.0040 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=15.85 cfs @ 12.09 hrs HW=46.53' (Free Discharge)
└**1=Culvert** (Barrel Controls 15.85 cfs @ 3.58 fps)

Summary for Pond DMH1067: Exist. DMH

Inflow Area = 114,040 sf, 66.02% Impervious, Inflow Depth > 3.94" for 10-Yr event
Inflow = 11.13 cfs @ 12.09 hrs, Volume= 37,441 cf
Outflow = 11.13 cfs @ 12.09 hrs, Volume= 37,441 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.13 cfs @ 12.09 hrs, Volume= 37,441 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 46.97' @ 12.09 hrs
Flood Elev= 52.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.81'	**48.0" Round Culvert** L= 195.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.81' / 44.60' S= 0.0062 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=10.84 cfs @ 12.09 hrs HW=46.96' (Free Discharge)
└─**1=Culvert** (Inlet Controls 10.84 cfs @ 3.65 fps)

Summary for Pond DMH1124: Exist. DMH

Inflow Area = 99,855 sf, 70.44% Impervious, Inflow Depth > 4.03" for 10-Yr event
Inflow = 9.90 cfs @ 12.09 hrs, Volume= 33,500 cf
Outflow = 9.90 cfs @ 12.09 hrs, Volume= 33,500 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.90 cfs @ 12.09 hrs, Volume= 33,500 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 47.85' @ 12.09 hrs
Flood Elev= 54.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.56'	**48.0" Round Culvert** L= 248.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.56' / 45.95' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=9.64 cfs @ 12.09 hrs HW=47.83' (Free Discharge)
└─**1=Culvert** (Barrel Controls 9.64 cfs @ 4.20 fps)

Summary for Pond DMH1258: Exist. DMH

Inflow Area = 50,290 sf, 61.99% Impervious, Inflow Depth > 3.89" for 10-Yr event
Inflow = 4.84 cfs @ 12.09 hrs, Volume= 16,288 cf
Outflow = 4.84 cfs @ 12.09 hrs, Volume= 16,288 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.84 cfs @ 12.09 hrs, Volume= 16,288 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.44' @ 12.09 hrs
Flood Elev= 54.91'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.37'	**30.0" Round Culvert** L= 372.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.37' / 46.61' S= 0.0020 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=4.72 cfs @ 12.09 hrs HW=48.43' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.72 cfs @ 3.51 fps)

Summary for Pond DMH1322: Exist. DMH

Inflow Area = 10,085 sf, 0.00% Impervious, Inflow Depth > 2.77" for 10-Yr event
Inflow = 0.74 cfs @ 12.09 hrs, Volume= 2,327 cf
Outflow = 0.74 cfs @ 12.09 hrs, Volume= 2,327 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.74 cfs @ 12.09 hrs, Volume= 2,327 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.65' @ 12.09 hrs
Flood Elev= 55.14'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.24'	**30.0" Round Culvert** L= 347.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.24' / 47.45' S= 0.0023 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=0.72 cfs @ 12.09 hrs HW=48.64' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.72 cfs @ 2.13 fps)

Summary for Pond DMH1416: Exist. DMH

Inflow Area = 46,030 sf, 84.27% Impervious, Inflow Depth > 4.28" for 10-Yr event
Inflow = 4.77 cfs @ 12.09 hrs, Volume= 16,410 cf
Outflow = 4.77 cfs @ 12.09 hrs, Volume= 16,410 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.77 cfs @ 12.09 hrs, Volume= 16,410 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 49.46' @ 12.09 hrs
Flood Elev= 58.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.65'	**36.0" Round Culvert** L= 748.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.65' / 44.91' S= 0.0050 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=4.63 cfs @ 12.09 hrs HW=49.45' (Free Discharge)
└─**1=Culvert** (Inlet Controls 4.63 cfs @ 3.05 fps)

Summary for Pond DROP708: Exist. Drop

Inflow Area = 217,355 sf, 86.39% Impervious, Inflow Depth > 4.37" for 10-Yr event
Inflow = 21.64 cfs @ 12.10 hrs, Volume= 79,077 cf
Outflow = 21.64 cfs @ 12.10 hrs, Volume= 79,077 cf, Atten= 0%, Lag= 0.0 min
Primary = 21.64 cfs @ 12.10 hrs, Volume= 79,077 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 46.84' @ 12.10 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.91'	**36.0" Round Culvert** L= 300.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.91' / 43.41' S= 0.0050 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=21.41 cfs @ 12.10 hrs HW=46.83' (Free Discharge)
└─**1=Culvert** (Barrel Controls 21.41 cfs @ 6.39 fps)

Summary for Pond DROP758: Exist. Drop

Inflow Area = 262,140 sf, 85.58% Impervious, Inflow Depth > 4.35" for 10-Yr event
Inflow = 26.02 cfs @ 12.11 hrs, Volume= 95,038 cf
Outflow = 26.02 cfs @ 12.11 hrs, Volume= 95,038 cf, Atten= 0%, Lag= 0.0 min
Primary = 26.02 cfs @ 12.11 hrs, Volume= 95,038 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 45.96' @ 12.11 hrs
Flood Elev= 51.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.41'	**36.0" Round Culvert** L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 43.41' / 43.31' S= 0.0048 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=25.70 cfs @ 12.11 hrs HW=45.94' (Free Discharge)
└─**1=Culvert** (Barrel Controls 25.70 cfs @ 5.45 fps)

Summary for Pond DROP799: Exist. Drop

Inflow Area = 212,855 sf, 48.50% Impervious, Inflow Depth > 3.63" for 10-Yr event
Inflow = 18.87 cfs @ 12.10 hrs, Volume= 64,358 cf
Outflow = 18.87 cfs @ 12.10 hrs, Volume= 64,358 cf, Atten= 0%, Lag= 0.0 min
Primary = 18.87 cfs @ 12.10 hrs, Volume= 64,358 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 45.40' @ 12.10 hrs
Flood Elev= 52.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.26'	**48.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 43.26' / 42.87' S= 0.0039 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=18.75 cfs @ 12.10 hrs HW=45.40' (Free Discharge)
└—**1=Culvert** (Barrel Controls 18.75 cfs @ 3.99 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Former Building/Parking Runoff Area=46,030 sf 84.27% Impervious Runoff Depth>5.57"
Tc=6.0 min CN=95 Runoff=6.11 cfs 21,354 cf

Subcatchment 2: Former Runoff Area=171,325 sf 86.96% Impervious Runoff Depth>5.68"
Tc=8.0 min CN=96 Runoff=21.70 cfs 81,116 cf

Subcatchment 3: Grass/Parking Runoff Area=44,785 sf 81.61% Impervious Runoff Depth>5.57"
Tc=8.0 min CN=95 Runoff=5.63 cfs 20,770 cf

Subcatchment 4: Grass Runoff Area=41,665 sf 0.00% Impervious Runoff Depth>3.92"
Tc=8.0 min CN=80 Runoff=4.04 cfs 13,615 cf

Subcatchment 5: Grass/Parking Runoff Area=57,150 sf 48.89% Impervious Runoff Depth>4.89"
Tc=8.0 min CN=89 Runoff=6.65 cfs 23,267 cf

Subcatchment 6: Grass/Parking Runoff Area=14,185 sf 34.90% Impervious Runoff Depth>4.56"
Tc=6.0 min CN=86 Runoff=1.66 cfs 5,388 cf

Subcatchment 7: Former Building/Grass Runoff Area=49,565 sf 79.01% Impervious Runoff Depth>5.45"
Tc=6.0 min CN=94 Runoff=6.52 cfs 22,517 cf

Subcatchment 8: Former Building/Grass Runoff Area=40,205 sf 77.54% Impervious Runoff Depth>5.45"
Tc=6.0 min CN=94 Runoff=5.29 cfs 18,265 cf

Subcatchment 9: Grass Runoff Area=10,085 sf 0.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=80 Runoff=1.04 cfs 3,297 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=58.26 cfs 209,589 cf
Outflow=58.26 cfs 209,589 cf

Pond DMH1061: Exist. DMH Peak Elev=46.86' Inflow=21.03 cfs 72,734 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=21.03 cfs 72,734 cf

Pond DMH1067: Exist. DMH Peak Elev=47.15' Inflow=14.51 cfs 49,467 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=14.51 cfs 49,467 cf

Pond DMH1124: Exist. DMH Peak Elev=48.04' Inflow=12.85 cfs 44,079 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=12.85 cfs 44,079 cf

Pond DMH1258: Exist. DMH Peak Elev=48.61' Inflow=6.33 cfs 21,562 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=6.33 cfs 21,562 cf

Pond DMH1322: Exist. DMH Peak Elev=48.72' Inflow=1.04 cfs 3,297 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=1.04 cfs 3,297 cf

Pond DMH1416: Exist. DMH Peak Elev=49.58' Inflow=6.11 cfs 21,354 cf
36.0" Round Culvert n=0.011 L=748.0' S=0.0050 '/' Outflow=6.11 cfs 21,354 cf

Pond DROP708: Exist. Drop Peak Elev=47.16' Inflow=27.68 cfs 102,470 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=27.68 cfs 102,470 cf

Pond DROP758: Exist. Drop Peak Elev=46.40' Inflow=33.30 cfs 123,240 cf
36.0" Round Culvert n=0.011 L=21.0' S=0.0048 '/' Outflow=33.30 cfs 123,240 cf

Pond DROP799: Exist. Drop Peak Elev=45.75' Inflow=25.00 cfs 86,349 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=25.00 cfs 86,349 cf

Total Runoff Area = 474,995 sf Runoff Volume = 209,589 cf Average Runoff Depth = 5.29"
31.04% Pervious = 147,440 sf 68.96% Impervious = 327,555 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Former Building/Parking Runoff Area=46,030 sf 84.27% Impervious Runoff Depth>6.78"
Tc=6.0 min CN=95 Runoff=7.37 cfs 26,006 cf

Subcatchment 2: Former Runoff Area=171,325 sf 86.96% Impervious Runoff Depth>6.90"
Tc=8.0 min CN=96 Runoff=26.11 cfs 98,459 cf

Subcatchment 3: Grass/Parking Runoff Area=44,785 sf 81.61% Impervious Runoff Depth>6.78"
Tc=8.0 min CN=95 Runoff=6.78 cfs 25,295 cf

Subcatchment 4: Grass Runoff Area=41,665 sf 0.00% Impervious Runoff Depth>5.04"
Tc=8.0 min CN=80 Runoff=5.16 cfs 17,501 cf

Subcatchment 5: Grass/Parking Runoff Area=57,150 sf 48.89% Impervious Runoff Depth>6.07"
Tc=8.0 min CN=89 Runoff=8.17 cfs 28,924 cf

Subcatchment 6: Grass/Parking Runoff Area=14,185 sf 34.90% Impervious Runoff Depth>5.73"
Tc=6.0 min CN=86 Runoff=2.06 cfs 6,771 cf

Subcatchment 7: Former Building/Grass Runoff Area=49,565 sf 79.01% Impervious Runoff Depth>6.66"
Tc=6.0 min CN=94 Runoff=7.88 cfs 27,514 cf

Subcatchment 8: Former Building/Grass Runoff Area=40,205 sf 77.54% Impervious Runoff Depth>6.66"
Tc=6.0 min CN=94 Runoff=6.39 cfs 22,319 cf

Subcatchment 9: Grass Runoff Area=10,085 sf 0.00% Impervious Runoff Depth>5.04"
Tc=6.0 min CN=80 Runoff=1.32 cfs 4,238 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=70.79 cfs 257,026 cf
Outflow=70.79 cfs 257,026 cf

Pond DMH1061: Exist. DMH Peak Elev=47.14' Inflow=25.68 cfs 89,765 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=25.68 cfs 89,765 cf

Pond DMH1067: Exist. DMH Peak Elev=47.31' Inflow=17.66 cfs 60,841 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=17.66 cfs 60,841 cf

Pond DMH1124: Exist. DMH Peak Elev=48.20' Inflow=15.60 cfs 54,071 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=15.60 cfs 54,071 cf

Pond DMH1258: Exist. DMH Peak Elev=48.75' Inflow=7.72 cfs 26,556 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=7.72 cfs 26,556 cf

Pond DMH1322: Exist. DMH Peak Elev=48.78' Inflow=1.32 cfs 4,238 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=1.32 cfs 4,238 cf

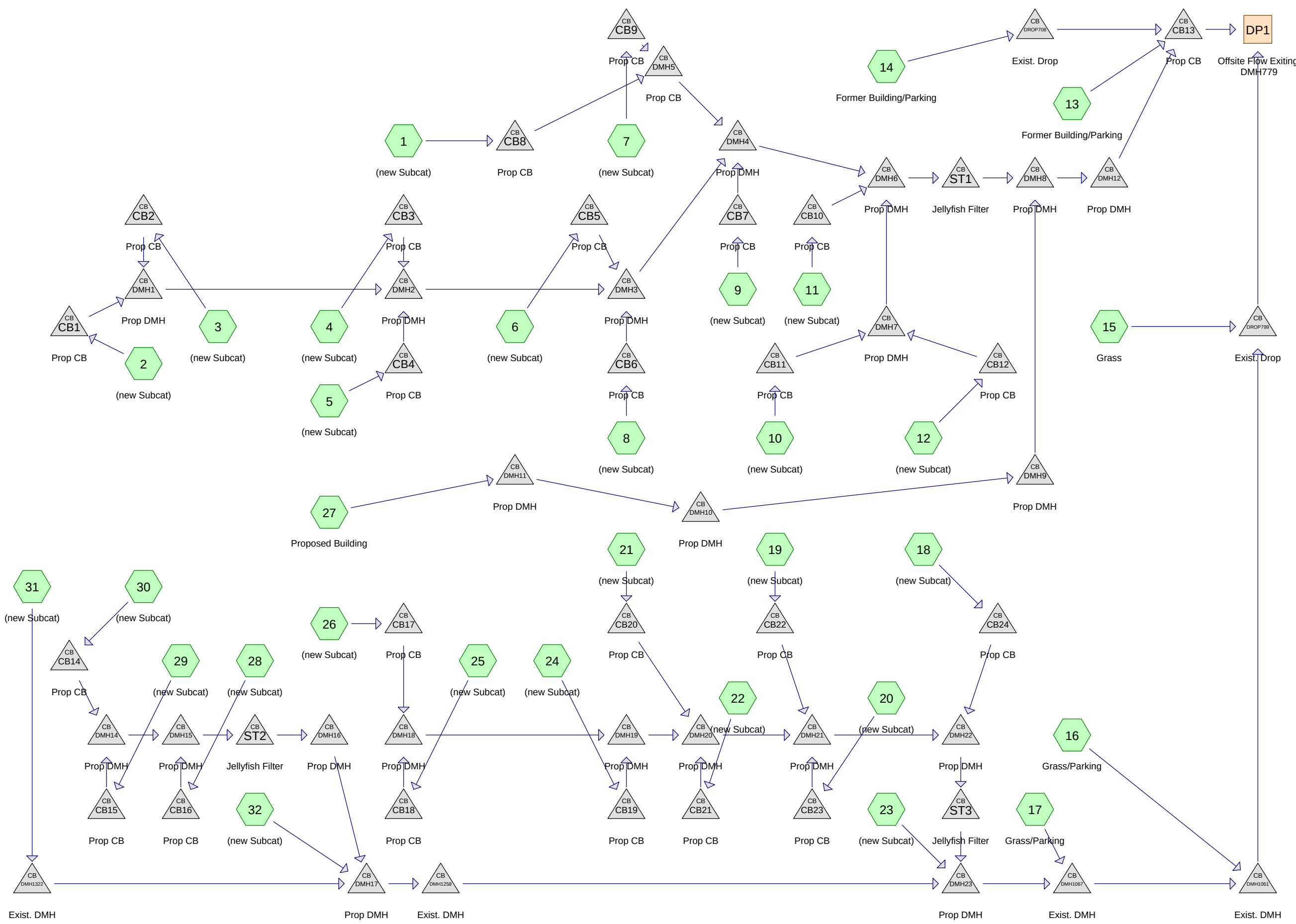
Pond DMH1416: Exist. DMH Peak Elev=49.68' Inflow=7.37 cfs 26,006 cf
36.0" Round Culvert n=0.011 L=748.0' S=0.0050 '/' Outflow=7.37 cfs 26,006 cf

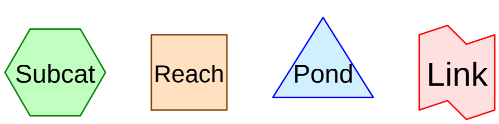
Pond DROP708: Exist. Drop Peak Elev=47.46' Inflow=33.32 cfs 124,464 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=33.32 cfs 124,464 cf

Pond DROP758: Exist. Drop Peak Elev=46.83' Inflow=40.09 cfs 149,759 cf
36.0" Round Culvert n=0.011 L=21.0' S=0.0048 '/' Outflow=40.09 cfs 149,759 cf

Pond DROP799: Exist. Drop Peak Elev=46.05' Inflow=30.76 cfs 107,266 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=30.76 cfs 107,266 cf

Total Runoff Area = 474,995 sf Runoff Volume = 257,026 cf Average Runoff Depth = 6.49"
31.04% Pervious = 147,440 sf 68.96% Impervious = 327,555 sf





Drainage Diagram for 556912-Post
Prepared by Hoyle, Tanner & Associates, Inc., Printed 11/29/2018
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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
258,760	80	>75% Grass cover, Good, HSG D (1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31, 32)
183,065	98	Paved parking, HSG D (2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 18, 19, 20, 21, 22, 23, 24, 25, 28, 29, 30, 31)
33,170	98	Roofs, HSG D (27)
474,995		**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
474,995	HSG D	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32
0	Other	
474,995		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: (new Subcat) Runoff Area=27,805 sf 0.00% Impervious Runoff Depth>1.40"
Tc=8.0 min CN=80 Runoff=0.95 cfs 3,244 cf

Subcatchment 2: (new Subcat) Runoff Area=16,720 sf 84.54% Impervious Runoff Depth>2.64"
Tc=6.0 min CN=95 Runoff=1.10 cfs 3,683 cf

Subcatchment 3: (new Subcat) Runoff Area=11,700 sf 83.76% Impervious Runoff Depth>2.64"
Tc=6.0 min CN=95 Runoff=0.77 cfs 2,577 cf

Subcatchment 4: (new Subcat) Runoff Area=10,120 sf 100.00% Impervious Runoff Depth>2.97"
Tc=6.0 min CN=98 Runoff=0.70 cfs 2,501 cf

Subcatchment 5: (new Subcat) Runoff Area=5,715 sf 18.29% Impervious Runoff Depth>1.61"
Tc=6.0 min CN=83 Runoff=0.24 cfs 766 cf

Subcatchment 6: (new Subcat) Runoff Area=3,460 sf 90.46% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.23 cfs 792 cf

Subcatchment 7: (new Subcat) Runoff Area=3,440 sf 95.78% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.24 cfs 818 cf

Subcatchment 8: (new Subcat) Runoff Area=13,780 sf 93.32% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.95 cfs 3,278 cf

Subcatchment 9: (new Subcat) Runoff Area=5,035 sf 89.08% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.34 cfs 1,153 cf

Subcatchment 10: (new Subcat) Runoff Area=13,700 sf 90.40% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.92 cfs 3,137 cf

Subcatchment 11: (new Subcat) Runoff Area=4,720 sf 92.90% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.32 cfs 1,123 cf

Subcatchment 12: (new Subcat) Runoff Area=8,310 sf 91.70% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.57 cfs 1,977 cf

Subcatchment 13: Former Building/Parking Runoff Area=68,450 sf 0.00% Impervious Runoff Depth>1.40"
Flow Length=451' Slope=0.0110 '/' Tc=16.0 min CN=80 Runoff=1.86 cfs 7,970 cf

Subcatchment 14: Former Building/Parking Runoff Area=14,280 sf 0.00% Impervious Runoff Depth>1.40"
Tc=6.0 min CN=80 Runoff=0.52 cfs 1,667 cf

Subcatchment 15: Grass Runoff Area=29,805 sf 0.00% Impervious Runoff Depth>1.40"
Tc=8.0 min CN=80 Runoff=1.02 cfs 3,477 cf

Subcatchment 16: Grass/Parking Runoff Area=73,455 sf 0.00% Impervious Runoff Depth>1.40"
Flow Length=465' Slope=0.0110 '/' Tc=16.4 min CN=80 Runoff=1.98 cfs 8,552 cf

Subcatchment 17: Grass/Parking Runoff Area=6,205 sf 0.00% Impervious Runoff Depth>1.40"
Tc=6.0 min CN=80 Runoff=0.23 cfs 724 cf

Subcatchment 18: (new Subcat) Runoff Area=8,910 sf 91.75% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.61 cfs 2,120 cf

Subcatchment 19: (new Subcat) Runoff Area=14,855 sf 90.74% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=1.00 cfs 3,401 cf

Subcatchment 20: (new Subcat) Runoff Area=4,705 sf 92.88% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.32 cfs 1,119 cf

Subcatchment 21: (new Subcat) Runoff Area=14,070 sf 91.12% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.95 cfs 3,221 cf

Subcatchment 22: (new Subcat) Runoff Area=5,035 sf 88.88% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.34 cfs 1,153 cf

Subcatchment 23: (new Subcat) Runoff Area=7,445 sf 31.09% Impervious Runoff Depth>1.83"
Tc=6.0 min CN=86 Runoff=0.36 cfs 1,138 cf

Subcatchment 24: (new Subcat) Runoff Area=5,575 sf 89.24% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.38 cfs 1,276 cf

Subcatchment 25: (new Subcat) Runoff Area=9,730 sf 97.94% Impervious Runoff Depth>2.97"
Tc=6.0 min CN=98 Runoff=0.68 cfs 2,405 cf

Subcatchment 26: (new Subcat) Runoff Area=4,185 sf 0.00% Impervious Runoff Depth>1.40"
Tc=6.0 min CN=80 Runoff=0.15 cfs 488 cf

Subcatchment 27: Proposed Building Runoff Area=33,170 sf 100.00% Impervious Runoff Depth>2.97"
Tc=6.0 min CN=98 Runoff=2.31 cfs 8,198 cf

Subcatchment 28: (new Subcat) Runoff Area=19,750 sf 92.71% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=1.35 cfs 4,698 cf

Subcatchment 29: (new Subcat) Runoff Area=5,600 sf 88.21% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.38 cfs 1,282 cf

Subcatchment 30: (new Subcat) Runoff Area=15,605 sf 94.26% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=1.07 cfs 3,712 cf

Subcatchment 31: (new Subcat) Runoff Area=5,160 sf 33.04% Impervious Runoff Depth>1.83"
Tc=6.0 min CN=86 Runoff=0.25 cfs 788 cf

Subcatchment 32: (new Subcat) Runoff Area=4,500 sf 0.00% Impervious Runoff Depth>1.40"
Tc=6.0 min CN=80 Runoff=0.16 cfs 525 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=21.81 cfs 82,962 cf
Outflow=21.81 cfs 82,962 cf

Pond CB1: Prop CB Peak Elev=52.80' Inflow=1.10 cfs 3,683 cf
12.0" Round Culvert n=0.012 L=190.0' S=0.0053 '/' Outflow=1.10 cfs 3,683 cf

Pond CB10: Prop CB Peak Elev=49.38' Inflow=0.32 cfs 1,123 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.32 cfs 1,123 cf

Pond CB11: Prop CB Peak Elev=53.09' Inflow=0.92 cfs 3,137 cf
12.0" Round Culvert n=0.012 L=95.0' S=0.0258 '/' Outflow=0.92 cfs 3,137 cf

Pond CB12: Prop CB Peak Elev=52.78' Inflow=0.57 cfs 1,977 cf
12.0" Round Culvert n=0.012 L=75.0' S=0.0300 '/' Outflow=0.57 cfs 1,977 cf

Pond CB13: Prop CB Peak Elev=44.66' Inflow=11.33 cfs 42,882 cf
48.0" Round Culvert n=0.011 L=15.0' S=0.0067 '/' Outflow=11.33 cfs 42,882 cf

Pond CB14: Prop CB Peak Elev=52.12' Inflow=1.07 cfs 3,712 cf
12.0" Round Culvert n=0.012 L=25.0' S=0.0060 '/' Outflow=1.07 cfs 3,712 cf

Pond CB15: Prop CB Peak Elev=51.80' Inflow=0.38 cfs 1,282 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0300 '/' Outflow=0.38 cfs 1,282 cf

Pond CB16: Prop CB Peak Elev=51.52' Inflow=1.35 cfs 4,698 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=1.35 cfs 4,698 cf

Pond CB17: Prop CB Peak Elev=53.69' Inflow=0.15 cfs 488 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0186 '/' Outflow=0.15 cfs 488 cf

Pond CB18: Prop CB Peak Elev=52.76' Inflow=0.68 cfs 2,405 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=0.68 cfs 2,405 cf

Pond CB19: Prop CB Peak Elev=52.00' Inflow=0.38 cfs 1,276 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0500 '/' Outflow=0.38 cfs 1,276 cf

Pond CB2: Prop CB Peak Elev=52.05' Inflow=0.77 cfs 2,577 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=0.77 cfs 2,577 cf

Pond CB20: Prop CB Peak Elev=53.20' Inflow=0.95 cfs 3,221 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0148 '/' Outflow=0.95 cfs 3,221 cf

Pond CB21: Prop CB Peak Elev=51.79' Inflow=0.34 cfs 1,153 cf
12.0" Round Culvert n=0.012 L=10.0' S=0.0350 '/' Outflow=0.34 cfs 1,153 cf

Pond CB22: Prop CB Peak Elev=53.22' Inflow=1.00 cfs 3,401 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0210 '/' Outflow=1.00 cfs 3,401 cf

Pond CB23: Prop CB Peak Elev=51.48' Inflow=0.32 cfs 1,119 cf
12.0" Round Culvert n=0.012 L=13.0' S=0.0538 '/' Outflow=0.32 cfs 1,119 cf

Pond CB24: Prop CB Peak Elev=52.79' Inflow=0.61 cfs 2,120 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0349 '/' Outflow=0.61 cfs 2,120 cf

Pond CB3: Prop CB Peak Elev=51.22' Inflow=0.70 cfs 2,501 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=0.70 cfs 2,501 cf

Pond CB4: Prop CB Peak Elev=53.74' Inflow=0.24 cfs 766 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0436 '/' Outflow=0.24 cfs 766 cf

Pond CB5: Prop CB Peak Elev=50.53' Inflow=0.23 cfs 792 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.23 cfs 792 cf

Pond CB6: Prop CB Peak Elev=53.10' Inflow=0.95 cfs 3,278 cf
12.0" Round Culvert n=0.012 L=93.0' S=0.0290 '/' Outflow=0.95 cfs 3,278 cf

Pond CB7: Prop CB Peak Elev=49.99' Inflow=0.34 cfs 1,153 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=0.34 cfs 1,153 cf

Pond CB8: Prop CB Peak Elev=52.01' Inflow=0.95 cfs 3,244 cf
12.0" Round Culvert n=0.012 L=100.0' S=0.0080 '/' Outflow=0.95 cfs 3,244 cf

Pond CB9: Prop CB Peak Elev=51.34' Inflow=0.24 cfs 818 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=0.24 cfs 818 cf

Pond DMH1: Prop DMH Peak Elev=51.69' Inflow=1.87 cfs 6,260 cf
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=1.87 cfs 6,260 cf

Pond DMH10: Prop DMH Peak Elev=51.90' Inflow=2.31 cfs 8,198 cf
18.0" Round Culvert n=0.012 L=205.0' S=0.0146 '/' Outflow=2.31 cfs 8,198 cf

Pond DMH1061: Exist. DMH Peak Elev=46.06' Inflow=9.47 cfs 36,603 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=9.47 cfs 36,603 cf

Pond DMH1067: Exist. DMH Peak Elev=46.80' Inflow=8.23 cfs 28,052 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=8.23 cfs 28,052 cf

Pond DMH11: Prop DMH Peak Elev=54.50' Inflow=2.31 cfs 8,198 cf
18.0" Round Culvert n=0.012 L=135.0' S=0.0185 '/' Outflow=2.31 cfs 8,198 cf

Pond DMH12: Prop DMH Peak Elev=45.81' Inflow=9.60 cfs 33,245 cf
30.0" Round Culvert n=0.012 L=70.0' S=0.0050 '/' Outflow=9.60 cfs 33,245 cf

Pond DMH1258: Exist. DMH Peak Elev=48.24' Inflow=3.22 cfs 11,007 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=3.22 cfs 11,007 cf

Pond DMH1322: Exist. DMH Peak Elev=48.48' Inflow=0.25 cfs 788 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.25 cfs 788 cf

Pond DMH14: Prop DMH Peak Elev=51.74' Inflow=1.45 cfs 4,994 cf
15.0" Round Culvert n=0.012 L=157.0' S=0.0051 '/' Outflow=1.45 cfs 4,994 cf

Pond DMH15: Prop DMH Peak Elev=50.94' Inflow=2.80 cfs 9,693 cf
18.0" Round Culvert n=0.012 L=56.0' S=0.0054 '/' Outflow=2.80 cfs 9,693 cf

Pond DMH16: Prop DMH Peak Elev=49.78' Inflow=2.80 cfs 9,693 cf
18.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=2.80 cfs 9,693 cf

Pond DMH17: Prop DMH Peak Elev=48.46' Inflow=3.22 cfs 11,007 cf
30.0" Round Culvert n=0.011 L=64.0' S=0.0020 '/' Outflow=3.22 cfs 11,007 cf

Pond DMH18: Prop DMH Peak Elev=52.62' Inflow=0.83 cfs 2,893 cf
12.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=0.83 cfs 2,893 cf

Pond DMH19: Prop DMH Peak Elev=51.79' Inflow=1.21 cfs 4,169 cf
15.0" Round Culvert n=0.012 L=55.0' S=0.0055 '/' Outflow=1.21 cfs 4,169 cf

Pond DMH2: Prop DMH Peak Elev=50.82' Inflow=2.82 cfs 9,526 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=2.82 cfs 9,526 cf

Pond DMH20: Prop DMH Peak Elev=51.46' Inflow=2.49 cfs 8,543 cf
18.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=2.49 cfs 8,543 cf

Pond DMH21: Prop DMH Peak Elev=50.96' Inflow=3.81 cfs 13,064 cf
18.0" Round Culvert n=0.012 L=50.0' S=0.0060 '/' Outflow=3.81 cfs 13,064 cf

Pond DMH22: Prop DMH Peak Elev=50.74' Inflow=4.42 cfs 15,183 cf
18.0" Round Culvert n=0.012 L=6.0' S=0.0083 '/' Outflow=4.42 cfs 15,183 cf

Pond DMH23: Prop DMH Peak Elev=47.71' Inflow=8.00 cfs 27,327 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=8.00 cfs 27,327 cf

Pond DMH3: Prop DMH Peak Elev=49.83' Inflow=3.99 cfs 13,597 cf
24.0" Round Culvert n=0.012 L=110.0' S=0.0055 '/' Outflow=3.99 cfs 13,597 cf

Pond DMH4: Prop DMH Peak Elev=49.34' Inflow=5.48 cfs 18,811 cf
24.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=5.48 cfs 18,811 cf

Pond DMH5: Prop CB Peak Elev=51.17' Inflow=1.18 cfs 4,062 cf
12.0" Round Culvert n=0.012 L=50.0' S=0.0260 '/' Outflow=1.18 cfs 4,062 cf

Pond DMH6: Prop DMH Peak Elev=49.07' Inflow=7.30 cfs 25,048 cf
24.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=7.30 cfs 25,048 cf

Pond DMH7: Prop DMH Peak Elev=50.49' Inflow=1.49 cfs 5,113 cf
15.0" Round Culvert n=0.012 L=42.0' S=0.0345 '/' Outflow=1.49 cfs 5,113 cf

Pond DMH8: Prop DMH Peak Elev=47.59' Inflow=9.60 cfs 33,245 cf
30.0" Round Culvert n=0.011 L=370.0' S=0.0050 '/' Outflow=9.60 cfs 33,245 cf

Pond DMH9: Prop DMH Peak Elev=48.82' Inflow=2.31 cfs 8,198 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0073 '/' Outflow=2.31 cfs 8,198 cf

Pond DROP708: Exist. Drop Peak Elev=45.18' Inflow=0.52 cfs 1,667 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=0.52 cfs 1,667 cf

Pond DROP799: Exist. Drop Peak Elev=44.85' Inflow=10.47 cfs 40,080 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=10.47 cfs 40,080 cf

Pond ST1: Jellyfish Filter Peak Elev=48.45' Inflow=7.30 cfs 25,048 cf
24.0" Round Culvert n=0.012 L=50.0' S=0.0050 '/' Outflow=7.30 cfs 25,048 cf

Pond ST2: Jellyfish Filter Peak Elev=50.12' Inflow=2.80 cfs 9,693 cf
18.0" Round Culvert n=0.012 L=8.0' S=0.0187 '/' Outflow=2.80 cfs 9,693 cf

Pond ST3: Jellyfish Filter Peak Elev=50.12' Inflow=4.42 cfs 15,183 cf
18.0" Round Culvert n=0.012 L=13.0' S=0.0115 '/' Outflow=4.42 cfs 15,183 cf

Total Runoff Area = 474,995 sf Runoff Volume = 82,962 cf Average Runoff Depth = 2.10"
54.48% Pervious = 258,760 sf 45.52% Impervious = 216,235 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: (new Subcat) Runoff Area=27,805 sf 0.00% Impervious Runoff Depth>2.77"
Tc=8.0 min CN=80 Runoff=1.91 cfs 6,413 cf

Subcatchment 2: (new Subcat) Runoff Area=16,720 sf 84.54% Impervious Runoff Depth>4.28"
Tc=6.0 min CN=95 Runoff=1.73 cfs 5,961 cf

Subcatchment 3: (new Subcat) Runoff Area=11,700 sf 83.76% Impervious Runoff Depth>4.28"
Tc=6.0 min CN=95 Runoff=1.21 cfs 4,171 cf

Subcatchment 4: (new Subcat) Runoff Area=10,120 sf 100.00% Impervious Runoff Depth>4.62"
Tc=6.0 min CN=98 Runoff=1.08 cfs 3,897 cf

Subcatchment 5: (new Subcat) Runoff Area=5,715 sf 18.29% Impervious Runoff Depth>3.05"
Tc=6.0 min CN=83 Runoff=0.46 cfs 1,450 cf

Subcatchment 6: (new Subcat) Runoff Area=3,460 sf 90.46% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=0.36 cfs 1,266 cf

Subcatchment 7: (new Subcat) Runoff Area=3,440 sf 95.78% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=0.36 cfs 1,291 cf

Subcatchment 8: (new Subcat) Runoff Area=13,780 sf 93.32% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=1.46 cfs 5,173 cf

Subcatchment 9: (new Subcat) Runoff Area=5,035 sf 89.08% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=0.53 cfs 1,842 cf

Subcatchment 10: (new Subcat) Runoff Area=13,700 sf 90.40% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=1.44 cfs 5,013 cf

Subcatchment 11: (new Subcat) Runoff Area=4,720 sf 92.90% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=0.50 cfs 1,772 cf

Subcatchment 12: (new Subcat) Runoff Area=8,310 sf 91.70% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=0.88 cfs 3,120 cf

Subcatchment 13: Former Building/Parking Runoff Area=68,450 sf 0.00% Impervious Runoff Depth>2.76"
Flow Length=451' Slope=0.0110 '/' Tc=16.0 min CN=80 Runoff=3.76 cfs 15,760 cf

Subcatchment 14: Former Building/Parking Runoff Area=14,280 sf 0.00% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=80 Runoff=1.04 cfs 3,295 cf

Subcatchment 15: Grass Runoff Area=29,805 sf 0.00% Impervious Runoff Depth>2.77"
Tc=8.0 min CN=80 Runoff=2.05 cfs 6,874 cf

Subcatchment 16: Grass/Parking Runoff Area=73,455 sf 0.00% Impervious Runoff Depth>2.76"
Flow Length=465' Slope=0.0110 '/' Tc=16.4 min CN=80 Runoff=3.98 cfs 16,911 cf

Subcatchment 17: Grass/Parking Runoff Area=6,205 sf 0.00% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=80 Runoff=0.45 cfs 1,432 cf

Subcatchment 18: (new Subcat) Runoff Area=8,910 sf 91.75% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=0.94 cfs 3,345 cf

Subcatchment 19: (new Subcat) Runoff Area=14,855 sf 90.74% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=1.56 cfs 5,435 cf

Subcatchment 20: (new Subcat) Runoff Area=4,705 sf 92.88% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=0.50 cfs 1,766 cf

Subcatchment 21: (new Subcat) Runoff Area=14,070 sf 91.12% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=1.47 cfs 5,148 cf

Subcatchment 22: (new Subcat) Runoff Area=5,035 sf 88.88% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=0.53 cfs 1,842 cf

Subcatchment 23: (new Subcat) Runoff Area=7,445 sf 31.09% Impervious Runoff Depth>3.33"
Tc=6.0 min CN=86 Runoff=0.65 cfs 2,068 cf

Subcatchment 24: (new Subcat) Runoff Area=5,575 sf 89.24% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=0.58 cfs 2,040 cf

Subcatchment 25: (new Subcat) Runoff Area=9,730 sf 97.94% Impervious Runoff Depth>4.62"
Tc=6.0 min CN=98 Runoff=1.04 cfs 3,747 cf

Subcatchment 26: (new Subcat) Runoff Area=4,185 sf 0.00% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=80 Runoff=0.31 cfs 966 cf

Subcatchment 27: Proposed Building Runoff Area=33,170 sf 100.00% Impervious Runoff Depth>4.62"
Tc=6.0 min CN=98 Runoff=3.53 cfs 12,772 cf

Subcatchment 28: (new Subcat) Runoff Area=19,750 sf 92.71% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=2.09 cfs 7,414 cf

Subcatchment 29: (new Subcat) Runoff Area=5,600 sf 88.21% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=0.59 cfs 2,049 cf

Subcatchment 30: (new Subcat) Runoff Area=15,605 sf 94.26% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=1.65 cfs 5,858 cf

Subcatchment 31: (new Subcat) Runoff Area=5,160 sf 33.04% Impervious Runoff Depth>3.33"
Tc=6.0 min CN=86 Runoff=0.45 cfs 1,434 cf

Subcatchment 32: (new Subcat) Runoff Area=4,500 sf 0.00% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=80 Runoff=0.33 cfs 1,038 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=36.78 cfs 142,562 cf
Outflow=36.78 cfs 142,562 cf

Pond CB1: Prop CB Peak Elev=52.99' Inflow=1.73 cfs 5,961 cf
12.0" Round Culvert n=0.012 L=190.0' S=0.0053 '/' Outflow=1.73 cfs 5,961 cf

Pond CB10: Prop CB Peak Elev=49.45' Inflow=0.50 cfs 1,772 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.50 cfs 1,772 cf

Pond CB11: Prop CB Peak Elev=53.24' Inflow=1.44 cfs 5,013 cf
12.0" Round Culvert n=0.012 L=95.0' S=0.0258 '/' Outflow=1.44 cfs 5,013 cf

Pond CB12: Prop CB Peak Elev=52.88' Inflow=0.88 cfs 3,120 cf
12.0" Round Culvert n=0.012 L=75.0' S=0.0300 '/' Outflow=0.88 cfs 3,120 cf

Pond CB13: Prop CB Peak Elev=45.12' Inflow=18.98 cfs 73,195 cf
48.0" Round Culvert n=0.011 L=15.0' S=0.0067 '/' Outflow=18.98 cfs 73,195 cf

Pond CB14: Prop CB Peak Elev=52.31' Inflow=1.65 cfs 5,858 cf
12.0" Round Culvert n=0.012 L=25.0' S=0.0060 '/' Outflow=1.65 cfs 5,858 cf

Pond CB15: Prop CB Peak Elev=51.89' Inflow=0.59 cfs 2,049 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0300 '/' Outflow=0.59 cfs 2,049 cf

Pond CB16: Prop CB Peak Elev=51.71' Inflow=2.09 cfs 7,414 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=2.09 cfs 7,414 cf

Pond CB17: Prop CB Peak Elev=53.77' Inflow=0.31 cfs 966 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0186 '/' Outflow=0.31 cfs 966 cf

Pond CB18: Prop CB Peak Elev=52.89' Inflow=1.04 cfs 3,747 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.04 cfs 3,747 cf

Pond CB19: Prop CB Peak Elev=52.08' Inflow=0.58 cfs 2,040 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0500 '/' Outflow=0.58 cfs 2,040 cf

Pond CB2: Prop CB Peak Elev=52.18' Inflow=1.21 cfs 4,171 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=1.21 cfs 4,171 cf

Pond CB20: Prop CB Peak Elev=53.35' Inflow=1.47 cfs 5,148 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0148 '/' Outflow=1.47 cfs 5,148 cf

Pond CB21: Prop CB Peak Elev=51.86' Inflow=0.53 cfs 1,842 cf
12.0" Round Culvert n=0.012 L=10.0' S=0.0350 '/' Outflow=0.53 cfs 1,842 cf

Pond CB22: Prop CB Peak Elev=53.37' Inflow=1.56 cfs 5,435 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0210 '/' Outflow=1.56 cfs 5,435 cf

Pond CB23: Prop CB Peak Elev=51.55' Inflow=0.50 cfs 1,766 cf
12.0" Round Culvert n=0.012 L=13.0' S=0.0538 '/' Outflow=0.50 cfs 1,766 cf

Pond CB24: Prop CB Peak Elev=52.90' Inflow=0.94 cfs 3,345 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0349 '/' Outflow=0.94 cfs 3,345 cf

Pond CB3: Prop CB Peak Elev=51.34' Inflow=1.08 cfs 3,897 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=1.08 cfs 3,897 cf

Pond CB4: Prop CB Peak Elev=53.84' Inflow=0.46 cfs 1,450 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0436 '/' Outflow=0.46 cfs 1,450 cf

Pond CB5: Prop CB Peak Elev=50.60' Inflow=0.36 cfs 1,266 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.36 cfs 1,266 cf

Pond CB6: Prop CB Peak Elev=53.24' Inflow=1.46 cfs 5,173 cf
12.0" Round Culvert n=0.012 L=93.0' S=0.0290 '/' Outflow=1.46 cfs 5,173 cf

Pond CB7: Prop CB Peak Elev=50.06' Inflow=0.53 cfs 1,842 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=0.53 cfs 1,842 cf

Pond CB8: Prop CB Peak Elev=52.27' Inflow=1.91 cfs 6,413 cf
12.0" Round Culvert n=0.012 L=100.0' S=0.0080 '/' Outflow=1.91 cfs 6,413 cf

Pond CB9: Prop CB Peak Elev=51.40' Inflow=0.36 cfs 1,291 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=0.36 cfs 1,291 cf

Pond DMH1: Prop DMH Peak Elev=51.93' Inflow=2.94 cfs 10,132 cf
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=2.94 cfs 10,132 cf

Pond DMH10: Prop DMH Peak Elev=52.09' Inflow=3.53 cfs 12,772 cf
18.0" Round Culvert n=0.012 L=205.0' S=0.0146 '/' Outflow=3.53 cfs 12,772 cf

Pond DMH1061: Exist. DMH Peak Elev=46.53' Inflow=15.78 cfs 62,493 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=15.78 cfs 62,493 cf

Pond DMH1067: Exist. DMH Peak Elev=47.08' Inflow=13.12 cfs 45,581 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=13.12 cfs 45,581 cf

Pond DMH11: Prop DMH Peak Elev=54.69' Inflow=3.53 cfs 12,772 cf
18.0" Round Culvert n=0.012 L=135.0' S=0.0185 '/' Outflow=3.53 cfs 12,772 cf

Pond DMH12: Prop DMH Peak Elev=46.29' Inflow=15.38 cfs 54,140 cf
30.0" Round Culvert n=0.012 L=70.0' S=0.0050 '/' Outflow=15.38 cfs 54,140 cf

Pond DMH1258: Exist. DMH Peak Elev=48.47' Inflow=5.10 cfs 17,793 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=5.10 cfs 17,793 cf

Pond DMH1322: Exist. DMH Peak Elev=48.56' Inflow=0.45 cfs 1,434 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.45 cfs 1,434 cf

Pond DMH14: Prop DMH Peak Elev=51.92' Inflow=2.24 cfs 7,907 cf
15.0" Round Culvert n=0.012 L=157.0' S=0.0051 '/' Outflow=2.24 cfs 7,907 cf

Pond DMH15: Prop DMH Peak Elev=51.21' Inflow=4.33 cfs 15,321 cf
18.0" Round Culvert n=0.012 L=56.0' S=0.0054 '/' Outflow=4.33 cfs 15,321 cf

Pond DMH16: Prop DMH Peak Elev=50.01' Inflow=4.33 cfs 15,321 cf
18.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=4.33 cfs 15,321 cf

Pond DMH17: Prop DMH Peak Elev=48.70' Inflow=5.10 cfs 17,793 cf
30.0" Round Culvert n=0.011 L=64.0' S=0.0020 '/' Outflow=5.10 cfs 17,793 cf

Pond DMH18: Prop DMH Peak Elev=52.79' Inflow=1.34 cfs 4,712 cf
12.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=1.34 cfs 4,712 cf

Pond DMH19: Prop DMH Peak Elev=51.97' Inflow=1.93 cfs 6,752 cf
15.0" Round Culvert n=0.012 L=55.0' S=0.0055 '/' Outflow=1.93 cfs 6,752 cf

Pond DMH2: Prop DMH Peak Elev=51.11' Inflow=4.48 cfs 15,479 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=4.48 cfs 15,479 cf

Pond DMH20: Prop DMH Peak Elev=51.71' Inflow=3.93 cfs 13,742 cf
18.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=3.93 cfs 13,742 cf

Pond DMH21: Prop DMH Peak Elev=51.32' Inflow=5.98 cfs 20,944 cf
18.0" Round Culvert n=0.012 L=50.0' S=0.0060 '/' Outflow=5.98 cfs 20,944 cf

Pond DMH22: Prop DMH Peak Elev=51.17' Inflow=6.92 cfs 24,288 cf
18.0" Round Culvert n=0.012 L=6.0' S=0.0083 '/' Outflow=6.92 cfs 24,288 cf

Pond DMH23: Prop DMH Peak Elev=48.03' Inflow=12.67 cfs 44,150 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=12.67 cfs 44,150 cf

Pond DMH3: Prop DMH Peak Elev=50.10' Inflow=6.30 cfs 21,918 cf
24.0" Round Culvert n=0.012 L=110.0' S=0.0055 '/' Outflow=6.30 cfs 21,918 cf

Pond DMH4: Prop DMH Peak Elev=49.74' Inflow=9.04 cfs 31,464 cf
24.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=9.04 cfs 31,464 cf

Pond DMH5: Prop CB Peak Elev=51.46' Inflow=2.26 cfs 7,704 cf
12.0" Round Culvert n=0.012 L=50.0' S=0.0260 '/' Outflow=2.26 cfs 7,704 cf

Pond DMH6: Prop DMH Peak Elev=49.59' Inflow=11.85 cfs 41,368 cf
24.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=11.85 cfs 41,368 cf

Pond DMH7: Prop DMH Peak Elev=50.66' Inflow=2.31 cfs 8,132 cf
15.0" Round Culvert n=0.012 L=42.0' S=0.0345 '/' Outflow=2.31 cfs 8,132 cf

Pond DMH8: Prop DMH Peak Elev=48.00' Inflow=15.38 cfs 54,140 cf
30.0" Round Culvert n=0.011 L=370.0' S=0.0050 '/' Outflow=15.38 cfs 54,140 cf

Pond DMH9: Prop DMH Peak Elev=49.02' Inflow=3.53 cfs 12,772 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0073 '/' Outflow=3.53 cfs 12,772 cf

Pond DROP708: Exist. Drop Peak Elev=45.29' Inflow=1.04 cfs 3,295 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=1.04 cfs 3,295 cf

Pond DROP799: Exist. Drop Peak Elev=45.34' Inflow=17.79 cfs 69,367 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=17.79 cfs 69,367 cf

Pond ST1: Jellyfish Filter Peak Elev=48.95' Inflow=11.85 cfs 41,368 cf
24.0" Round Culvert n=0.012 L=50.0' S=0.0050 '/' Outflow=11.85 cfs 41,368 cf

Pond ST2: Jellyfish Filter Peak Elev=50.39' Inflow=4.33 cfs 15,321 cf
18.0" Round Culvert n=0.012 L=8.0' S=0.0187 '/' Outflow=4.33 cfs 15,321 cf

Pond ST3: Jellyfish Filter Peak Elev=50.53' Inflow=6.92 cfs 24,288 cf
18.0" Round Culvert n=0.012 L=13.0' S=0.0115 '/' Outflow=6.92 cfs 24,288 cf

Total Runoff Area = 474,995 sf Runoff Volume = 142,562 cf Average Runoff Depth = 3.60"
54.48% Pervious = 258,760 sf 45.52% Impervious = 216,235 sf

Summary for Subcatchment 1: (new Subcat)

Runoff = 1.91 cfs @ 12.12 hrs, Volume= 6,413 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
27,805	80	>75% Grass cover, Good, HSG D
27,805		100.00% Pervious Area

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

Summary for Subcatchment 2: (new Subcat)

Runoff = 1.73 cfs @ 12.09 hrs, Volume= 5,961 cf, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
2,585	80	>75% Grass cover, Good, HSG D
14,135	98	Paved parking, HSG D
16,720	95	Weighted Average
2,585		15.46% Pervious Area
14,135		84.54% Impervious Area

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

Summary for Subcatchment 3: (new Subcat)

Runoff = 1.21 cfs @ 12.09 hrs, Volume= 4,171 cf, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
1,900	80	>75% Grass cover, Good, HSG D
9,800	98	Paved parking, HSG D
11,700	95	Weighted Average
1,900		16.24% Pervious Area
9,800		83.76% Impervious Area

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

Summary for Subcatchment 4: (new Subcat)

Runoff = 1.08 cfs @ 12.09 hrs, Volume= 3,897 cf, Depth> 4.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
10,120	98	Paved parking, HSG D
10,120		100.00% Impervious Area

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

Summary for Subcatchment 5: (new Subcat)

Runoff = 0.46 cfs @ 12.09 hrs, Volume= 1,450 cf, Depth> 3.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
4,670	80	>75% Grass cover, Good, HSG D
1,045	98	Paved parking, HSG D
5,715	83	Weighted Average
4,670		81.71% Pervious Area
1,045		18.29% Impervious Area

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

Summary for Subcatchment 6: (new Subcat)

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 1,266 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
330	80	>75% Grass cover, Good, HSG D
3,130	98	Paved parking, HSG D
3,460	96	Weighted Average
330		9.54% Pervious Area
3,130		90.46% Impervious Area

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

Summary for Subcatchment 7: (new Subcat)

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 1,291 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
145	80	>75% Grass cover, Good, HSG D
3,295	98	Paved parking, HSG D
3,440	97	Weighted Average
145		4.22% Pervious Area
3,295		95.78% Impervious Area

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

Summary for Subcatchment 8: (new Subcat)

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 5,173 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
920	80	>75% Grass cover, Good, HSG D
12,860	98	Paved parking, HSG D
13,780	97	Weighted Average
920		6.68% Pervious Area
12,860		93.32% Impervious Area

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

Summary for Subcatchment 9: (new Subcat)

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
550	80	>75% Grass cover, Good, HSG D
4,485	98	Paved parking, HSG D
5,035	96	Weighted Average
550		10.92% Pervious Area
4,485		89.08% Impervious Area

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

Summary for Subcatchment 10: (new Subcat)

Runoff = 1.44 cfs @ 12.09 hrs, Volume= 5,013 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
1,315	80	>75% Grass cover, Good, HSG D
12,385	98	Paved parking, HSG D
13,700	96	Weighted Average
1,315		9.60% Pervious Area
12,385		90.40% Impervious Area

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

Summary for Subcatchment 11: (new Subcat)

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 1,772 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
335	80	>75% Grass cover, Good, HSG D
4,385	98	Paved parking, HSG D
4,720	97	Weighted Average
335		7.10% Pervious Area
4,385		92.90% Impervious Area

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

Summary for Subcatchment 12: (new Subcat)

Runoff = 0.88 cfs @ 12.09 hrs, Volume= 3,120 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
690	80	>75% Grass cover, Good, HSG D
7,620	98	Paved parking, HSG D
8,310	97	Weighted Average
690		8.30% Pervious Area
7,620		91.70% Impervious Area

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

Summary for Subcatchment 13: Former Building/Parking

Runoff = 3.76 cfs @ 12.22 hrs, Volume= 15,760 cf, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
68,450	80	>75% Grass cover, Good, HSG D
68,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	451	0.0110	0.47		**Lag/CN Method,**

Summary for Subcatchment 14: Former Building/Parking

Runoff = 1.04 cfs @ 12.09 hrs, Volume= 3,295 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
14,280	80	>75% Grass cover, Good, HSG D
14,280		100.00% Pervious Area

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

Summary for Subcatchment 15: Grass

Runoff = 2.05 cfs @ 12.12 hrs, Volume= 6,874 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
29,805	80	>75% Grass cover, Good, HSG D
29,805		100.00% Pervious Area

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

Summary for Subcatchment 16: Grass/Parking

Runoff = 3.98 cfs @ 12.23 hrs, Volume= 16,911 cf, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
73,455	80	>75% Grass cover, Good, HSG D
73,455		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4	465	0.0110	0.47		**Lag/CN Method,**

Summary for Subcatchment 17: Grass/Parking

Runoff = 0.45 cfs @ 12.09 hrs, Volume= 1,432 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
6,205	80	>75% Grass cover, Good, HSG D
6,205		100.00% Pervious Area

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

Summary for Subcatchment 18: (new Subcat)

Runoff = 0.94 cfs @ 12.09 hrs, Volume= 3,345 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
735	80	>75% Grass cover, Good, HSG D
8,175	98	Paved parking, HSG D
8,910	97	Weighted Average
735		8.25% Pervious Area
8,175		91.75% Impervious Area

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

Summary for Subcatchment 19: (new Subcat)

Runoff = 1.56 cfs @ 12.09 hrs, Volume= 5,435 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
1,375	80	>75% Grass cover, Good, HSG D
13,480	98	Paved parking, HSG D
14,855	96	Weighted Average
1,375		9.26% Pervious Area
13,480		90.74% Impervious Area

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

Summary for Subcatchment 20: (new Subcat)

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 1,766 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
335	80	>75% Grass cover, Good, HSG D
4,370	98	Paved parking, HSG D
4,705	97	Weighted Average
335		7.12% Pervious Area
4,370		92.88% Impervious Area

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

Summary for Subcatchment 21: (new Subcat)

Runoff = 1.47 cfs @ 12.09 hrs, Volume= 5,148 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
1,250	80	>75% Grass cover, Good, HSG D
12,820	98	Paved parking, HSG D
14,070	96	Weighted Average
1,250		8.88% Pervious Area
12,820		91.12% Impervious Area

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

Summary for Subcatchment 22: (new Subcat)

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
560	80	>75% Grass cover, Good, HSG D
4,475	98	Paved parking, HSG D
5,035	96	Weighted Average
560		11.12% Pervious Area
4,475		88.88% Impervious Area

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

Summary for Subcatchment 23: (new Subcat)

Runoff = 0.65 cfs @ 12.09 hrs, Volume= 2,068 cf, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
5,130	80	>75% Grass cover, Good, HSG D
2,315	98	Paved parking, HSG D
7,445	86	Weighted Average
5,130		68.91% Pervious Area
2,315		31.09% Impervious Area

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

Summary for Subcatchment 24: (new Subcat)

Runoff = 0.58 cfs @ 12.09 hrs, Volume= 2,040 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
600	80	>75% Grass cover, Good, HSG D
4,975	98	Paved parking, HSG D
5,575	96	Weighted Average
600		10.76% Pervious Area
4,975		89.24% Impervious Area

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

Summary for Subcatchment 25: (new Subcat)

Runoff = 1.04 cfs @ 12.09 hrs, Volume= 3,747 cf, Depth> 4.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
200	80	>75% Grass cover, Good, HSG D
9,530	98	Paved parking, HSG D
9,730	98	Weighted Average
200		2.06% Pervious Area
9,530		97.94% Impervious Area

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

Summary for Subcatchment 26: (new Subcat)

Runoff = 0.31 cfs @ 12.09 hrs, Volume= 966 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
4,185	80	>75% Grass cover, Good, HSG D
4,185		100.00% Pervious Area

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

Summary for Subcatchment 27: Proposed Building

Runoff = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf, Depth> 4.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
33,170	98	Roofs, HSG D
33,170		100.00% Impervious Area

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

Summary for Subcatchment 28: (new Subcat)

Runoff = 2.09 cfs @ 12.09 hrs, Volume= 7,414 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
1,440	80	>75% Grass cover, Good, HSG D
18,310	98	Paved parking, HSG D
19,750	97	Weighted Average
1,440		7.29% Pervious Area
18,310		92.71% Impervious Area

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

Summary for Subcatchment 29: (new Subcat)

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 2,049 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
660	80	>75% Grass cover, Good, HSG D
4,940	98	Paved parking, HSG D
5,600	96	Weighted Average
660		11.79% Pervious Area
4,940		88.21% Impervious Area

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

Summary for Subcatchment 30: (new Subcat)

Runoff = 1.65 cfs @ 12.09 hrs, Volume= 5,858 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
895	80	>75% Grass cover, Good, HSG D
14,710	98	Paved parking, HSG D
15,605	97	Weighted Average
895		5.74% Pervious Area
14,710		94.26% Impervious Area

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

Summary for Subcatchment 31: (new Subcat)

Runoff = 0.45 cfs @ 12.09 hrs, Volume= 1,434 cf, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
3,455	80	>75% Grass cover, Good, HSG D
1,705	98	Paved parking, HSG D
5,160	86	Weighted Average
3,455		66.96% Pervious Area
1,705		33.04% Impervious Area

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

Summary for Subcatchment 32: (new Subcat)

Runoff = 0.33 cfs @ 12.09 hrs, Volume= 1,038 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
4,500	80	>75% Grass cover, Good, HSG D
4,500		100.00% Pervious Area

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

Summary for Reach DP1: Offsite Flow Exiting DMH779

Offsite flow exiting DMH 779

Inflow Area = 474,995 sf, 45.52% Impervious, Inflow Depth > 3.60" for 10-Yr event
Inflow = 36.78 cfs @ 12.10 hrs, Volume= 142,562 cf
Outflow = 36.78 cfs @ 12.10 hrs, Volume= 142,562 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond CB1: Prop CB

Inflow Area = 16,720 sf, 84.54% Impervious, Inflow Depth > 4.28" for 10-Yr event
Inflow = 1.73 cfs @ 12.09 hrs, Volume= 5,961 cf
Outflow = 1.73 cfs @ 12.09 hrs, Volume= 5,961 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.73 cfs @ 12.09 hrs, Volume= 5,961 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.99' @ 12.09 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.20'	**12.0" Round Culvert** L= 190.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.20' / 51.20' S= 0.0053 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.69 cfs @ 12.09 hrs HW=52.97' (Free Discharge)
└—**1=Culvert** (Barrel Controls 1.69 cfs @ 3.57 fps)

Summary for Pond CB10: Prop CB

Inflow Area = 4,720 sf, 92.90% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 0.50 cfs @ 12.09 hrs, Volume= 1,772 cf
Outflow = 0.50 cfs @ 12.09 hrs, Volume= 1,772 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.09 hrs, Volume= 1,772 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 49.45' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.10'	**12.0" Round Culvert** L= 7.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.10' / 48.70' S= 0.0571 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.48 cfs @ 12.09 hrs HW=49.45' (Free Discharge)
1=Culvert (Inlet Controls 0.48 cfs @ 2.00 fps)

Summary for Pond CB11: Prop CB

Inflow Area = 13,700 sf, 90.40% Impervious, Inflow Depth > 4.39" for 10-Yr event
Inflow = 1.44 cfs @ 12.09 hrs, Volume= 5,013 cf
Outflow = 1.44 cfs @ 12.09 hrs, Volume= 5,013 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.44 cfs @ 12.09 hrs, Volume= 5,013 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.24' @ 12.09 hrs
Flood Elev= 56.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.60'	**12.0" Round Culvert** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.60' / 50.15' S= 0.0258 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.40 cfs @ 12.09 hrs HW=53.23' (Free Discharge)
1=Culvert (Inlet Controls 1.40 cfs @ 2.70 fps)

Summary for Pond CB12: Prop CB

Inflow Area = 8,310 sf, 91.70% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 0.88 cfs @ 12.09 hrs, Volume= 3,120 cf
Outflow = 0.88 cfs @ 12.09 hrs, Volume= 3,120 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.88 cfs @ 12.09 hrs, Volume= 3,120 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.88' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.40'	**12.0" Round Culvert** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.40' / 50.15' S= 0.0300 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.85 cfs @ 12.09 hrs HW=52.87' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.85 cfs @ 2.34 fps)

Summary for Pond CB13: Prop CB

Inflow Area = 240,405 sf, 48.43% Impervious, Inflow Depth > 3.65" for 10-Yr event
Inflow = 18.98 cfs @ 12.10 hrs, Volume= 73,195 cf
Outflow = 18.98 cfs @ 12.10 hrs, Volume= 73,195 cf, Atten= 0%, Lag= 0.0 min
Primary = 18.98 cfs @ 12.10 hrs, Volume= 73,195 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 45.12' @ 12.10 hrs
Flood Elev= 51.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.25'	**48.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 43.25' / 43.15' S= 0.0067 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=18.88 cfs @ 12.10 hrs HW=45.12' (Free Discharge)
└─**1=Culvert** (Barrel Controls 18.88 cfs @ 4.81 fps)

Summary for Pond CB14: Prop CB

Inflow Area = 15,605 sf, 94.26% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 1.65 cfs @ 12.09 hrs, Volume= 5,858 cf
Outflow = 1.65 cfs @ 12.09 hrs, Volume= 5,858 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.65 cfs @ 12.09 hrs, Volume= 5,858 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.31' @ 12.09 hrs
Flood Elev= 55.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.50'	**12.0" Round Culvert** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.50' / 51.35' S= 0.0060 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.61 cfs @ 12.09 hrs HW=52.30' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.61 cfs @ 3.28 fps)

Summary for Pond CB15: Prop CB

Inflow Area =	5,600 sf,	88.21% Impervious,	Inflow Depth > 4.39"	for 10-Yr event	
Inflow =	0.59 cfs @	12.09 hrs,	Volume=	2,049 cf	
Outflow =	0.59 cfs @	12.09 hrs,	Volume=	2,049 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.59 cfs @	12.09 hrs,	Volume=	2,049 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.89' @ 12.09 hrs
Flood Elev= 55.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.50'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.50' / 51.35' S= 0.0300 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.57 cfs @ 12.09 hrs HW=51.89' (Free Discharge)
1=Culvert (Barrel Controls 0.57 cfs @ 3.03 fps)

Summary for Pond CB16: Prop CB

Inflow Area =	19,750 sf,	92.71% Impervious,	Inflow Depth > 4.50"	for 10-Yr event	
Inflow =	2.09 cfs @	12.09 hrs,	Volume=	7,414 cf	
Outflow =	2.09 cfs @	12.09 hrs,	Volume=	7,414 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.09 cfs @	12.09 hrs,	Volume=	7,414 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.71' @ 12.09 hrs
Flood Elev= 55.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.90'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.90' / 50.55' S= 0.0700 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.03 cfs @ 12.09 hrs HW=51.70' (Free Discharge)
1=Culvert (Inlet Controls 2.03 cfs @ 3.04 fps)

Summary for Pond CB17: Prop CB

Inflow Area =	4,185 sf,	0.00% Impervious,	Inflow Depth > 2.77"	for 10-Yr event	
Inflow =	0.31 cfs @	12.09 hrs,	Volume=	966 cf	
Outflow =	0.31 cfs @	12.09 hrs,	Volume=	966 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.31 cfs @	12.09 hrs,	Volume=	966 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.77' @ 12.09 hrs
Flood Elev= 57.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.50'	**12.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.50' / 52.20' S= 0.0186 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.30 cfs @ 12.09 hrs HW=53.77' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.30 cfs @ 1.76 fps)

Summary for Pond CB18: Prop CB

Inflow Area =	9,730 sf, 97.94% Impervious,	Inflow Depth > 4.62"	for 10-Yr event
Inflow =	1.04 cfs @ 12.09 hrs, Volume=	3,747 cf	
Outflow =	1.04 cfs @ 12.09 hrs, Volume=	3,747 cf, Atten= 0%, Lag= 0.0 min	
Primary =	1.04 cfs @ 12.09 hrs, Volume=	3,747 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.89' @ 12.09 hrs
Flood Elev= 55.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.30'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.30' / 52.20' S= 0.0200 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.01 cfs @ 12.09 hrs HW=52.88' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.01 cfs @ 3.09 fps)

Summary for Pond CB19: Prop CB

Inflow Area =	5,575 sf, 89.24% Impervious,	Inflow Depth > 4.39"	for 10-Yr event
Inflow =	0.58 cfs @ 12.09 hrs, Volume=	2,040 cf	
Outflow =	0.58 cfs @ 12.09 hrs, Volume=	2,040 cf, Atten= 0%, Lag= 0.0 min	
Primary =	0.58 cfs @ 12.09 hrs, Volume=	2,040 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.08' @ 12.09 hrs
Flood Elev= 55.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.70'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.70' / 51.45' S= 0.0500 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.57 cfs @ 12.09 hrs HW=52.08' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.57 cfs @ 2.09 fps)

Summary for Pond CB2: Prop CB

Inflow Area = 11,700 sf, 83.76% Impervious, Inflow Depth > 4.28" for 10-Yr event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 4,171 cf
Outflow = 1.21 cfs @ 12.09 hrs, Volume= 4,171 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.09 hrs, Volume= 4,171 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.18' @ 12.09 hrs
Flood Elev= 56.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.60'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.60' / 51.20' S= 0.0800 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.18 cfs @ 12.09 hrs HW=52.17' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.18 cfs @ 2.56 fps)

Summary for Pond CB20: Prop CB

Inflow Area = 14,070 sf, 91.12% Impervious, Inflow Depth > 4.39" for 10-Yr event
Inflow = 1.47 cfs @ 12.09 hrs, Volume= 5,148 cf
Outflow = 1.47 cfs @ 12.09 hrs, Volume= 5,148 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.47 cfs @ 12.09 hrs, Volume= 5,148 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.35' @ 12.09 hrs
Flood Elev= 56.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.70'	**12.0" Round Culvert** L= 105.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.70' / 51.15' S= 0.0148 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.43 cfs @ 12.09 hrs HW=53.34' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.43 cfs @ 2.72 fps)

Summary for Pond CB21: Prop CB

Inflow Area = 5,035 sf, 88.88% Impervious, Inflow Depth > 4.39" for 10-Yr event
Inflow = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf
Outflow = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.86' @ 12.09 hrs
Flood Elev= 55.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.50'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.50' / 51.15' S= 0.0350 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.51 cfs @ 12.09 hrs HW=51.86' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.51 cfs @ 2.03 fps)

Summary for Pond CB22: Prop CB

Inflow Area = 14,855 sf, 90.74% Impervious, Inflow Depth > 4.39" for 10-Yr event
Inflow = 1.56 cfs @ 12.09 hrs, Volume= 5,435 cf
Outflow = 1.56 cfs @ 12.09 hrs, Volume= 5,435 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.56 cfs @ 12.09 hrs, Volume= 5,435 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.37' @ 12.09 hrs
Flood Elev= 56.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.70'	**12.0" Round Culvert** L= 105.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.70' / 50.50' S= 0.0210 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.51 cfs @ 12.09 hrs HW=53.36' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.51 cfs @ 2.76 fps)

Summary for Pond CB23: Prop CB

Inflow Area = 4,705 sf, 92.88% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 0.50 cfs @ 12.09 hrs, Volume= 1,766 cf
Outflow = 0.50 cfs @ 12.09 hrs, Volume= 1,766 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.09 hrs, Volume= 1,766 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.55' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.20'	**12.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.20' / 50.50' S= 0.0538 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.48 cfs @ 12.09 hrs HW=51.55' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.48 cfs @ 2.00 fps)

Summary for Pond CB24: Prop CB

Inflow Area = 8,910 sf, 91.75% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 0.94 cfs @ 12.09 hrs, Volume= 3,345 cf
Outflow = 0.94 cfs @ 12.09 hrs, Volume= 3,345 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.94 cfs @ 12.09 hrs, Volume= 3,345 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.90' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.40'	**12.0" Round Culvert** L= 73.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.40' / 49.85' S= 0.0349 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.92 cfs @ 12.09 hrs HW=52.89' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.92 cfs @ 2.39 fps)

Summary for Pond CB3: Prop CB

Inflow Area = 10,120 sf,100.00% Impervious, Inflow Depth > 4.62" for 10-Yr event
Inflow = 1.08 cfs @ 12.09 hrs, Volume= 3,897 cf
Outflow = 1.08 cfs @ 12.09 hrs, Volume= 3,897 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.08 cfs @ 12.09 hrs, Volume= 3,897 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.34' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.80'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.80' / 50.45' S= 0.0700 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.05 cfs @ 12.09 hrs HW=51.33' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.05 cfs @ 2.48 fps)

Summary for Pond CB4: Prop CB

Inflow Area = 5,715 sf, 18.29% Impervious, Inflow Depth > 3.05" for 10-Yr event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 1,450 cf
Outflow = 0.46 cfs @ 12.09 hrs, Volume= 1,450 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.09 hrs, Volume= 1,450 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.84' @ 12.09 hrs
Flood Elev= 57.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.50'	**12.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.50' / 50.45' S= 0.0436 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.45 cfs @ 12.09 hrs HW=53.83' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.45 cfs @ 1.96 fps)

Summary for Pond CB5: Prop CB

Inflow Area =	3,460 sf,	90.46% Impervious,	Inflow Depth > 4.39"	for 10-Yr event
Inflow =	0.36 cfs @	12.09 hrs, Volume=	1,266 cf	
Outflow =	0.36 cfs @	12.09 hrs, Volume=	1,266 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.36 cfs @	12.09 hrs, Volume=	1,266 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.60' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.30'	**12.0" Round Culvert** L= 7.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.30' / 49.90' S= 0.0571 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.35 cfs @ 12.09 hrs HW=50.59' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.35 cfs @ 1.84 fps)

Summary for Pond CB6: Prop CB

Inflow Area =	13,780 sf,	93.32% Impervious,	Inflow Depth > 4.50"	for 10-Yr event
Inflow =	1.46 cfs @	12.09 hrs, Volume=	5,173 cf	
Outflow =	1.46 cfs @	12.09 hrs, Volume=	5,173 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.46 cfs @	12.09 hrs, Volume=	5,173 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.24' @ 12.09 hrs
Flood Elev= 56.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.60'	**12.0" Round Culvert** L= 93.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.60' / 49.90' S= 0.0290 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.42 cfs @ 12.09 hrs HW=53.23' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.42 cfs @ 2.71 fps)

Summary for Pond CB7: Prop CB

Inflow Area = 5,035 sf, 89.08% Impervious, Inflow Depth > 4.39" for 10-Yr event
Inflow = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf
Outflow = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.06' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.70'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.70' / 49.30' S= 0.0800 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.51 cfs @ 12.09 hrs HW=50.06' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.51 cfs @ 2.03 fps)

Summary for Pond CB8: Prop CB

Inflow Area = 27,805 sf, 0.00% Impervious, Inflow Depth > 2.77" for 10-Yr event
Inflow = 1.91 cfs @ 12.12 hrs, Volume= 6,413 cf
Outflow = 1.91 cfs @ 12.12 hrs, Volume= 6,413 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.91 cfs @ 12.12 hrs, Volume= 6,413 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.27' @ 12.12 hrs
Flood Elev= 55.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.50'	**12.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.50' / 50.70' S= 0.0080 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.86 cfs @ 12.12 hrs HW=52.26' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.86 cfs @ 4.03 fps)

Summary for Pond CB9: Prop CB

Inflow Area = 3,440 sf, 95.78% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 0.36 cfs @ 12.09 hrs, Volume= 1,291 cf
Outflow = 0.36 cfs @ 12.09 hrs, Volume= 1,291 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.09 hrs, Volume= 1,291 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.40' @ 12.09 hrs
Flood Elev= 55.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.10'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.10' / 50.70' S= 0.0200 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.35 cfs @ 12.09 hrs HW=51.39' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.35 cfs @ 1.84 fps)

Summary for Pond DMH1: Prop DMH

Inflow Area = 28,420 sf, 84.22% Impervious, Inflow Depth > 4.28" for 10-Yr event
Inflow = 2.94 cfs @ 12.09 hrs, Volume= 10,132 cf
Outflow = 2.94 cfs @ 12.09 hrs, Volume= 10,132 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.94 cfs @ 12.09 hrs, Volume= 10,132 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.93' @ 12.09 hrs
Flood Elev= 56.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.95'	**15.0" Round Culvert** L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.95' / 50.20' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.86 cfs @ 12.09 hrs HW=51.91' (Free Discharge)
└─**1=Culvert** (Barrel Controls 2.86 cfs @ 3.91 fps)

Summary for Pond DMH10: Prop DMH

Inflow Area = 33,170 sf,100.00% Impervious, Inflow Depth > 4.62" for 10-Yr event
Inflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf
Outflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.09' @ 12.09 hrs
Flood Elev= 58.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.20'	**18.0" Round Culvert** L= 205.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.20' / 48.20' S= 0.0146 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=3.44 cfs @ 12.09 hrs HW=52.08' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.44 cfs @ 3.19 fps)

Summary for Pond DMH1061: Exist. DMH

Inflow Area = 204,785 sf, 48.74% Impervious, Inflow Depth > 3.66" for 10-Yr event
Inflow = 15.78 cfs @ 12.10 hrs, Volume= 62,493 cf
Outflow = 15.78 cfs @ 12.10 hrs, Volume= 62,493 cf, Atten= 0%, Lag= 0.0 min
Primary = 15.78 cfs @ 12.10 hrs, Volume= 62,493 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 46.53' @ 12.10 hrs
Flood Elev= 52.02'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.49'	**48.0" Round Culvert** L= 308.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.49' / 43.26' S= 0.0040 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=15.68 cfs @ 12.10 hrs HW=46.52' (Free Discharge)
└─**1=Culvert** (Barrel Controls 15.68 cfs @ 3.57 fps)

Summary for Pond DMH1067: Exist. DMH

Inflow Area = 131,330 sf, 76.00% Impervious, Inflow Depth > 4.16" for 10-Yr event
Inflow = 13.12 cfs @ 12.09 hrs, Volume= 45,581 cf
Outflow = 13.12 cfs @ 12.09 hrs, Volume= 45,581 cf, Atten= 0%, Lag= 0.0 min
Primary = 13.12 cfs @ 12.09 hrs, Volume= 45,581 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 47.08' @ 12.09 hrs
Flood Elev= 52.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.81'	**48.0" Round Culvert** L= 195.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.81' / 44.60' S= 0.0062 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=12.78 cfs @ 12.09 hrs HW=47.06' (Free Discharge)
└─**1=Culvert** (Inlet Controls 12.78 cfs @ 3.81 fps)

Summary for Pond DMH11: Prop DMH

Inflow Area = 33,170 sf,100.00% Impervious, Inflow Depth > 4.62" for 10-Yr event
Inflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf
Outflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 54.69' @ 12.09 hrs
Flood Elev= 58.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.80'	**18.0" Round Culvert** L= 135.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.80' / 51.30' S= 0.0185 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=3.44 cfs @ 12.09 hrs HW=54.68' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.44 cfs @ 3.19 fps)

Summary for Pond DMH12: Prop DMH

Inflow Area = 157,675 sf, 73.84% Impervious, Inflow Depth > 4.12" for 10-Yr event
Inflow = 15.38 cfs @ 12.09 hrs, Volume= 54,140 cf
Outflow = 15.38 cfs @ 12.09 hrs, Volume= 54,140 cf, Atten= 0%, Lag= 0.0 min
Primary = 15.38 cfs @ 12.09 hrs, Volume= 54,140 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 46.29' @ 12.09 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.35'	**30.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.35' / 44.00' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=15.04 cfs @ 12.09 hrs HW=46.26' (Free Discharge)
└─**1=Culvert** (Barrel Controls 15.04 cfs @ 5.17 fps)

Summary for Pond DMH1258: Exist. DMH

Inflow Area = 50,615 sf, 78.37% Impervious, Inflow Depth > 4.22" for 10-Yr event
Inflow = 5.10 cfs @ 12.09 hrs, Volume= 17,793 cf
Outflow = 5.10 cfs @ 12.09 hrs, Volume= 17,793 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.10 cfs @ 12.09 hrs, Volume= 17,793 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.47' @ 12.09 hrs
Flood Elev= 54.91'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.37'	**30.0" Round Culvert** L= 372.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.37' / 46.61' S= 0.0020 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=4.96 cfs @ 12.09 hrs HW=48.46' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.96 cfs @ 3.56 fps)

Summary for Pond DMH1322: Exist. DMH

Inflow Area = 5,160 sf, 33.04% Impervious, Inflow Depth > 3.33" for 10-Yr event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 1,434 cf
Outflow = 0.45 cfs @ 12.09 hrs, Volume= 1,434 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.09 hrs, Volume= 1,434 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.56' @ 12.09 hrs
Flood Elev= 55.14'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.24'	**30.0" Round Culvert** L= 347.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.24' / 47.45' S= 0.0023 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=0.43 cfs @ 12.09 hrs HW=48.56' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.43 cfs @ 1.83 fps)

Summary for Pond DMH14: Prop DMH

Inflow Area = 21,205 sf, 92.67% Impervious, Inflow Depth > 4.47" for 10-Yr event
Inflow = 2.24 cfs @ 12.09 hrs, Volume= 7,907 cf
Outflow = 2.24 cfs @ 12.09 hrs, Volume= 7,907 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.24 cfs @ 12.09 hrs, Volume= 7,907 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.92' @ 12.09 hrs
Flood Elev= 55.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.10'	**15.0" Round Culvert** L= 157.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.10' / 50.30' S= 0.0051 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.18 cfs @ 12.09 hrs HW=51.91' (Free Discharge)
└─**1=Culvert** (Barrel Controls 2.18 cfs @ 3.70 fps)

Summary for Pond DMH15: Prop DMH

Inflow Area = 40,955 sf, 92.69% Impervious, Inflow Depth > 4.49" for 10-Yr event
Inflow = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf
Outflow = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.21' @ 12.09 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.05'	**18.0" Round Culvert** L= 56.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.05' / 49.75' S= 0.0054 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=4.21 cfs @ 12.09 hrs HW=51.19' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.21 cfs @ 4.06 fps)

Summary for Pond DMH16: Prop DMH

Inflow Area = 40,955 sf, 92.69% Impervious, Inflow Depth > 4.49" for 10-Yr event
Inflow = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf
Outflow = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.01' @ 12.09 hrs
Flood Elev= 56.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.00'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.00' / 48.60' S= 0.0200 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=4.21 cfs @ 12.09 hrs HW=49.99' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.21 cfs @ 4.80 fps)

Summary for Pond DMH17: Prop DMH

Inflow Area = 50,615 sf, 78.37% Impervious, Inflow Depth > 4.22" for 10-Yr event
Inflow = 5.10 cfs @ 12.09 hrs, Volume= 17,793 cf
Outflow = 5.10 cfs @ 12.09 hrs, Volume= 17,793 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.10 cfs @ 12.09 hrs, Volume= 17,793 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.70' @ 12.09 hrs
Flood Elev= 55.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.58'	**30.0" Round Culvert** L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.58' / 47.45' S= 0.0020 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=4.97 cfs @ 12.09 hrs HW=48.68' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.97 cfs @ 3.50 fps)

Summary for Pond DMH18: Prop DMH

Inflow Area = 13,915 sf, 68.49% Impervious, Inflow Depth > 4.06" for 10-Yr event
Inflow = 1.34 cfs @ 12.09 hrs, Volume= 4,712 cf
Outflow = 1.34 cfs @ 12.09 hrs, Volume= 4,712 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.34 cfs @ 12.09 hrs, Volume= 4,712 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.79' @ 12.09 hrs
Flood Elev= 56.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.10'	**12.0" Round Culvert** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.10' / 51.45' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.31 cfs @ 12.09 hrs HW=52.78' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.31 cfs @ 3.27 fps)

Summary for Pond DMH19: Prop DMH

Inflow Area = 19,490 sf, 74.42% Impervious, Inflow Depth > 4.16" for 10-Yr event
Inflow = 1.93 cfs @ 12.09 hrs, Volume= 6,752 cf
Outflow = 1.93 cfs @ 12.09 hrs, Volume= 6,752 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.93 cfs @ 12.09 hrs, Volume= 6,752 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.97' @ 12.09 hrs
Flood Elev= 56.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.20'	**15.0" Round Culvert** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.20' / 50.90' S= 0.0055 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.88 cfs @ 12.09 hrs HW=51.96' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.88 cfs @ 3.43 fps)

Summary for Pond DMH2: Prop DMH

Inflow Area = 44,255 sf, 79.31% Impervious, Inflow Depth > 4.20" for 10-Yr event
Inflow = 4.48 cfs @ 12.09 hrs, Volume= 15,479 cf
Outflow = 4.48 cfs @ 12.09 hrs, Volume= 15,479 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.48 cfs @ 12.09 hrs, Volume= 15,479 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.11' @ 12.09 hrs
Flood Elev= 56.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.95'	**18.0" Round Culvert** L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.95' / 49.40' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=4.36 cfs @ 12.09 hrs HW=51.09' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.36 cfs @ 4.20 fps)

Summary for Pond DMH20: Prop DMH

Inflow Area =	38,595 sf,	82.39% Impervious,	Inflow Depth > 4.27"	for 10-Yr event
Inflow =	3.93 cfs @	12.09 hrs, Volume=	13,742 cf	
Outflow =	3.93 cfs @	12.09 hrs, Volume=	13,742 cf,	Atten= 0%, Lag= 0.0 min
Primary =	3.93 cfs @	12.09 hrs, Volume=	13,742 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.71' @ 12.09 hrs
Flood Elev= 56.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.65'	**18.0" Round Culvert** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.65' / 50.00' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=3.82 cfs @ 12.09 hrs HW=51.69' (Free Discharge)
└─**1=Culvert** (Barrel Controls 3.82 cfs @ 4.12 fps)

Summary for Pond DMH21: Prop DMH

Inflow Area =	58,155 sf,	85.38% Impervious,	Inflow Depth > 4.32"	for 10-Yr event
Inflow =	5.98 cfs @	12.09 hrs, Volume=	20,944 cf	
Outflow =	5.98 cfs @	12.09 hrs, Volume=	20,944 cf,	Atten= 0%, Lag= 0.0 min
Primary =	5.98 cfs @	12.09 hrs, Volume=	20,944 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.32' @ 12.09 hrs
Flood Elev= 56.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.90'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.90' / 49.60' S= 0.0060 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=5.82 cfs @ 12.09 hrs HW=51.29' (Free Discharge)
└─**1=Culvert** (Barrel Controls 5.82 cfs @ 4.43 fps)

Summary for Pond DMH22: Prop DMH

Inflow Area = 67,065 sf, 86.22% Impervious, Inflow Depth > 4.35" for 10-Yr event
Inflow = 6.92 cfs @ 12.09 hrs, Volume= 24,288 cf
Outflow = 6.92 cfs @ 12.09 hrs, Volume= 24,288 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.92 cfs @ 12.09 hrs, Volume= 24,288 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.17' @ 12.09 hrs
Flood Elev= 57.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	**18.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.50' / 49.45' S= 0.0083 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=6.74 cfs @ 12.09 hrs HW=51.14' (Free Discharge)
└─**1=Culvert** (Barrel Controls 6.74 cfs @ 4.34 fps)

Summary for Pond DMH23: Prop DMH

Inflow Area = 125,125 sf, 79.76% Impervious, Inflow Depth > 4.23" for 10-Yr event
Inflow = 12.67 cfs @ 12.09 hrs, Volume= 44,150 cf
Outflow = 12.67 cfs @ 12.09 hrs, Volume= 44,150 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.67 cfs @ 12.09 hrs, Volume= 44,150 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.03' @ 12.09 hrs
Flood Elev= 55.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.56'	**48.0" Round Culvert** L= 248.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.56' / 45.95' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=12.33 cfs @ 12.09 hrs HW=48.01' (Free Discharge)
└─**1=Culvert** (Barrel Controls 12.33 cfs @ 4.47 fps)

Summary for Pond DMH3: Prop DMH

Inflow Area = 61,495 sf, 83.08% Impervious, Inflow Depth > 4.28" for 10-Yr event
Inflow = 6.30 cfs @ 12.09 hrs, Volume= 21,918 cf
Outflow = 6.30 cfs @ 12.09 hrs, Volume= 21,918 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.30 cfs @ 12.09 hrs, Volume= 21,918 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.10' @ 12.09 hrs
Flood Elev= 56.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.90'	**24.0" Round Culvert** L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.90' / 48.30' S= 0.0055 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=6.13 cfs @ 12.09 hrs HW=50.09' (Free Discharge)
└─**1=Culvert** (Barrel Controls 6.13 cfs @ 4.54 fps)

Summary for Pond DMH4: Prop DMH

Inflow Area = 97,775 sf, 60.21% Impervious, Inflow Depth > 3.86" for 10-Yr event
Inflow = 9.04 cfs @ 12.09 hrs, Volume= 31,464 cf
Outflow = 9.04 cfs @ 12.09 hrs, Volume= 31,464 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.04 cfs @ 12.09 hrs, Volume= 31,464 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 49.74' @ 12.09 hrs
Flood Elev= 56.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.20'	**24.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.20' / 47.70' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=8.88 cfs @ 12.09 hrs HW=49.72' (Free Discharge)
└─**1=Culvert** (Barrel Controls 8.88 cfs @ 4.80 fps)

Summary for Pond DMH5: Prop CB

Inflow Area = 31,245 sf, 10.55% Impervious, Inflow Depth > 2.96" for 10-Yr event
Inflow = 2.26 cfs @ 12.11 hrs, Volume= 7,704 cf
Outflow = 2.26 cfs @ 12.11 hrs, Volume= 7,704 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.26 cfs @ 12.11 hrs, Volume= 7,704 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.46' @ 12.11 hrs
Flood Elev= 55.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.60'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.60' / 49.30' S= 0.0260 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.21 cfs @ 12.11 hrs HW=51.44' (Free Discharge)
└─**1=Culvert** (Inlet Controls 2.21 cfs @ 3.13 fps)

Summary for Pond DMH6: Prop DMH

Inflow Area = 124,505 sf, 66.87% Impervious, Inflow Depth > 3.99" for 10-Yr event
Inflow = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf
Outflow = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 49.59' @ 12.09 hrs
Flood Elev= 56.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.60'	**24.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.60' / 47.55' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=11.61 cfs @ 12.09 hrs HW=49.56' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 11.61 cfs @ 4.69 fps)

Summary for Pond DMH7: Prop DMH

Inflow Area = 22,010 sf, 90.89% Impervious, Inflow Depth > 4.43" for 10-Yr event
Inflow = 2.31 cfs @ 12.09 hrs, Volume= 8,132 cf
Outflow = 2.31 cfs @ 12.09 hrs, Volume= 8,132 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 12.09 hrs, Volume= 8,132 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.66' @ 12.09 hrs
Flood Elev= 57.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.90'	**15.0" Round Culvert** L= 42.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.90' / 48.45' S= 0.0345 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.25 cfs @ 12.09 hrs HW=50.65' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 2.25 cfs @ 2.94 fps)

Summary for Pond DMH8: Prop DMH

Inflow Area = 157,675 sf, 73.84% Impervious, Inflow Depth > 4.12" for 10-Yr event
Inflow = 15.38 cfs @ 12.09 hrs, Volume= 54,140 cf
Outflow = 15.38 cfs @ 12.09 hrs, Volume= 54,140 cf, Atten= 0%, Lag= 0.0 min
Primary = 15.38 cfs @ 12.09 hrs, Volume= 54,140 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.00' @ 12.09 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.30'	**30.0" Round Culvert** L= 370.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.30' / 44.45' S= 0.0050 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=15.04 cfs @ 12.09 hrs HW=47.98' (Free Discharge)
└─**1=Culvert** (Barrel Controls 15.04 cfs @ 6.09 fps)

Summary for Pond DMH9: Prop DMH

Inflow Area = 33,170 sf,100.00% Impervious, Inflow Depth > 4.62" for 10-Yr event
Inflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf
Outflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 49.02' @ 12.09 hrs
Flood Elev= 56.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.10'	**18.0" Round Culvert** L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.10' / 47.30' S= 0.0073 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=3.44 cfs @ 12.09 hrs HW=49.00' (Free Discharge)
└─**1=Culvert** (Barrel Controls 3.44 cfs @ 4.43 fps)

Summary for Pond DROP708: Exist. Drop

Inflow Area = 14,280 sf, 0.00% Impervious, Inflow Depth > 2.77" for 10-Yr event
Inflow = 1.04 cfs @ 12.09 hrs, Volume= 3,295 cf
Outflow = 1.04 cfs @ 12.09 hrs, Volume= 3,295 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.09 hrs, Volume= 3,295 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 45.29' @ 12.09 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.91'	**36.0" Round Culvert** L= 300.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.91' / 43.41' S= 0.0050 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=1.00 cfs @ 12.09 hrs HW=45.29' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.00 cfs @ 2.94 fps)

Summary for Pond DROP799: Exist. Drop

Inflow Area = 234,590 sf, 42.54% Impervious, Inflow Depth > 3.55" for 10-Yr event
Inflow = 17.79 cfs @ 12.10 hrs, Volume= 69,367 cf
Outflow = 17.79 cfs @ 12.10 hrs, Volume= 69,367 cf, Atten= 0%, Lag= 0.0 min
Primary = 17.79 cfs @ 12.10 hrs, Volume= 69,367 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 45.34' @ 12.10 hrs
Flood Elev= 52.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.26'	**48.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 43.26' / 42.87' S= 0.0039 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=17.77 cfs @ 12.10 hrs HW=45.34' (Free Discharge)
└**1=Culvert** (Barrel Controls 17.77 cfs @ 3.92 fps)

Summary for Pond ST1: Jellyfish Filter

Inflow Area = 124,505 sf, 66.87% Impervious, Inflow Depth > 3.99" for 10-Yr event
Inflow = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf
Outflow = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.95' @ 12.09 hrs
Flood Elev= 56.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.05'	**24.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.05' / 46.80' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=11.61 cfs @ 12.09 hrs HW=48.93' (Free Discharge)
└**1=Culvert** (Barrel Controls 11.61 cfs @ 4.91 fps)

Summary for Pond ST2: Jellyfish Filter

Inflow Area = 40,955 sf, 92.69% Impervious, Inflow Depth > 4.49" for 10-Yr event
Inflow = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf
Outflow = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.39' @ 12.09 hrs
Flood Elev= 56.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.25'	**18.0" Round Culvert** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.25' / 49.10' S= 0.0187 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=4.21 cfs @ 12.09 hrs HW=50.37' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.21 cfs @ 4.14 fps)

Summary for Pond ST3: Jellyfish Filter

Inflow Area = 67,065 sf, 86.22% Impervious, Inflow Depth > 4.35" for 10-Yr event
Inflow = 6.92 cfs @ 12.09 hrs, Volume= 24,288 cf
Outflow = 6.92 cfs @ 12.09 hrs, Volume= 24,288 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.92 cfs @ 12.09 hrs, Volume= 24,288 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.53' @ 12.09 hrs
Flood Elev= 57.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.95'	**18.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.95' / 48.80' S= 0.0115 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=6.74 cfs @ 12.09 hrs HW=50.50' (Free Discharge)
└─**1=Culvert** (Barrel Controls 6.74 cfs @ 4.58 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: (new Subcat) Runoff Area=27,805 sf 0.00% Impervious Runoff Depth>3.92"
Tc=8.0 min CN=80 Runoff=2.70 cfs 9,086 cf

Subcatchment 2: (new Subcat) Runoff Area=16,720 sf 84.54% Impervious Runoff Depth>5.57"
Tc=6.0 min CN=95 Runoff=2.22 cfs 7,757 cf

Subcatchment 3: (new Subcat) Runoff Area=11,700 sf 83.76% Impervious Runoff Depth>5.57"
Tc=6.0 min CN=95 Runoff=1.55 cfs 5,428 cf

Subcatchment 4: (new Subcat) Runoff Area=10,120 sf 100.00% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=1.37 cfs 4,991 cf

Subcatchment 5: (new Subcat) Runoff Area=5,715 sf 18.29% Impervious Runoff Depth>4.24"
Tc=6.0 min CN=83 Runoff=0.63 cfs 2,018 cf

Subcatchment 6: (new Subcat) Runoff Area=3,460 sf 90.46% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.46 cfs 1,639 cf

Subcatchment 7: (new Subcat) Runoff Area=3,440 sf 95.78% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=0.46 cfs 1,663 cf

Subcatchment 8: (new Subcat) Runoff Area=13,780 sf 93.32% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=1.86 cfs 6,661 cf

Subcatchment 9: (new Subcat) Runoff Area=5,035 sf 89.08% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.67 cfs 2,385 cf

Subcatchment 10: (new Subcat) Runoff Area=13,700 sf 90.40% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=1.83 cfs 6,488 cf

Subcatchment 11: (new Subcat) Runoff Area=4,720 sf 92.90% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=0.64 cfs 2,281 cf

Subcatchment 12: (new Subcat) Runoff Area=8,310 sf 91.70% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=1.12 cfs 4,017 cf

Subcatchment 13: Former Building/Parking Runoff Area=68,450 sf 0.00% Impervious Runoff Depth>3.92"
Flow Length=451' Slope=0.0110 '/' Tc=16.0 min CN=80 Runoff=5.31 cfs 22,333 cf

Subcatchment 14: Former Building/Parking Runoff Area=14,280 sf 0.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=80 Runoff=1.47 cfs 4,668 cf

Subcatchment 15: Grass Runoff Area=29,805 sf 0.00% Impervious Runoff Depth>3.92"
Tc=8.0 min CN=80 Runoff=2.89 cfs 9,739 cf

Subcatchment 16: Grass/Parking Runoff Area=73,455 sf 0.00% Impervious Runoff Depth>3.91"
Flow Length=465' Slope=0.0110 '/' Tc=16.4 min CN=80 Runoff=5.64 cfs 23,964 cf

Subcatchment 17: Grass/Parking Runoff Area=6,205 sf 0.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=80 Runoff=0.64 cfs 2,028 cf

Subcatchment 18: (new Subcat) Runoff Area=8,910 sf 91.75% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=1.20 cfs 4,307 cf

Subcatchment 19: (new Subcat) Runoff Area=14,855 sf 90.74% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=1.99 cfs 7,035 cf

Subcatchment 20: (new Subcat) Runoff Area=4,705 sf 92.88% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=0.63 cfs 2,274 cf

Subcatchment 21: (new Subcat) Runoff Area=14,070 sf 91.12% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=1.88 cfs 6,664 cf

Subcatchment 22: (new Subcat) Runoff Area=5,035 sf 88.88% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.67 cfs 2,385 cf

Subcatchment 23: (new Subcat) Runoff Area=7,445 sf 31.09% Impervious Runoff Depth>4.56"
Tc=6.0 min CN=86 Runoff=0.87 cfs 2,828 cf

Subcatchment 24: (new Subcat) Runoff Area=5,575 sf 89.24% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.75 cfs 2,640 cf

Subcatchment 25: (new Subcat) Runoff Area=9,730 sf 97.94% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=1.32 cfs 4,799 cf

Subcatchment 26: (new Subcat) Runoff Area=4,185 sf 0.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=80 Runoff=0.43 cfs 1,368 cf

Subcatchment 27: Proposed Building Runoff Area=33,170 sf 100.00% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=4.49 cfs 16,359 cf

Subcatchment 28: (new Subcat) Runoff Area=19,750 sf 92.71% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=2.66 cfs 9,546 cf

Subcatchment 29: (new Subcat) Runoff Area=5,600 sf 88.21% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.75 cfs 2,652 cf

Subcatchment 30: (new Subcat) Runoff Area=15,605 sf 94.26% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=2.10 cfs 7,543 cf

Subcatchment 31: (new Subcat) Runoff Area=5,160 sf 33.04% Impervious Runoff Depth>4.56"
Tc=6.0 min CN=86 Runoff=0.60 cfs 1,960 cf

Subcatchment 32: (new Subcat) Runoff Area=4,500 sf 0.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=80 Runoff=0.46 cfs 1,471 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=48.73 cfs 190,974 cf
Outflow=48.73 cfs 190,974 cf

Pond CB1: Prop CB Peak Elev=53.13' Inflow=2.22 cfs 7,757 cf
12.0" Round Culvert n=0.012 L=190.0' S=0.0053 '/' Outflow=2.22 cfs 7,757 cf

Pond CB10: Prop CB Peak Elev=49.50' Inflow=0.64 cfs 2,281 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.64 cfs 2,281 cf

Pond CB11: Prop CB Peak Elev=53.34' Inflow=1.83 cfs 6,488 cf
12.0" Round Culvert n=0.012 L=95.0' S=0.0258 '/' Outflow=1.83 cfs 6,488 cf

Pond CB12: Prop CB Peak Elev=52.95' Inflow=1.12 cfs 4,017 cf
12.0" Round Culvert n=0.012 L=75.0' S=0.0300 '/' Outflow=1.12 cfs 4,017 cf

Pond CB13: Prop CB Peak Elev=45.44' Inflow=25.08 cfs 97,771 cf
48.0" Round Culvert n=0.011 L=15.0' S=0.0067 '/' Outflow=25.08 cfs 97,771 cf

Pond CB14: Prop CB Peak Elev=52.45' Inflow=2.10 cfs 7,543 cf
12.0" Round Culvert n=0.012 L=25.0' S=0.0060 '/' Outflow=2.10 cfs 7,543 cf

Pond CB15: Prop CB Peak Elev=51.96' Inflow=0.75 cfs 2,652 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0300 '/' Outflow=0.75 cfs 2,652 cf

Pond CB16: Prop CB Peak Elev=51.89' Inflow=2.66 cfs 9,546 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=2.66 cfs 9,546 cf

Pond CB17: Prop CB Peak Elev=53.83' Inflow=0.43 cfs 1,368 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0186 '/' Outflow=0.43 cfs 1,368 cf

Pond CB18: Prop CB Peak Elev=52.98' Inflow=1.32 cfs 4,799 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.32 cfs 4,799 cf

Pond CB19: Prop CB Peak Elev=52.14' Inflow=0.75 cfs 2,640 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0500 '/' Outflow=0.75 cfs 2,640 cf

Pond CB2: Prop CB Peak Elev=52.27' Inflow=1.55 cfs 5,428 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=1.55 cfs 5,428 cf

Pond CB20: Prop CB Peak Elev=53.46' Inflow=1.88 cfs 6,664 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0148 '/' Outflow=1.88 cfs 6,664 cf

Pond CB21: Prop CB Peak Elev=51.91' Inflow=0.67 cfs 2,385 cf
12.0" Round Culvert n=0.012 L=10.0' S=0.0350 '/' Outflow=0.67 cfs 2,385 cf

Pond CB22: Prop CB Peak Elev=53.48' Inflow=1.99 cfs 7,035 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0210 '/' Outflow=1.99 cfs 7,035 cf

Pond CB23: Prop CB Peak Elev=51.60' Inflow=0.63 cfs 2,274 cf
12.0" Round Culvert n=0.012 L=13.0' S=0.0538 '/' Outflow=0.63 cfs 2,274 cf

Pond CB24: Prop CB Peak Elev=52.97' Inflow=1.20 cfs 4,307 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0349 '/' Outflow=1.20 cfs 4,307 cf

Pond CB3: Prop CB Peak Elev=51.42' Inflow=1.37 cfs 4,991 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=1.37 cfs 4,991 cf

Pond CB4: Prop CB Peak Elev=53.90' Inflow=0.63 cfs 2,018 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0436 '/' Outflow=0.63 cfs 2,018 cf

Pond CB5: Prop CB Peak Elev=50.64' Inflow=0.46 cfs 1,639 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.46 cfs 1,639 cf

Pond CB6: Prop CB Peak Elev=53.35' Inflow=1.86 cfs 6,661 cf
12.0" Round Culvert n=0.012 L=93.0' S=0.0290 '/' Outflow=1.86 cfs 6,661 cf

Pond CB7: Prop CB Peak Elev=50.11' Inflow=0.67 cfs 2,385 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=0.67 cfs 2,385 cf

Pond CB8: Prop CB Peak Elev=52.50' Inflow=2.70 cfs 9,086 cf
12.0" Round Culvert n=0.012 L=100.0' S=0.0080 '/' Outflow=2.70 cfs 9,086 cf

Pond CB9: Prop CB Peak Elev=51.44' Inflow=0.46 cfs 1,663 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=0.46 cfs 1,663 cf

Pond DMH1: Prop DMH Peak Elev=52.11' Inflow=3.77 cfs 13,184 cf
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=3.77 cfs 13,184 cf

Pond DMH10: Prop DMH Peak Elev=52.23' Inflow=4.49 cfs 16,359 cf
18.0" Round Culvert n=0.012 L=205.0' S=0.0146 '/' Outflow=4.49 cfs 16,359 cf

Pond DMH1061: Exist. DMH Peak Elev=46.85' Inflow=20.79 cfs 83,464 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=20.79 cfs 83,464 cf

Pond DMH1067: Exist. DMH Peak Elev=47.27' Inflow=16.96 cfs 59,500 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=16.96 cfs 59,500 cf

Pond DMH11: Prop DMH Peak Elev=54.83' Inflow=4.49 cfs 16,359 cf
18.0" Round Culvert n=0.012 L=135.0' S=0.0185 '/' Outflow=4.49 cfs 16,359 cf

Pond DMH12: Prop DMH Peak Elev=46.64' Inflow=19.92 cfs 70,771 cf
30.0" Round Culvert n=0.012 L=70.0' S=0.0050 '/' Outflow=19.92 cfs 70,771 cf

Pond DMH1258: Exist. DMH Peak Elev=48.64' Inflow=6.58 cfs 23,172 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=6.58 cfs 23,172 cf

Pond DMH1322: Exist. DMH Peak Elev=48.61' Inflow=0.60 cfs 1,960 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.60 cfs 1,960 cf

Pond DMH14: Prop DMH Peak Elev=52.05' Inflow=2.85 cfs 10,195 cf
15.0" Round Culvert n=0.012 L=157.0' S=0.0051 '/' Outflow=2.85 cfs 10,195 cf

Pond DMH15: Prop DMH Peak Elev=51.41' Inflow=5.51 cfs 19,741 cf
18.0" Round Culvert n=0.012 L=56.0' S=0.0054 '/' Outflow=5.51 cfs 19,741 cf

Pond DMH16: Prop DMH Peak Elev=50.19' Inflow=5.51 cfs 19,741 cf
18.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=5.51 cfs 19,741 cf

Pond DMH17: Prop DMH Peak Elev=48.86' Inflow=6.58 cfs 23,172 cf
30.0" Round Culvert n=0.011 L=64.0' S=0.0020 '/' Outflow=6.58 cfs 23,172 cf

Pond DMH18: Prop DMH Peak Elev=52.91' Inflow=1.75 cfs 6,167 cf
12.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=1.75 cfs 6,167 cf

Pond DMH19: Prop DMH Peak Elev=52.10' Inflow=2.49 cfs 8,807 cf
15.0" Round Culvert n=0.012 L=55.0' S=0.0055 '/' Outflow=2.49 cfs 8,807 cf

Pond DMH2: Prop DMH Peak Elev=51.32' Inflow=5.77 cfs 20,193 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=5.77 cfs 20,193 cf

Pond DMH20: Prop DMH Peak Elev=51.89' Inflow=5.05 cfs 17,855 cf
18.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=5.05 cfs 17,855 cf

Pond DMH21: Prop DMH Peak Elev=51.62' Inflow=7.67 cfs 27,165 cf
18.0" Round Culvert n=0.012 L=50.0' S=0.0060 '/' Outflow=7.67 cfs 27,165 cf

Pond DMH22: Prop DMH Peak Elev=51.58' Inflow=8.87 cfs 31,471 cf
18.0" Round Culvert n=0.012 L=6.0' S=0.0083 '/' Outflow=8.87 cfs 31,471 cf

Pond DMH23: Prop DMH Peak Elev=48.24' Inflow=16.32 cfs 57,471 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=16.32 cfs 57,471 cf

Pond DMH3: Prop DMH Peak Elev=50.30' Inflow=8.09 cfs 28,492 cf
24.0" Round Culvert n=0.012 L=110.0' S=0.0055 '/' Outflow=8.09 cfs 28,492 cf

Pond DMH4: Prop DMH Peak Elev=50.04' Inflow=11.85 cfs 41,625 cf
24.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=11.85 cfs 41,625 cf

Pond DMH5: Prop CB Peak Elev=51.79' Inflow=3.14 cfs 10,749 cf
12.0" Round Culvert n=0.012 L=50.0' S=0.0260 '/' Outflow=3.14 cfs 10,749 cf

Pond DMH6: Prop DMH Peak Elev=50.02' Inflow=15.43 cfs 54,412 cf
24.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=15.43 cfs 54,412 cf

Pond DMH7: Prop DMH Peak Elev=50.78' Inflow=2.95 cfs 10,505 cf
15.0" Round Culvert n=0.012 L=42.0' S=0.0345 '/' Outflow=2.95 cfs 10,505 cf

Pond DMH8: Prop DMH Peak Elev=48.30' Inflow=19.92 cfs 70,771 cf
30.0" Round Culvert n=0.011 L=370.0' S=0.0050 '/' Outflow=19.92 cfs 70,771 cf

Pond DMH9: Prop DMH Peak Elev=49.17' Inflow=4.49 cfs 16,359 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0073 '/' Outflow=4.49 cfs 16,359 cf

Pond DROP708: Exist. Drop Peak Elev=45.37' Inflow=1.47 cfs 4,668 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=1.47 cfs 4,668 cf

Pond DROP799: Exist. Drop Peak Elev=45.67' Inflow=23.65 cfs 93,203 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=23.65 cfs 93,203 cf

Pond ST1: Jellyfish Filter Peak Elev=49.38' Inflow=15.43 cfs 54,412 cf
24.0" Round Culvert n=0.012 L=50.0' S=0.0050 '/' Outflow=15.43 cfs 54,412 cf

Pond ST2: Jellyfish Filter Peak Elev=50.58' Inflow=5.51 cfs 19,741 cf
18.0" Round Culvert n=0.012 L=8.0' S=0.0187 '/' Outflow=5.51 cfs 19,741 cf

Pond ST3: Jellyfish Filter Peak Elev=50.95' Inflow=8.87 cfs 31,471 cf
18.0" Round Culvert n=0.012 L=13.0' S=0.0115 '/' Outflow=8.87 cfs 31,471 cf

Total Runoff Area = 474,995 sf Runoff Volume = 190,974 cf Average Runoff Depth = 4.82"
54.48% Pervious = 258,760 sf 45.52% Impervious = 216,235 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: (new Subcat) Runoff Area=27,805 sf 0.00% Impervious Runoff Depth>5.04"
Tc=8.0 min CN=80 Runoff=3.44 cfs 11,679 cf

Subcatchment 2: (new Subcat) Runoff Area=16,720 sf 84.54% Impervious Runoff Depth>6.78"
Tc=6.0 min CN=95 Runoff=2.68 cfs 9,446 cf

Subcatchment 3: (new Subcat) Runoff Area=11,700 sf 83.76% Impervious Runoff Depth>6.78"
Tc=6.0 min CN=95 Runoff=1.87 cfs 6,610 cf

Subcatchment 4: (new Subcat) Runoff Area=10,120 sf 100.00% Impervious Runoff Depth>7.14"
Tc=6.0 min CN=98 Runoff=1.64 cfs 6,018 cf

Subcatchment 5: (new Subcat) Runoff Area=5,715 sf 18.29% Impervious Runoff Depth>5.38"
Tc=6.0 min CN=83 Runoff=0.79 cfs 2,564 cf

Subcatchment 6: (new Subcat) Runoff Area=3,460 sf 90.46% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=0.56 cfs 1,989 cf

Subcatchment 7: (new Subcat) Runoff Area=3,440 sf 95.78% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=0.56 cfs 2,012 cf

Subcatchment 8: (new Subcat) Runoff Area=13,780 sf 93.32% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=2.23 cfs 8,058 cf

Subcatchment 9: (new Subcat) Runoff Area=5,035 sf 89.08% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=0.81 cfs 2,894 cf

Subcatchment 10: (new Subcat) Runoff Area=13,700 sf 90.40% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=2.21 cfs 7,875 cf

Subcatchment 11: (new Subcat) Runoff Area=4,720 sf 92.90% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=0.76 cfs 2,760 cf

Subcatchment 12: (new Subcat) Runoff Area=8,310 sf 91.70% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=1.34 cfs 4,859 cf

Subcatchment 13: Former Building/Parking Runoff Area=68,450 sf 0.00% Impervious Runoff Depth>5.03"
Flow Length=451' Slope=0.0110 '/' Tc=16.0 min CN=80 Runoff=6.78 cfs 28,710 cf

Subcatchment 14: Former Building/Parking Runoff Area=14,280 sf 0.00% Impervious Runoff Depth>5.04"
Tc=6.0 min CN=80 Runoff=1.87 cfs 6,000 cf

Subcatchment 15: Grass Runoff Area=29,805 sf 0.00% Impervious Runoff Depth>5.04"
Tc=8.0 min CN=80 Runoff=3.69 cfs 12,519 cf

Subcatchment 16: Grass/Parking Runoff Area=73,455 sf 0.00% Impervious Runoff Depth>5.03"
Flow Length=465' Slope=0.0110 '/' Tc=16.4 min CN=80 Runoff=7.21 cfs 30,807 cf

Subcatchment 17: Grass/Parking Runoff Area=6,205 sf 0.00% Impervious Runoff Depth>5.04"
Tc=6.0 min CN=80 Runoff=0.81 cfs 2,607 cf

Subcatchment 18: (new Subcat) Runoff Area=8,910 sf 91.75% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=1.44 cfs 5,210 cf

Subcatchment 19: (new Subcat) Runoff Area=14,855 sf 90.74% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=2.39 cfs 8,539 cf

Subcatchment 20: (new Subcat) Runoff Area=4,705 sf 92.88% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=0.76 cfs 2,751 cf

Subcatchment 21: (new Subcat) Runoff Area=14,070 sf 91.12% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=2.27 cfs 8,088 cf

Subcatchment 22: (new Subcat) Runoff Area=5,035 sf 88.88% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=0.81 cfs 2,894 cf

Subcatchment 23: (new Subcat) Runoff Area=7,445 sf 31.09% Impervious Runoff Depth>5.73"
Tc=6.0 min CN=86 Runoff=1.08 cfs 3,554 cf

Subcatchment 24: (new Subcat) Runoff Area=5,575 sf 89.24% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=0.90 cfs 3,205 cf

Subcatchment 25: (new Subcat) Runoff Area=9,730 sf 97.94% Impervious Runoff Depth>7.14"
Tc=6.0 min CN=98 Runoff=1.58 cfs 5,786 cf

Subcatchment 26: (new Subcat) Runoff Area=4,185 sf 0.00% Impervious Runoff Depth>5.04"
Tc=6.0 min CN=80 Runoff=0.55 cfs 1,759 cf

Subcatchment 27: Proposed Building Runoff Area=33,170 sf 100.00% Impervious Runoff Depth>7.14"
Tc=6.0 min CN=98 Runoff=5.39 cfs 19,726 cf

Subcatchment 28: (new Subcat) Runoff Area=19,750 sf 92.71% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=3.20 cfs 11,549 cf

Subcatchment 29: (new Subcat) Runoff Area=5,600 sf 88.21% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=0.90 cfs 3,219 cf

Subcatchment 30: (new Subcat) Runoff Area=15,605 sf 94.26% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=2.52 cfs 9,125 cf

Subcatchment 31: (new Subcat) Runoff Area=5,160 sf 33.04% Impervious Runoff Depth>5.73"
Tc=6.0 min CN=86 Runoff=0.75 cfs 2,463 cf

Subcatchment 32: (new Subcat) Runoff Area=4,500 sf 0.00% Impervious Runoff Depth>5.04"
Tc=6.0 min CN=80 Runoff=0.59 cfs 1,891 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=60.00 cfs 237,169 cf
Outflow=60.00 cfs 237,169 cf

Pond CB1: Prop CB Peak Elev=53.29' Inflow=2.68 cfs 9,446 cf
12.0" Round Culvert n=0.012 L=190.0' S=0.0053 '/' Outflow=2.68 cfs 9,446 cf

Pond CB10: Prop CB Peak Elev=49.54' Inflow=0.76 cfs 2,760 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.76 cfs 2,760 cf

Pond CB11: Prop CB Peak Elev=53.44' Inflow=2.21 cfs 7,875 cf
12.0" Round Culvert n=0.012 L=95.0' S=0.0258 '/' Outflow=2.21 cfs 7,875 cf

Pond CB12: Prop CB Peak Elev=53.01' Inflow=1.34 cfs 4,859 cf
12.0" Round Culvert n=0.012 L=75.0' S=0.0300 '/' Outflow=1.34 cfs 4,859 cf

Pond CB13: Prop CB Peak Elev=45.71' Inflow=30.83 cfs 121,202 cf
48.0" Round Culvert n=0.011 L=15.0' S=0.0067 '/' Outflow=30.83 cfs 121,202 cf

Pond CB14: Prop CB Peak Elev=52.59' Inflow=2.52 cfs 9,125 cf
12.0" Round Culvert n=0.012 L=25.0' S=0.0060 '/' Outflow=2.52 cfs 9,125 cf

Pond CB15: Prop CB Peak Elev=52.01' Inflow=0.90 cfs 3,219 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0300 '/' Outflow=0.90 cfs 3,219 cf

Pond CB16: Prop CB Peak Elev=52.11' Inflow=3.20 cfs 11,549 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=3.20 cfs 11,549 cf

Pond CB17: Prop CB Peak Elev=53.87' Inflow=0.55 cfs 1,759 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0186 '/' Outflow=0.55 cfs 1,759 cf

Pond CB18: Prop CB Peak Elev=53.06' Inflow=1.58 cfs 5,786 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.58 cfs 5,786 cf

Pond CB19: Prop CB Peak Elev=52.19' Inflow=0.90 cfs 3,205 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0500 '/' Outflow=0.90 cfs 3,205 cf

Pond CB2: Prop CB Peak Elev=52.35' Inflow=1.87 cfs 6,610 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=1.87 cfs 6,610 cf

Pond CB20: Prop CB Peak Elev=53.56' Inflow=2.27 cfs 8,088 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0148 '/' Outflow=2.27 cfs 8,088 cf

Pond CB21: Prop CB Peak Elev=51.96' Inflow=0.81 cfs 2,894 cf
12.0" Round Culvert n=0.012 L=10.0' S=0.0350 '/' Outflow=0.81 cfs 2,894 cf

Pond CB22: Prop CB Peak Elev=53.60' Inflow=2.39 cfs 8,539 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0210 '/' Outflow=2.39 cfs 8,539 cf

Pond CB23: Prop CB Peak Elev=51.64' Inflow=0.76 cfs 2,751 cf
12.0" Round Culvert n=0.012 L=13.0' S=0.0538 '/' Outflow=0.76 cfs 2,751 cf

Pond CB24: Prop CB Peak Elev=53.04' Inflow=1.44 cfs 5,210 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0349 '/' Outflow=1.44 cfs 5,210 cf

Pond CB3: Prop CB Peak Elev=51.49' Inflow=1.64 cfs 6,018 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=1.64 cfs 6,018 cf

Pond CB4: Prop CB Peak Elev=53.95' Inflow=0.79 cfs 2,564 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0436 '/' Outflow=0.79 cfs 2,564 cf

Pond CB5: Prop CB Peak Elev=50.67' Inflow=0.56 cfs 1,989 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.56 cfs 1,989 cf

Pond CB6: Prop CB Peak Elev=53.45' Inflow=2.23 cfs 8,058 cf
12.0" Round Culvert n=0.012 L=93.0' S=0.0290 '/' Outflow=2.23 cfs 8,058 cf

Pond CB7: Prop CB Peak Elev=50.16' Inflow=0.81 cfs 2,894 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=0.81 cfs 2,894 cf

Pond CB8: Prop CB Peak Elev=52.93' Inflow=3.44 cfs 11,679 cf
12.0" Round Culvert n=0.012 L=100.0' S=0.0080 '/' Outflow=3.44 cfs 11,679 cf

Pond CB9: Prop CB Peak Elev=51.47' Inflow=0.56 cfs 2,012 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=0.56 cfs 2,012 cf

Pond DMH1: Prop DMH Peak Elev=52.29' Inflow=4.55 cfs 16,057 cf
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=4.55 cfs 16,057 cf

Pond DMH10: Prop DMH Peak Elev=52.36' Inflow=5.39 cfs 19,726 cf
18.0" Round Culvert n=0.012 L=205.0' S=0.0146 '/' Outflow=5.39 cfs 19,726 cf

Pond DMH1061: Exist. DMH Peak Elev=47.13' Inflow=25.52 cfs 103,448 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=25.52 cfs 103,448 cf

Pond DMH1067: Exist. DMH Peak Elev=47.44' Inflow=20.56 cfs 72,641 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=20.56 cfs 72,641 cf

Pond DMH11: Prop DMH Peak Elev=54.96' Inflow=5.39 cfs 19,726 cf
18.0" Round Culvert n=0.012 L=135.0' S=0.0185 '/' Outflow=5.39 cfs 19,726 cf

Pond DMH12: Prop DMH Peak Elev=46.98' Inflow=24.18 cfs 86,492 cf
30.0" Round Culvert n=0.012 L=70.0' S=0.0050 '/' Outflow=24.18 cfs 86,492 cf

Pond DMH1258: Exist. DMH Peak Elev=48.78' Inflow=7.96 cfs 28,247 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=7.96 cfs 28,247 cf

Pond DMH1322: Exist. DMH Peak Elev=48.65' Inflow=0.75 cfs 2,463 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.75 cfs 2,463 cf

Pond DMH14: Prop DMH Peak Elev=52.17' Inflow=3.43 cfs 12,344 cf
15.0" Round Culvert n=0.012 L=157.0' S=0.0051 '/' Outflow=3.43 cfs 12,344 cf

Pond DMH15: Prop DMH Peak Elev=51.60' Inflow=6.62 cfs 23,893 cf
18.0" Round Culvert n=0.012 L=56.0' S=0.0054 '/' Outflow=6.62 cfs 23,893 cf

Pond DMH16: Prop DMH Peak Elev=50.35' Inflow=6.62 cfs 23,893 cf
18.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=6.62 cfs 23,893 cf

Pond DMH17: Prop DMH Peak Elev=49.01' Inflow=7.96 cfs 28,247 cf
30.0" Round Culvert n=0.011 L=64.0' S=0.0020 '/' Outflow=7.96 cfs 28,247 cf

Pond DMH18: Prop DMH Peak Elev=53.03' Inflow=2.13 cfs 7,545 cf
12.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=2.13 cfs 7,545 cf

Pond DMH19: Prop DMH Peak Elev=52.22' Inflow=3.03 cfs 10,750 cf
15.0" Round Culvert n=0.012 L=55.0' S=0.0055 '/' Outflow=3.03 cfs 10,750 cf

Pond DMH2: Prop DMH Peak Elev=51.53' Inflow=6.99 cfs 24,639 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=6.99 cfs 24,639 cf

Pond DMH20: Prop DMH Peak Elev=52.07' Inflow=6.10 cfs 21,732 cf
18.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=6.10 cfs 21,732 cf

Pond DMH21: Prop DMH Peak Elev=52.08' Inflow=9.26 cfs 33,023 cf
18.0" Round Culvert n=0.012 L=50.0' S=0.0060 '/' Outflow=9.26 cfs 33,023 cf

Pond DMH22: Prop DMH Peak Elev=51.85' Inflow=10.70 cfs 38,233 cf
18.0" Round Culvert n=0.012 L=6.0' S=0.0083 '/' Outflow=10.70 cfs 38,233 cf

Pond DMH23: Prop DMH Peak Elev=48.43' Inflow=19.74 cfs 70,034 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=19.74 cfs 70,034 cf

Pond DMH3: Prop DMH Peak Elev=50.48' Inflow=9.77 cfs 34,686 cf
24.0" Round Culvert n=0.012 L=110.0' S=0.0055 '/' Outflow=9.77 cfs 34,686 cf

Pond DMH4: Prop DMH Peak Elev=50.34' Inflow=14.49 cfs 51,271 cf
24.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=14.49 cfs 51,271 cf

Pond DMH5: Prop CB Peak Elev=52.21' Inflow=3.98 cfs 13,691 cf
12.0" Round Culvert n=0.012 L=50.0' S=0.0260 '/' Outflow=3.98 cfs 13,691 cf

Pond DMH6: Prop DMH Peak Elev=50.45' Inflow=18.80 cfs 66,766 cf
24.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=18.80 cfs 66,766 cf

Pond DMH7: Prop DMH Peak Elev=50.89' Inflow=3.55 cfs 12,735 cf
15.0" Round Culvert n=0.012 L=42.0' S=0.0345 '/' Outflow=3.55 cfs 12,735 cf

Pond DMH8: Prop DMH Peak Elev=48.60' Inflow=24.18 cfs 86,492 cf
30.0" Round Culvert n=0.011 L=370.0' S=0.0050 '/' Outflow=24.18 cfs 86,492 cf

Pond DMH9: Prop DMH Peak Elev=49.30' Inflow=5.39 cfs 19,726 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0073 '/' Outflow=5.39 cfs 19,726 cf

Pond DROP708: Exist. Drop Peak Elev=45.42' Inflow=1.87 cfs 6,000 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=1.87 cfs 6,000 cf

Pond DROP799: Exist. Drop Peak Elev=45.97' Inflow=29.17 cfs 115,967 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=29.17 cfs 115,967 cf

Pond ST1: Jellyfish Filter Peak Elev=49.94' Inflow=18.80 cfs 66,766 cf
24.0" Round Culvert n=0.012 L=50.0' S=0.0050 '/' Outflow=18.80 cfs 66,766 cf

Pond ST2: Jellyfish Filter Peak Elev=50.76' Inflow=6.62 cfs 23,893 cf
18.0" Round Culvert n=0.012 L=8.0' S=0.0187 '/' Outflow=6.62 cfs 23,893 cf

Pond ST3: Jellyfish Filter Peak Elev=51.28' Inflow=10.70 cfs 38,233 cf
18.0" Round Culvert n=0.012 L=13.0' S=0.0115 '/' Outflow=10.70 cfs 38,233 cf

Total Runoff Area = 474,995 sf Runoff Volume = 237,169 cf Average Runoff Depth = 5.99"
54.48% Pervious = 258,760 sf 45.52% Impervious = 216,235 sf

SITE SPECIFIC SOIL SURVEY REPORT

FIELDSTONE
LAND CONSULTANTS, PLLC
Surveying ✦ Engineering
Land Planning ✦ Septic Designs
206 Elm Street, Milford, NH 03055 - Phone: 603-672-5456 - Fax: 603-413-5456
www.FieldstoneLandConsultants.com

December 3, 2018

Shawn M. Tobey, P.E.
Hoyle, Tanner & Associates, Inc.
100 International Drive, Suite 360
Portsmouth, NH 03801

RE: Site Specific Soil Map Report
100 New Hampshire Avenue
Portsmouth, NH 03801

Dear Mr. Tobey,

In September of 2018 field work was performed on the above referenced property located at 100 New Hampshire Drive in the Pease International Tradeport, Portsmouth NH. The area included in the Site Specific Soil Survey is entirely developed with a recently razed commercial building and associated paved parking areas. The subject area is located within the former Pease Air Force Base and has various stages of development and re-development over the years. A large commercial building was razed in 2013-2014, rubble and foundation has been almost entirely removed and backfilled with a medium to coarse sandy fill material. Other portions of the site have also been manipulated and filled and have a large amount of defunct infrastructure such as sewer and water lines and other assorted piping and utilities. A few small areas with mature trees were located on the perimeter of the parcel, but otherwise the parcel has been re-graded and developed with existing buildings and paved parking lots and walkways throughout the parcel.

The following report accompanies the Site-Specific Soil Map prepared by this office which includes a Site Specific Soil Map Key for the soils encountered on the property. The parcel is commercially developed, is bounded by 4 roads and has access from them all: New Hampshire Ave, Newfields St, Rochester Ave and Stratham Ave.

Due to the commercially developed nature of the site there may be small inclusions within the mapped units which are not shown but would not be considered to significantly alter the use or general condition of the mapped areas. Some of these inclusions may include areas such as small dirt or debris piles, paved or partially paved and or degraded paved or gravel parking areas, utility manholes, walkways, concrete utility pads and curbing.

Almost the entire subject site has been re-graded, developed and/or modified in some manner. The entirety of the site has been classified using the Disturbed Map Unit Classification, has a Marine Sediment Parent Material overlain with assorted fill material. The majority of the fill material appeared to be a clean medium to coarse sand. The northwesterly corner of the site had variable areas of shallow ledge within a sandy, silty marine clay. The southeasterly corner was observed to have a higher free water table and a mixed assortment of fill material overlaying the marine sediments. Marine sediments were saturated with water and also perched stormwater on top of parent material, saturating the lower layers of placed fill materials.

This map product is within the technical standards of the National Cooperative Soil Survey. It is a special purpose product produced by a private certified soil scientist, and is not a product of the USDA Natural Resources Conservation Service. This narrative report accompanies a Site Specific Soil Map. The site-specific soil mapping on this lot was conducted by Christopher A. Guida, Certified Soil Scientist #091, of Fieldstone Land Consultants, PLLC in Milford NH. This Site Specific Soil Survey was completed utilizing the Society of Soil Scientist of Northern New England (SSSNNE) Special Publication No. 3; Site Specific Soil Mapping Standards for New Hampshire and Vermont, Version 4.0, February 2011. The soil legend used for this map conforms to the New Hampshire State-Wide Numerical Soils Legend, Issue #10, January 2011 established and maintained by the Natural Resources Conservation Service (NRCS).

Field work for this survey included the examination of soil profiles through the use of hand tools including a soil auger and tile spade as well as test pits conducted with an excavator. Although soil borings and test pits were conducted at intervals sufficient to delineate the boundaries between soil map units, due to the developed nature of the site there were numerous areas not accessible for inspection such as buildings, paved parking areas, underground utilities and similar features. Existing survey control network established by this office and site structures and boundary points were used as control points for this soil survey. The base plan used for the soil survey has 1 ft topographic contour intervals and was generated at a scale of 1”=50’.

DISTURBED MAP UNITS

See below excerpt from Society of Soil Scientist of Northern New England (SSSNNE) Special Publication No. 3; Site Specific Soil Mapping Standards for New Hampshire and Vermont, Version 4.0, February 2011, Disturbed Soil Mapping Unit Supplement for New Hampshire for soil map symbol denominators.

Map Symbol Denominators for Disturbed Unit Supplements
The map symbols for Site-Specific Soil Mapping of disturbed soils in New Hampshire is a two part symbol with parts separated by a forward slash (**/**).
The first part consists of the USDA-NRCS Disturbed Map Unit symbol from the NH State-Wide Numerical Soil Legend. The map symbol is composed of 1 to 3 digits followed by a capital letter designating slope.
The second part consists of symbols of the SSSNNE NH Disturbed Soil Supplement to the Site Specific Soil Survey Standards, as detailed below. The disturbed map symbol is composed of 5 lower case letters.
Thus a Site Specific map symbol for a map prepared for an AoT application would be formatted as follows:

400A/aaaaa
These SSSNNE NH Disturbed Soil Supplemental symbols can only be used in conjunction with the USDA-NRCS Disturbed Map Unit symbols for the NH Statewide Numerical Soil Legend.
Supplemental Symbols
The five components of the Disturbed Soil Mapping Unit Supplement are as follows:
Symbol 1: Drainage Class
a-Excessively Drained b-Somewhat Excessively Drained c-Well Drained d-Moderately Well Drained e-Somewhat Poorly Drained f-Poorly Drained g-Very Poorly Drained h-Not Determined

Symbol 2: Parent Material (of naturally formed soil only, if present)
a-No natural soil within 60" b-Glaciofluvial Deposits (outwash/terraces of sand or sand and gravel) c-Glacial Till Material (active ice) d-Glaciolacustrine very fine sand and silt deposits (glacial lakes) e-Loamy/sandy over Silt/Clay deposits f-Marine Silt and Clay deposits (ocean waters) g-Alluvial Deposits (floodplains) h-Organic Materials-Fresh water Bogs, etc i- Organic Materials-Tidal Marsh
Symbol 3: Restrictive/Impervious Layers
a-None b-Bouldery surface with more than 15% of the surface covered with boulders c-Mineral restrictive layer(s) are present in the soil profile less than 40 inches below the soil surface such as hard pan, platy structure or clayey texture with consistence of at least firm (i.e. more than 20 newtons). For other examples of soil characteristics that qualify for restrictive layers, see "Soil Manual for Site evaluations in NH" 2nd Ed., (page 3-17, figure 3-14) d-Bedrock in the soil profile; 0-20 inches e-Bedrock in the soil profile; 20-60 inches f-Areas where depth to bedrock is so variable that a single soil type cannot be applied, will be mapped as a complex of soil types g-Subject to Flooding h–Man-made impervious surface including pavement, concrete, or built-up surfaces (i.e. buildings) with no morphological restrictive layer within control section
Symbol 4: Estimated Ksat* (most limiting layer excluding symbol 3h above).
a- High. b-Moderate c-Low d-Not determined *See "Guidelines for Ksat Class Placement" in Chapter 3 of the Soil Survey Manual, USDA
Symbol 5: Hydrologic Soil Group*
a-Group A b-Group B c-Group C d-Group D e-Not determined
*excluding man-made surface impervious/restrictive layers

Disturbed Soils

500/ – Udorthents, Loamy – Typically Glacial Till soils of loamy texture that have been excavated and re-graded (cuts/fills associated with road construction or large filled areas or piles) Parent Material below surface fill was observed to be a marine sediment comprised of a dense silt loam, sandy clay which was saturated and would be considered a group D drainage class.

This site is dominated by disturbed soils. Soils in this area have been repeatedly modified over many years in conjunction with military and commercial uses. There may be minor inclusions of similar soils which were not mapped due to the developed nature of the property and inaccessible soils under buildings and pavement. This soil report and the accompanying soil map were prepared by Christopher A. Guida, New Hampshire Certified Soil Scientist #91.

Sincerely,

FIELDSTONE LAND CONSULTANTS, PLLC

Christopher A. Guida, C.S.S., C.W.S.
Certified Soil Scientist #91

306-3
85 NH AVE LLC
85 NEW HAMPSHIRE AVE
PORTSMOUTH, NH 03801

308-4
SEACOAST MEDIA GROUP
111 NEW HAMPSHIRE AVE
PORTSMOUTH, NH 03801

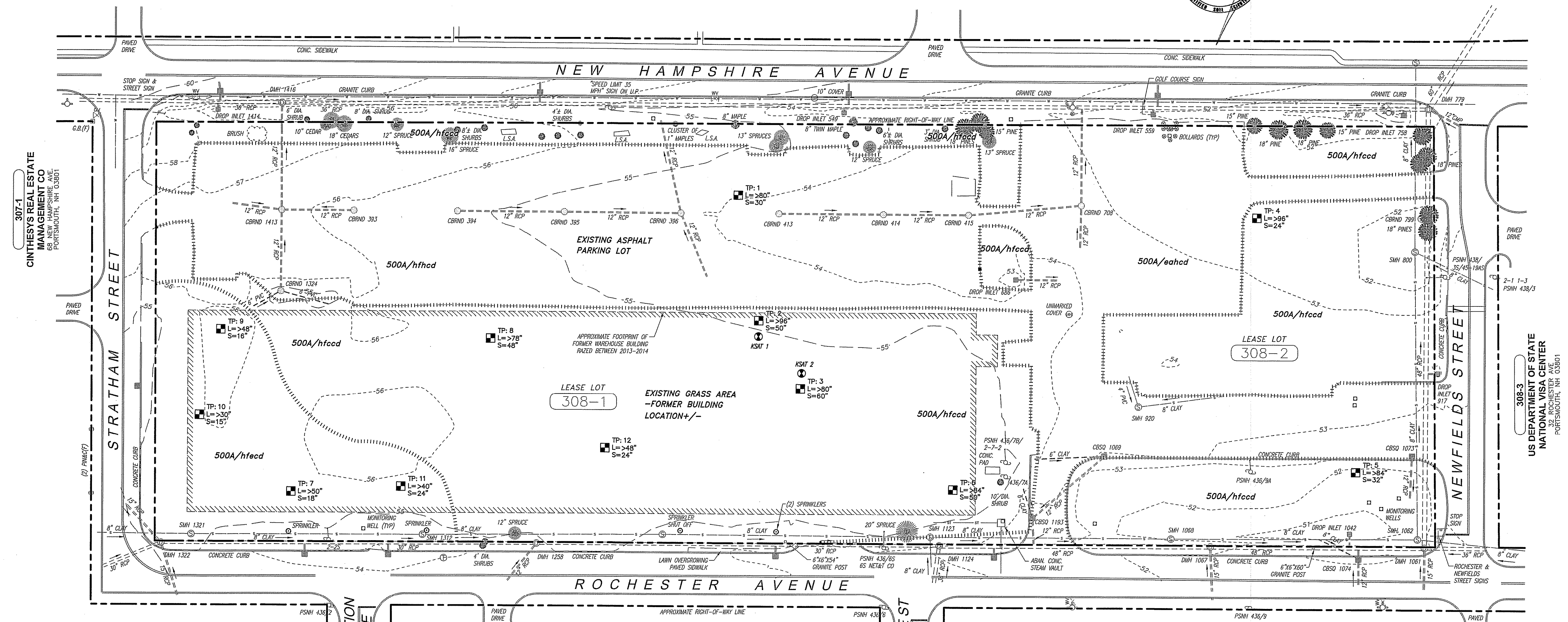
CERTIFICATION:

SOILS WERE MAPPED BY CHRISTOPHER A. GUIDA, CSS, IN ACCORDANCE WITH SITE SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT PUBLISHED BY THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND, PUBLICATION NO. 3, AS AMENDED, VERSION 4.0 FEBRUARY 2011.

DATE: 12/4/18

STATE OF NEW HAMPSHIRE
CHRISTOPHER A. GUIDA
No. 00091
CERTIFIED SOIL SCIENTIST

312-2
PEASE DEVELOPMENT AUTHORITY
INTERNATIONAL DRIVE
PORTSMOUTH, NH 03801



307-0
PEASE DEVELOPMENT AUTHORITY
EXETER ST.
PORTSMOUTH, NH 03801

308-5
PEASE DEVELOPMENT AUTHORITY
5 ROCHESTER AVE.
PORTSMOUTH, NH 03801

308-6
PEASE DEVELOPMENT AUTHORITY
75 ROCHESTER AVE.
PORTSMOUTH, NH 03801

308-4
PEASE DEVELOPMENT AUTHORITY
7 LEE ST.
PORTSMOUTH, NH 03801

308-0
PEASE DEVELOPMENT AUTHORITY
AVIATION AVE
PORTSMOUTH, NH 03801

EXISTING DRAINAGE TABLE

CBRND 393
RIM=55.86
SUMP=52.49
INV.OUT=55.24

CBRND 394
RIM=55.21
SUMP=51.67
INV.OUT=52.17

CBRND 395
RIM=54.54
SUMP=50.90
INV.IN–50.89
INV.OUT=50.88

CBRND 396
RIM=54.01
SUMP=50.01
INV.IN=49.83
INV.IN=50.16(S36°W)
INV.OUT=50.11(N46°W)

CBRND 413
RIM=53.74
SUMP=50.15
INV.IN=INACCESSIBLE
INV.OUT=50.14

CBRND 414
RIM=53.45
SUMP=49.83
INV.IN=49.85
INV.OUT=49.55

CBRND 415
RIM=53.27
SUMP=48.92
INV.IN=49.01
INV.OUT=49.03

CBRND 708
RIM=53.06
SUMP=48.10
INV.IN=48.28
INV.IN=48.29(S66°W)
INV.OUT=48.11(N56°E)

CBRND 799
RIM=50.75
SUMP=45.04
INV.OUT=45.18

CBRND 1324
RIM=54.83
SUMP=52.27
INV.IN=52.90(N61°W)
INV.IN=52.81(S16°E)
INV.OUT=52.32(N59°E)

CBRND 1413
RIM=56.36
SUMP=51.80
INV.IN=51.73(N26°W)
INV.IN=51.71(CBRND 1324)
INV.IN=51.73(S39°E)
INV.OUT=51.61(DMH 1416)

CBSQ 1069
RIM=53.00
SUMP=49.00
INV.IN=49.12(N66°W)
INV.OUT=48.11(CBSQ 1193)

CBSQ 1073
RIM=52.09
SUMP=48.59
INV.OUT=48.39

CBSQ 1074
RIM=50.62
SUMP=46.07
INV.IN=46.14(12"RCP)
INV.IN=46.10(6"CLAY)
INV.OUT=46.07(12"RCP)

CBSQ 1193
RIM=52.61
SUMP=48.56
INV.IN=48.80(N41°E)
INV.IN=48.38(CBSQ 1069)
INV.OUT=48.37(S56°W)

DROP INLET 549
RIM=53.97
SUMP=49.47
INV.OUT=49.02(12"RCP)

DROP INLET 559
RIM=52.45
SUMP=48.05
INV.OUT=47.50(12"RCP)

DROP INLET 686
RIM=52.40
SUMP=49.89
INV.OUT=49.88(12"RCP)

DROP INLET 758
RIM=49.54
SUMP=45.89
INV.OUT=45.84(12"RCP)

DROP INLET 917
RIM=53.15
SUMP=50.79
INV.OUT=50.79(10"CMP)

DROP INLET 1042
RIM=50.79
SUMP=47.69
INV.OUT=47.46(10"CMP)

DROP INLET 1414
RIM=56.21
SUMP=53.54
INV.OUT=53.21(12"RCP)

DMH 1061
RIM=52.02
SUMP=44.37
INV.IN=44.60(DMH 1067)
INV.IN=44.57(S59°W)
INV.IN=44.62(S31°E)
INV.OUT=44.49 (DMH 779)

DMH 779
RIM=51.93
SUMP=41.54
INV.IN=42.87 (DMH 1061)
INV.IN=INACCESSIBLE(S14°E)
INV.IN=43.31(DMH 1416)
INV.OUT=42.17(S79°E)

DMH 1067
RIM=52.35
SUMP=45.70
INV.IN=45.95(DMH 1124)
INV.IN=45.90(S56°W)
INV.OUT=45.81 (DMH 1061)

DMH 1124
RIM=54.01
SUMP=46.80
INV.IN=46.61(DMH 1258)
INV.IN=46.76(S66°W)
INV.OUT=46.56(DMH 1067)

DMH 1258
RIM=54.91
SUMP=47.57
INV.IN=47.45(DMH 1322)
INV.IN=47.54(N84°W)
INV.OUT=47.37(DMH 1124)

DMH 1322
RIM=55.14
SUMP=48.40
INV.IN=48.57(N54°W)
INV.IN=48.62(S41W)
INV.IN=48.74(N16°E)
INV.OUT=48.24(DMH 1258)

DMH 1416
RIM=58.30
SUMP=48.77
INV.IN=48.76(N31°W)
INV.IN=50.47(CBRND 1413)
INV.OUT=48.65(DMH 779)

EXISTING SEWER TABLE

SMH 800
RIM=51.36
SHELF=42.47
TROUGH=41.84
INV.IN=41.76(SMH 1062)
INV.IN=47.07(S06°E)
INV.OUT=41.71(SMH 784)

SMH 920
RIM=53.49
SHELF=43.96
TROUGH=43.66
INV.IN=45.54(N33°E)
INV.OUT=43.39(S04°E)

SMH 1062
RIM=51.84
SHELF=43.60
TROUGH=42.77
INV.IN=42.80(N76°W)
INV.IN=42.78(SMH1068)
INV.IN=42.78(S26°E)
INV.OUT=42.79

SMH 1068
RIM=52.16
SHELF=44.36
TROUGH=43.77
INV.IN=43.66(N12°W)
INV.OUT=43.39(SMH 1062)

SMH 1123
RIM=54.64
SHELF=45.31
TROUGH=44.74
INV.IN=44.66
INV.IN=44.72(S04°W)
INV.OUT=44.60

SMH 1312
RIM=54.60
SHELF=47.39
TROUGH=46.79
INV.IN=46.81(SMH 1321)
INV.OUT=46.75(SMH 1543)

SMH 1321
RIM=55.03
SHELF=49.75
TROUGH=49.24
INV.IN=49.28(N31°W)
INV.OUT=49.21(SMH 1312)

SITE SPECIFIC DISTURBED SOIL SUPPLEMENT DENOMINATOR KEY

THE SOIL TYPES ARE DEFINED BY SOIL CHARACTERISTICS AND DESIGNATED WITH A FIVE PART SYMBOL. 500A/12345

- 1 DRAINAGE CLASS
- 2 PARENT MATERIAL
- 3 RESTRICTIVE/IMPERVIOUS LAYERS
- 4 ESTIMATED K/SAT
- 5 HYDROLOGIC SOIL GROUP

SYMBOL 1–DRAINAGE CLASS

- a – EXCESSIVELY DRAINED
- b – SOMEWHAT EXCESSIVELY DRAINED
- c – WELL DRAINED
- d – MODERATELY WELL DRAINED
- e – SOMEWHAT POORLY DRAINED
- f – POORLY DRAINED
- g – VERY POORLY DRAINED
- h – NOT DETERMINED

SYMBOL 2–PARENT MATERIAL (NATURALLY FORMED SOIL ONLY, IF PRESENT)

- a – NO NATURAL SOIL WITHIN 60"
- b – GLACIOFLUVIAL DEPOSITS (OUTWASH/TERRACES OF SAND AND GRAVEL)
- c – GLACIAL TILL MATERIAL (ACTIVE ICE)
  GLACIOLACUSTRINE DEPOSITS;
- d – VERY FINE SAND AND SILT DEPOSITS (GLACIAL LAKES)
- e – LOAMY/SANDY OVER SILT/CLAY DEPOSITS
- f – MARINE SILT AND CLAY DEPOSITS (OCEAN WATERS)
- g – ALLUVIAL DEPOSITS (FLOODPLAINS)
- h – ORGANIC MATERIALS – FRESH WATER
- i – ORGANIC MATERIALS – TIDAL MARSH

SYMBOL 3–RESTRICTIVE / IMPERVIOUS LAYERS

- a – NONE
- b – BOULDERY, WITH MORE THAN 15% OF THE SURFACE COVERED WITH BOULDERS (LARGER THAN 12 INCHES IN DIAMETER)
- c – MINERAL RESTRICTIVE LAYER(S) ARE PRESENT IN THE SOIL PROFILE LESS THAN 40 INCHES BELOW THE SOIL SURFACE SUCH AS HARD PAN, PLATY STRUCTURE, CLAYEY TEXTURE. FOR EXAMPLES OF SOIL CHARACTERISTICS THAT QUALIFY FOR RESTRICTIVE LAYER; SEE SOIL MANUAL FOR SITE EVALUATION IN NEW HAMPSHIRE, 2nd ED.,PAGE 3–17, FIGURE 3–14
- d – BEDROCK PRESENT IN THE SOIL PROFILE 0 TO 20 INCHES
- e – BEDROCK PRESENT IN THE SOIL PROFILE 20 TO 60 INCHES
- f – AREAS WHERE DEPTH TO BEDROCK IS SO VARIABLE THAT A SINGLE SOIL TYPE CANNOT BE APPLIED WILL BE MAPPED AS A COMPLEX OF SOIL TYPES
- g – SUBJECT TO FLOODING
- h – MAN–MADE IMPERVIOUS SURFACE INCLUDING PAVEMENT, CONCRETE, OR BUILT–UP SURFACES (IE BUILDINGS) WITH NO MORPHOLOGICAL RESTRICTIVE LAYER WITHIN CONTROL SECTION.

SYMBOL 4–ESTIMATED Ksat (MOST LIMITING LAYER EXCLUDING 3h ABOVE)

- a – HIGH
- b – MODERATE
- c – LOW
- d – NOT DETERMINED

SYMBOL 5–HYDROLOGIC SOIL GROUP

- a – GROUP A
- b – GROUP B
- c – GROUP C
- d – GROUP D
- e – NOT DETERMINED

SOIL NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE EXISTING SOILS ON SITE IN ACCORDANCE WITH SITE SPECIFIC MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT, VERSION 4 FEBRUARY 2011 SSSNNE SPECIAL PUBLICATION NO.3 AND HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV–WQ 1500, ALTERATION OF TERRAIN ON SUBJECT PARCEL AS SHOWN.

2. THIS PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR THE REDEVELOPMENT OF THE SUBJECT PARCEL. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCE CONSERVATION SERVICE.

GENERAL SOIL LEGEND:

DISTURBED SOILS
SOIL# SERIES NAME, DRAINAGE CLASS
500A/hfccd, UDORTHENTS, LOAMY (SEE SLOPE KEY)/ (SEE DISTURBED SOIL DENOMINATOR KEY)

SLOPE KEY:

A SLOPE = 0–3% SLOPES
B SLOPE = 3–8% SLOPES
C SLOPE= 8–15% SLOPES
D SLOPE= 15–25% SLOPES
E SLOPE =>25% SLOPES

REDUCED TO 11"X17"

GRAPHIC SCALE

50 0 25 50 60

(IN FEET)
1 inch = 50 ft.

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS -- ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS -- ISSUED FOR PDA REVIEW	11/16/18

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431–2520 Fax (603) 431–8067 Web: www.hoyletanner.com

SCALE:	ORIGINAL DATE:	DESIGNED BY	DRAWN BY	CHECKED BY
AS SHOWN	NOVEMBER 16, 2018	SMT	SMT	WRD

CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

SITE SPECIFIC SOIL MAP

PROJECT NO. 556912

SHEET 1 OF 1

INSPECTION AND MAINTENANCE MANUAL

STORMWATER INSPECTION & MAINTENANCE MANUAL

FOR A

PROPOSED FOUR STORY OFFICE BUILDING

100 New Hampshire Avenue
Pease International Tradeport
Portsmouth, NH

December 4, 2018

Prepared for:

TWO INTERNATIONAL GROUP

Prepared by:

Hoyle, Tanner & Associates, Inc.

100 International Drive, Suite 360
Pease International Tradeport

INTRODUCTION

The intent of this manual is to establish a mechanism to provide on-going inspections and maintenance (I&M) to ensure the long-term effectiveness of approved stormwater practices.

INSPECTIONS

1. Responsible party who will implement the required reporting, inspection and maintenance activities identified in the I&M manual:

   <u>Two International Group, LLC</u>
   <u>1 New Hampshire Avenue, Suite 101</u>
   <u>Portsmouth, NH 03801</u>

   All record keeping required shall be maintained by the responsible party and be made available to the department upon request. I&M activities shall begin at the completion of site features that directs stormwater to the particular practices. The responsible party may contract with one or more third parties to conduct the I&M activities but shall remain responsible for ensuring the long-term effectiveness of the stormwater practices. If ownership of the property is transferred, the new owner shall become the responsible party

2. Frequency of Inspections:

   <u>Semi-Annually (Spring & Fall)</u>

3. The attached inspection log checklist shall be updated after every inspection in the spring and fall. The four I&M activities are as follows:

   - Overall Site
   - Jellyfish Filter Maintenance

4. The attached I&M logs shall be completed for each I&M activity.

5. The attached deicing log shall be updated to document the type and amount of deicing material applied to the site. The contractor for winter snow and ice management activities must be Green SnowPro certified by the UNH Technology Transfer Center and also be a New Hampshire Certified Salt Applicator. Every effort shall be taken to minimize salt usage onsite as the site is located within a chloride-impaired waterbody.

6. See attached Grading & Drainage plan for the location of each I&M activity.

7. All invasive species within the project area shall be bagged and disposed of properly. The project shall be managed in a manner that meets the requirements and intent of NH RSA 430:53 and Chapter AGR 3000 relative to invasive species.

MAINTENANCE

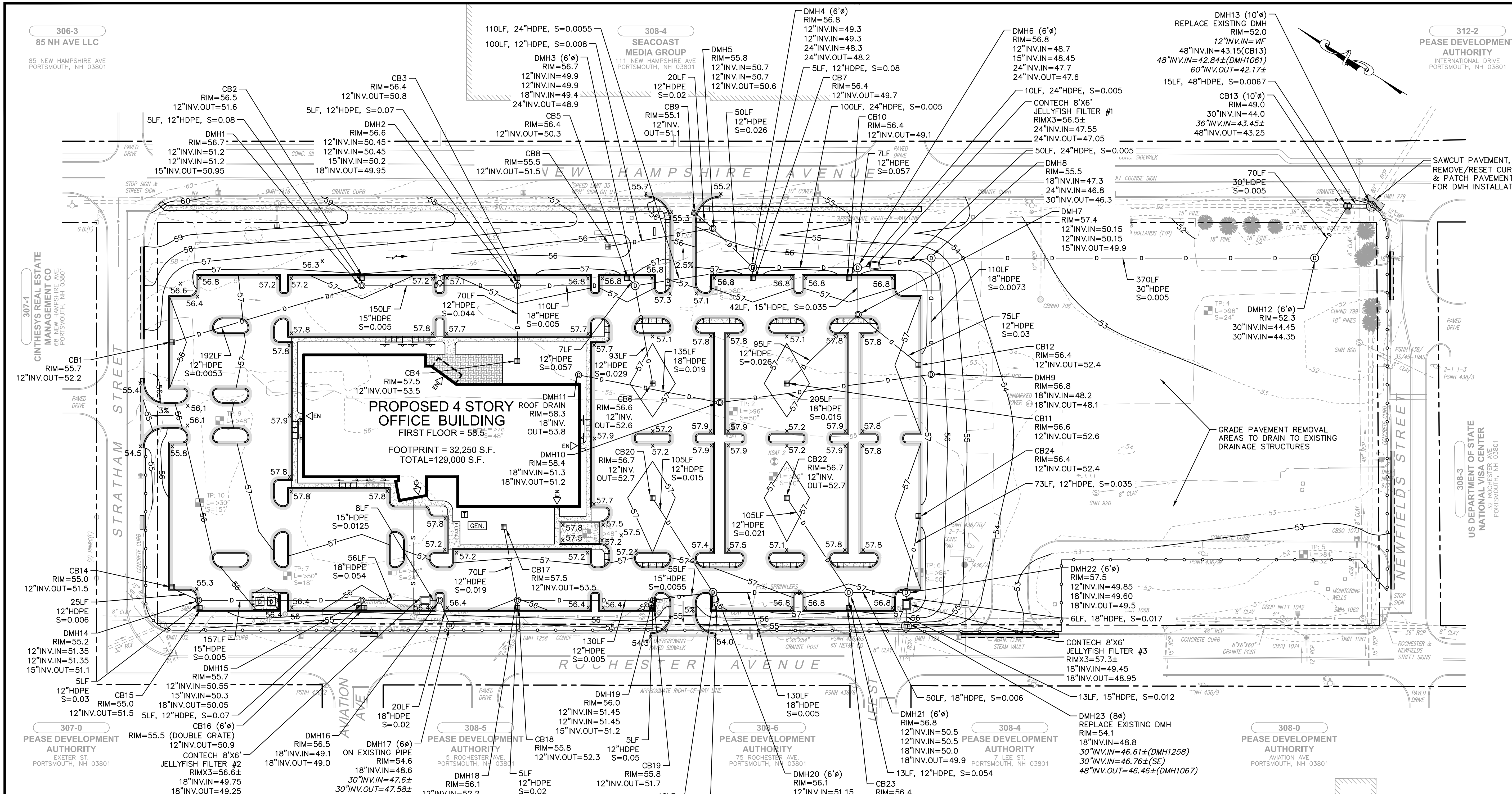
The following I&M activities shall be inspected semi-annually. Corrective actions shall be taken to fix any deficiencies and to restore the stormwater practice to the original condition.

1. Overall Site
   - Catch Basins/Manholes – Sediment shall be removed semi-annually from the deep sump catch basins. The catch basin inlets and debris hoods shall be cleaned free of any debris as required.
   - Drainage Pipes – Shall be inspected and cleaned semi-annually.
   - Street Sweeping – The parking areas shall be swept in the spring to remove sediment from snow and ice management activities.
   - Inspect headwalls and riprap for any accumulated sediment or debris.
   - Inspect slopes for rutting and erosion.

2. Jellyfish Filters

   Jellyfish filters shall be maintained per manufacturer specification including, but not limited to:

   - Sediment removal for depths greater than or equal to 12 inches, or every 3 years;
   - Remove floating refuse;
   - Rinse filter cartridges;
   - Replace filter cartridges every 5 years;
   - Replace damaged or missing deck components;
   - Clean and inspect immediately following upstream oil, fuel, or chemical spills.



EXISTING DRAINAGE TABLE

CBRND 393
RIM=55.86
SUMP=52.49
INV.OUT=55.24

CBRND 394
RIM=55.21
SUMP=51.67
INV.OUT=52.17

CBRND 395
RIM=54.54
SUMP=50.90
INV.IN–50.89
INV.OUT=50.88

CBRND 396
RIM=54.01
SUMP=50.01
INV.IN=49.83
INV.IN=50.16(S36°W)
INV.OUT=50.11(N46°W)

CBRND 413
RIM=53.74
SUMP=50.15
INV.IN=INACCESSIBLE
INV.OUT=50.14

CBRND 414
RIM=53.45
SUMP=49.83
INV.IN=49.85
INV.OUT=49.55

CBRND 415
RIM=53.27
SUMP=48.92
INV.IN=49.01
INV.OUT=49.03

CBRND 708
RIM=53.06
SUMP=48.10
INV.IN=48.28
INV.IN=48.29(S66°W)
INV.OUT=48.11(N56°E)

CBRND 799
RIM=50.75
SUMP=45.04
INV.OUT=45.18

CBRND 1324
RIM=54.83
SUMP=52.27
INV.IN=52.90(N61°W)
INV.IN=52.81(S16°E)
INV.OUT=52.32(N59°E)

CBRND 1413
RIM=56.36
SUMP=51.80
INV.IN=51.73(N26°W)
INV.IN=51.71(CBRND 1324)
INV.IN=51.73(S39°E)
INV.OUT=51.61(DMH 1416)

CBSQ 1069
RIM=53.00
SUMP=49.00
INV.IN=49.12(N66°W)
INV.OUT=48.11(CBSQ 1193)

CBSQ 1073
RIM=52.09
SUMP=48.59
INV.OUT=48.39

CBSQ 1074
RIM=50.62
SUMP=46.07
INV.IN=46.14(12"RCP)
INV.IN=46.10(6"CLAY)
INV.OUT=46.07(12"RCP)

CBSQ 1193
RIM=52.61
SUMP=48.56
INV.IN=48.80(N41°E)
INV.IN=48.38(CBSQ 1069)
INV.OUT=48.37(S56°W)

DROP INLET 549
RIM=53.97
SUMP=49.47
INV.OUT=49.02(12"RCP)

DROP INLET 559
RIM=52.45
SUMP=48.05
INV.OUT=47.50(12"RCP)

DROP INLET 686
RIM=52.40
SUMP=49.89
INV.OUT=49.88(12"RCP)

DROP INLET 758
RIM=49.54
SUMP=45.89
INV.OUT=45.84(12"RCP)

DROP INLET 917
RIM=53.15
SUMP=50.79
INV.OUT=50.79(10"CMP)

DROP INLET 1042
RIM=50.79
SUMP=47.69
INV.OUT=47.46(10"CMP)

DROP INLET 1414
RIM=56.21
SUMP=53.54
INV.OUT=53.21(12"RCP)

DMH 1061
RIM=52.02
SUMP=44.37
INV.IN=44.60(DMH 1067)
INV.IN=44.57(S59°W)
INV.IN=44.62(S31°E)
INV.OUT=44.49 (DMH 779)

DMH 779
RIM=51.93
SUMP=41.54
INV.IN=42.87 (DMH 1061)
INV.IN=INACCESSIBLE(S14°E)
INV.IN=43.31(DMH 1416)
INV.OUT=42.17(S79°E)

DMH 1067
RIM=52.35
SUMP=45.70
INV.IN=45.95(DMH 1124)
INV.IN=45.90(S56°W)
INV.OUT=45.81 (DMH 1061)

DMH 1124
RIM=54.01
SUMP=46.80
INV.IN=46.61(DMH 1258)
INV.IN=46.76(S66°W)
INV.OUT=46.56(DMH 1067)

DMH 1258
RIM=54.91
SUMP=47.57
INV.IN=47.45(DMH 1322)
INV.IN=47.54(N84°W)
INV.OUT=47.37(DMH 1124)

DMH 1322
RIM=55.14
SUMP=48.40
INV.IN=48.57(N54°W)
INV.IN=48.62(S41W)
INV.IN=48.74(N16°E)
INV.OUT=48.24(DMH 1258)

DMH 1416
RIM=58.30
SUMP=48.77
INV.IN=48.76(N31°W)
INV.IN=50.47(CBRND 1413)
INV.OUT=48.65(DMH 779)

EXISTING SEWER TABLE

SMH 800
RIM=51.36
SHELF=42.47
TROUGH=41.84
INV.IN=41.76(SMH 1062)
INV.IN=47.07(S06°E)
INV.OUT=41.71(SMH 784)

SMH 920
RIM=53.49
SHELF=43.96
TROUGH=43.66
INV.IN=45.54(N33°E)
INV.OUT=43.39(S04°E)

SMH 1062
RIM=51.84
SHELF=43.60
TROUGH=42.77
INV.IN=42.80(N76°W)
INV.IN=42.78(SMH1068)
INV.IN=42.78(S26°E)
INV.OUT=42.79

SMH 1068
RIM=52.16
SHELF=44.36
TROUGH=43.77
INV.IN=43.66(N12°W)
INV.OUT=43.39(SMH 1062)

SMH 1123
RIM=54.64
SHELF=45.31
TROUGH=44.74
INV.IN=44.66
INV.IN=44.72(S04°W)
INV.OUT=44.60

SMH 1312
RIM=54.60
SHELF=47.39
TROUGH=46.79
INV.IN=46.81(SMH 1321)
INV.OUT=46.75(SMH 1543)

SMH 1321
RIM=55.03
SHELF=49.75
TROUGH=49.24
INV.IN=49.28(N31°W)
INV.OUT=49.21(SMH 1312)

GRADING & DRAINAGE NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C10–C15 FOR CONSTRUCTION DETAILS.
3. CONTECH JELLYFISH FILTERS FOR STORMWATER TREATMENT SHALL BE MODEL JFPD0806 OR APPROVED EQUAL.
4. DRAINAGE PIPES AND STRUCTURES TO BE REMOVED ARE NOT SHOWN ON THIS PLAN FOR CLARITY.
5. ALL DRAINAGE STRUCTURES HAVE AN INTERNAL DIAMETER OF 4'–0" UNLESS OTHERWISE SPECIFIED ON THE PLANS.
6. THE LOCATION OF PROPOSED BUILDING ENTRANCES ARE APPROXIMATE AND SHALL BE COORDINATED WITH THE ARCHITECTURAL PLANS.
7. INSTALL INLET PROTECTION ON ALL PROPOSED CATCH BASINS AFTER INSTALLATION. REMOVE WHEN CONSTRUCTION IS COMPLETED.

GRAPHIC SCALE

0 25 50 100

(IN FEET)
1 inch = 50 ft.

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

ORIGINAL DATE: NOVEMBER 16, 2018

SCALE: AS SHOWN

CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

GRADING, DRAINAGE & EROSION CONTROL PLAN

C6

PROJECT NO. 556912

SHEET 6 OF 15

Inspection Log Checklist

100 New Hampshire Ave

Portsmouth, NH

Inspection Item	2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027	
	S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F
Overall Site																						
Contech Jellyfish Filters																						

Report No. ___________________
Inspection Date:______________
Inspector: ___________________

Overall Site

Site: 100 New Hampshire Ave Portsmouth, NH	**Inspection:** Spring / Fall	**Weather:**

Inspection Item	**Condition**	**Comments**
Catch Basins & Manholes	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Catch Basin Hoods	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Stormwater Pipe	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Headwall & Riprap Aprons	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Street Sweeping	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Slopes	☐ Good ☐ Satisfactory ☐ Needs Maintenance	

Comments:

Report No. ___________________
Inspection Date:_______________
Inspector: ____________________

Contech Jellyfish Filter

Site: 100 New Hampshire Ave Portsmouth, NH	**Inspection:** Spring / Fall	**Weather:**

Inspection Item	Condition	Comments
Sediment Accumulation Removal	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Floating Refuse	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Filter Cartridges	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Deck Components	☐ Good ☐ Satisfactory ☐ Needs Maintenance	

Comments:

Deicing Log

100 New Hampshire Ave

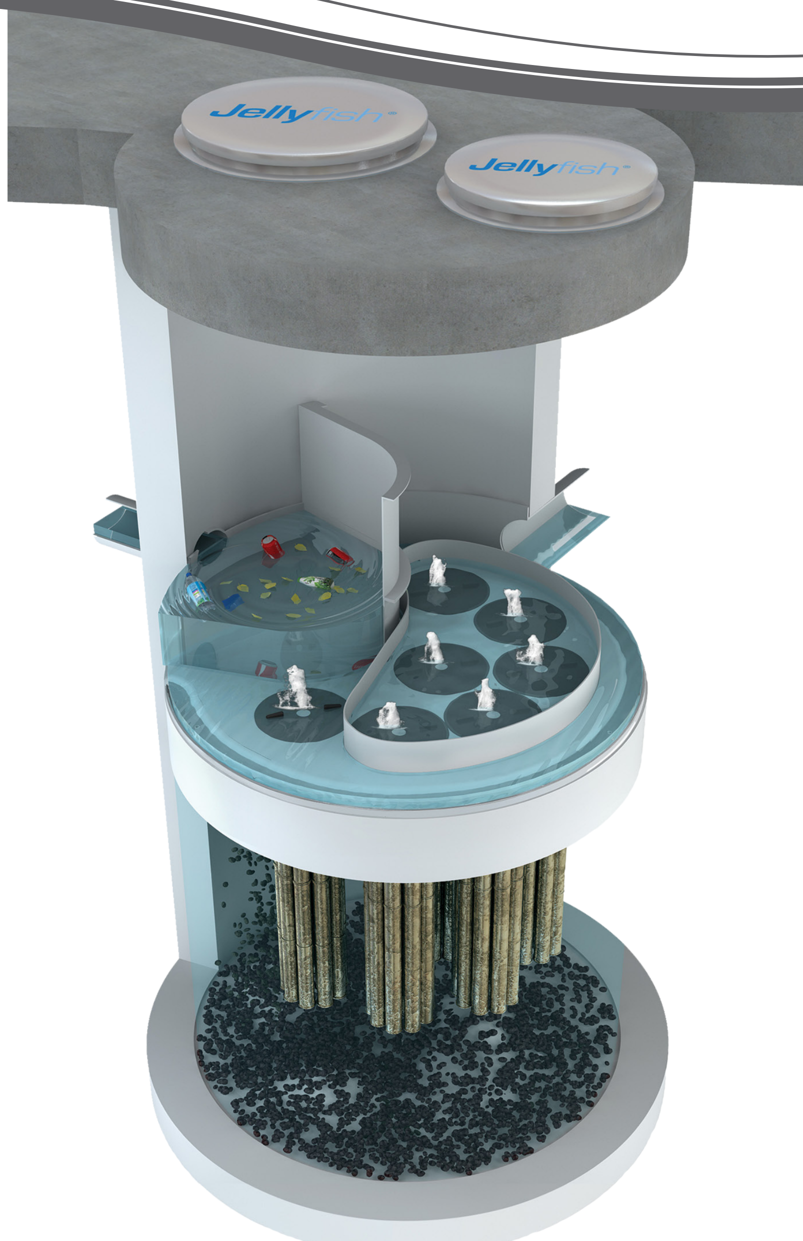
Portsmouth, NH

Deicing applications shall be in accordance with the NHDES Fact Sheet "Best Management Practices and Salt-Use Minimization Efforts in Chloride-Impaired Watersheds of New Hampshire, A Guidance Document for Private Developers and Contractors"

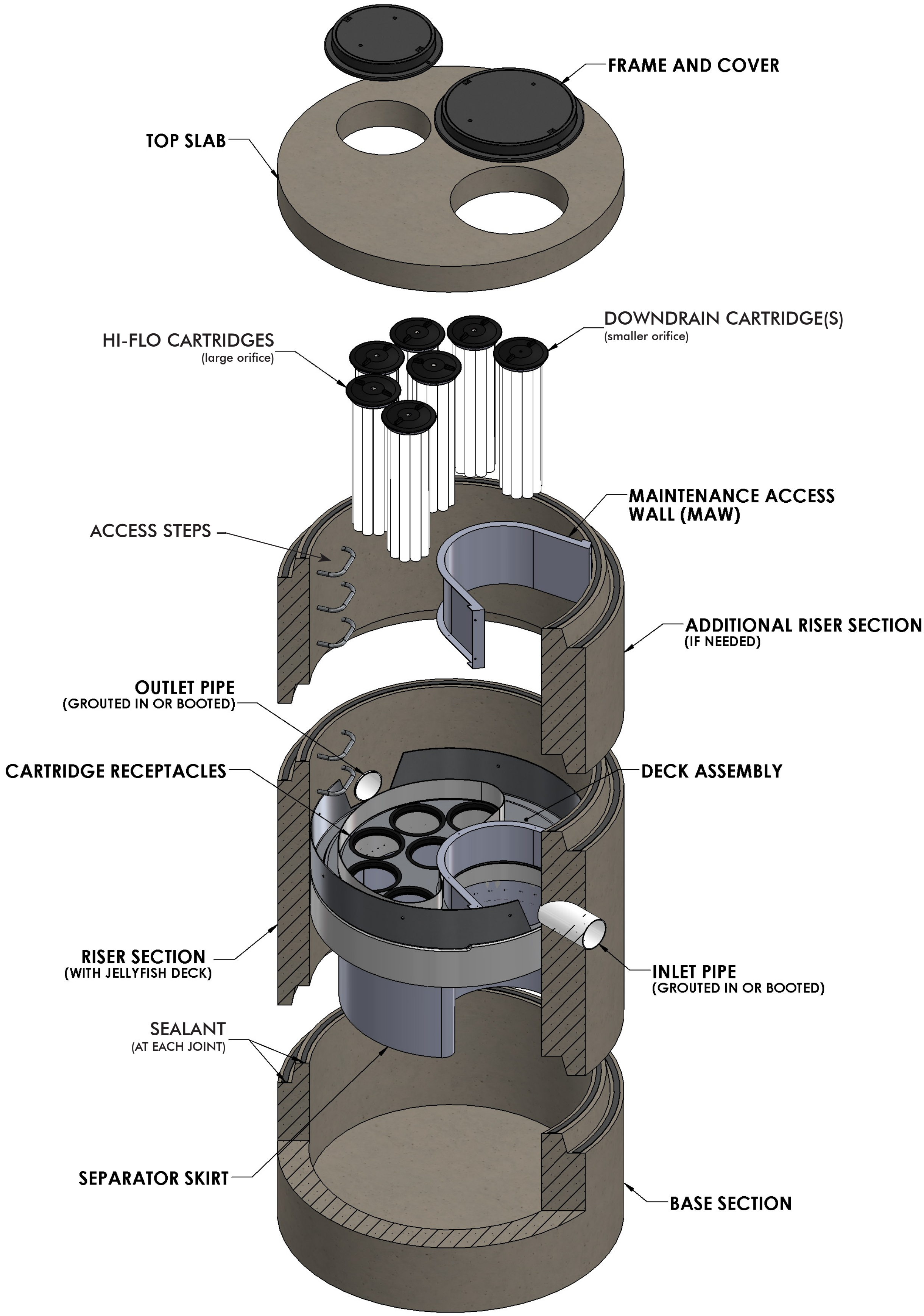
Winter Season:			
Date	**Type of Deicer**	**Amount**	**Comments**

Jellyfish® Filter

Jellyfish® Filter Owner's Manual



CONTECH®
ENGINEERED SOLUTIONS


FRAME AND COVER
TOP SLAB
HI-FLO CARTRIDGES
(large orifice)
DOWNDRAIN CARTRIDGE(S)
(smaller orifice)
MAINTENANCE ACCESS WALL (MAW)
ACCESS STEPS
ADDITIONAL RISER SECTION
(IF NEEDED)
OUTLET PIPE
(GROUTED IN OR BOOTED)
CARTRIDGE RECEPTACLES
DECK ASSEMBLY
RISER SECTION
(WITH JELLYFISH DECK)
INLET PIPE
(GROUTED IN OR BOOTED)
SEALANT
(AT EACH JOINT)
SEPARATOR SKIRT
BASE SECTION

WARNINGS / CAUTION

1. FALL PROTECTION may be required.
2. WATCH YOUR STEP if standing on the Jellyfish Filter Deck at any time; Great care and safety must be taken while walking or maneuvering on the Jellyfish Filter Deck. Attentive care must be taken while standing on the Jellyfish Filter Deck at all times to prevent stepping onto a lid, into or through a cartridge hole or slipping on the deck.
3. The Jellyfish Filter Deck can be SLIPPERY WHEN WET.
4. If the Top Slab, Covers or Hatches have not yet been installed, or are removed for any reason, great care must be taken to NOT DROP ANYTHING ONTO THE JELLYFISH FILTER DECK. The Jellyfish Filter Deck and Cartridge Receptacle Rings can be damaged under high impact loads.*This type of activity voids all warranties. All damaged items to be replaced at owner's expense*.
5. Maximum deck load 2 persons, total weight 225 lbs. per person.

Safety Notice

Jobsite safety is a topic and practice addressed comprehensively by others. The inclusions here are intended to be reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Contractor's responsibility and outside the scope of Contech Engineered Solutions.

Confined Space Entry

Secure all equipment and perform all training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to proceed safely at all times.

Personal Safety Equipment

Contractor is responsible to provide and wear appropriate personal protection equipment as needed including, but not limited to safety boots, hard hat, reflective vest, protective eyewear, gloves and fall protection equipment as necessary. Make sure all equipment is **staffed with trained and/or certified personnel**, and all equipment is checked for proper operation and safety features prior to use.

- Fall protection equipment
- Eye protection
- Safety boots
- Ear protection
- Gloves
- Ventilation and respiratory protection
- Hard hat
- Maintenance and protection of traffic plan

Thank You for purchasing the Jellyfish® Filter!

Contech Engineered Solutions would like to thank you for selecting the Jellyfish Filter to meet your project's stormwater treatment needs. With proper inspection and maintenance, the Jellyfish Filter is designed to deliver ongoing, high levels of stormwater pollutant removal.

If you have any questions, please feel free to call us or e-mail us at info@conteches.com.com.

Contech Engineered Solutions

9025 Centre Pointe Drive, Suite 400

West Chester, OH 45069

Phone: 800-338-1122

www.ContechES.com

Jellyfish Filter Patents

The Jellyfish Filter is protected by one or more of the following patents:

U.S. Patent No. 8,123,935; U.S. Patent No. 8,287,726; U.S. Patent No. 8,221,618
Australia Patent No. 2008,286,748
Canadian Patent No. 2,696,482
Korean Patent No. 10-1287539
New Zealand Patent No. 583,461; New Zealand Patent No. 604,227
South African Patent No. 2010,01068
other patents pending

Table of Contents

Chapter 1

1 – Owner Specific Jellyfish Filter Product Information

Below you will find a reference page that can be filled out according to your Jellyfish Filter specification to help you easily inspect, maintain and order parts for your system.

Owner Name:	
Phone Number:	
Site Address:	
Site GPS Coordinates/unit location:	
Unit Location Description:	
Jellyfish Filter Model No.:	
Cartridge Installation Date:	
No. of Hi-Flo Cartridges	
Length of Hi-Flo Cartridges:	
Lid Orifice Diameter on Hi-Flo Cartridge:	
No. of Draindown Cartridges:	
Length of Draindown Cartridges:	
Lid Orifice Diameter on Draindown Cartridge:	
No. of Blank Cartridge Lids:	
Online System (Yes/No):	
Offline System (Yes/No):	

Notes:

Chapter 2

2.0 – Jellyfish Filter System Operations and Functions

The Jellyfish Filter is an engineered stormwater quality treatment technology that removes a high level and wide variety of stormwater pollutants. Each Jellyfish Filter cartridge consists of multiple membrane - encased filter elements (“filtration tentacles”) attached to a cartridge head plate. The filtration tentacles provide a large filtration surface area, resulting in high flow and high pollutant removal capacity.

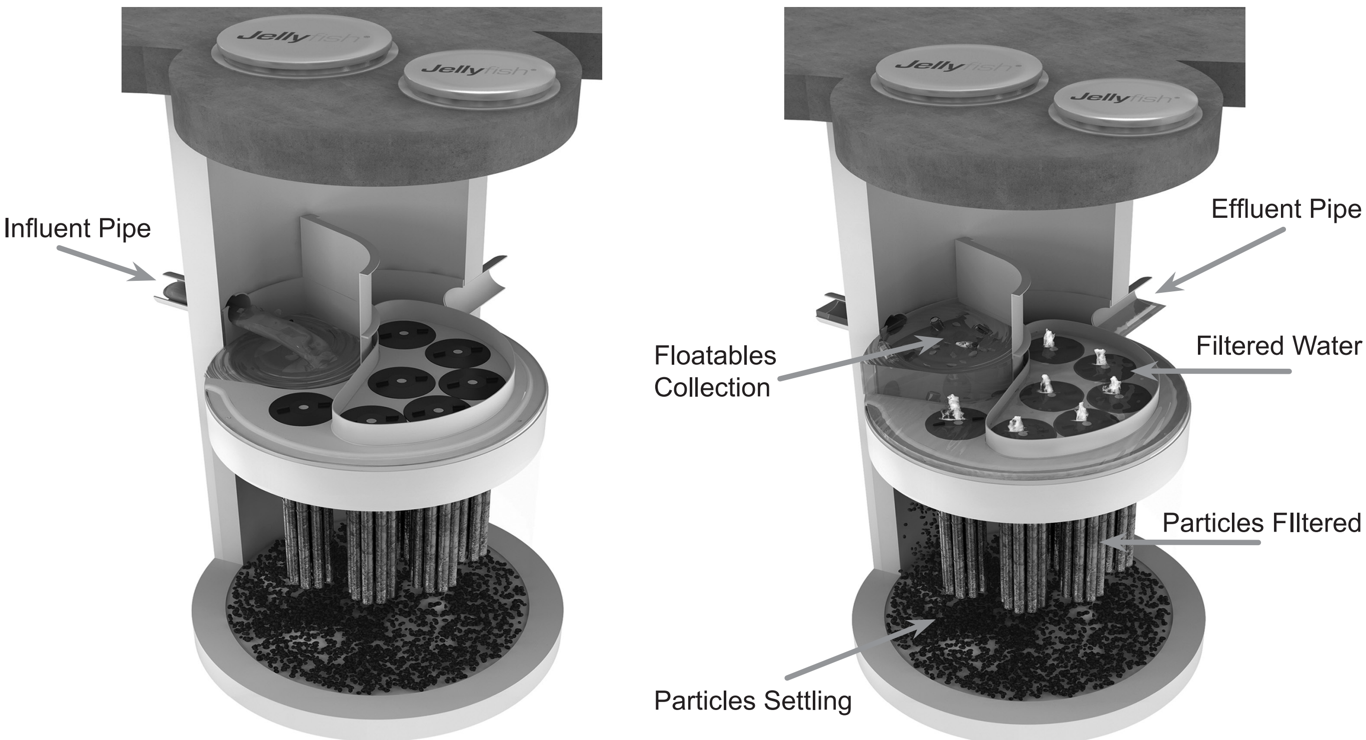
The Jellyfish Filter functions are depicted in **Figure 1** below.

FIGURE 1

Jellyfish Filter Treatment Functions

Membrane Filtration

Section View with Maintenance Access Wall (MAW) Cutaway



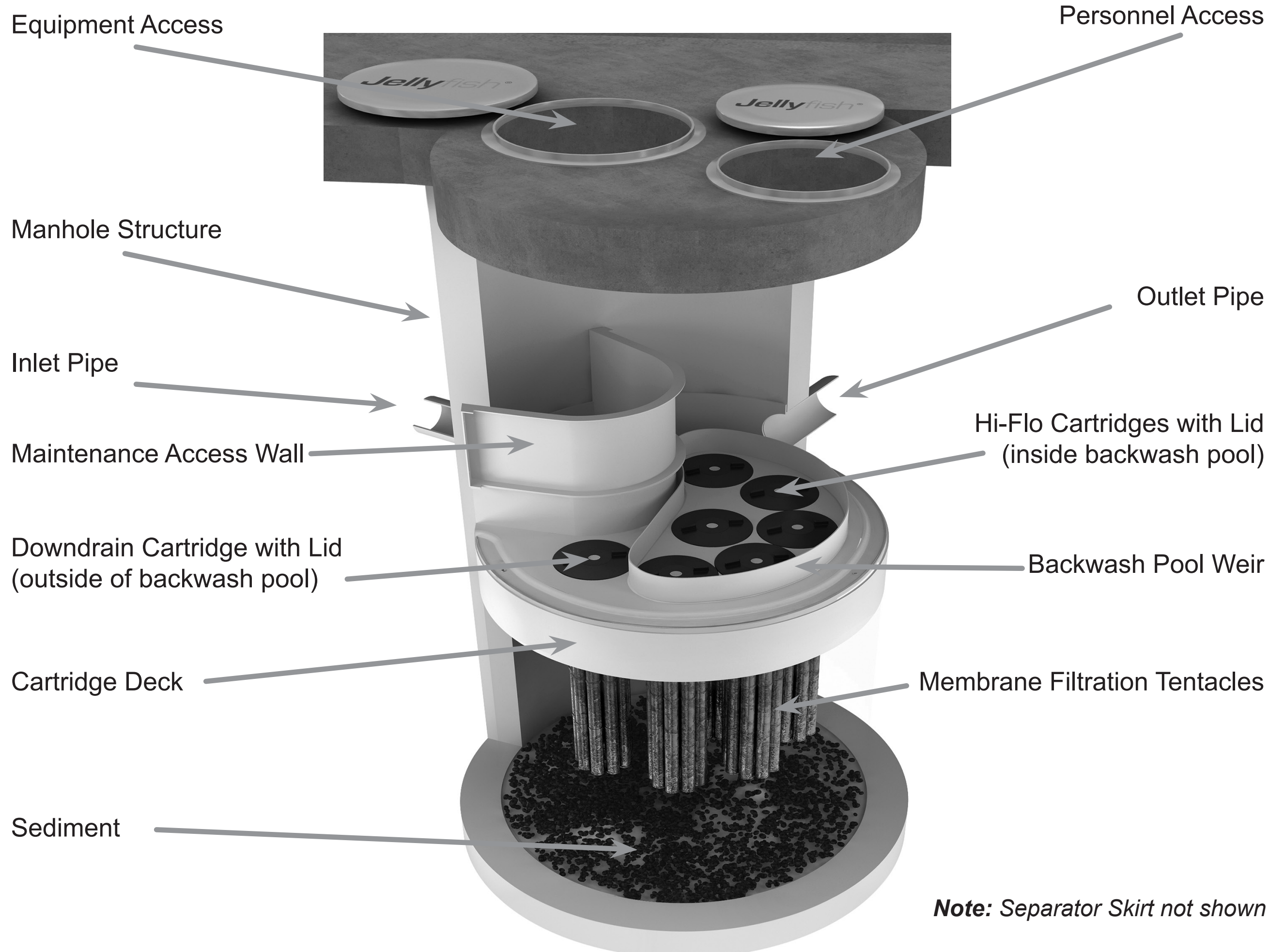
Jellyfish Filter cartridges are backwashed after each peak storm event, which removes accumulated sediment from the membranes. This backwash process extends the service life of the cartridges and increases the time between maintenance events.

For additional details on the operation and pollutant capabilities of the Jellyfish Filter please refer to additional details on our website at www.ContechES.com.

2.1 – Components and Cartridges

The Jellyfish Filter and components are depicted in Figure 2 below.

FIGURE 2 **Jellyfish Filter Components**



Note: *Separator Skirt not shown*

Tentacles are available in various lengths as depicted in Table 1 below.

Table 1 – Cartridge Lengths / Weights and Cartridge Lid Orifice Diameters

Cartridge Lengths	Dry Weight	Hi-Flo Orifice Diameter	Draindown Orifice Diameter
15 inches (381 mm)	10 lbs (4.5 kg)	35 mm	20 mm
27 inches (686 mm)	14.5 lbs (6.6 kg)	45 mm	25 mm
40 inches (1,016 mm)	19.5 lbs (8.9 kg)	55 mm	30 mm
54 inches (1,372 mm)	25 lbs (11.4 kg)	70 mm	35 mm

A Jellyfish membrane filtration cartridge is depicted in Figure 3 below.

FIGURE 3

Jellyfish Membrane Filtration Cartridge

2.2 – Jellyfish Membrane Filtration Cartridge Assembly

The Jellyfish Filter utilizes multiple membrane filtration cartridges. Each cartridge consists of removable cylindrical filtration “tentacles” attached to a cartridge head plate. Each filtration tentacle has a threaded pipe nipple and o-ring. To attach, insert the top pipe nipples with the o-ring through the head plate holes and secure with locking nuts. Locking nuts to be hand tighten and checked with a wrench as shown below.

2.3 – Jellyfish Membrane Filtration Cartridge Installation

- After the upstream catchment and site have stabilized, remove any accumulated sediment and debris from the Jellyfish Filter structure and upstream diversion structure (if applicable). Failure to address this step completely will reduce the time between required maintenance.
- Descend to the cartridge deck (see Safety Notice and page 3).
- Lower the Jellyfish membrane filtration cartridges into the cartridge receptacles within the cartridge deck. A filter cartridge should be placed into each of the draindown cartridge receptacles outside the backwash pool weir. It is possible dependent on the Jellyfish Filter model purchased that not all cartridge receptacles will be filled with a filter cartridge. In that case, a blank headplate and blank cartridge lid (has no orfice) would be installed.

Cartridge Assembly

Avoid snagging the cartridge membranes on the recpticle lip when inserting the Jellyfish membrane filtration cartridges into the cartridge receptacles. Use a gentle twisting or sideways motion to clear any potential snag. Do not force the tentacles down into the cartridge receptacle, as this may damage the membranes. Apply downward pressure on the cartridge head plate to seat the rim gasket (thick circular gasket surrounding the circumference of the head plate) into the cartridge receptacle.

- Examine the cartridge lids to differentiate lids with a small orifice, a large orifice, and no orifice.
  - Lids with a small orifice are to be inserted into the draindown cartridge receptacles, outside of the backwash pool weir.
  - Lids with a large orifice are to be inserted into the hi-flo cartridge receptacles within the backwash pool weir.
  - Lids with no orifice (blank cartridge lids) and a blank headplate are to be inserted into unoccupied cartridge receptacles.
- **To install a cartridge lid, align the cartridge lid male threads with the cartridge receptacle female threads. Firmly twist the cartridge lid clockwise a minimum 110º to seat the filter cartridge snugly in place, with a proper watertight seal.**

Chapter 3

3.0 – Inspection and Maintenance Overview

The primary purpose of the Jellyfish Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, captured pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Maintenance activities may be required in the event of an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW)

Maintenance activities typically include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments from manhole sump
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed.

It is recommended that Jellyfish Filter inspection and maintenance be performed by professionally trained individuals, with experience in stormwater maintenance and disposal services. Maintenance procedures may require manned entry into the Jellyfish structure. Only professional maintenance service providers trained in confined space entry procedures should enter the vessel. Procedures, safety and damage prevention precautions, and other information, included in these guidelines, should be reviewed and observed prior to all inspection and maintenance activities.

3.1 – Inspection

3.1.1 – Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent.*

- Post-construction inspection is required prior to putting the Jellyfish Filter into service. All construction debris or construction-related sediment within the device must be removed, and any damage to system components repaired.
- A minimum of two inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.

- Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
- Inspection is recommended after each major storm event.
- Immediately after an upstream oil, fuel or other chemical spill.

3.1.2 – Inspection Tools and Equipment

The following equipment and tools are typically required when performing a Jellyfish Filter inspection:

- Access cover lifting tool
- Sediment probe (clear hollow tube with check valve)
- Tape measure
- Flashlight
- Camera
- Inspection and maintenance log documentation
- Safety cones and caution tape
- Hard hat, safety shoes, safety glasses, and chemical-resistant gloves

3.1.3 – Inspection Procedure

The depth of sediment and oil can be measured from the surface by using a sediment probe or dipstick tube equipped with a ball check valve and inserted through the Jellyfish Filter's maintenance access wall opening. The large opening provides convenient access for inspection and vacuum removal of water and pollutants.

The following procedure is recommended when performing inspections:

- Provide traffic control measures as necessary.
- Inspect the MAW for floatable pollutants such as trash, debris, and oil sheen.
- Measure oil and sediment depth by lowering a sediment probe through the MAW opening until contact is made with the floor of the structure. Retrieve the probe, record sediment depth, and presences of any oil layers and repeat in multiple locations within the MAW opening. **Sediment depth of 12 inches or greater indicates maintenance is required**.
- Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
- Inspect the MAW, cartridge deck, and backwash pool weir for cracks or broken components. If damaged, repair is required.
- **Dry weather inspections:** inspect the cartridge deck for standing water.
  - No standing water under normal operating condition.
  - Standing water **inside** the backwash pool, but not outside the backwash pool, this condition indicates that the filter cartridges need to be rinsed.
  - Standing water **outside** the backwash pool may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- **Wet weather inspections:** observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW.
  - **Less than 6 inches**, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
  - **Greater than 6 inches**, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
  - **18 inches or greater** and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges are occluded with sediment and need to be rinsed.

3.2 – Maintenance

3.2.1 – Maintenance Requirements

Required maintenance for Jellyfish Filter units is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

- **Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.**
- Floatable trash, debris, and oil must be removed.
- Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs first.
- Replace filter cartridge if rinsing does not remove accumulated sediment from the tentacles, or if tentacles are damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
- Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
- The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged by the spill.

3.2.2 – Maintenance Tools and Equipment

The following equipment and tools are typically required when performing Jellyfish Filter maintenance:

- Vacuum truck
- Ladder
- Garden hose and low pressure sprayer
- Rope or cord to lift filter cartridges from the cartridge deck to the surface
- Adjustable pliers for removing filter cartridge tentacles from cartridge head plate
- Plastic tub or garbage can for collecting effluent from rinsed filter cartridge tentacles
- Access cover lifting tool
- Sediment probe (clear hollow tube with check valve)
- Tape measure
- Flashlight
- Camera
- Inspection and maintenance log documentation
- Safety cones and caution tape
- Hard hats, safety shoes, safety glasses, chemical-resistant gloves, and hearing protection for service providers
- Proper safety equipment for confined space entry
- Replacement filter cartridge tentacles if required

3.2.3 – Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

- Provide traffic control measures as necessary.
- Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures.
- **Caution:** Dropping objects onto the cartridge deck may cause damage.
- Perform **Inspection Procedure** prior to maintenance activity.
- To access the cartridge deck for filter cartridge service, descend the ladder and step directly onto the deck. **Caution:** Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.

3.2.4 – Filter Cartridge Rinsing Procedure

- Remove a cartridge lid.
- Remove the cartridge from the receptacle using the lifting loops in the cartridge head plate. **Caution:** Should

a snag occur, do not force the cartridge upward as damage to the tentacles may result. Rotate the cartridge with a slight sideways motion to clear the snag and continue removing the cartridge.

Rinsing of dirty filter cartridge tentacles with a low-pressure garden hose sprayer, and using a plastic garbage container to capture rinse water.

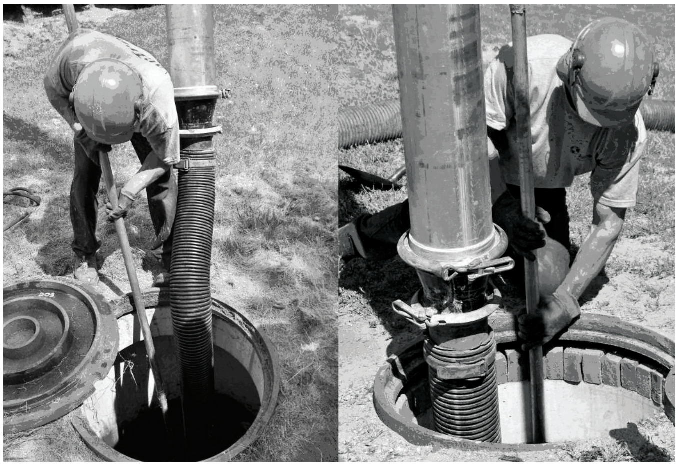
- Thread a rope or cord through the lifting loops and lift the filter cartridge from the cartridge deck to the top surface outside the structure.
- **Caution:** Immediately replace and secure the lid on the exposed empty receptacle as a safety precaution. Never expose more than one empty cartridge receptacle.
- Repeat the filter cartridge removal procedure until all of the cartridges are located at the top surface outside the structure.
- Disassemble the tentacles from each filter cartridge by rotating counter-clockwise. Remove the tentacles from the cartridge head plate.
- Position a receptacle in a plastic tub or garbage can such that the rinse water is captured. Using a low-pressure garden hose sprayer, direct a wide-angle water spray at a downward 45° angle onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. **Caution:** Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane. Turn membrane upside down and pour out any residual rinsewater to ensure center of tentacle is clear of any sediment.
- Remove rinse water from rinse tub or garbage can using a vacuum hose as needed.
- Slip the o-ring over the tentacle nipple and reassemble onto the cartridge head plate; hand-tighten.
- If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.
- Lower a rinsed filter cartridge to the cartridge deck. Remove the cartridge lid on a receptacle and carefully lower the filter cartridge into the receptacle until the head plate gasket is seated squarely on the lip of the receptacle. **Caution:** Should a snag occur when lowering the cartridge into the receptacle, do not force the cartridge downward; damage may occur. Rotate the cartridge with a slight sideways motion to clear the snag and complete the installation.
- Replace the cartridge lid on the exposed receptacle. Rinse away any accumulated grit from the receptacle threads if needed to get a proper fit. **Align the cartridge lid male threads with the cartridge receptacle female threads. Firmly twist the cartridge lid clockwise a minimum 110º to seat the filter cartridge snugly in place, with a proper watertight seal**.
- Repeat cartridge installation until all cartridges are installed.

3.2.5 – Vacuum Cleaning Procedure

- **Caution:** Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning **only through the maintenance access wall (MAW) opening**, being careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck. The separator skirt surrounds the filter cartridge zone, and could be torn if contacted by the wand. **Do not lower the vacuum wand through a cartridge receptacle**, as damage to the receptacle will result.
  - To remove floatable trash, debris, and oil, lower the vacuum hose into the MAW opening and vacuum floatable pollutants off the surface of the water. Alternatively, floatable solids may be removed by a net or skimmer.
  - Using a vacuum hose, remove the water from the lower chamber to the sanitary sewer, if permitted by the local regulating authority, or into a separate containment tank.
  - Remove the sediment from the bottom of the unit through the MAW opening.
  - For larger diameter Jellyfish Filter manholes (8-ft, 10-ft, 12-ft diameter), complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle..
  - After the unit is clean, re-fill the lower chamber with water if required by the local jurisdiction, and re-install filter cartridges.
  - Dispose of sediment, floatable trash and debris, oil, spent tentacles, and water according to local regulatory requirements.

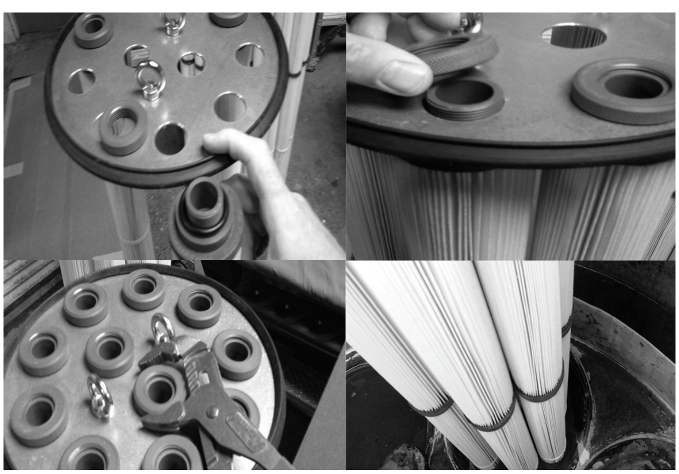
3.2.6 – Chemical Spills

- **Caution**: If a chemical spill has been captured by the Jellyfish Filter, do not attempt maintenance. Immediately contact the local hazard response agency.



A maintenance worker stationed on the surface uses a vacuum hose to evacuate water, sediment, and floatables from the Jellyfish Filter by inserting the vacuum wand through the maintenance access wall opening.

A view of a Jellyfish Filter cartridge deck from the surface showing all the cartridge lids intact and no standing water on the deck (left image), and inspection of the flexible separator skirt from inside the maintenance access wall opening (right image).



Assembly of a Jellyfish Filter cartridge (left) and installation of a filter cartridge into a cartridge receptacle in the deck (right).

3.3 – Disposal Procedures

Disposal requirements for recovered pollutants and spent filtration tentacles may vary depending on local guidelines. In most areas the sediment and spent filtration tentacles, once dewatered, can be disposed of in a sanitary landfill. It is not anticipated that the sediment would be classified as hazardous waste.

Petroleum-based pollutants captured by the Jellyfish Filter, such as oil and fuels, should be removed and disposed of by a licensed waste management company.

Although the Jellyfish Filter captures virtually all free oil, a sheen may still be present at the MAW. A rainbow or sheen can be visible at oil concentrations of less than 10 mg/L (ppm).

Chapter 4

4 – Recommended Safety Procedures

Jobsite safety is a topic and a practice addressed comprehensively by others. The inclusions here are merely reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply.

4.1 – Confined Space/Personal Safety Equipment/Warning and Cautions

Please see reference on Page 3.

Chapter 5

5 – Jellyfish Filter Replacement Parts

Jellyfish membrane filtration cartridges, cartridge components, cartridge lids, other replacement parts can be ordered by contacting Contech Engineered Solutions at:

Phone: 800-338-1122

Email: info@conteches.com

Website: www.ContechES.com

5.1 – Jellyfish Filter Replacement Parts List

Note: Jellyfish Cartridges and/or Filtration tentacles are available in the following lengths:

• 15 Inch (381 mm) • 27 Inch (686 mm) • 40 Inch (1,016 mm) • 54 Inch (1,372 mm)

- Jellyfish Cartridge (specify length). Includes head plate with lifting loops, rim gasket, eleven (11) filtration tentacles, eleven (11) o-rings, and eleven (11) locking nuts
- Standard Head plate
- Blank head plate
- Rim gasket (for head plate)
- Locking nuts (for tentacles)
- O-rings (for tentacles)
- Cartridge lids are available with the following orifice sizes: 70mm, 55mm, 45mm, 35mm, 30mm, 25mm, 30mm, blank lid (no orifice)
- Maintenance Access Wall (MAW) extension (18-inch segment)

** Nothing in this catalog should be construed as an expressed warranty or implied warranties, including the warranties of merchantability and of fitness for any particular purpose.*

Jellyfish Filter Inspection and Maintenance Log

Owner: ____________________ Jellyfish Model No.:____________________

Location: ____________________ GPS Coordinates: ____________________

Land Use: Commercial:______ Industrial: ______ Service Station:______

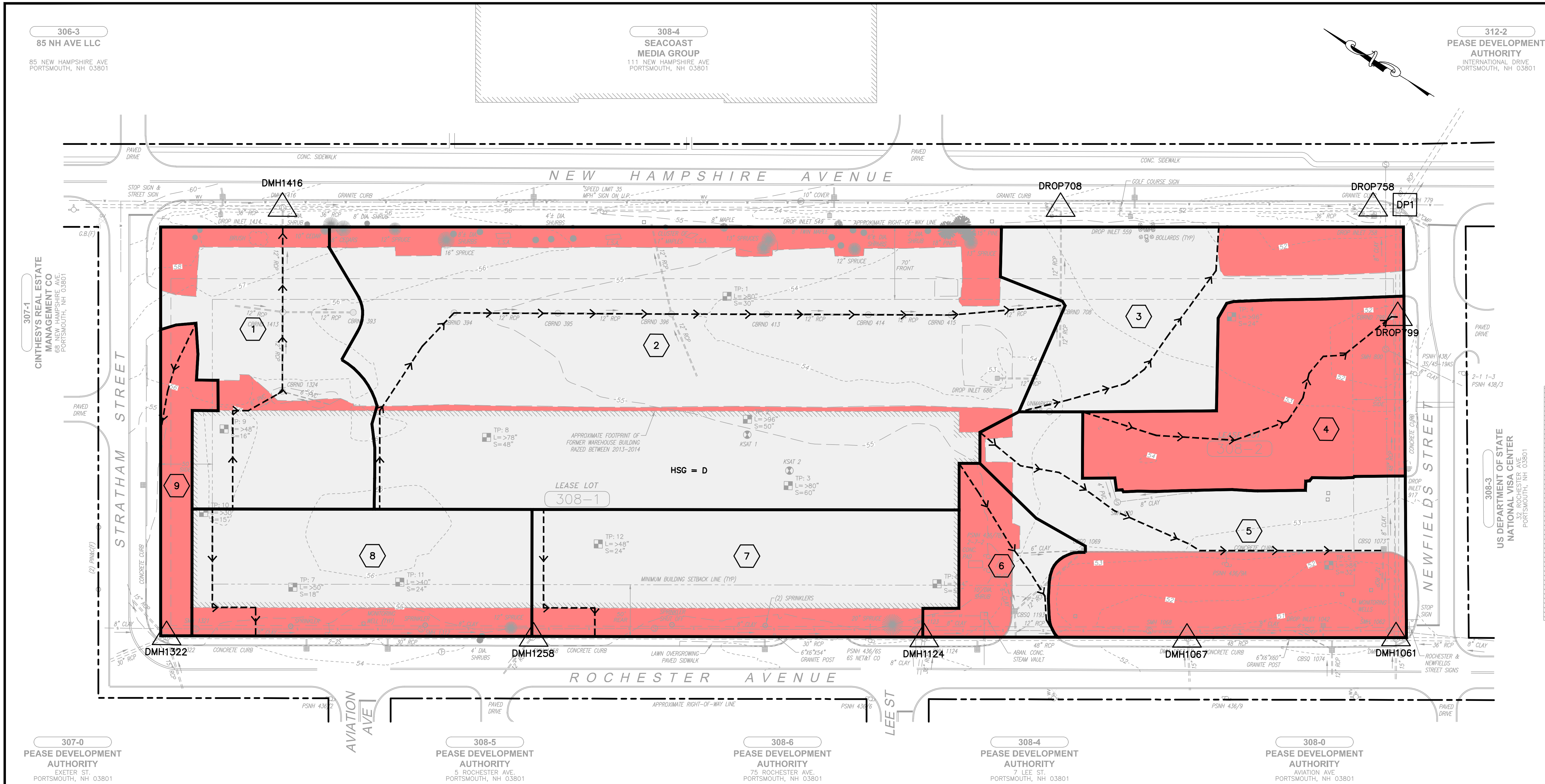
Road/Highway:____ Airport: ________ Residential: _________ Parking Lot:______

Date/Time:						
Inspector:						
Maintenance Contractor:						
Visible Oil Present: (Y/N)						
Oil Quantity Removed						
Floatable Debris Present: (Y/N)						
Floatable Debris removed: (Y/N)						
Water Depth in Backwash Pool						
Draindown Cartridges externally rinsed and re-commissioned: (Y/N)						
New tentacles put on Cartridges: (Y/N)						
Hi-Flo cartridges externally rinsed and recommissioned (Y/N):						
New tentacles put on Hi-Flo Cartridges: (Y/N)						
Sediment Depth Measured: (Y/N)						
Sediment Depth (inches or mm):						
Sediment Removed: (Y/N)						
Cartridge Lids intact: (Y/N)						
Observed Damage:						
Comments:						

PROJECT PLANS

(Please see the 22” x 34” plan set prepared to accompany this Alteration of Terrain Application)

COLOR CODED SOIL PLANS



EXISTING DRAINAGE TABLE

CBRND 393
RIM=55.86
SUMP=52.49
INV.OUT=55.24

CBRND 394
RIM=55.21
SUMP=51.67
INV.OUT=52.17

CBRND 395
RIM=54.54
SUMP=50.90
INV.IN–50.89
INV.OUT=50.88

CBRND 396
RIM=54.01
SUMP=50.01
INV.IN=49.83
INV.IN=50.16(S36°W)
INV.OUT=50.11(N46°W)

CBRND 413
RIM=53.74
SUMP=50.15
INV.IN=INACCESSIBLE
INV.OUT=50.14

CBRND 414
RIM=53.45
SUMP=49.83
INV.IN=49.85
INV.OUT=49.55

CBRND 415
RIM=53.27
SUMP=48.92
INV.IN=49.01
INV.OUT=49.03

CBRND 708
RIM=53.06
SUMP=48.10
INV.IN=48.28
INV.IN=48.29(S66°W)
INV.OUT=48.11(N56°E)

CBRND 799
RIM=50.75
SUMP=45.04
INV.OUT=45.18

CBRND 1324
RIM=54.83
SUMP=52.27
INV.IN=52.90(N61°W)
INV.IN=52.81(S16°E)
INV.OUT=52.32(N59°E)

CBRND 1413
RIM=56.36
SUMP=51.80
INV.IN=51.73(N26°W)
INV.IN=51.71(CBRND 1324)
INV.IN=51.73(S39°E)
INV.OUT=51.61(DMH 1416)

CBSQ 1069
RIM=53.00
SUMP=49.00
INV.IN=49.12(N66°W)
INV.OUT=48.11(CBSQ 1193)

CBSQ 1073
RIM=52.09
SUMP=48.59
INV.OUT=48.39

CBSQ 1074
RIM=50.62
SUMP=46.07
INV.IN=46.14(12"RCP)
INV.IN=46.10(6"CLAY)
INV.OUT=46.07(12"RCP)

CBSQ 1193
RIM=52.61
SUMP=48.56
INV.IN=48.80(N41°E)
INV.IN=48.38(CBSQ 1069)
INV.OUT=48.37(S56°W)

DROP INLET 549
RIM=53.97
SUMP=49.47
INV.OUT=49.02(12"RCP)

DROP INLET 559
RIM=52.45
SUMP=48.05
INV.OUT=47.50(12"RCP)

DROP INLET 686
RIM=52.40
SUMP=49.89
INV.OUT=49.88(12"RCP)

DROP INLET 758
RIM=49.54
SUMP=45.89
INV.OUT=45.84(12"RCP)

DROP INLET 917
RIM=53.15
SUMP=50.79
INV.OUT=50.79(10"CMP)

DROP INLET 1042
RIM=50.79
SUMP=47.69
INV.OUT=47.46(10"CMP)

DROP INLET 1414
RIM=56.21
SUMP=53.54
INV.OUT=53.21(12"RCP)

DMH 1061
RIM=52.02
SUMP=44.37
INV.IN=44.60(DMH 1067)
INV.IN=44.57(S59°W)
INV.IN=44.62(S31°E)
INV.OUT=44.49 (DMH 779)

DMH 779
RIM=51.93
SUMP=41.54
INV.IN=42.87 (DMH 1061)
INV.IN=INACCESSIBLE(S14°E)
INV.IN=43.31(DMH 1416)
INV.OUT=42.17(S79°E)

DMH 1067
RIM=52.35
SUMP=45.70
INV.IN=45.95(DMH 1124)
INV.IN=45.90(S56°W)
INV.OUT=45.81 (DMH 1061)

DMH 1124
RIM=54.01
SUMP=46.80
INV.IN=46.61(DMH 1258)
INV.IN=46.76(S66°W)
INV.OUT=46.56(DMH 1067)

DMH 1258
RIM=54.91
SUMP=47.57
INV.IN=47.45(DMH 1322)
INV.IN=47.54(N84°W)
INV.OUT=47.37(DMH 1124)

DMH 1322
RIM=55.14
SUMP=48.40
INV.IN=48.57(N54°W)
INV.IN=48.62(S41W)
INV.IN=48.74(N16°E)
INV.OUT=48.24(DMH 1258)

DMH 1416
RIM=58.30
SUMP=48.77
INV.IN=48.76(N31°W)
INV.IN=50.47(CBRND 1413)
INV.OUT=48.65(DMH 779)

EXISTING SEWER TABLE

SMH 800
RIM=51.36
SHELF=42.47
TROUGH=41.84
INV.IN=41.76(SMH 1062)
INV.IN=47.07(S06°E)
INV.OUT=41.71(SMH 784)

SMH 920
RIM=53.49
SHELF=43.96
TROUGH=43.66
INV.IN=45.54(N33°E)
INV.OUT=43.39(S04°E)

SMH 1062
RIM=51.84
SHELF=43.60
TROUGH=42.77
INV.IN=42.80(N76°W)
INV.IN=42.78(SMH1068)
INV.IN=42.78(S26°E)
INV.OUT=42.79

SMH 1068
RIM=52.16
SHELF=44.36
TROUGH=43.77
INV.IN=43.66(N12°W)
INV.OUT=43.39(SMH 1062)

SMH 1123
RIM=54.64
SHELF=45.31
TROUGH=44.74
INV.IN=44.66
INV.IN=44.72(S04°W)
INV.OUT=44.60

SMH 1312
RIM=54.60
SHELF=47.39
TROUGH=46.79
INV.IN=46.81(SMH 1321)
INV.OUT=46.75(SMH 1543)

SMH 1321
RIM=55.03
SHELF=49.75
TROUGH=49.24
INV.IN=49.28(N31°W)
INV.OUT=49.21(SMH 1312)

HYDROLOGIC SOIL GROUP

GROUP A
GROUP B
GROUP C
GROUP D
IMPERVIOUS

DRAINAGE LEGEND

SUBCATCHMENT BOUNDARY
Tc FLOW LINE
HSG = B HYDROLOGIC SOIL GROUP BOUNDARY
1A SUBCATCHMENT DESIGNATION
1R REACH DESIGNATION
1P POND DESIGNATION

SOIL SURVEY PREPARED BY:
CHRIS GUIDA
FIELDSTONE LAND CONSULTANTS, PLLC.

REDUCED TO 11x17

GRAPHIC SCALE
50 0 25 50 60
(IN FEET)
1 inch = 50 ft.

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

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Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE:	ORIGINAL DATE:	DESIGNED BY	DRAWN BY	CHECKED BY
AS SHOWN	NOVEMBER 16, 2018	SMT	SMT	WRD

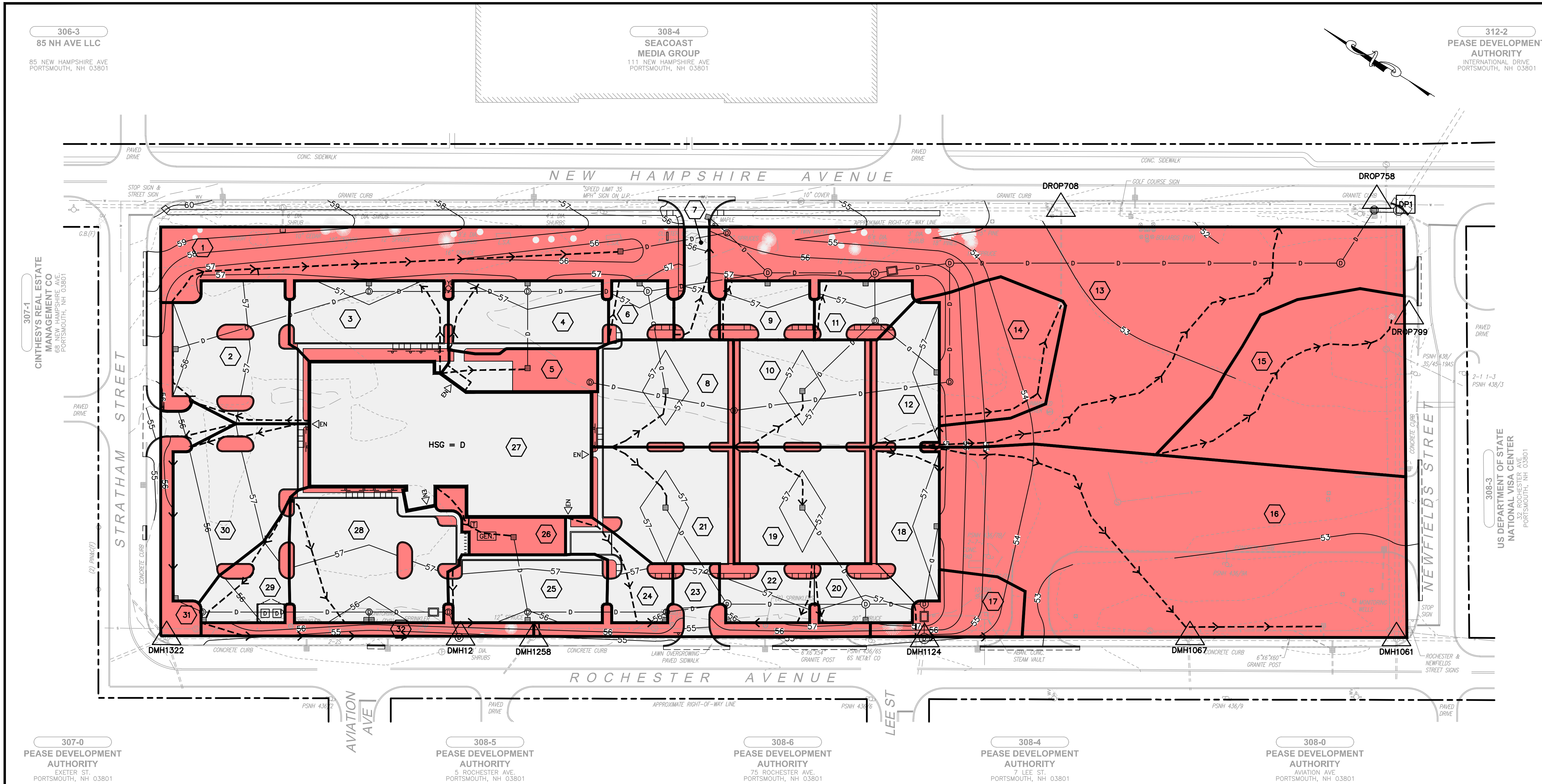
CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

PRE-DEVELOPMENT COLOR CODED SITE SPECIFIC SOIL MAP

PROJECT NO. 556912

SHEET 1 OF 2



HYDROLOGIC SOIL GROUP

- GROUP A
- GROUP B
- GROUP C
- GROUP D
- IMPERVIOUS

DRAINAGE LEGEND

- SUBCATCHMENT BOUNDARY
- Tc FLOW LINE
- HSG = B — HYDROLOGIC SOIL GROUP BOUNDARY
- 1A — SUBCATCHMENT DESIGNATION
- 1R — REACH DESIGNATION
- 1P — POND DESIGNATION

SOIL SURVEY PREPARED BY:
CHRIS GUIDA
FIELDSTONE LAND CONSULTANTS, PLLC.

REDUCED TO 11x17

GRAPHIC SCALE

50 0 25 50 60

(IN FEET)
1 inch = 50 ft.

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1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

CHECKED BY: WRD
DRAWN BY: SMT
DESIGNED BY: SMT
ORIGINAL DATE: NOVEMBER 16, 2018
SCALE: AS SHOWN

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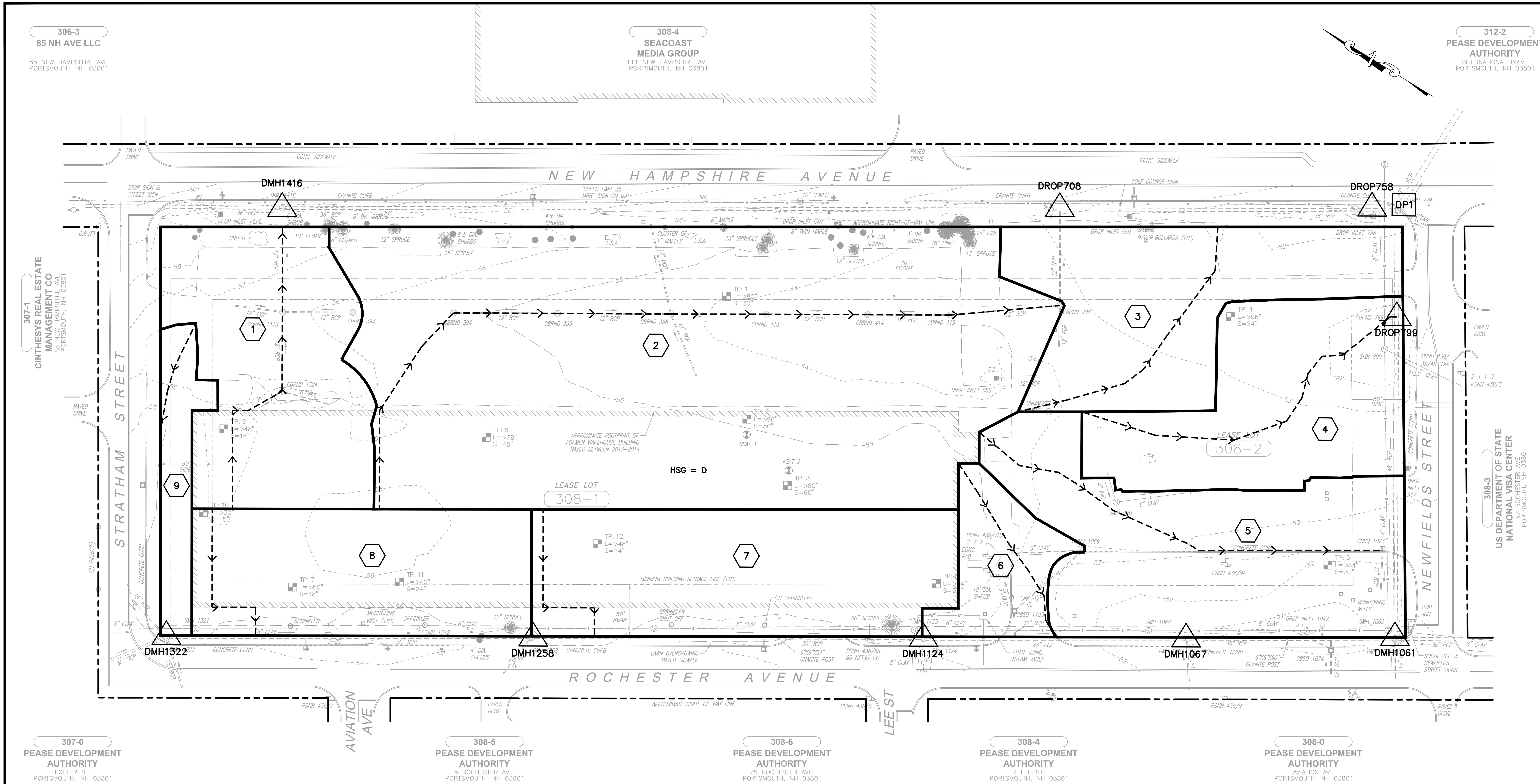
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

POST-DEVELOPMENT COLOR CODED SITE SPECIFIC SOIL MAP

PROJECT NO. 556912

SHEET 2 OF 2

DRAINAGE AREA PLANS



EXISTING DRAINAGE TABLE

CBRND 393
RIM=55.86
SUMP=52.49
INV.OUT=55.24

CBRND 394
RIM=55.21
SUMP=51.67
INV.OUT=52.17

CBRND 395
RIM=54.54
SUMP=50.90
INV.IN–50.89
INV.OUT=50.88

CBRND 396
RIM=54.01
SUMP=50.01
INV.IN=49.83
INV.IN=50.16(S36°W)
INV.OUT=50.11(N46°W)

CBRND 413
RIM=53.74
SUMP=50.15
INV.IN=INACCESSIBLE
INV.OUT=50.14

CBRND 414
RIM=53.45
SUMP=49.83
INV.IN=49.85
INV.OUT=49.55

CBRND 415
RIM=53.27
SUMP=48.92
INV.IN=49.01
INV.OUT=49.03

CBRND 708
RIM=53.06
SUMP=48.10
INV.IN=48.28
INV.IN=48.29(S66°W)
INV.OUT=48.11(N56°E)

CBRND 799
RIM=50.75
SUMP=45.04
INV.OUT=45.18

CBRND 1324
RIM=54.83
SUMP=52.27
INV.IN=52.90(N61°W)
INV.IN=52.81(S16°E)
INV.OUT=52.32(N59°E)

CBRND 1413
RIM=56.36
SUMP=51.80
INV.IN=51.73(N26°W)
INV.IN=51.71(CBRND 1324)
INV.IN=51.73(S39°E)
INV.OUT=51.61(DMH 1416)

CBSQ 1069
RIM=53.00
SUMP=49.00
INV.IN=49.12(N66°W)
INV.OUT=48.11(CBSQ 1193)

CBSQ 1073
RIM=52.09
SUMP=48.59
INV.OUT=48.39

CBSQ 1074
RIM=50.62
SUMP=46.07
INV.IN=46.14(12"RCP)
INV.IN=46.10(6"CLAY)
INV.OUT=46.07(12"RCP)

CBSQ 1193
RIM=52.61
SUMP=48.56
INV.IN=48.80(N41°E)
INV.IN=48.38(CBSQ 1069)
INV.OUT=48.37(S56°W)

DROP INLET 549
RIM=53.97
SUMP=49.47
INV.OUT=49.02(12"RCP)

DROP INLET 559
RIM=52.45
SUMP=48.05
INV.OUT=47.50(12"RCP)

DROP INLET 686
RIM=52.40
SUMP=49.89
INV.OUT=49.88(12"RCP)

DROP INLET 758
RIM=49.54
SUMP=45.89
INV.OUT=45.84(12"RCP)

DROP INLET 917
RIM=53.15
SUMP=50.79
INV.OUT=50.79(10"CMP)

DROP INLET 1042
RIM=50.79
SUMP=47.69
INV.OUT=47.46(10"CMP)

DROP INLET 1414
RIM=56.21
SUMP=53.54
INV.OUT=53.21(12"RCP)

DMH 1061
RIM=52.02
SUMP=44.37
INV.IN=44.60(DMH 1067)
INV.IN=44.57(S59°W)
INV.IN=44.62(S31°E)
INV.OUT=44.49 (DMH 779)

DMH 779
RIM=51.93
SUMP=41.54
INV.IN=42.87 (DMH 1061)
INV.IN=INACCESSIBLE(S14°E)
INV.IN=43.31(DMH 1416)
INV.OUT=42.17(S79°E)

DMH 1067
RIM=52.35
SUMP=45.70
INV.IN=45.95(DMH 1124)
INV.IN=45.90(S56°W)
INV.OUT=45.81 (DMH 1061)

DMH 1124
RIM=54.01
SUMP=46.80
INV.IN=46.61(DMH 1258)
INV.IN=46.76(S66°W)
INV.OUT=46.56(DMH 1067)

DMH 1258
RIM=54.91
SUMP=47.57
INV.IN=47.45(DMH 1322)
INV.IN=47.54(N84°W)
INV.OUT=47.37(DMH 1124)

DMH 1322
RIM=55.14
SUMP=48.40
INV.IN=48.57(N54°W)
INV.IN=48.62(S41W)
INV.IN=48.74(N16°E)
INV.OUT=48.24(DMH 1258)

DMH 1416
RIM=58.30
SUMP=48.77
INV.IN=48.76(N31°W)
INV.IN=50.47(CBRND 1413)
INV.OUT=48.65(DMH 779)

EXISTING SEWER TABLE

SMH 800
RIM=51.36
SHELF=42.47
TROUGH=41.84
INV.IN=41.76(SMH 1062)
INV.IN=47.07(S06°E)
INV.OUT=41.71(SMH 784)

SMH 920
RIM=53.49
SHELF=43.96
TROUGH=43.66
INV.IN=45.54(N33°E)
INV.OUT=43.39(S04°E)

SMH 1062
RIM=51.84
SHELF=43.60
TROUGH=42.77
INV.IN=42.80(N76°W)
INV.IN=42.78(SMH1068)
INV.IN=42.78(S26°E)
INV.OUT=42.79

SMH 1068
RIM=52.16
SHELF=44.36
TROUGH=43.77
INV.IN=43.66(N12°W)
INV.OUT=43.39(SMH 1062)

SMH 1123
RIM=54.64
SHELF=45.31
TROUGH=44.74
INV.IN=44.66
INV.IN=44.72(S04°W)
INV.OUT=44.60

SMH 1312
RIM=54.60
SHELF=47.39
TROUGH=46.79
INV.IN=46.81(SMH 1321)
INV.OUT=46.75(SMH 1543)

SMH 1321
RIM=55.03
SHELF=49.75
TROUGH=49.24
INV.IN=49.28(N31°W)
INV.OUT=49.21(SMH 1312)

DRAINAGE LEGEND

SUBCATCHMENT BOUNDARY
Tc FLOW LINE
HSG = B HYDROLOGIC SOIL GROUP BOUNDARY
1A SUBCATCHMENT DESIGNATION
1R REACH DESIGNATION
1P POND DESIGNATION

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

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SCALE:	ORIGINAL DATE:	DESIGNED BY	DRAWN BY	CHECKED BY
AS SHOWN	NOVEMBER 16, 2018	SMT	SMT	WRD

CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

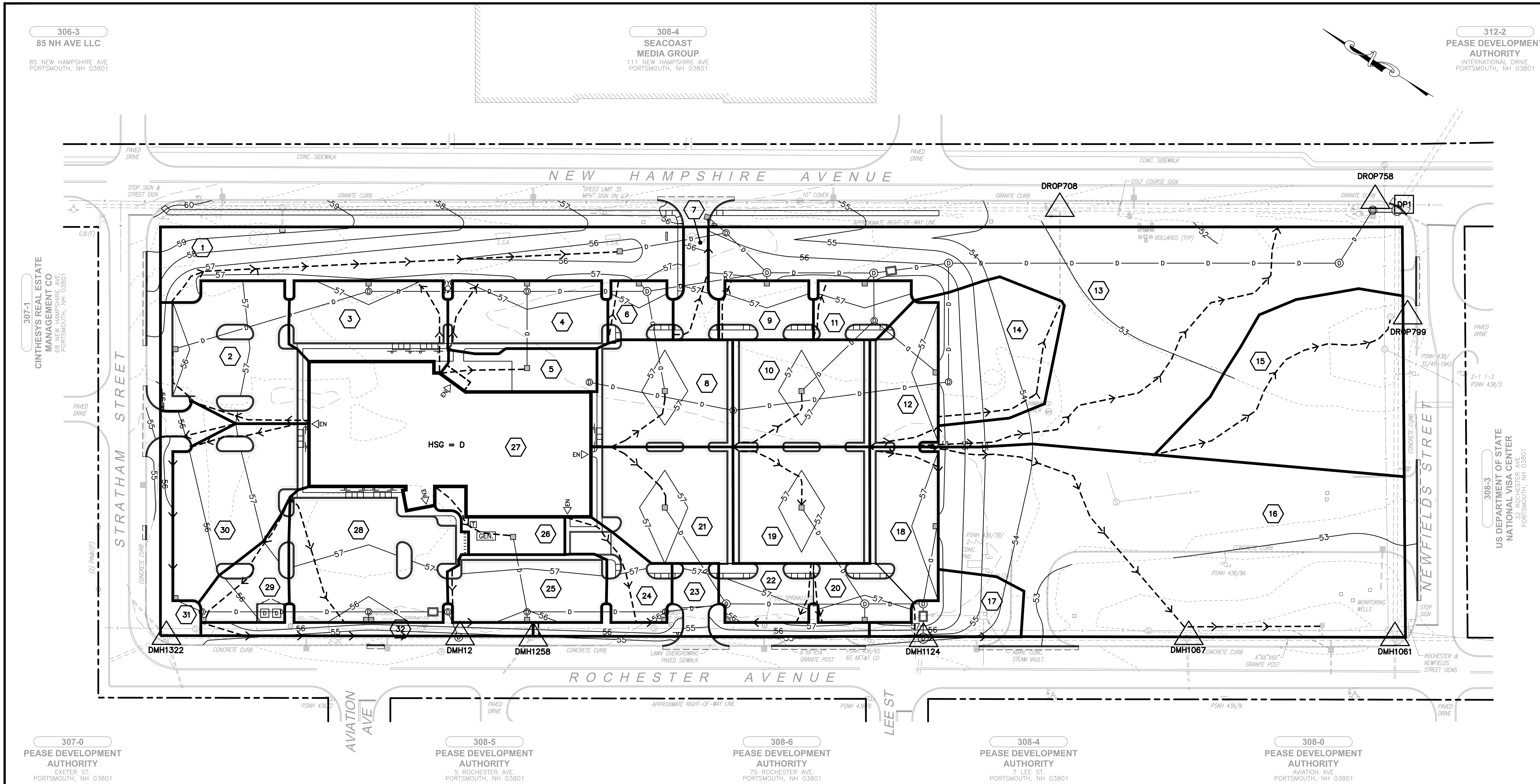
PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

PRE-DEVELOPMENT
DRAINAGE PLAN

DR1

PROJECT NO. 556912

SHEET 1 OF 2



DRAINAGE LEGEND	
(line)	SUBCATCHMENT BOUNDARY
(dashed arrow)	Tc FLOW LINE
HSG = B	HYDROLOGIC SOIL GROUP BOUNDARY
1A	SUBCATCHMENT DESIGNATION
1R	REACH DESIGNATION
1P	POND DESIGNATION

GRAPHIC SCALE

50 0 25 50 60

(IN FEET)
1 inch = 50 ft.

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE:	ORIGINAL DATE:	DESIGNED BY	DRAWN BY	CHECKED BY
AS SHOWN	NOVEMBER 16, 2018	SMT	SMT	WRD

CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

POST-DEVELOPMENT DRAINAGE PLAN

DR2

PROJECT NO. 556912

SHEET 2 OF 2

TWO INTERNATIONAL GROUP

EAST ELEVATION

PROPOSED 4 STORY OFFICE BUILDING

100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

RENDERINGS PREPARED BY:
MARGULIES PERRUZZI ARCHITECTS
308 CONGRESS STREET
BOSTON, MA 02210
(617) 482-3232

DATE: 12/04/18

SHEET: 1

TWO INTERNATIONAL
GROUP

NORTHEAST AERIAL

PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

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DATE: 12/04/18

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2

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PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
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DATE: 12/04/18

SHEET:
3

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NEWFIELDS STREET ELEVATION

PROPOSED 4 STORY OFFICE BUILDING

100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

RENDERINGS PREPARED BY:
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DATE: 12/04/18

SHEET:
4

DRAINAGE STUDY

FOR A

PROPOSED FOUR STORY OFFICE BUILDING

100 New Hampshire Avenue
Pease International Tradeport
Portsmouth, New Hampshire

December 4, 2018

Prepared for:

TWO INTERNATIONAL
GROUP

STATE OF NEW HAMPSHIRE
SHAWN
M.
TOBEY
No. 14121
LICENSED
PROFESSIONAL ENGINEER
12/4/18

Prepared by:

Hoyle, Tanner & Associates, Inc.

100 International Drive, Suite 360
Pease International Tradeport
Portsmouth, New Hampshire 03801

TABLE OF CONTENTS

APPENDICES

PROJECT INTRODUCTION

The proposed project includes the construction of a four (4) story office building with a footprint of 32,250 SF and a total of 129,000 SF. The design also includes the construction of 517 parking spaces, sidewalks, drainage infrastructure, supporting utilities, landscaping and lighting. The site is located at 100 New Hampshire Avenue on the Pease International Tradeport in the City of Portsmouth, New Hampshire. The project parcel is 10.9± acres and is identified as Lots 1 and 2 on the City of Portsmouth Tax Map 308.

The site previously contained a warehouse and parking lot that were part of the Pease Air Force Base. The warehouse has since been demolished and the site now consists of abandoned parking lots surrounded by mowed grass. An existing drainage network, sewer mains, and abandoned steam lines also run through the site.

The project has been designed to meet the requirements of the New Hampshire Department of Environmental Services (NHDES) regulations for the Alteration of Terrain (AoT) permit. The design utilizes the existing hydrologic and hydraulic patterns, minimizes impacts to surrounding areas, and uses best management practices (BMP's) to provide stormwater treatment, groundwater recharge, channel protection and peak runoff control.

DRAINAGE ANALYSIS METHODOLOGY

To effectively analyze the pre- and post-development conditions for the project, a single design point was established at the convergence of stormwater runoff locations on the site. The area draining to this design point encompasses the full site and was broken down into single or multiple subcatchments depending on size and drainage patterns. The pre-development subcatchments were delineated from the existing conditions plan prepared by Fieldstone Land Consultants, PLLC dated December 4, 2018.

In accordance with NHDES regulations, rainfall precipitation data was obtained from the Northeast Regional Climate Center website (http://precip.eas.cornell.edu/) based on the project location. The full precipitation tables can be seen in Appendix A. A summary of the rainfall events is shown in the table below.

STORM EVENT	24-HOUR RAINFALL (Inches)
1-Year Storm	2.65
2-Year Storm	3.20
10-Year Storm	4.89
25-Year Storm	6.16
50-Year Storm	7.38
100-Year Storm	8.84

Technical Release 20 (TR-20) by the Natural Resources Conservation Service was utilized for modeling the surface water hydrology of the site. The model begins with a rainfall depth uniformly imposed on the watershed over a specified time distribution, 24 hours in this analysis. The rainfall depth is converted to volume of runoff by using a Runoff CN. The determination of the CN is based on assessments of soil characteristics, vegetation type and condition, amount of impervious areas, interception and surface storage. Soil types and Hydrologic Soil Groups were determined from a site-specific soil map of the site prepared by Fieldstone Land Consultants, PLLC dated December 4, 2018. See Appendix D and I for the Site-Specific Soil Map and Watershed Plans. The calculated runoff is then transformed into a hydrograph by using unit hydrograph theory and routing procedures that depend on runoff travel time through each sub-watershed. Typically, various storage configurations and volumes are analyzed to adjust detention times and the hydrograph so that the downstream peak discharge is reduced to equal or less than pre-development conditions.

Time of Concentration (T_c) for each sub-area was computed based on physical characteristics including surface type, Manning's Roughness Coefficient, flow length, 2-Year/24-Hour rainfall values, and gradients of the land.

The overall site pre- and post-development hydrographs were calculated utilizing the method detailed in Technical Release 55 (TR-55) "*Urban Hydrology for Small Watersheds*" as published by the United States Department of Agriculture Soil Conservation Service, "SCS", and revised in June of 1986. Tabular hydrographs were computed based on CN, T_C, T_t, area and precipitation input values.

The SCS Method is based upon the SCS Runoff Equation:

$$Q = \frac{(P-Ia)^2}{(P-Ia)+S}$$

Where:

Q = Runoff in Inches
P = Rainfall in Inches
S = Potential Maximum Retention in Inches
Ia = Initial Abstraction in Inches

Note:

S = 1000/CN – 10
CN = Runoff Curve Number

Computations were executed using the "HydroCAD" release 9.1 for Windows computer software for storm sewer design and analysis from Applied Microcomputer System. The runoff analysis is based on the NHDES regulations and analyzes the 2, 10, 25, 50-year design storms using the SCS TR-55 method with Type-III, 24-hour storms. All runoff from the proposed development is accounted for in the analysis presented.

This drainage study includes summaries and calculations for the stormwater treatment, groundwater recharge, channel protection and peak pre- and post-development peak runoff rates for the proposed site development associated with this project.

PRE-DEVELOPMENT CONDITIONS

The 10.9-acre parcel is located in the industrial zone of the Pease International Tradeport. See Appendix B for a full location map. The site is defined by Stratham Street to the north, New Hampshire Avenue to the east, Newfields Street to the south and Rochester Avenue to the west. Based on FEMA flood insurance rate map for Rockingham County community panel number 33015C0260E dated May 17, 2005, the parcel is not located within a 100-year or 500-year flood zone.

2013 Google Aerial of the Site

Recent Aerial of the Site

Previously the site contained a large warehouse and parking as part of the Pease Air Force Base. The 2013 image above shows the old infrastructure located on the site, after the base was decommissioned. In 2014, the warehouse was demolished in advance of future construction, and the parking lots were abandoned. The surrounding areas of the parking lots are mowed grass fields.

For the purposes of this study, the site will be modelled based on 2013 conditions. The NHDES Alteration of Terrain Permit allows any previously impervious area within 10 years to be included in the pre-construction drainage calculations. A single design point was created to analyze stormwater runoff generated from the proposed development. See Appendix I: Pre-Development Watershed Area Plans for the location of the design point and watershed. A summary for the design point and associated watershed are described below.

Design Point 1 (DP1) is located at DMH 779, at the east corner of the site. The area draining to this design point encompasses the full site in addition to offsite flows. For the purposes of this model, only flows contributing from the proposed development site are being considered at the design point. The existing site contains 147,435 sf of grass, 186,350 sf of paved parking area, and 141,205 sf of what was formerly roof. The watershed is mostly flat with slopes less than 1% in most areas. 2013 roof stormwater would flow into roof drains which connect to the existing stormwater infrastructure that divides the site. Stormwater sheet flows across the site and collects in a number of existing basins where it is then conveyed to one of the three trunk lines surrounding the site, 30" RCP to the southwest, 48" RCP to the southeast, and 36" RCP to the northeast, which converge at the design point. Eight (8) key convergences along the trunk lines are modeled for timing purposes. The HydroCAD model does not include all offsite flow into these trunk lines as the full watershed is unknown. See Appendix C for site photographs.

The analysis criteria used for the SCS TR-20 hydraulic analysis of the pre-development conditions are as follows:

- Storm Event Frequency: 2, 10, 25, and 50-year, 24-Hour Storms
- Runoff Coefficients (CN)

>75% Grass cover, Good HSG D	= 80
Paved Parking, HSG D	= 98
Roofs, HSG D	= 98

The complete HydroCAD analysis for the pre-development conditions can be seen in Appendix H of the study. The table below provides a summary of the peak runoff rates for each design point in the pre-development conditions.

PRE-DEVELOPMENT CONDITIONS	
	Design Point 1
Inflow Area	10.9 Acres
2-Year Peak Flow	27.70 cfs
10-Year Peak Flow	44.85 cfs
25-Year Peak Flow	58.26 cfs
50-Year Peak Flow	70.79 cfs

POST-DEVELOPMENT CONDITIONS

The proposed development was designed to discharge at the same design point as in the pre-development conditions. The Post-Development Drainage Area Plan can be seen in Appendix I. A summary for the design point and associated watershed is described below.

Design Point 1 (DP1) contains the same area as the pre-development design point, and consists of 258,760 sf of grass, 183,065 sf of paved parking area, and 33,170 sf of roof. Note that approximately 3.5 acres of the site will remain largely undeveloped at this time and although grass is proposed for the purposes of current construction, the site will be further developed at a later date. The watershed is still mostly flat with slopes less than 2% in most areas. Roof stormwater flows into roof drains which connect to new drain manholes at the east corner of the building. Stormwater collects in a number of new basins which intersect with the existing trunk lines in three (3) distinct locations, before converging at the design point. Nine (9) key convergences along the trunk lines, 3 for new infrastructure and 6 existing along the southern end of the site, are modeled for accuracy. DMH 1416 is no longer modeled in the post-development as there is no longer inflow from the site at that location.

The analysis criteria used for the SCS TR-20 hydraulic analysis of the post-development conditions are as follows:

- Storm Event Frequency: 2, 10, 25, and 50-year, 24-Hour Storms
- Runoff Coefficients (CN)

>75% Grass Cover, Good, HSG D	= 80
Paved Parking, HSG D	= 98
Roofs, HSG D	= 98

The complete HydroCAD analysis for the post-development conditions can be seen in Appendix H of the study. The table below provides a summary of the peak runoff rates for each design point in the post-development conditions.

POST-DEVELOPMENT CONDITIONS	
	Design Point 1
Inflow Area	10.9 Acres
2-Year Peak Flow	21.81 cfs
10-Year Peak Flow	36.78 cfs
25-Year Peak Flow	48.73 cfs
50-Year Peak Flow	60.00 cfs

The proposed development has been designed to provide stormwater treatment, peak runoff rate control and prevent erosion. During construction it is essential to provide Temporary Erosion Control as needed throughout the site. Temporary erosion control measures and their locations are shown on the enclosed Grading, Drainage and Erosion Control Plan and Detail Drawings, and will be included in the construction plans for implementation. Placement of various erosion control devices including silt socks will handle temporary erosion control. Existing drainage structures will be protected with inlet sediment bags. Grass swales will be stabilized with seeding and/or jute mats with check dams employed to detain sediment and reduce velocity.

WATER QUALITY CONTROL ANALYSIS

To provide water quality control, the proposed development will use two Best Management Practices (BMPs) to provide stormwater treatment from all impervious surfaces. Design calculations for each treatment method are shown in Appendix F: NHDES Calculation Worksheets. The table below outlines the proposed pre-treatment and treatment practices for the proposed site development.

WATER QUALITY CONTROL			
Design Point	Pre-Treatment Method	Treatment Method	Treatment Description
1	Deep Sump Offline CB	Contech Jellyfish Filters	Stormwater pretreatment is provided by deep sump offline catch basins, which allow sediment retention within the basins. Stormwater treatment is provided by Contech Jellyfish filters at 3 locations, which collect additional sediment and provide treatment prior to discharge from the site.

This site, as previously developed had no stormwater treatment. Several traditional treatment methods, including treatment swales and underground infiltration chambers, were considered during design. Due to limited grade change, poor soils, and high groundwater table, these methods were determined to be infeasible for this site.

GROUNDWATER RECHARGE ANALYSIS

The NHDES Alteration of Terrain Permit requires groundwater recharge to protect groundwater resources by minimizing the loss of annual pre-development groundwater recharge as a result of the proposed development. Because of class D soils across the site, and based on the NHDES groundwater recharge calculation worksheet, no recharge volume is required.

CHANNEL PROTECTION ANALYSIS

The NHDES Alteration of Terrain Permit requires channel protection to protect stream channels, downstream receiving waters and wetlands from erosion and associated sedimentation resulting from urbanization within a watershed. To satisfy channel protections regulations each design point must meet one of the following criteria:

- If the 2-year, 24-hour post-development storm volume has not increased over the pre-development volume, then control the 2-year, 24-hour post-development peak flow rate to the 2-year, 24-hour pre-development peak flow rate.

- If the 2-year, 24-hour post-development storm volume has increased over the pre-development volume, then control the 2-year, 24-hour post-development peak flow rate to 50 percent of the 2-year, 24-hour pre-development peak flow rate.

The table below demonstrates that the design point exceeds the channel protection requirements. Design point 1 has decrease in the 2-year, 24-hour post-development storm volumes as well as a reduction in the 24-hour post-development peak flow rate, therefore no additional channel protection is required.

CHANNEL PROTECTION						
Design Point	Pre-Dev. 2-Year Storm Volume	Post-Dev. 2-Year Storm Volume	Volume Reduction	Pre-Dev. 2-Year Peak Flow	Post-Dev. 2-Year Peak Flow	Peak Flow Reduction. Must be 50% or Greater If Volume Is Not Reduced
1	96,334 cf	82,962 cf	Yes	27.70 cfs	21.81 cfs	5.89 cfs

PEAK RUNOFF CONTROL ANALYSIS

The proposed site design reduces peak flow rates leaving the site for the 24-hour, 2, 10, 25 and 50-year storm events. The tables below outline the reductions for each storm event at each of the four design points.

Design Point 1			
24-Hour Storm	Pre-Development Peak Flow Rate	Post-Development Peak Flow Rate	Reduction
2-Year	27.70 cfs	21.81 cfs	5.89 cfs
10-Year	44.85 cfs	36.78 cfs	8.07 cfs
25-Year	58.26 cfs	48.73 cfs	9.53 cfs
50-Year	70.79 cfs	60.00 cfs	10.79 cfs

CONCLUSION

As shown in the peak runoff control tables, the total peak flows leaving the site are reduced in all storm events analyzed. To be conservative, peak flows to all three trunk lines are reduced post-construction, and the new section of 48" pipe at proposed DMH13 ensures that all offsite flow is directed to a trunk line equal to pre-construction conditions. There is currently no treatment on the site, which discharges to Newfield's Ditch, a tributary of Hodgson Brook. The proposed stormwater treatment devices will improve stormwater quality as compared to current conditions. All channel protection requirements as outlined by AoT regulations have been met. Further development of the south end of the site will require an amendment to the AoT permit at a later date.

APPENDIX A
NRCS RAINFALL DATA

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.809 degrees West
Latitude	43.080 degrees North
Elevation	0 feet
Date/Time	Tue, 06 Nov 2018 07:59:41 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.65	2.91	**1yr**	2.35	2.80	3.20	3.93	4.53	**1yr**
2yr	0.32	0.49	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.51	1.93	2.48	3.20	3.56	**2yr**	2.83	3.42	3.92	4.66	5.31	**2yr**
5yr	0.37	0.58	0.72	0.97	1.24	1.60	**5yr**	1.07	1.46	1.88	2.42	3.13	4.06	4.56	**5yr**	3.59	4.39	5.02	5.91	6.68	**5yr**
10yr	0.41	0.64	0.81	1.11	1.44	1.88	**10yr**	1.24	1.71	2.22	2.88	3.74	4.86	5.51	**10yr**	4.30	5.30	6.05	7.08	7.96	**10yr**
25yr	0.47	0.75	0.96	1.32	1.75	2.31	**25yr**	1.51	2.12	2.75	3.60	4.72	6.16	7.08	**25yr**	5.45	6.81	7.76	8.99	10.03	**25yr**
50yr	0.53	0.85	1.09	1.52	2.05	2.73	**50yr**	1.77	2.50	3.26	4.29	5.63	7.38	8.56	**50yr**	6.53	8.23	9.36	10.77	11.96	**50yr**
100yr	0.60	0.96	1.24	1.75	2.38	3.20	**100yr**	2.06	2.95	3.84	5.09	6.72	8.84	10.35	**100yr**	7.82	9.95	11.30	12.92	14.26	**100yr**
200yr	0.66	1.08	1.40	2.01	2.78	3.78	**200yr**	2.40	3.48	4.55	6.07	8.03	10.59	12.52	**200yr**	9.38	12.04	13.64	15.49	17.01	**200yr**
500yr	0.78	1.29	1.68	2.43	3.41	4.68	**500yr**	2.94	4.32	5.68	7.62	10.15	13.47	16.11	**500yr**	11.92	15.49	17.51	19.70	21.50	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.89	**1yr**	0.63	0.87	0.92	1.31	1.65	2.23	2.52	**1yr**	1.97	2.42	2.83	3.17	3.89	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.05	3.45	**2yr**	2.70	3.32	3.81	4.54	5.05	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.13	2.75	3.79	4.20	**5yr**	3.35	4.04	4.70	5.53	6.24	**5yr**
10yr	0.38	0.59	0.73	1.02	1.32	1.60	**10yr**	1.14	1.56	1.81	2.41	3.08	4.37	4.88	**10yr**	3.87	4.69	5.44	6.42	7.20	**10yr**
25yr	0.44	0.67	0.83	1.18	1.56	1.90	**25yr**	1.35	1.86	2.10	2.78	3.57	4.70	5.93	**25yr**	4.16	5.70	6.66	7.81	8.70	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.17	**50yr**	1.52	2.12	2.35	3.11	3.98	5.31	6.86	**50yr**	4.70	6.60	7.76	9.08	10.05	**50yr**
100yr	0.54	0.81	1.02	1.47	2.01	2.47	**100yr**	1.74	2.42	2.63	3.46	4.42	5.97	7.94	**100yr**	5.28	7.63	9.04	10.55	11.60	**100yr**
200yr	0.59	0.89	1.13	1.64	2.28	2.82	**200yr**	1.97	2.76	2.93	3.85	4.88	6.69	9.18	**200yr**	5.92	8.83	10.54	12.28	13.41	**200yr**
500yr	0.69	1.03	1.32	1.92	2.73	3.38	**500yr**	2.35	3.30	3.41	4.41	5.60	7.78	11.13	**500yr**	6.89	10.70	12.90	15.04	16.22	**500yr**

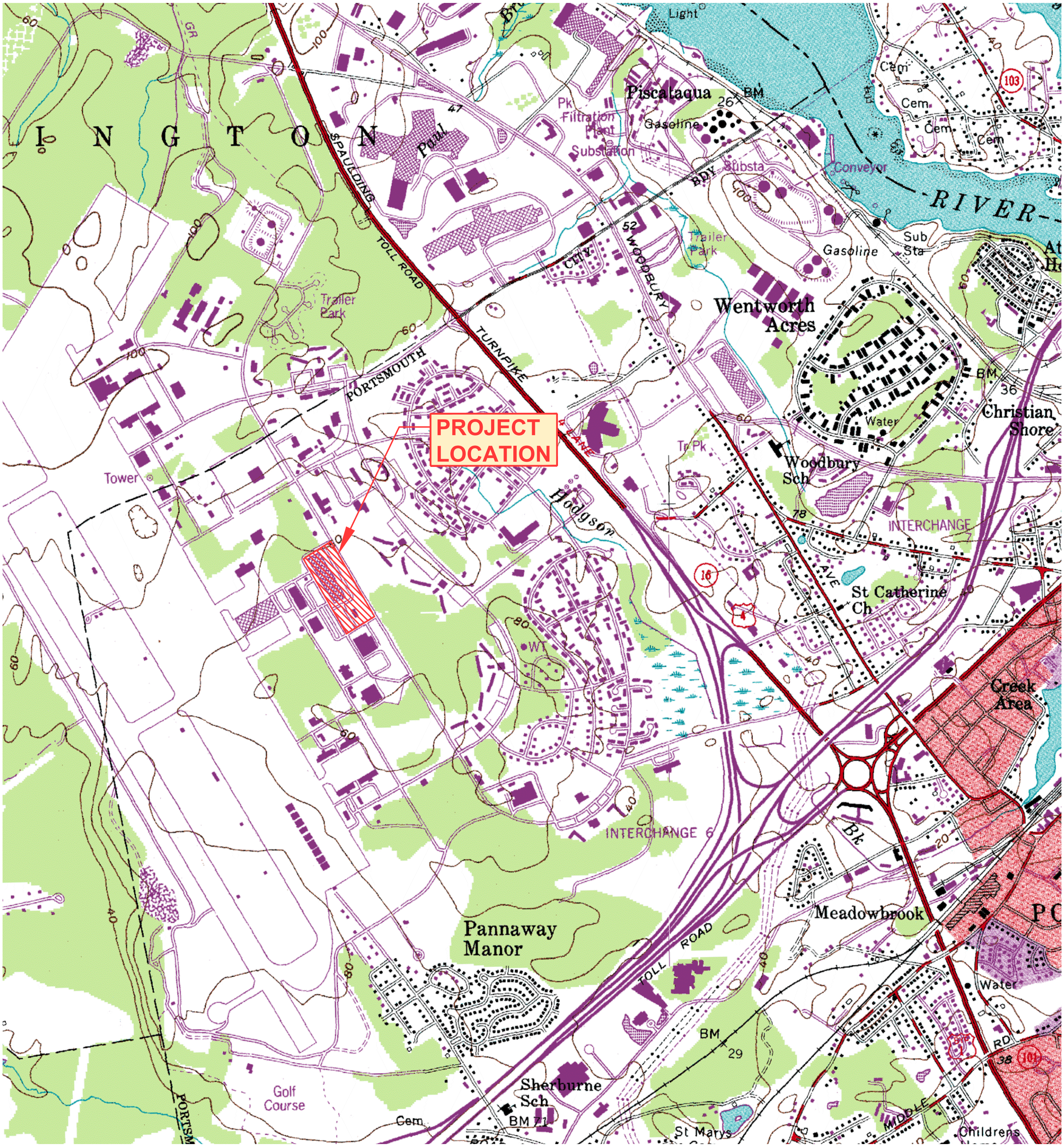
Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.53	0.72	0.88	1.08	**1yr**	0.76	1.06	1.25	1.75	2.21	3.00	3.13	**1yr**	2.65	3.01	3.57	4.36	5.03	**1yr**
2yr	0.33	0.52	0.63	0.86	1.06	1.26	**2yr**	0.91	1.23	1.48	1.96	2.51	3.42	3.68	**2yr**	3.03	3.53	4.06	4.81	5.62	**2yr**
5yr	0.40	0.61	0.76	1.04	1.33	1.61	**5yr**	1.15	1.57	1.87	2.52	3.23	4.32	4.92	**5yr**	3.83	4.73	5.35	6.33	7.11	**5yr**
10yr	0.46	0.71	0.88	1.24	1.60	1.96	**10yr**	1.38	1.92	2.27	3.09	3.92	5.32	6.14	**10yr**	4.71	5.90	6.73	7.77	8.68	**10yr**
25yr	0.57	0.87	1.08	1.54	2.02	2.54	**25yr**	1.74	2.48	2.93	4.04	5.09	7.74	8.24	**25yr**	6.85	7.92	8.99	10.24	11.32	**25yr**
50yr	0.66	1.01	1.25	1.80	2.42	3.09	**50yr**	2.09	3.02	3.56	4.95	6.22	9.68	10.31	**50yr**	8.57	9.92	11.21	12.60	13.85	**50yr**
100yr	0.77	1.17	1.47	2.12	2.90	3.75	**100yr**	2.51	3.67	4.33	6.09	7.61	12.11	12.91	**100yr**	10.72	12.41	13.96	15.52	16.95	**100yr**
200yr	0.90	1.36	1.72	2.49	3.48	4.57	**200yr**	3.00	4.47	5.27	7.49	9.32	15.17	16.17	**200yr**	13.43	15.55	17.42	19.12	20.76	**200yr**
500yr	1.12	1.66	2.14	3.10	4.41	5.91	**500yr**	3.81	5.78	6.84	9.87	12.20	20.47	21.78	**500yr**	18.11	20.95	23.34	25.19	27.14	**500yr**

Powered by ACIS
Northeast Regional Climate Center

APPENDIX B

LOCATION MAP



USGS MAP

N

PROPOSED FOUR STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH 03801
T□O INTE□NATIONAL □□O□P□LL□

Hoyle, Tanner & Associates, Inc.

Pease International Tradeport

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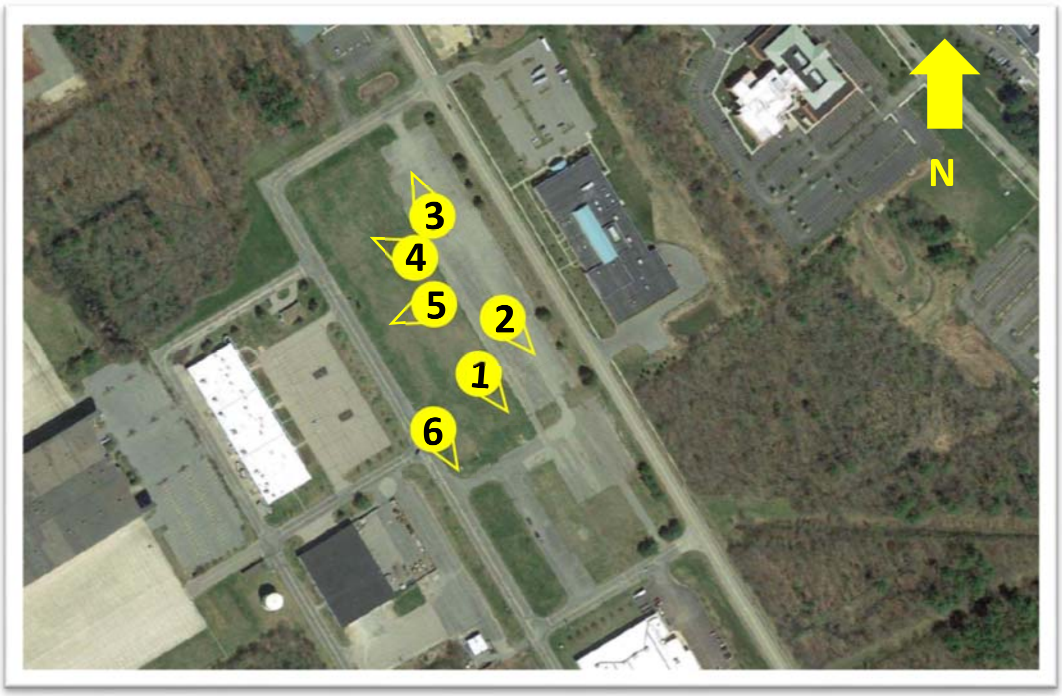
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

DATE: DEC 2018	
SCALE:	FIGURE:
1"=2000'	1

APPENDIX C
SITE PHOTOGRAPHS

Proposed Four Story Office Building
100 New Hampshire Avenue
Portsmouth, NH

Site Photographs



Site Photo Key

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photo 5:

Photo 6:

APPENDIX D
SITE SPECIFIC SOIL REPORT AND MAP

FIELDSTONE
LAND CONSULTANTS, PLLC
Surveying ✦ Engineering
Land Planning ✦ Septic Designs
206 Elm Street, Milford, NH 03055 - Phone: 603-672-5456 - Fax: 603-413-5456
www.FieldstoneLandConsultants.com

December 3, 2018

Shawn M. Tobey, P.E.
Hoyle, Tanner & Associates, Inc.
100 International Drive, Suite 360
Portsmouth, NH 03801

RE: Site Specific Soil Map Report
100 New Hampshire Avenue
Portsmouth, NH 03801

Dear Mr. Tobey,

In September of 2018 field work was performed on the above referenced property located at 100 New Hampshire Drive in the Pease International Tradeport, Portsmouth NH. The area included in the Site Specific Soil Survey is entirely developed with a recently razed commercial building and associated paved parking areas. The subject area is located within the former Pease Air Force Base and has various stages of development and re-development over the years. A large commercial building was razed in 2013-2014, rubble and foundation has been almost entirely removed and backfilled with a medium to coarse sandy fill material. Other portions of the site have also been manipulated and filled and have a large amount of defunct infrastructure such as sewer and water lines and other assorted piping and utilities. A few small areas with mature trees were located on the perimeter of the parcel, but otherwise the parcel has been re-graded and developed with existing buildings and paved parking lots and walkways throughout the parcel.

The following report accompanies the Site-Specific Soil Map prepared by this office which includes a Site Specific Soil Map Key for the soils encountered on the property. The parcel is commercially developed, is bounded by 4 roads and has access from them all: New Hampshire Ave, Newfields St, Rochester Ave and Stratham Ave.

Due to the commercially developed nature of the site there may be small inclusions within the mapped units which are not shown but would not be considered to significantly alter the use or general condition of the mapped areas. Some of these inclusions may include areas such as small dirt or debris piles, paved or partially paved and or degraded paved or gravel parking areas, utility manholes, walkways, concrete utility pads and curbing.

Almost the entire subject site has been re-graded, developed and/or modified in some manner. The entirety of the site has been classified using the Disturbed Map Unit Classification, has a Marine Sediment Parent Material overlain with assorted fill material. The majority of the fill material appeared to be a clean medium to coarse sand. The northwesterly corner of the site had variable areas of shallow ledge within a sandy, silty marine clay. The southeasterly corner was observed to have a higher free water table and a mixed assortment of fill material overlaying the marine sediments. Marine sediments were saturated with water and also perched stormwater on top of parent material, saturating the lower layers of placed fill materials.

This map product is within the technical standards of the National Cooperative Soil Survey. It is a special purpose product produced by a private certified soil scientist, and is not a product of the USDA Natural Resources Conservation Service. This narrative report accompanies a Site Specific Soil Map. The site-specific soil mapping on this lot was conducted by Christopher A. Guida, Certified Soil Scientist #091, of Fieldstone Land Consultants, PLLC in Milford NH. This Site Specific Soil Survey was completed utilizing the Society of Soil Scientist of Northern New England (SSSNNE) Special Publication No. 3; Site Specific Soil Mapping Standards for New Hampshire and Vermont, Version 4.0, February 2011. The soil legend used for this map conforms to the New Hampshire State-Wide Numerical Soils Legend, Issue #10, January 2011 established and maintained by the Natural Resources Conservation Service (NRCS).

Field work for this survey included the examination of soil profiles through the use of hand tools including a soil auger and tile spade as well as test pits conducted with an excavator. Although soil borings and test pits were conducted at intervals sufficient to delineate the boundaries between soil map units, due to the developed nature of the site there were numerous areas not accessible for inspection such as buildings, paved parking areas, underground utilities and similar features. Existing survey control network established by this office and site structures and boundary points were used as control points for this soil survey. The base plan used for the soil survey has 1 ft topographic contour intervals and was generated at a scale of 1”=50’.

DISTURBED MAP UNITS

See below excerpt from Society of Soil Scientist of Northern New England (SSSNNE) Special Publication No. 3; Site Specific Soil Mapping Standards for New Hampshire and Vermont, Version 4.0, February 2011, Disturbed Soil Mapping Unit Supplement for New Hampshire for soil map symbol denominators.

Map Symbol Denominators for Disturbed Unit Supplements
The map symbols for Site-Specific Soil Mapping of disturbed soils in New Hampshire is a two part symbol with parts separated by a forward slash (**/**).
The first part consists of the USDA-NRCS Disturbed Map Unit symbol from the NH State-Wide Numerical Soil Legend. The map symbol is composed of 1 to 3 digits followed by a capital letter designating slope.
The second part consists of symbols of the SSSNNE NH Disturbed Soil Supplement to the Site Specific Soil Survey Standards, as detailed below. The disturbed map symbol is composed of 5 lower case letters.
Thus a Site Specific map symbol for a map prepared for an AoT application would be formatted as follows:

400A/aaaaa
These SSSNNE NH Disturbed Soil Supplemental symbols can only be used in conjunction with the USDA-NRCS Disturbed Map Unit symbols for the NH Statewide Numerical Soil Legend.
Supplemental Symbols
The five components of the Disturbed Soil Mapping Unit Supplement are as follows:
Symbol 1: Drainage Class
a-Excessively Drained b-Somewhat Excessively Drained c-Well Drained d-Moderately Well Drained e-Somewhat Poorly Drained f-Poorly Drained g-Very Poorly Drained h-Not Determined

Symbol 2: Parent Material (of naturally formed soil only, if present)
a-No natural soil within 60" b-Glaciofluvial Deposits (outwash/terraces of sand or sand and gravel) c-Glacial Till Material (active ice) d-Glaciolacustrine very fine sand and silt deposits (glacial lakes) e-Loamy/sandy over Silt/Clay deposits f-Marine Silt and Clay deposits (ocean waters) g-Alluvial Deposits (floodplains) h-Organic Materials-Fresh water Bogs, etc i- Organic Materials-Tidal Marsh
Symbol 3: Restrictive/Impervious Layers
a-None b-Bouldery surface with more than 15% of the surface covered with boulders c-Mineral restrictive layer(s) are present in the soil profile less than 40 inches below the soil surface such as hard pan, platy structure or clayey texture with consistence of at least firm (i.e. more than 20 newtons). For other examples of soil characteristics that qualify for restrictive layers, see "Soil Manual for Site evaluations in NH" 2nd Ed., (page 3-17, figure 3-14) d-Bedrock in the soil profile; 0-20 inches e-Bedrock in the soil profile; 20-60 inches f-Areas where depth to bedrock is so variable that a single soil type cannot be applied, will be mapped as a complex of soil types g-Subject to Flooding h–Man-made impervious surface including pavement, concrete, or built-up surfaces (i.e. buildings) with no morphological restrictive layer within control section
Symbol 4: Estimated Ksat* (most limiting layer excluding symbol 3h above).
a- High. b-Moderate c-Low d-Not determined *See "Guidelines for Ksat Class Placement" in Chapter 3 of the Soil Survey Manual, USDA
Symbol 5: Hydrologic Soil Group*
a-Group A b-Group B c-Group C d-Group D e-Not determined
*excluding man-made surface impervious/restrictive layers

Disturbed Soils

500/ – Udorthents, Loamy – Typically Glacial Till soils of loamy texture that have been excavated and re-graded (cuts/fills associated with road construction or large filled areas or piles) Parent Material below surface fill was observed to be a marine sediment comprised of a dense silt loam, sandy clay which was saturated and would be considered a group D drainage class.

This site is dominated by disturbed soils. Soils in this area have been repeatedly modified over many years in conjunction with military and commercial uses. There may be minor inclusions of similar soils which were not mapped due to the developed nature of the property and inaccessible soils under buildings and pavement. This soil report and the accompanying soil map were prepared by Christopher A. Guida, New Hampshire Certified Soil Scientist #91.

Sincerely,

FIELDSTONE LAND CONSULTANTS, PLLC

Christopher A. Guida, C.S.S., C.W.S.
Certified Soil Scientist #91

306-3
85 NH AVE LLC
85 NEW HAMPSHIRE AVE
PORTSMOUTH, NH 03801

308-4
SEACOAST MEDIA GROUP
111 NEW HAMPSHIRE AVE
PORTSMOUTH, NH 03801

CERTIFICATION:

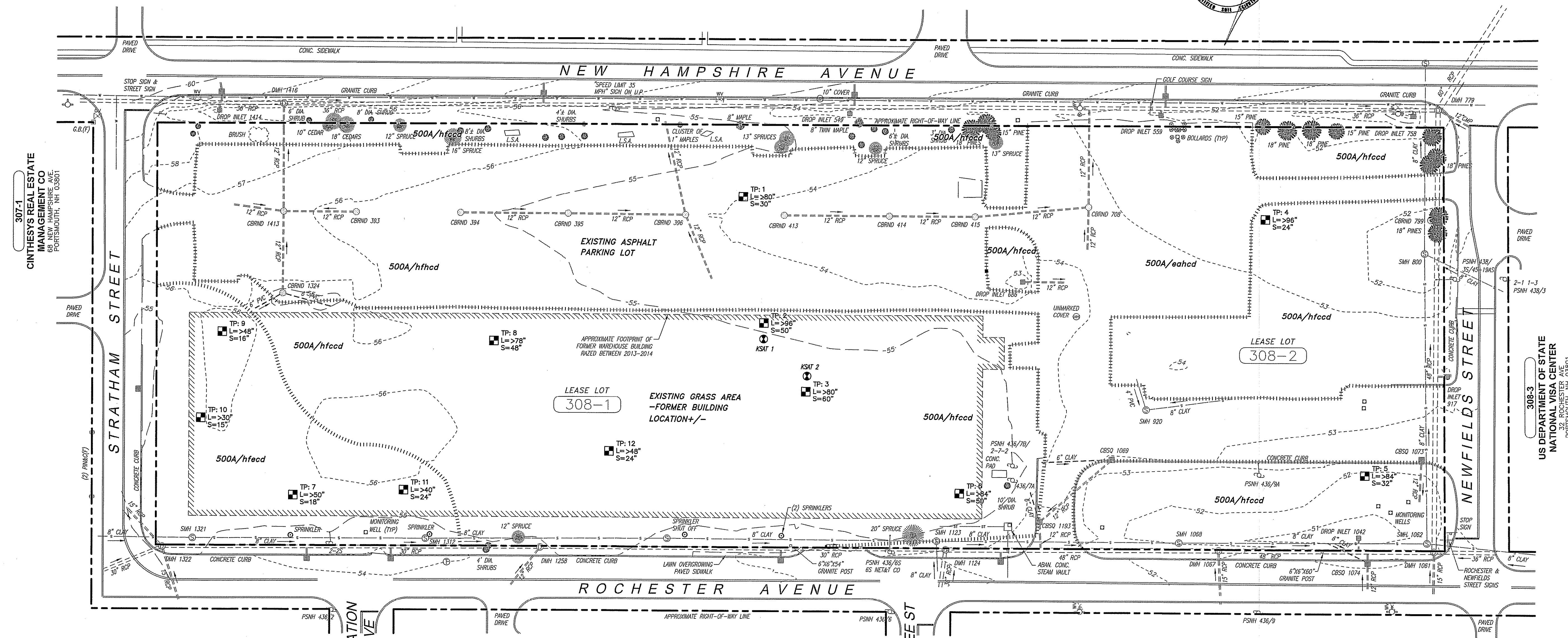
SOILS WERE MAPPED BY CHRISTOPHER A. GUIDA, CSS, IN ACCORDANCE WITH SITE SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT PUBLISHED BY THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND, PUBLICATION NO. 3, AS AMENDED, VERSION 4.0 FEBRUARY 2011.

DATE: 12/4/18

STATE OF NEW HAMPSHIRE CHRISTOPHER A. GUIDA No. 00091 CERTIFIED SOIL SCIENTIST

312-2
PEASE DEVELOPMENT AUTHORITY
INTERNATIONAL DRIVE
PORTSMOUTH, NH 03801

307-1
CINTHESYS REAL ESTATE MANAGEMENT CO
68 NEW HAMPSHIRE AVE
PORTSMOUTH, NH 03801



307-0
PEASE DEVELOPMENT AUTHORITY
EXETER ST.
PORTSMOUTH, NH 03801

308-5
PEASE DEVELOPMENT AUTHORITY
5 ROCHESTER AVE.
PORTSMOUTH, NH 03801

308-6
PEASE DEVELOPMENT AUTHORITY
75 ROCHESTER AVE.
PORTSMOUTH, NH 03801

308-4
PEASE DEVELOPMENT AUTHORITY
7 LEE ST.
PORTSMOUTH, NH 03801

308-0
PEASE DEVELOPMENT AUTHORITY
AVIATION AVE
PORTSMOUTH, NH 03801

308-3
US DEPARTMENT OF STATE NATIONAL VISA CENTER
32 ROCHESTER AVE
PORTSMOUTH, NH 03801

EXISTING DRAINAGE TABLE

CBRND 393
RIM=55.86
SUMP=52.49
INV.OUT=55.24

CBRND 394
RIM=55.21
SUMP=51.67
INV.OUT=52.17

CBRND 395
RIM=54.54
SUMP=50.90
INV.IN-50.89
INV.OUT=50.88

CBRND 396
RIM=54.01
SUMP=50.01
INV.IN=49.83
INV.IN=50.16(S36°W)
INV.OUT=50.11(N46°W)

CBRND 413
RIM=53.74
SUMP=50.15
INV.IN=INACCESSIBLE
INV.OUT=50.14

CBRND 414
RIM=53.45
SUMP=49.83
INV.IN=49.85
INV.OUT=49.55

CBRND 415
RIM=53.27
SUMP=48.92
INV.IN=49.01
INV.OUT=49.03

CBRND 708
RIM=53.06
SUMP=48.10
INV.IN=48.28
INV.IN=48.29(S66°W)
INV.OUT=48.11(N56°E)

CBRND 799
RIM=50.75
SUMP=45.04
INV.OUT=45.18

CBRND 1324
RIM=54.83
SUMP=52.27
INV.IN=52.90(N61°W)
INV.IN=52.81(S16°E)
INV.OUT=52.32(N59°E)

CBRND 1413
RIM=56.36
SUMP=51.80
INV.IN=51.73(N26°W)
INV.IN=51.71(CBRND 1324)
INV.IN=51.73(S39°E)
INV.OUT=51.61(DMH 1416)

CBSQ 1069
RIM=53.00
SUMP=49.00
INV.IN=49.12(N66°W)
INV.OUT=48.11(CBSQ 1193)

CBSQ 1073
RIM=52.09
SUMP=48.59
INV.OUT=48.39

CBSQ 1074
RIM=50.62
SUMP=46.07
INV.IN=46.14(12"RCP)
INV.IN=46.10(6"CLAY)
INV.OUT=46.07(12"RCP)

CBSQ 1193
RIM=52.61
SUMP=48.56
INV.IN=48.80(N41°E)
INV.IN=48.38(CBSQ 1069)
INV.OUT=48.37(S56°W)

DROP INLET 549
RIM=53.97
SUMP=49.47
INV.OUT=49.02(12"RCP)

DROP INLET 559
RIM=52.45
SUMP=48.05
INV.OUT=47.50(12"RCP)

DROP INLET 686
RIM=52.40
SUMP=49.89
INV.OUT=49.88(12"RCP)

DROP INLET 758
RIM=49.54
SUMP=45.89
INV.OUT=45.84(12"RCP)

DROP INLET 917
RIM=53.15
SUMP=50.79
INV.OUT=50.79(10"CMP)

DROP INLET 1042
RIM=50.79
SUMP=47.69
INV.OUT=47.46(10"CMP)

DROP INLET 1414
RIM=56.21
SUMP=53.54
INV.OUT=53.21(12"RCP)

DMH 1061
RIM=52.02
SUMP=44.37
INV.IN=44.60(DMH 1067)
INV.IN=44.57(S59°W)
INV.IN=44.62(S31°E)
INV.OUT=44.49 (DMH 779)

DMH 779
RIM=51.93
SUMP=41.54
INV.IN=42.87 (DMH 1061)
INV.IN=INACCESSIBLE(S14°E)
INV.IN=43.31(DMH 1416)
INV.OUT=42.17(S79°E)

DMH 1067
RIM=52.35
SUMP=45.70
INV.IN=45.95(DMH 1124)
INV.IN=45.90(S56°W)
INV.OUT=45.81 (DMH 1061)

DMH 1124
RIM=54.01
SUMP=46.80
INV.IN=46.61(DMH 1258)
INV.IN=46.76(S66°W)
INV.OUT=46.56(DMH 1067)

DMH 1258
RIM=54.91
SUMP=47.57
INV.IN=47.45(DMH 1322)
INV.IN=47.54(N84°W)
INV.OUT=47.37(DMH 1124)

DMH 1322
RIM=55.14
SUMP=48.40
INV.IN=48.57(N54°W)
INV.IN=48.62(S41W)
INV.IN=48.74(N16°E)
INV.OUT=48.24(DMH 1258)

DMH 1416
RIM=58.30
SUMP=48.77
INV.IN=48.76(N31°W)
INV.IN=50.47(CBRND 1413)
INV.OUT=48.65(DMH 779)

EXISTING SEWER TABLE

SMH 800
RIM=51.36
SHELF=42.47
TROUGH=41.84
INV.IN=41.76(SMH 1062)
INV.IN=47.07(S06°E)
INV.OUT=41.71(SMH 784)

SMH 920
RIM=53.49
SHELF=43.96
TROUGH=43.66
INV.IN=45.54(N33°E)
INV.OUT=43.39(S04°E)

SMH 1062
RIM=51.84
SHELF=43.60
TROUGH=42.77
INV.IN=42.80(N76°W)
INV.IN=42.78(SMH1068)
INV.IN=42.78(S26°E)
INV.OUT=42.79

SMH 1068
RIM=52.16
SHELF=44.36
TROUGH=43.77
INV.IN=43.66(N12°W)
INV.OUT=43.39(SMH 1062)

SMH 1123
RIM=54.64
SHELF=45.31
TROUGH=44.74
INV.IN=44.66
INV.IN=44.72(S04°W)
INV.OUT=44.60

SMH 1312
RIM=54.60
SHELF=47.39
TROUGH=46.79
INV.IN=46.81(SMH 1321)
INV.OUT=46.75(SMH 1543)

SMH 1321
RIM=55.03
SHELF=49.75
TROUGH=49.24
INV.IN=49.28(N31°W)
INV.OUT=49.21(SMH 1312)

SITE SPECIFIC DISTURBED SOIL SUPPLEMENT DENOMINATOR KEY

THE SOIL TYPES ARE DEFINED BY SOIL CHARACTERISTICS AND DESIGNATED WITH A FIVE PART SYMBOL. 500A/12345

PARENT MATERIAL — 2
DRAINAGE CLASS — 1
RESTRICTIVE/IMPERVIOUS LAYERS — 3
ESTIMATED K/SAT — 4
HYDROLOGIC SOIL GROUP — 5

SYMBOL 1–DRAINAGE CLASS
a – EXCESSIVELY DRAINED
b – SOMEWHAT EXCESSIVELY DRAINED
c – WELL DRAINED
d – MODERATELY WELL DRAINED
e – SOMEWHAT POORLY DRAINED
f – POORLY DRAINED
g – VERY POORLY DRAINED
h – NOT DETERMINED

SYMBOL 2–PARENT MATERIAL (NATURALLY FORMED SOIL ONLY, IF PRESENT)
a – NO NATURAL SOIL WITHIN 60"
b – GLACIOFLUVIAL DEPOSITS (OUTWASH/TERRACES OF SAND AND GRAVEL)
c – GLACIAL TILL MATERIAL (ACTIVE ICE)
GLACIOLACUSTRINE DEPOSITS;
d – VERY FINE SAND AND SILT DEPOSITS (GLACIAL LAKES)
e – LOAMY/SANDY OVER SILT/CLAY DEPOSITS
f – MARINE SILT AND CLAY DEPOSITS (OCEAN WATERS)
g – ALLUVIAL DEPOSITS (FLOODPLAINS)
h – ORGANIC MATERIALS – FRESH WATER
i – ORGANIC MATERIALS – TIDAL MARSH

SYMBOL 3–RESTRICTIVE / IMPERVIOUS LAYERS
a – NONE
b – BOULDERY, WITH MORE THAN 15% OF THE SURFACE COVERED WITH BOULDERS (LARGER THAN 12 INCHES IN DIAMETER)
c – MINERAL RESTRICTIVE LAYER(S) ARE PRESENT IN THE SOIL PROFILE LESS THAN 40 INCHES BELOW THE SOIL SURFACE SUCH AS HARD PAN, PLATY STRUCTURE, CLAYEY TEXTURE. FOR EXAMPLES OF SOIL CHARACTERISTICS THAT QUALIFY FOR RESTRICTIVE LAYER; SEE SOIL MANUAL FOR SITE EVALUATION IN NEW HAMPSHIRE, 2nd ED.,PAGE 3–17, FIGURE 3–14
d – BEDROCK PRESENT IN THE SOIL PROFILE 0 TO 20 INCHES
e – BEDROCK PRESENT IN THE SOIL PROFILE 20 TO 60 INCHES
f – AREAS WHERE DEPTH TO BEDROCK IS SO VARIABLE THAT A SINGLE SOIL TYPE CANNOT BE APPLIED WILL BE MAPPED AS A COMPLEX OF SOIL TYPES
g – SUBJECT TO FLOODING
h – MAN-MADE IMPERVIOUS SURFACE INCLUDING PAVEMENT, CONCRETE, OR BUILT-UP SURFACES (IE BUILDINGS) WITH NO MORPHOLOGICAL RESTRICTIVE LAYER WITHIN CONTROL SECTION.

SYMBOL 4–ESTIMATED Ksat (MOST LIMITING LAYER EXCLUDING 3h ABOVE)
a – HIGH
b – MODERATE
c – LOW
d – NOT DETERMINED

SYMBOL 5–HYDROLOGIC SOIL GROUP
a – GROUP A
b – GROUP B
c – GROUP C
d – GROUP D
e – NOT DETERMINED

SOIL NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE EXISTING SOILS ON SITE IN ACCORDANCE WITH SITE SPECIFIC MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT, VERSION 4 FEBRUARY 2011 SSSNNE SPECIAL PUBLICATION NO.3 AND HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV–WQ 1500, ALTERATION OF TERRAIN ON SUBJECT PARCEL AS SHOWN.

2. THIS PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR THE REDEVELOPMENT OF THE SUBJECT PARCEL. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCE CONSERVATION SERVICE.

GENERAL SOIL LEGEND:

DISTURBED SOILS
SOIL# SERIES NAME, DRAINAGE CLASS
500A/hfccd, UDORTHENTS, LOAMY (SEE SLOPE KEY)/ (SEE DISTURBED SOIL DENOMINATOR KEY)

SLOPE KEY:

A SLOPE = 0–3% SLOPES
B SLOPE = 3–8% SLOPES
C SLOPE= 8–15% SLOPES
D SLOPE= 15–25% SLOPES
E SLOPE =>25% SLOPES

REDUCED TO 11"X17"

GRAPHIC SCALE

50 0 25 50 60

(IN FEET)
1 inch = 50 ft.

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431–2520 Fax (603) 431–8067 Web: www.hoyletanner.com

SCALE:	ORIGINAL DATE:	DESIGNED BY	DRAWN BY	CHECKED BY
AS SHOWN	NOVEMBER 16, 2018	SMT	SMT	WRD

CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

SITE SPECIFIC SOIL MAP

PROJECT NO. 556912

SHEET 1 OF 1

APPENDIX E
TEST PIT LOGS

FIELDSTONE
LAND CONSULTANTS, PLLC
Surveying ✦ Engineering
Land Planning ✦ Septic Designs
206 Elm Street, Milford, NH 03055 - Phone: 603-672-5456 - Fax: 603-413-5456
www.FieldstoneLandConsultants.com

TEST PIT DATA
HOYLE, TANNER, & ASSOCIATES
100 NEW HAMPSHIRE AVE
PORTSMOUTH, NH

9/11/18
Test Pit #1
0-4"- Asphalt
4-40"- 10YR 5/6 Yellowish Brown, gravelly medium-coarse sand (fill), single grain, loose
40-80"- 2.5Y 4/1 Dark Gray silty sandy clay, blocky, firm

ESHWT = 30" **Observed Water = 41"** **Ledge/Boulders = None** **Roots = None**

9/11/18
Test Pit #2
0-5"- 10YR 3/3 Dark Brown, loam
5-75"- 10YR 5/6 Yellowish Brown, gravelly medium-coarse sand (fill), single grain, loose
75-96"- 2.5Y 4/1 Dark Gray silty sandy clay blocky, firm

ESHWT = 50" **Observed Water = 54"** **Ledge/Boulders = None** **Roots = 12"**

9/11/18
Test Pit #3
0-12"- 10YR 3/3 Dark Brown, loam
12-62"- 10YR 5/6 Yellowish Brown, gravelly medium-coarse sand (fill), single grain, loose
62-80"- 2.5Y 4/1 Dark Gray silty sandy clay blocky, firm

ESHWT = 60" **Observed Water =None** **Ledge/Boulders = None** **Roots = None**

9/11/18
Test Pit #4
0-4"- 10YR 3/3 Dark Brown, loam
4-40"- 10YR 5/6 Yellowish Brown, gravelly medium-coarse sand (fill), single grain, loose
40-96"- 2.5Y 4/1 Dark Gray silty sandy clay blocky, firm

ESHWT = 32" **Observed Water = 24"** **Ledge/Boulders = None** **Roots = 8"**

1963.00

9/11/18
Test Pit #5
0-12"- 10YR 3/3 Dark Brown, loam and fill
12-42"- 2.5 Y 6/4 light yellow brown medium-coarse sand and fill
42-84"- 2.5Y 4/1 Dark Gray silty sandy clay blocky, firm

ESHWT = 32" **Observed Water = 44"** **Ledge/Boulders = None** **Roots = None**

9/11/18
Test Pit #6
0-6"- 10YR 3/3 Dark Brown, loam
6-70"- 10YR 5/6 Yellowish Brown, gravelly medium-coarse sand (fill), single grain, loose
70-84"- 2.5Y 4/1 Dark Gray silty sandy clay blocky, firm

ESHWT = 50" **Observed Water = 60"** **Ledge/Boulders = None** **Roots = 12"**

9/11/18
Test Pit #7
0-4"- 10YR 3/3 Dark Brown, loam
4-12" - 2.5 Y 6/4 light yellow brown medium-coarse sand and fill
12-50"- 2.5Y 4/1 Dark Gray silty sandy clay, blocky firm

ESHWT = 18" **Observed Water = None** **Ledge/Boulders = 50"** **Roots = 12"**

9/11/18
Test Pit #8
0-5"- 10YR 3/3 Dark Brown, loam
5-55"- 10YR 5/6 Yellowish Brown, gravelly medium-coarse sand (fill), single grain, loose
55-78"- 2.5Y 4/1 Dark Gray silty sandy clay blocky, firm

ESHWT = 48" **Observed Water = 55"** **Ledge/Boulders = None** **Roots = 8"**

9/11/18
Test Pit #9
0-4"- 10YR 3/3 Dark Brown, loam
4-18" – 2.5 Y 6/4 light yellow brown medium-coarse sand and fill
18-48" – 2.5Y 4/1 Dark Gray silty sandy clay, blocky firm

ESHWT = 10" **Observed Water = 18"** **Ledge/Boulders = None** **Roots = 8"**

9/11/18
Test Pit #10
0-4"- 10YR 3/3 Dark Brown, loam
4-15" – 2.5 Y 6/4 light yellow brown medium-coarse sand and fill
15-30" – 2.5Y 4/1 Dark Gray silty sandy clay, blocky firm

ESHWT = 15" **Observed Water = None** **Ledge/Boulders = None** **Roots = 8"**

9/11/18
Test Pit #9
0-4"- 10YR 3/3 Dark Brown, loam
4-24" – 2.5 Y 6/4 light yellow brown medium-coarse sand and fill
24-40"- 2.5Y 4/1 Dark Gray silty sandy clay, blocky firm

ESHWT = 24" **Observed Water = None** **Ledge/Boulders = None** **Roots = 12"**

9/11/18
Test Pit #12
0-4"- 10YR 3/3 Dark Brown, loam
4-32"- 10YR 5/6 Yellowish Brown, gravelly medium-coarse sand (fill), single grain, loose
32-48"- 2.5Y 4/1 Dark Gray silty sandy clay blocky, firm

ESHWT = 24" **Observed Water =26"** **Ledge/Boulders = None** **Roots = 8"**

Ksat Testing:
Hydraulic Conductivity testing was conducted on three representative fill material areas in vicinity of Test Pit #2; however, due to loose fill material a stable reading was not achievable. Parent material comprised of Marine Sediments (silty clay / silt loam) was saturated and / or submerged and was not able to be tested at time of field visit.

Test Pits were logged by:

Christopher A. Guida, CSS, CWS
Certified Soil & Wetland Scientist
NH Licensed Designer #1401

STATE OF NEW HAMPSHIRE
CHRISTOPHER
A.
GUIDA
No. 00091
CERTIFIED SOIL SCIENTIST

APPENDIX F

NHDES AOT CALCULATION WORKSHEETS

Groundwater Recharge Volume (GRV) Calculation

-	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
-	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
-	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
4.96	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.00	inches	Rd = weighted groundwater recharge depth	
0	ac-in	GRV = AI * Rd	
-	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12”)	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

No groundwater recharge is required due to poor existing soils.

Jellyfish Filter Design Summary

Proposed 4 Story Office Building – Two International Group: Jellyfish #1

Rockingham, NH

Information Provided:

- Total Contributing Drainage Area = 124,495 sf (2.86 Acres)
- Impervious cover = 83,199.60 sf (1.91 Acres)
- Design Storm = 1.00” Rainfall
- T_c = 6 minutes
- Unit Peak Discharge, qu = 650 cfs/mi^2/in (Type III Rainfall distribution curve)
- 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 1.89 cfs was calculated. See the WQF results from the sheet below:

Water Quality Volume (WQV)

2.86	ac	A = Area draining to the practice
1.91	ac	A_I = Impervious area draining to the practice
0.67	decimal	I = percent impervious area draining to the practice, in decimal form
0.65	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
1.86	ac-in	WQV= 1” x Rv x A
6,759	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".
0.65	inches	Q = water quality depth. Q = WQV/A
96	unitless	CN = unit peak discharge curve number. CN =1000/(10+5P+10Q–10*[Q^2 + 1.25*Q*P]$^{0.5}$)
0.4	inches	S = potential maximum retention. S = (1000/CN) - 10
0.077	inches	Ia = initial abstraction. Ia = 0.2S
6.0	minutes	T_c = Time of Concentration
650.0	cfs/mi^2/in	qu is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III
1.891	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 **10 Hi Flo and 2 Drain Down cartridge** in order to meet the water quality flowrate requirement (calculations seen below). In order to house this number of cartridges, Contech Engineered Solutions (Contech) recommends a JFV-PD0806, which is an 8'x6' Precast Peak Diversion vault Jellyfish Filter.

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

$$1.89\, cfs \times 449\, {}^{gpm}\!/_{cfs} \leq (x)80\, {}^{gpm}\!/_{ft^2} + (y)40\, {}^{gpm}\!/_{ft^2}$$

$$\underset{\textbf{\textit{Hyd. Load}}}{\boldsymbol{N_{cartridges}}} = [x = 10; y = 2]$$

Hydraulic Loading Requires: (10) Hi Flo, (2) 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,

Nicholas T. Busque, EIT
Stormwater Design Engineer
Contech Engineered Solutions, LLC.

Jellyfish Filter Design Summary

Proposed 4 Story Office Building – Two International Group: Jellyfish #2

Rockingham, NH

Information Provided:

- Total Contributing Drainage Area = 40,955 sf (0.94 Acres)
- Impervious cover = 37,897.20 sf (0.87 Acres)
- Design Storm = 1.00" Rainfall
- T_c = 6 minutes
- Unit Peak Discharge, qu = 650 cfs/mi^2/in (Type III Rainfall distribution curve)
- 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 0.84 cfs was calculated. See the WQF results from the sheet below:

Water Quality Volume (WQV)

0.94	ac	A = Area draining to the practice
0.87	ac	A_I = Impervious area draining to the practice
0.93	decimal	I = percent impervious area draining to the practice, in decimal form
0.88	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
0.83	ac-in	WQV= 1" x Rv x A
3,013	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".
0.88	inches	Q = water quality depth. Q = WQV/A
99	unitless	CN = unit peak discharge curve number. CN =1000/(10+5P+10Q–10*[Q^2 + 1.25*Q*P]$^{0.5}$)
0.1	inches	S = potential maximum retention. S = (1000/CN) - 10
0.021	inches	Ia = initial abstraction. Ia = 0.2S
6.0	minutes	T_c = Time of Concentration
650.0	cfs/mi^2/in	qu is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III
0.843	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 requirement (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.

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

$$0.84\ cfs \times 449 \,{}^{gpm}/_{cfs} \leq (x)80 \,{}^{gpm}/_{ft^2} + (y)40 \,{}^{gpm}/_{ft^2}$$

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

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

<u>Maintenance:</u>

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,

Nicholas T. Busque, EIT
Stormwater Design Engineer
Contech Engineered Solutions, LLC.

Jellyfish Filter Design Summary

Proposed 4 Story Office Building – Two International Group: Jellyfish #3

Rockingham, NH

Information Provided:

- Total Contributing Drainage Area = 67,075 sf (1.54 Acres)
- Impervious cover = 57,832.07 sf (1.33 Acres)
- Design Storm = 1.00” Rainfall
- T_c = 6 minutes
- Unit Peak Discharge, qu = 650 cfs/mi^2/in (Type III Rainfall distribution curve)
- 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 1.29 cfs was calculated. See the WQF results from the sheet below:

Water Quality Volume (WQV)		
1.54	ac	A = Area draining to the practice
1.33	ac	A_I = Impervious area draining to the practice
0.86	decimal	I = percent impervious area draining to the practice, in decimal form
0.83	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
1.27	ac-in	WQV= 1” x Rv x A
4,625	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
0.033	inches	Ia = initial abstraction. Ia = 0.2S
6.0	minutes	T_c = Time of Concentration
650.0	cfs/mi^2/in	qu is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III
1.294	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 **7 Hi Flo and 2 Drain Down cartridge** in order to meet the water quality flowrate requirement (calculations seen below). In order to house this number of cartridges, Contech Engineered Solutions (Contech) recommends a JFV-PD0806, which is an 8'x6' Precast Peak Diversion vault Jellyfish Filter.

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

$$1.29\,cfs \times 449\,{}^{gpm}/_{cfs} \leq (x)80\,{}^{gpm}/_{ft^2} + (y)40\,{}^{gpm}/_{ft^2}$$

$$\underset{\textbf{Hyd. Load}}{\boldsymbol{N_{cartridges}}} = [x = 7; y = 2]$$

Hydraulic Loading Requires: (7) Hi Flo, (2) Drain Down Cartridges

<u>Maintenance:</u>

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,

Nicholas T. Busque, EIT
Stormwater Design Engineer
Contech Engineered Solutions, LLC.

APPENDIX G

STORMWATER INSPECTION AND MAINTENANCE MANUAL

STORMWATER INSPECTION & MAINTENANCE MANUAL

FOR A

PROPOSED FOUR STORY OFFICE BUILDING

100 New Hampshire Avenue
Pease International Tradeport
Portsmouth, NH

December 4, 2018

Prepared for:

TWO INTERNATIONAL
GROUP

Prepared by:

Hoyle, Tanner & Associates, Inc.

100 International Drive, Suite 360
Pease International Tradeport

INTRODUCTION

The intent of this manual is to establish a mechanism to provide on-going inspections and maintenance (I&M) to ensure the long-term effectiveness of approved stormwater practices.

INSPECTIONS

1. Responsible party who will implement the required reporting, inspection and maintenance activities identified in the I&M manual:

   <u>Two International Group, LLC</u>
   <u>1 New Hampshire Avenue, Suite 101</u>
   <u>Portsmouth, NH 03801</u>

   All record keeping required shall be maintained by the responsible party and be made available to the department upon request. I&M activities shall begin at the completion of site features that directs stormwater to the particular practices. The responsible party may contract with one or more third parties to conduct the I&M activities but shall remain responsible for ensuring the long-term effectiveness of the stormwater practices. If ownership of the property is transferred, the new owner shall become the responsible party

2. Frequency of Inspections:

   <u>Semi-Annually (Spring & Fall)</u>

3. The attached inspection log checklist shall be updated after every inspection in the spring and fall. The four I&M activities are as follows:

   - Overall Site
   - Jellyfish Filter Maintenance

4. The attached I&M logs shall be completed for each I&M activity.

5. The attached deicing log shall be updated to document the type and amount of deicing material applied to the site. The contractor for winter snow and ice management activities must be Green SnowPro certified by the UNH Technology Transfer Center and also be a New Hampshire Certified Salt Applicator. Every effort shall be taken to minimize salt usage onsite as the site is located within a chloride-impaired waterbody.

6. See attached Grading & Drainage plan for the location of each I&M activity.

7. All invasive species within the project area shall be bagged and disposed of properly. The project shall be managed in a manner that meets the requirements and intent of NH RSA 430:53 and Chapter AGR 3000 relative to invasive species.

MAINTENANCE

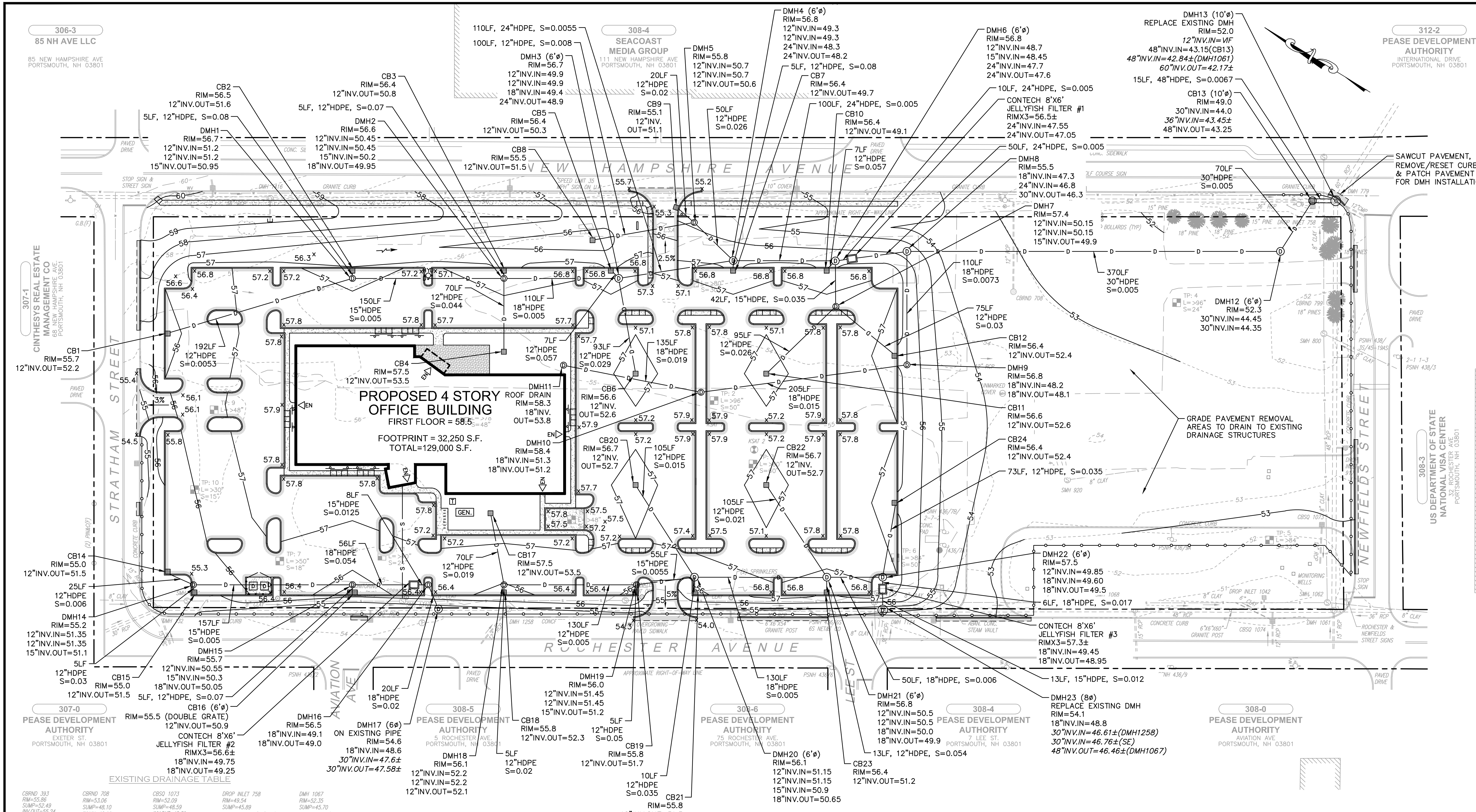
The following I&M activities shall be inspected semi-annually. Corrective actions shall be taken to fix any deficiencies and to restore the stormwater practice to the original condition.

1. Overall Site
   - Catch Basins/Manholes – Sediment shall be removed semi-annually from the deep sump catch basins. The catch basin inlets and debris hoods shall be cleaned free of any debris as required.
   - Drainage Pipes – Shall be inspected and cleaned semi-annually.
   - Street Sweeping – The parking areas shall be swept in the spring to remove sediment from snow and ice management activities.
   - Inspect headwalls and riprap for any accumulated sediment or debris.
   - Inspect slopes for rutting and erosion.

2. Jellyfish Filters

   Jellyfish filters shall be maintained per manufacturer specification including, but not limited to:

   - Sediment removal for depths greater than or equal to 12 inches, or every 3 years;
   - Remove floating refuse;
   - Rinse filter cartridges;
   - Replace filter cartridges every 5 years;
   - Replace damaged or missing deck components;
   - Clean and inspect immediately following upstream oil, fuel, or chemical spills.



EXISTING DRAINAGE TABLE

CBRND 393
RIM=55.86
SUMP=52.49
INV.OUT=55.24

CBRND 394
RIM=55.21
SUMP=51.67
INV.OUT=52.17

CBRND 395
RIM=54.54
SUMP=50.90
INV.IN–50.89
INV.OUT=50.88

CBRND 396
RIM=54.01
SUMP=50.01
INV.IN=49.83
INV.IN=50.16(S36°W)
INV.OUT=50.11(N46°W)

CBRND 413
RIM=53.74
SUMP=50.15
INV.IN=INACCESSIBLE
INV.OUT=50.14

CBRND 414
RIM=53.45
SUMP=49.83
INV.IN=49.85
INV.OUT=49.55

CBRND 415
RIM=53.27
SUMP=48.92
INV.IN=49.01
INV.OUT=49.03

CBRND 708
RIM=53.06
SUMP=48.10
INV.IN=48.28
INV.IN=48.29(S66°W)
INV.OUT=48.11(N56°E)

CBRND 799
RIM=50.75
SUMP=45.04
INV.OUT=45.18

CBRND 1324
RIM=54.83
SUMP=52.27
INV.IN=52.90(N61°W)
INV.IN=52.81(S16°E)
INV.OUT=52.32(N59°E)

CBRND 1413
RIM=56.36
SUMP=51.80
INV.IN=51.73(N26°W)
INV.IN=51.71(CBRND 1324)
INV.IN=51.73(S39°E)
INV.OUT=51.61(DMH 1416)

CBSQ 1069
RIM=53.00
SUMP=49.00
INV.IN=49.12(N66°W)
INV.OUT=48.11(CBSQ 1193)

CBSQ 1073
RIM=52.09
SUMP=48.59
INV.OUT=48.39

CBSQ 1074
RIM=50.62
SUMP=46.07
INV.IN=46.14(12"RCP)
INV.IN=46.10(6"CLAY)
INV.OUT=46.07(12"RCP)

CBSQ 1193
RIM=52.61
SUMP=48.56
INV.IN=48.80(N41°E)
INV.IN=48.38(CBSQ 1069)
INV.OUT=48.37(S56°W)

DROP INLET 549
RIM=53.97
SUMP=49.47
INV.OUT=49.02(12"RCP)

DROP INLET 559
RIM=52.45
SUMP=48.05
INV.OUT=47.50(12"RCP)

DROP INLET 686
RIM=52.40
SUMP=49.89
INV.OUT=49.88(12"RCP)

DROP INLET 758
RIM=49.54
SUMP=45.89
INV.OUT=45.84(12"RCP)

DROP INLET 917
RIM=53.15
SUMP=50.79
INV.OUT=50.79(10"CMP)

DROP INLET 1042
RIM=50.79
SUMP=47.69
INV.OUT=47.46(10"CMP)

DROP INLET 1414
RIM=56.21
SUMP=53.54
INV.OUT=53.21(12"RCP)

DMH 1061
RIM=52.02
SUMP=44.37
INV.IN=44.60(DMH 1067)
INV.IN=44.57(S59°W)
INV.IN=44.62(S31°E)
INV.OUT=44.49 (DMH 779)

DMH 779
RIM=51.93
SUMP=41.54
INV.IN=42.87 (DMH 1061)
INV.IN=INACCESSIBLE(S14°E)
INV.IN=43.31(DMH 1416)
INV.OUT=42.17(S79°E)

DMH 1067
RIM=52.35
SUMP=45.70
INV.IN=45.95(DMH 1124)
INV.IN=45.90(S56°W)
INV.OUT=45.81 (DMH 1061)

DMH 1124
RIM=54.01
SUMP=46.80
INV.IN=46.61(DMH 1258)
INV.IN=46.76(S66°W)
INV.OUT=46.56(DMH 1067)

DMH 1258
RIM=54.91
SUMP=47.57
INV.IN=47.45(DMH 1322)
INV.IN=47.54(N84°W)
INV.OUT=47.37(DMH 1124)

DMH 1322
RIM=55.14
SUMP=48.40
INV.IN=48.57(N54°W)
INV.IN=48.62(S41W)
INV.IN=48.74(N16°E)
INV.OUT=48.24(DMH 1258)

DMH 1416
RIM=58.30
SUMP=48.77
INV.IN=48.76(N31°W)
INV.IN=50.47(CBRND 1413)
INV.OUT=48.65(DMH 779)

EXISTING SEWER TABLE

SMH 800
RIM=51.36
SHELF=42.47
TROUGH=41.84
INV.IN=41.76(SMH 1062)
INV.IN=47.07(S06°E)
INV.OUT=41.71(SMH 784)

SMH 920
RIM=53.49
SHELF=43.96
TROUGH=43.66
INV.IN=45.54(N33°E)
INV.OUT=43.39(S04°E)

SMH 1062
RIM=51.84
SHELF=43.60
TROUGH=42.77
INV.IN=42.80(N76°W)
INV.IN=42.78(SMH1068)
INV.IN=42.78(S26°E)
INV.OUT=42.79

SMH 1068
RIM=52.16
SHELF=44.36
TROUGH=43.77
INV.IN=43.66(N12°W)
INV.OUT=43.39(SMH 1062)

SMH 1123
RIM=54.64
SHELF=45.31
TROUGH=44.74
INV.IN=44.66
INV.IN=44.72(S04°W)
INV.OUT=44.60

SMH 1312
RIM=54.60
SHELF=47.39
TROUGH=46.79
INV.IN=46.81(SMH 1321)
INV.OUT=46.75(SMH 1543)

SMH 1321
RIM=55.03
SHELF=49.75
TROUGH=49.24
INV.IN=49.28(N31°W)
INV.OUT=49.21(SMH 1312)

GRADING & DRAINAGE NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C10–C15 FOR CONSTRUCTION DETAILS.
3. CONTECH JELLYFISH FILTERS FOR STORMWATER TREATMENT SHALL BE MODEL JFPD0806 OR APPROVED EQUAL.
4. DRAINAGE PIPES AND STRUCTURES TO BE REMOVED ARE NOT SHOWN ON THIS PLAN FOR CLARITY.
5. ALL DRAINAGE STRUCTURES HAVE AN INTERNAL DIAMETER OF 4'–0" UNLESS OTHERWISE SPECIFIED ON THE PLANS.
6. THE LOCATION OF PROPOSED BUILDING ENTRANCES ARE APPROXIMATE AND SHALL BE COORDINATED WITH THE ARCHITECTURAL PLANS.
7. INSTALL INLET PROTECTION ON ALL PROPOSED CATCH BASINS AFTER INSTALLATION. REMOVE WHEN CONSTRUCTION IS COMPLETED.

GRAPHIC SCALE

50 0 25 50 60

(IN FEET)
1 inch = 50 ft.

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE:	ORIGINAL DATE:	DESIGNED BY	DRAWN BY	CHECKED BY
AS SHOWN	NOVEMBER 16, 2018	SMT	SMT	WRD

CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

GRADING, DRAINAGE & EROSION CONTROL PLAN

C6

PROJECT NO. 556912

SHEET 6 OF 15

Inspection Log Checklist

100 New Hampshire Ave

Portsmouth, NH

Inspection Item	2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027	
	S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F
Overall Site																						
Contech Jellyfish Filters																						

Report No. ___________________
Inspection Date:______________
Inspector: ___________________

Overall Site

Site: 100 New Hampshire Ave Portsmouth, NH	**Inspection:** Spring / Fall	**Weather:**

Inspection Item	Condition	Comments
Catch Basins & Manholes	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Catch Basin Hoods	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Stormwater Pipe	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Headwall & Riprap Aprons	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Street Sweeping	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Slopes	☐ Good ☐ Satisfactory ☐ Needs Maintenance	

Comments:

Report No. ____________________
Inspection Date:______________
Inspector: ____________________

Contech Jellyfish Filter

Site: 100 New Hampshire Ave Portsmouth, NH	**Inspection:** Spring / Fall	**Weather:**

Inspection Item	**Condition**	**Comments**
Sediment Accumulation Removal	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Floating Refuse	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Filter Cartridges	☐ Good ☐ Satisfactory ☐ Needs Maintenance	
Deck Components	☐ Good ☐ Satisfactory ☐ Needs Maintenance	

Comments:

Deicing Log

100 New Hampshire Ave

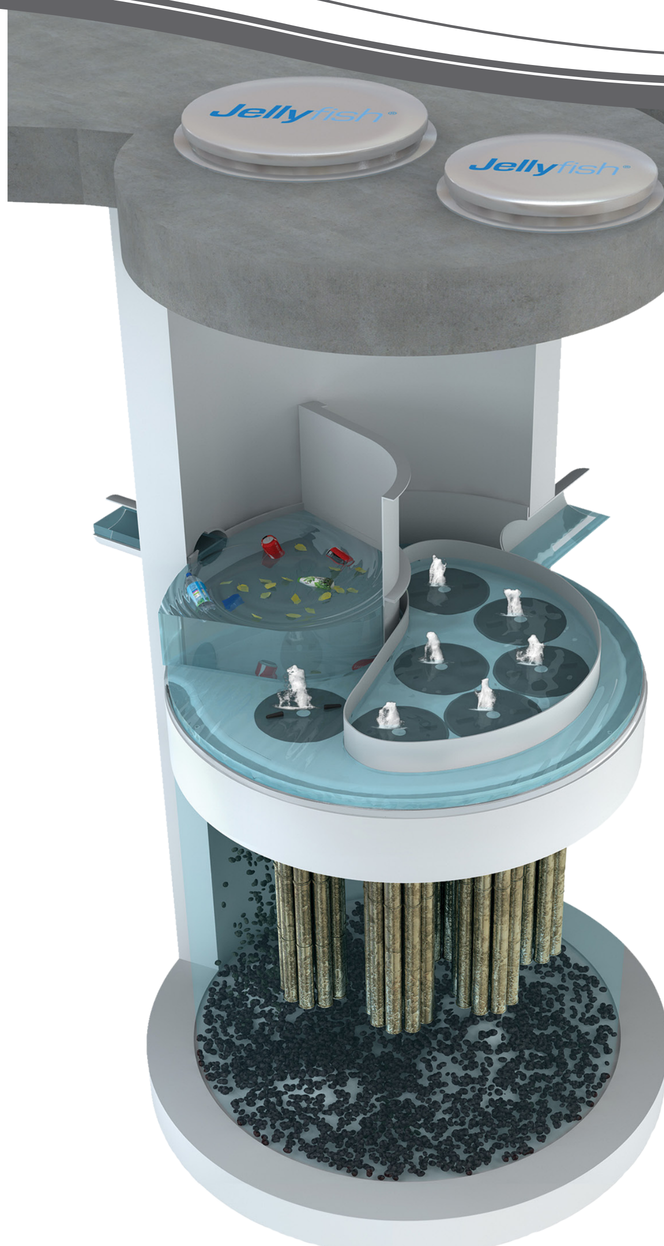
Portsmouth, NH

Deicing applications shall be in accordance with the NHDES Fact Sheet "Best Management Practices and Salt-Use Minimization Efforts in Chloride-Impaired Watersheds of New Hampshire, A Guidance Document for Private Developers and Contractors"

Winter Season:			
Date	**Type of Deicer**	**Amount**	**Comments**

Jellyfish® Filter

Jellyfish® Filter Owner's Manual



CONTECH®
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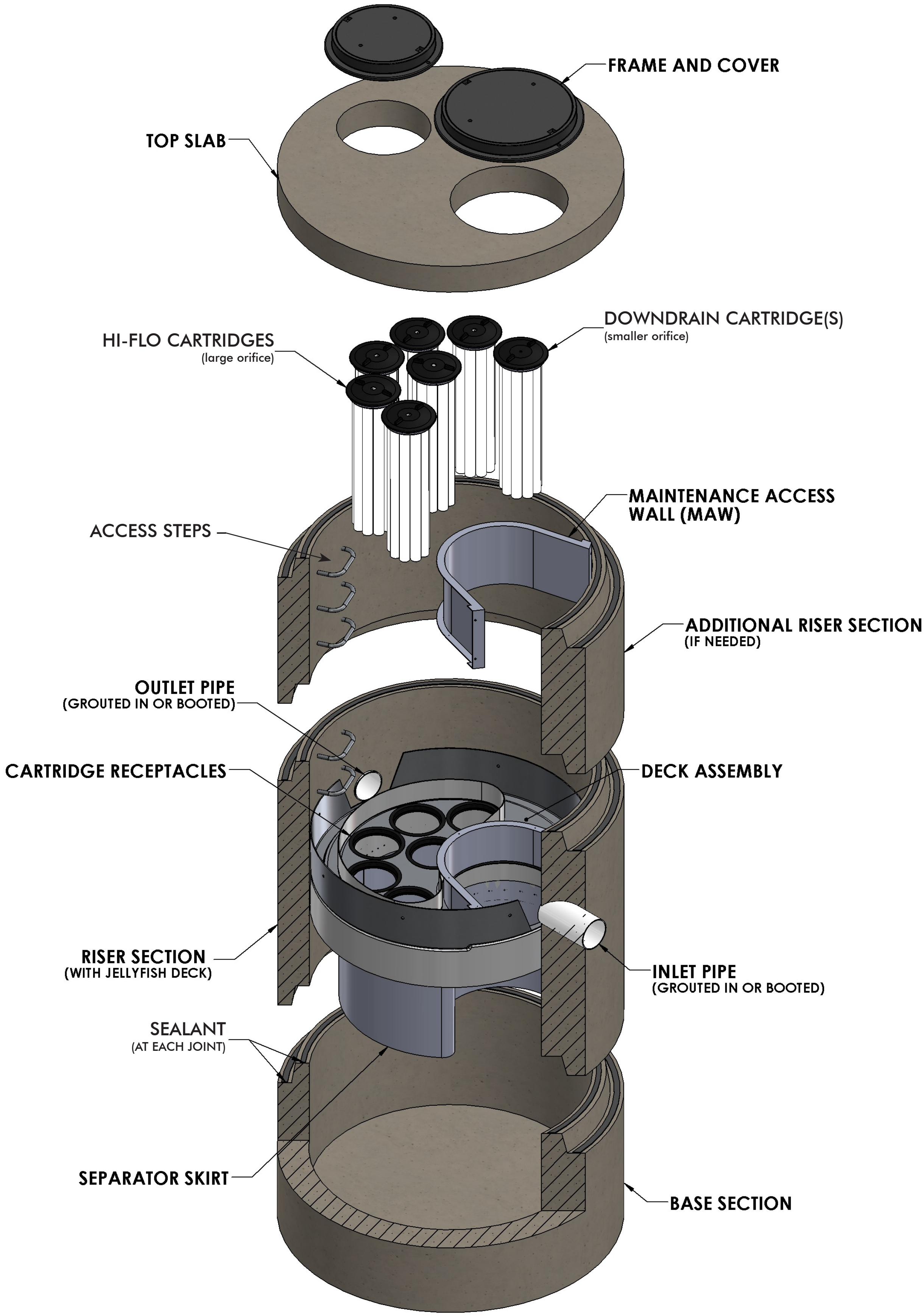
FRAME AND COVER
TOP SLAB
HI-FLO CARTRIDGES
(large orifice)
DOWNDRAIN CARTRIDGE(S)
(smaller orifice)
MAINTENANCE ACCESS
WALL (MAW)
ACCESS STEPS
ADDITIONAL RISER SECTION
(IF NEEDED)
OUTLET PIPE
(GROUTED IN OR BOOTED)
CARTRIDGE RECEPTACLES
DECK ASSEMBLY
RISER SECTION
(WITH JELLYFISH DECK)
INLET PIPE
(GROUTED IN OR BOOTED)
SEALANT
(AT EACH JOINT)
SEPARATOR SKIRT
BASE SECTION

WARNINGS / CAUTION

1. FALL PROTECTION may be required.
2. WATCH YOUR STEP if standing on the Jellyfish Filter Deck at any time; Great care and safety must be taken while walking or maneuvering on the Jellyfish Filter Deck. Attentive care must be taken while standing on the Jellyfish Filter Deck at all times to prevent stepping onto a lid, into or through a cartridge hole or slipping on the deck.
3. The Jellyfish Filter Deck can be SLIPPERY WHEN WET.
4. If the Top Slab, Covers or Hatches have not yet been installed, or are removed for any reason, great care must be taken to NOT DROP ANYTHING ONTO THE JELLYFISH FILTER DECK. The Jellyfish Filter Deck and Cartridge Receptacle Rings can be damaged under high impact loads.*This type of activity voids all warranties. All damaged items to be replaced at owner's expense*.
5. Maximum deck load 2 persons, total weight 225 lbs. per person.

Safety Notice

Jobsite safety is a topic and practice addressed comprehensively by others. The inclusions here are intended to be reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Contractor’s responsibility and outside the scope of Contech Engineered Solutions.

Confined Space Entry

Secure all equipment and perform all training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor’s or entry personnel’s responsibility to proceed safely at all times.

Personal Safety Equipment

Contractor is responsible to provide and wear appropriate personal protection equipment as needed including, but not limited to safety boots, hard hat, reflective vest, protective eyewear, gloves and fall protection equipment as necessary. Make sure all equipment is **staffed with trained and/or certified personnel**, and all equipment is checked for proper operation and safety features prior to use.

- Fall protection equipment
- Eye protection
- Safety boots
- Ear protection
- Gloves
- Ventilation and respiratory protection
- Hard hat
- Maintenance and protection of traffic plan

Thank You for purchasing the Jellyfish® Filter!

Contech Engineered Solutions would like to thank you for selecting the Jellyfish Filter to meet your project's stormwater treatment needs. With proper inspection and maintenance, the Jellyfish Filter is designed to deliver ongoing, high levels of stormwater pollutant removal.

If you have any questions, please feel free to call us or e-mail us at info@conteches.com.com.

Contech Engineered Solutions

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Phone: 800-338-1122

www.ContechES.com

Jellyfish Filter Patents

The Jellyfish Filter is protected by one or more of the following patents:

U.S. Patent No. 8,123,935; U.S. Patent No. 8,287,726; U.S. Patent No. 8,221,618

Australia Patent No. 2008,286,748

Canadian Patent No. 2,696,482

Korean Patent No. 10-1287539

New Zealand Patent No. 583,461; New Zealand Patent No. 604,227

South African Patent No. 2010,01068

**other patents pending*

Table of Contents

Chapter 1

1 – Owner Specific Jellyfish Filter Product Information

Below you will find a reference page that can be filled out according to your Jellyfish Filter specification to help you easily inspect, maintain and order parts for your system.

Owner Name:	
Phone Number:	
Site Address:	
Site GPS Coordinates/unit location:	
Unit Location Description:	
Jellyfish Filter Model No.:	
Cartridge Installation Date:	
No. of Hi-Flo Cartridges	
Length of Hi-Flo Cartridges:	
Lid Orifice Diameter on Hi-Flo Cartridge:	
No. of Draindown Cartridges:	
Length of Draindown Cartridges:	
Lid Orifice Diameter on Draindown Cartridge:	
No. of Blank Cartridge Lids:	
Online System (Yes/No):	
Offline System (Yes/No):	

Notes:

Chapter 2

2.0 – Jellyfish Filter System Operations and Functions

The Jellyfish Filter is an engineered stormwater quality treatment technology that removes a high level and wide variety of stormwater pollutants. Each Jellyfish Filter cartridge consists of multiple membrane - encased filter elements (“filtration tentacles”) attached to a cartridge head plate. The filtration tentacles provide a large filtration surface area, resulting in high flow and high pollutant removal capacity.

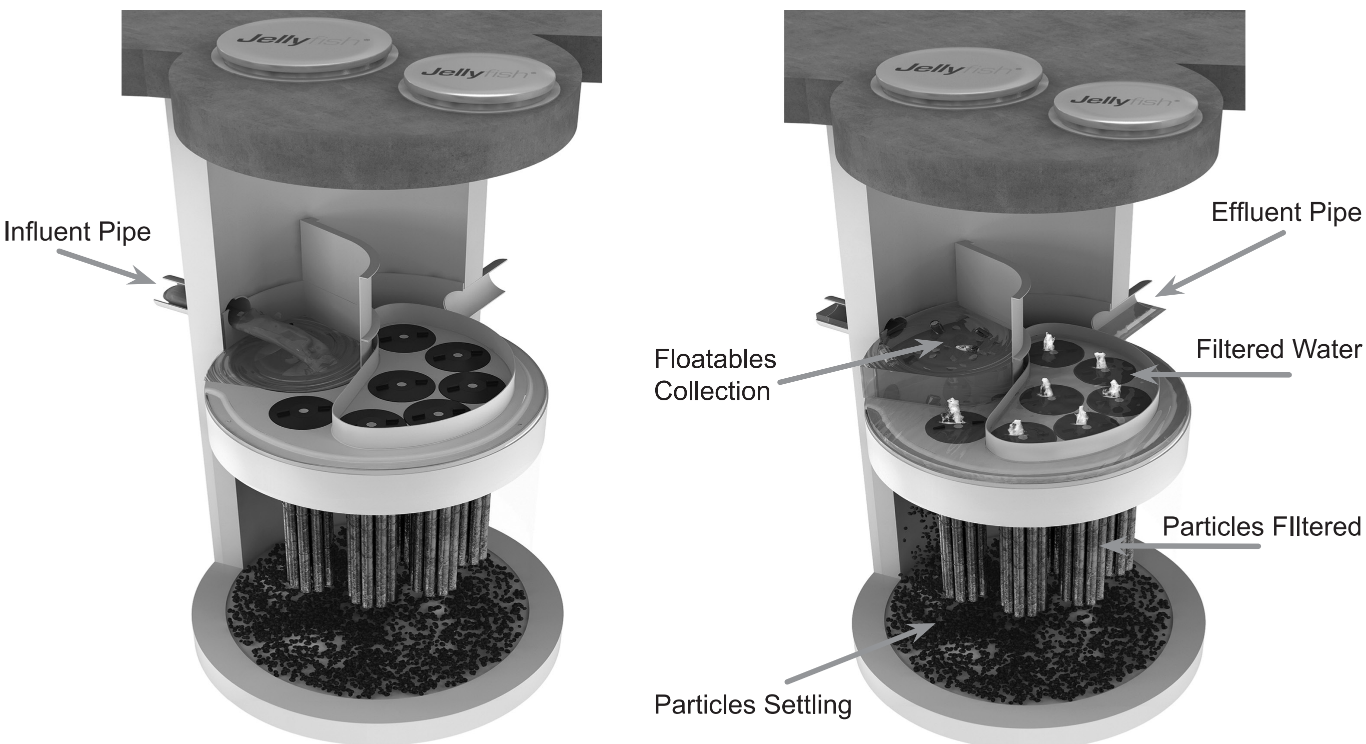
The Jellyfish Filter functions are depicted in **Figure 1** below.

FIGURE 1

Jellyfish Filter Treatment Functions

Membrane Filtration

Section View with Maintenance Access Wall (MAW) Cutaway



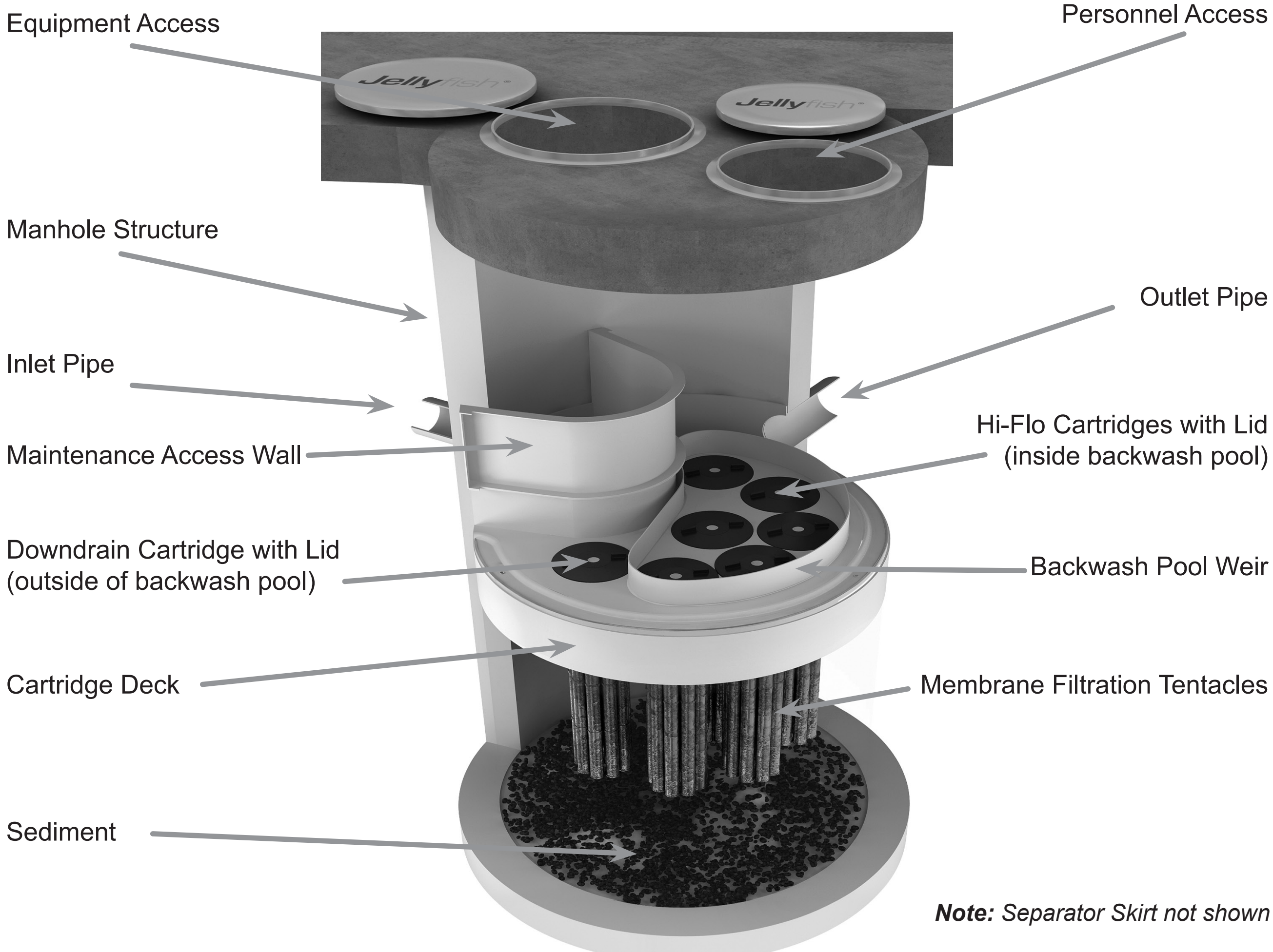
Jellyfish Filter cartridges are backwashed after each peak storm event, which removes accumulated sediment from the membranes. This backwash process extends the service life of the cartridges and increases the time between maintenance events.

For additional details on the operation and pollutant capabilities of the Jellyfish Filter please refer to additional details on our website at www.ContechES.com.

2.1 – Components and Cartridges

The Jellyfish Filter and components are depicted in Figure 2 below.

FIGURE 2 **Jellyfish Filter Components**



Note: *Separator Skirt not shown*

Tentacles are available in various lengths as depicted in Table 1 below.

Table 1 – Cartridge Lengths / Weights and Cartridge Lid Orifice Diameters

Cartridge Lengths	Dry Weight	Hi-Flo Orifice Diameter	Draindown Orifice Diameter
15 inches (381 mm)	10 lbs (4.5 kg)	35 mm	20 mm
27 inches (686 mm)	14.5 lbs (6.6 kg)	45 mm	25 mm
40 inches (1,016 mm)	19.5 lbs (8.9 kg)	55 mm	30 mm
54 inches (1,372 mm)	25 lbs (11.4 kg)	70 mm	35 mm

A Jellyfish membrane filtration cartridge is depicted in Figure 3 below.

FIGURE 3

Jellyfish Membrane Filtration Cartridge

2.2 – Jellyfish Membrane Filtration Cartridge Assembly

The Jellyfish Filter utilizes multiple membrane filtration cartridges. Each cartridge consists of removable cylindrical filtration "tentacles" attached to a cartridge head plate. Each filtration tentacle has a threaded pipe nipple and o-ring. To attach, insert the top pipe nipples with the o-ring through the head plate holes and secure with locking nuts. Locking nuts to be hand tighten and checked with a wrench as shown below.

2.3 – Jellyfish Membrane Filtration Cartridge Installation

- After the upstream catchment and site have stabilized, remove any accumulated sediment and debris from the Jellyfish Filter structure and upstream diversion structure (if applicable). Failure to address this step completely will reduce the time between required maintenance.
- Descend to the cartridge deck (see Safety Notice and page 3).
- Lower the Jellyfish membrane filtration cartridges into the cartridge receptacles within the cartridge deck. A filter cartridge should be placed into each of the draindown cartridge receptacles outside the backwash pool weir. It is possible dependent on the Jellyfish Filter model purchased that not all cartridge receptacles will be filled with a filter cartridge. In that case, a blank headplate and blank cartridge lid (has no orfice) would be installed.

Cartridge Assembly

Avoid snagging the cartridge membranes on the recpticle lip when inserting the Jellyfish membrane filtration cartridges into the cartridge receptacles. Use a gentle twisting or sideways motion to clear any potential snag. Do not force the tentacles down into the cartridge receptacle, as this may damage the membranes. Apply downward pressure on the cartridge head plate to seat the rim gasket (thick circular gasket surrounding the circumference of the head plate) into the cartridge receptacle.

- Examine the cartridge lids to differentiate lids with a small orifice, a large orifice, and no orifice.
  - Lids with a <u>small orifice</u> are to be inserted into the <u>draindown cartridge receptacles</u>, outside of the backwash pool weir.
  - Lids with a <u>large orifice</u> are to be inserted into the <u>hi-flo cartridge receptacles</u> within the backwash pool weir.
  - Lids with <u>no orifice</u> (blank cartridge lids) and a <u>blank headplate</u> are to be inserted into unoccupied cartridge receptacles.
- **To install a cartridge lid, align the cartridge lid male threads with the cartridge receptacle female threads. Firmly twist the cartridge lid clockwise a minimum 110º to seat the filter cartridge snugly in place, with a proper watertight seal.**

Chapter 3

3.0 – Inspection and Maintenance Overview

The primary purpose of the Jellyfish Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, captured pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Maintenance activities may be required in the event of an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW)

Maintenance activities typically include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments from manhole sump
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed.

It is recommended that Jellyfish Filter inspection and maintenance be performed by professionally trained individuals, with experience in stormwater maintenance and disposal services. Maintenance procedures may require manned entry into the Jellyfish structure. Only professional maintenance service providers trained in confined space entry procedures should enter the vessel. Procedures, safety and damage prevention precautions, and other information, included in these guidelines, should be reviewed and observed prior to all inspection and maintenance activities.

3.1 – Inspection

3.1.1 – Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent.*

- Post-construction inspection is required prior to putting the Jellyfish Filter into service. All construction debris or construction-related sediment within the device must be removed, and any damage to system components repaired.
- A minimum of two inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.

- Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
- Inspection is recommended after each major storm event.
- Immediately after an upstream oil, fuel or other chemical spill.

3.1.2 – Inspection Tools and Equipment

The following equipment and tools are typically required when performing a Jellyfish Filter inspection:

- Access cover lifting tool
- Sediment probe (clear hollow tube with check valve)
- Tape measure
- Flashlight
- Camera
- Inspection and maintenance log documentation
- Safety cones and caution tape
- Hard hat, safety shoes, safety glasses, and chemical-resistant gloves

3.1.3 – Inspection Procedure

The following procedure is recommended when performing inspections:

- Provide traffic control measures as necessary.
- Inspect the MAW for floatable pollutants such as trash, debris, and oil sheen.
- Measure oil and sediment depth by lowering a sediment probe through the MAW opening until contact is made with the floor of the structure. Retrieve the probe, record sediment depth, and presences of any oil layers and repeat in multiple locations within the MAW opening. **Sediment depth of 12 inches or greater indicates maintenance is required**.
- Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
- Inspect the MAW, cartridge deck, and backwash pool weir for cracks or broken components. If damaged, repair is required.
- **Dry weather inspections:** inspect the cartridge deck for standing water.
    - No standing water under normal operating condition.
    - Standing water **inside** the backwash pool, but not outside the backwash pool, this condition indicates that the filter cartridges need to be rinsed.
    - Standing water **outside** the backwash pool may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.

The depth of sediment and oil can be measured from the surface by using a sediment probe or dipstick tube equipped with a ball check valve and inserted through the Jellyfish Filter's maintenance access wall opening. The large opening provides convenient access for inspection and vacuum removal of water and pollutants.

- **Wet weather inspections:** observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW.
    - **Less than 6 inches**, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
    - **Greater than 6 inches**, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
    - **18 inches or greater** and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges are occluded with sediment and need to be rinsed.

3.2 – Maintenance

3.2.1 – Maintenance Requirements

Required maintenance for Jellyfish Filter units is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

- **Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.**
- Floatable trash, debris, and oil must be removed.
- Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs first.
- Replace filter cartridge if rinsing does not remove accumulated sediment from the tentacles, or if tentacles are damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
- Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
- The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged by the spill.

3.2.2 – Maintenance Tools and Equipment

The following equipment and tools are typically required when performing Jellyfish Filter maintenance:

- Vacuum truck
- Ladder
- Garden hose and low pressure sprayer
- Rope or cord to lift filter cartridges from the cartridge deck to the surface
- Adjustable pliers for removing filter cartridge tentacles from cartridge head plate
- Plastic tub or garbage can for collecting effluent from rinsed filter cartridge tentacles
- Access cover lifting tool
- Sediment probe (clear hollow tube with check valve)
- Tape measure
- Flashlight
- Camera
- Inspection and maintenance log documentation
- Safety cones and caution tape
- Hard hats, safety shoes, safety glasses, chemical-resistant gloves, and hearing protection for service providers
- Proper safety equipment for confined space entry
- Replacement filter cartridge tentacles if required

3.2.3 – Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

- Provide traffic control measures as necessary.
- Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures.
- **Caution:** Dropping objects onto the cartridge deck may cause damage.
- Perform **Inspection Procedure** prior to maintenance activity.
- To access the cartridge deck for filter cartridge service, descend the ladder and step directly onto the deck. **Caution:** Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.

3.2.4 – Filter Cartridge Rinsing Procedure

- Remove a cartridge lid.
- Remove the cartridge from the receptacle using the lifting loops in the cartridge head plate. **Caution:** Should

- a snag occur, do not force the cartridge upward as damage to the tentacles may result. Rotate the cartridge with a slight sideways motion to clear the snag and continue removing the cartridge.
- Thread a rope or cord through the lifting loops and lift the filter cartridge from the cartridge deck to the top surface outside the structure.
- **Caution:** Immediately replace and secure the lid on the exposed empty receptacle as a safety precaution. Never expose more than one empty cartridge receptacle.
- Repeat the filter cartridge removal procedure until all of the cartridges are located at the top surface outside the structure.
- Disassemble the tentacles from each filter cartridge by rotating counter-clockwise. Remove the tentacles from the cartridge head plate.
- Position a receptacle in a plastic tub or garbage can such that the rinse water is captured. Using a low-pressure garden hose sprayer, direct a wide-angle water spray at a downward 45° angle onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. **Caution:** Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane. Turn membrane upside down and pour out any residual rinsewater to ensure center of tentacle is clear of any sediment.

Rinsing of dirty filter cartridge tentacles with a low-pressure garden hose sprayer, and using a plastic garbage container to capture rinse water.

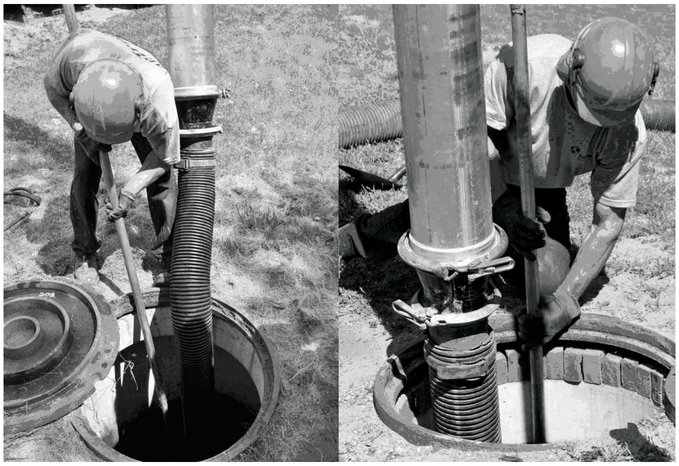
- Remove rinse water from rinse tub or garbage can using a vacuum hose as needed.
- Slip the o-ring over the tentacle nipple and reassemble onto the cartridge head plate; hand-tighten.
- If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.
- Lower a rinsed filter cartridge to the cartridge deck. Remove the cartridge lid on a receptacle and carefully lower the filter cartridge into the receptacle until the head plate gasket is seated squarely on the lip of the receptacle. **Caution:** Should a snag occur when lowering the cartridge into the receptacle, do not force the cartridge downward; damage may occur. Rotate the cartridge with a slight sideways motion to clear the snag and complete the installation.
- Replace the cartridge lid on the exposed receptacle. Rinse away any accumulated grit from the receptacle threads if needed to get a proper fit. **Align the cartridge lid male threads with the cartridge receptacle female threads. Firmly twist the cartridge lid clockwise a minimum 110º to seat the filter cartridge snugly in place, with a proper watertight seal**.
- Repeat cartridge installation until all cartridges are installed.

3.2.5 – Vacuum Cleaning Procedure

- **Caution:** Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning **only through the maintenance access wall (MAW) opening**, being careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck. The separator skirt surrounds the filter cartridge zone, and could be torn if contacted by the wand. **Do not lower the vacuum wand through a cartridge receptacle**, as damage to the receptacle will result.
  - To remove floatable trash, debris, and oil, lower the vacuum hose into the MAW opening and vacuum floatable pollutants off the surface of the water. Alternatively, floatable solids may be removed by a net or skimmer.
  - Using a vacuum hose, remove the water from the lower chamber to the sanitary sewer, if permitted by the local regulating authority, or into a separate containment tank.
  - Remove the sediment from the bottom of the unit through the MAW opening.
  - For larger diameter Jellyfish Filter manholes (8-ft, 10-ft, 12-ft diameter), complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle..
  - After the unit is clean, re-fill the lower chamber with water if required by the local jurisdiction, and re-install filter cartridges.
  - Dispose of sediment, floatable trash and debris, oil, spent tentacles, and water according to local regulatory requirements.

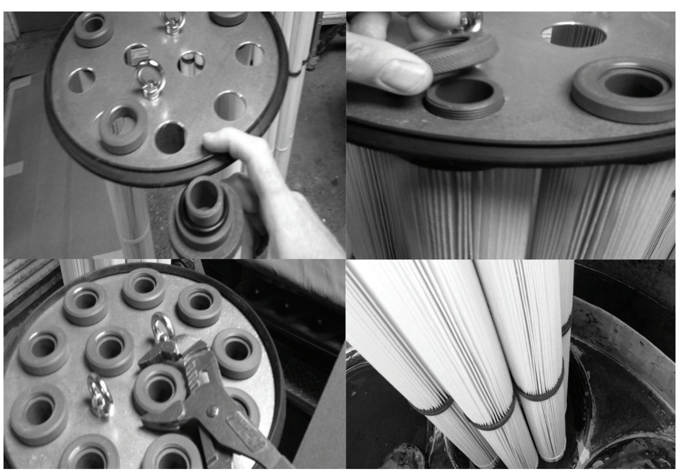
3.2.6 – Chemical Spills

- **Caution**: If a chemical spill has been captured by the Jellyfish Filter, do not attempt maintenance. Immediately contact the local hazard response agency.



A maintenance worker stationed on the surface uses a vacuum hose to evacuate water, sediment, and floatables from the Jellyfish Filter by inserting the vacuum wand through the maintenance access wall opening.

A view of a Jellyfish Filter cartridge deck from the surface showing all the cartridge lids intact and no standing water on the deck (left image), and inspection of the flexible separator skirt from inside the maintenance access wall opening (right image).



Assembly of a Jellyfish Filter cartridge (left) and installation of a filter cartridge into a cartridge receptacle in the deck (right).

3.3 – Disposal Procedures

Disposal requirements for recovered pollutants and spent filtration tentacles may vary depending on local guidelines. In most areas the sediment and spent filtration tentacles, once dewatered, can be disposed of in a sanitary landfill. It is not anticipated that the sediment would be classified as hazardous waste.

Petroleum-based pollutants captured by the Jellyfish Filter, such as oil and fuels, should be removed and disposed of by a licensed waste management company.

Although the Jellyfish Filter captures virtually all free oil, a sheen may still be present at the MAW. A rainbow or sheen can be visible at oil concentrations of less than 10 mg/L (ppm).

Chapter 4

4 – Recommended Safety Procedures

Jobsite safety is a topic and a practice addressed comprehensively by others. The inclusions here are merely reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply.

4.1 – Confined Space/Personal Safety Equipment/Warning and Cautions

Please see reference on Page 3.

Chapter 5

5 – Jellyfish Filter Replacement Parts

Jellyfish membrane filtration cartridges, cartridge components, cartridge lids, other replacement parts can be ordered by contacting Contech Engineered Solutions at:

Phone: 800-338-1122

Email: info@conteches.com

Website: www.ContechES.com

5.1 – Jellyfish Filter Replacement Parts List

Note: Jellyfish Cartridges and/or Filtration tentacles are available in the following lengths:

• 15 Inch (381 mm) • 27 Inch (686 mm) • 40 Inch (1,016 mm) • 54 Inch (1,372 mm)

- Jellyfish Cartridge (specify length). Includes head plate with lifting loops, rim gasket, eleven (11) filtration tentacles, eleven (11) o-rings, and eleven (11) locking nuts
- Standard Head plate
- Blank head plate
- Rim gasket (for head plate)
- Locking nuts (for tentacles)
- O-rings (for tentacles)
- Cartridge lids are available with the following orifice sizes: 70mm, 55mm, 45mm, 35mm, 30mm, 25mm, 30mm, blank lid (no orifice)
- Maintenance Access Wall (MAW) extension (18-inch segment)

** Nothing in this catalog should be construed as an expressed warranty or implied warranties, including the warranties of merchantability and of fitness for any particular purpose.*

Jellyfish Filter Inspection and Maintenance Log

Owner: ______________________________________ Jellyfish Model No.:____________________________

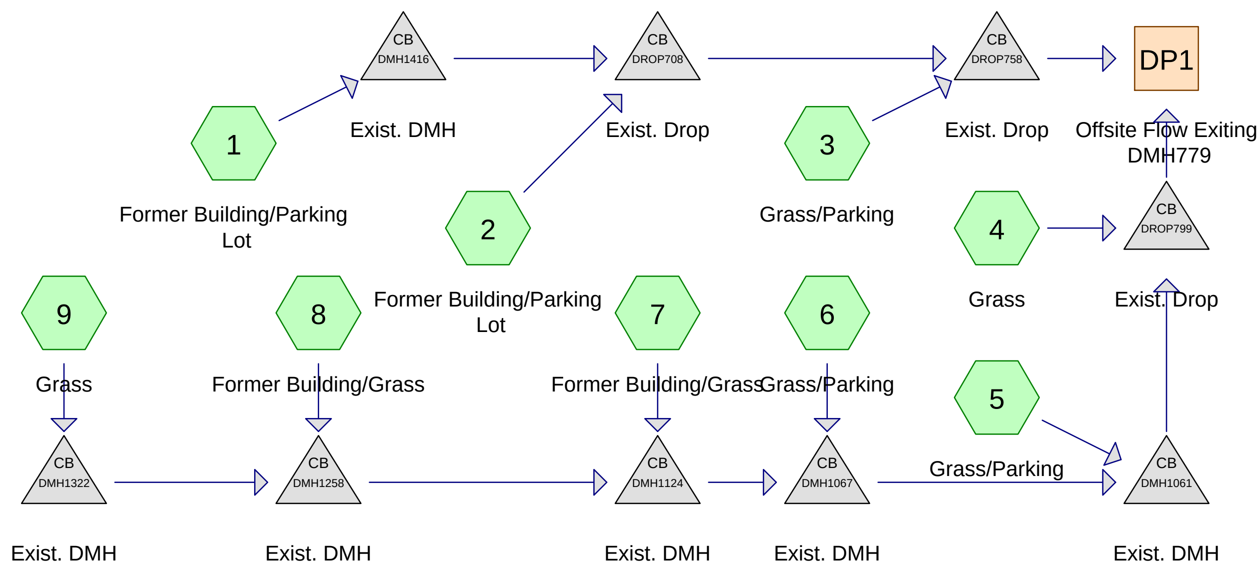
Location: ____________________________________ GPS Coordinates: _____________________________

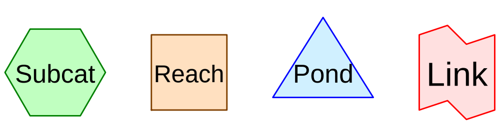
Land Use: Commercial:______ Industrial: ______ Service Station:______

Road/Highway:____ Airport: ________ Residential: _________ Parking Lot:______

Date/Time:						
Inspector:						
Maintenance Contractor:						
Visible Oil Present: (Y/N)						
Oil Quantity Removed						
Floatable Debris Present: (Y/N)						
Floatable Debris removed: (Y/N)						
Water Depth in Backwash Pool						
Draindown Cartridges externally rinsed and re-commissioned: (Y/N)						
New tentacles put on Cartridges: (Y/N)						
Hi-Flo cartridges externally rinsed and recommissioned (Y/N):						
New tentacles put on Hi-Flo Cartridges: (Y/N)						
Sediment Depth Measured: (Y/N)						
Sediment Depth (inches or mm):						
Sediment Removed: (Y/N)						
Cartridge Lids intact: (Y/N)						
Observed Damage:						
Comments:						

APPENDIX H
PRE- AND POST-DEVELOPMENT WATERSHED ANALYSIS





Drainage Diagram for 556912-Pre
Prepared by Hoyle, Tanner & Associates, Inc., Printed 11/29/2018
HydroCAD® 9.10 s/n 00521 © 2009 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
147,440	80	>75% Grass cover, Good, HSG D (1, 2, 3, 4, 5, 6, 7, 8, 9)
186,350	98	Paved parking, HSG D (1, 2, 3, 5, 6)
141,205	98	Roofs, HSG D (1, 2, 7, 8)
474,995		**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
474,995	HSG D	1, 2, 3, 4, 5, 6, 7, 8, 9
0	Other	
474,995		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Former Building/Parking Runoff Area=46,030 sf 84.27% Impervious Runoff Depth>2.64"
Tc=6.0 min CN=95 Runoff=3.03 cfs 10,139 cf

Subcatchment 2: Former Runoff Area=171,325 sf 86.96% Impervious Runoff Depth>2.75"
Tc=8.0 min CN=96 Runoff=10.90 cfs 39,212 cf

Subcatchment 3: Grass/Parking Runoff Area=44,785 sf 81.61% Impervious Runoff Depth>2.64"
Tc=8.0 min CN=95 Runoff=2.78 cfs 9,861 cf

Subcatchment 4: Grass Runoff Area=41,665 sf 0.00% Impervious Runoff Depth>1.40"
Tc=8.0 min CN=80 Runoff=1.43 cfs 4,860 cf

Subcatchment 5: Grass/Parking Runoff Area=57,150 sf 48.89% Impervious Runoff Depth>2.08"
Tc=8.0 min CN=89 Runoff=2.93 cfs 9,902 cf

Subcatchment 6: Grass/Parking Runoff Area=14,185 sf 34.90% Impervious Runoff Depth>1.83"
Tc=6.0 min CN=86 Runoff=0.69 cfs 2,167 cf

Subcatchment 7: Former Building/Grass Runoff Area=49,565 sf 79.01% Impervious Runoff Depth>2.54"
Tc=6.0 min CN=94 Runoff=3.18 cfs 10,500 cf

Subcatchment 8: Former Building/Grass Runoff Area=40,205 sf 77.54% Impervious Runoff Depth>2.54"
Tc=6.0 min CN=94 Runoff=2.58 cfs 8,517 cf

Subcatchment 9: Grass Runoff Area=10,085 sf 0.00% Impervious Runoff Depth>1.40"
Tc=6.0 min CN=80 Runoff=0.37 cfs 1,177 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=27.70 cfs 96,334 cf
Outflow=27.70 cfs 96,334 cf

Pond DMH1061: Exist. DMH Peak Elev=46.07' Inflow=9.68 cfs 32,263 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=9.68 cfs 32,263 cf

Pond DMH1067: Exist. DMH Peak Elev=46.71' Inflow=6.81 cfs 22,361 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=6.81 cfs 22,361 cf

Pond DMH1124: Exist. DMH Peak Elev=47.56' Inflow=6.12 cfs 20,194 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=6.12 cfs 20,194 cf

Pond DMH1258: Exist. DMH Peak Elev=48.20' Inflow=2.95 cfs 9,694 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=2.95 cfs 9,694 cf

Pond DMH1322: Exist. DMH Peak Elev=48.53' Inflow=0.37 cfs 1,177 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.37 cfs 1,177 cf

Pond DMH1416: Exist. DMH Peak Elev=49.29' Inflow=3.03 cfs 10,139 cf
36.0" Round Culvert n=0.011 L=748.0' S=0.0050 '/' Outflow=3.03 cfs 10,139 cf

Pond DROP708: Exist. Drop Peak Elev=46.39' Inflow=13.86 cfs 49,350 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=13.86 cfs 49,350 cf

Pond DROP758: Exist. Drop Peak Elev=45.36' Inflow=16.64 cfs 59,211 cf
36.0" Round Culvert n=0.011 L=21.0' S=0.0048 '/' Outflow=16.64 cfs 59,211 cf

Pond DROP799: Exist. Drop Peak Elev=44.89' Inflow=11.07 cfs 37,123 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=11.07 cfs 37,123 cf

Total Runoff Area = 474,995 sf Runoff Volume = 96,334 cf Average Runoff Depth = 2.43"
31.04% Pervious = 147,440 sf 68.96% Impervious = 327,555 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Former Building/Parking Runoff Area=46,030 sf 84.27% Impervious Runoff Depth>4.28"
Tc=6.0 min CN=95 Runoff=4.77 cfs 16,410 cf

Subcatchment 2: Former Runoff Area=171,325 sf 86.96% Impervious Runoff Depth>4.39"
Tc=8.0 min CN=96 Runoff=16.98 cfs 62,667 cf

Subcatchment 3: Grass/Parking Runoff Area=44,785 sf 81.61% Impervious Runoff Depth>4.28"
Tc=8.0 min CN=95 Runoff=4.38 cfs 15,961 cf

Subcatchment 4: Grass Runoff Area=41,665 sf 0.00% Impervious Runoff Depth>2.77"
Tc=8.0 min CN=80 Runoff=2.86 cfs 9,609 cf

Subcatchment 5: Grass/Parking Runoff Area=57,150 sf 48.89% Impervious Runoff Depth>3.63"
Tc=8.0 min CN=89 Runoff=5.02 cfs 17,307 cf

Subcatchment 6: Grass/Parking Runoff Area=14,185 sf 34.90% Impervious Runoff Depth>3.33"
Tc=6.0 min CN=86 Runoff=1.23 cfs 3,941 cf

Subcatchment 7: Former Building/Grass Runoff Area=49,565 sf 79.01% Impervious Runoff Depth>4.17"
Tc=6.0 min CN=94 Runoff=5.06 cfs 17,212 cf

Subcatchment 8: Former Building/Grass Runoff Area=40,205 sf 77.54% Impervious Runoff Depth>4.17"
Tc=6.0 min CN=94 Runoff=4.11 cfs 13,962 cf

Subcatchment 9: Grass Runoff Area=10,085 sf 0.00% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=80 Runoff=0.74 cfs 2,327 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=44.85 cfs 159,396 cf
Outflow=44.85 cfs 159,396 cf

Pond DMH1061: Exist. DMH Peak Elev=46.55' Inflow=16.06 cfs 54,749 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=16.06 cfs 54,749 cf

Pond DMH1067: Exist. DMH Peak Elev=46.97' Inflow=11.13 cfs 37,441 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=11.13 cfs 37,441 cf

Pond DMH1124: Exist. DMH Peak Elev=47.85' Inflow=9.90 cfs 33,500 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=9.90 cfs 33,500 cf

Pond DMH1258: Exist. DMH Peak Elev=48.44' Inflow=4.84 cfs 16,288 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=4.84 cfs 16,288 cf

Pond DMH1322: Exist. DMH Peak Elev=48.65' Inflow=0.74 cfs 2,327 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.74 cfs 2,327 cf

Pond DMH1416: Exist. DMH Peak Elev=49.46' Inflow=4.77 cfs 16,410 cf
36.0" Round Culvert n=0.011 L=748.0' S=0.0050 '/' Outflow=4.77 cfs 16,410 cf

Pond DROP708: Exist. Drop Peak Elev=46.84' Inflow=21.64 cfs 79,077 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=21.64 cfs 79,077 cf

Pond DROP758: Exist. Drop Peak Elev=45.96' Inflow=26.02 cfs 95,038 cf
36.0" Round Culvert n=0.011 L=21.0' S=0.0048 '/' Outflow=26.02 cfs 95,038 cf

Pond DROP799: Exist. Drop Peak Elev=45.40' Inflow=18.87 cfs 64,358 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=18.87 cfs 64,358 cf

Total Runoff Area = 474,995 sf Runoff Volume = 159,396 cf Average Runoff Depth = 4.03"
31.04% Pervious = 147,440 sf 68.96% Impervious = 327,555 sf

Summary for Subcatchment 1: Former Building/Parking Lot

Runoff = 4.77 cfs @ 12.09 hrs, Volume= 16,410 cf, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
16,690	98	Roofs, HSG D
7,240	80	>75% Grass cover, Good, HSG D
22,100	98	Paved parking, HSG D
46,030	95	Weighted Average
7,240		15.73% Pervious Area
38,790		84.27% Impervious Area

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

Summary for Subcatchment 2: Former Building/Parking Lot

Runoff = 16.98 cfs @ 12.11 hrs, Volume= 62,667 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
54,180	98	Roofs, HSG D
22,335	80	>75% Grass cover, Good, HSG D
94,810	98	Paved parking, HSG D
171,325	96	Weighted Average
22,335		13.04% Pervious Area
148,990		86.96% Impervious Area

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

Summary for Subcatchment 3: Grass/Parking

Runoff = 4.38 cfs @ 12.11 hrs, Volume= 15,961 cf, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
8,235	80	>75% Grass cover, Good, HSG D
36,550	98	Paved parking, HSG D
44,785	95	Weighted Average
8,235		18.39% Pervious Area
36,550		81.61% Impervious Area

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

Summary for Subcatchment 4: Grass

Runoff = 2.86 cfs @ 12.12 hrs, Volume= 9,609 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
41,665	80	>75% Grass cover, Good, HSG D
41,665		100.00% Pervious Area

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

Summary for Subcatchment 5: Grass/Parking

Runoff = 5.02 cfs @ 12.11 hrs, Volume= 17,307 cf, Depth> 3.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
29,210	80	>75% Grass cover, Good, HSG D
27,940	98	Paved parking, HSG D
57,150	89	Weighted Average
29,210		51.11% Pervious Area
27,940		48.89% Impervious Area

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

Summary for Subcatchment 6: Grass/Parking

Runoff = 1.23 cfs @ 12.09 hrs, Volume= 3,941 cf, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
9,235	80	>75% Grass cover, Good, HSG D
4,950	98	Paved parking, HSG D
14,185	86	Weighted Average
9,235		65.10% Pervious Area
4,950		34.90% Impervious Area

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

Summary for Subcatchment 7: Former Building/Grass

Runoff = 5.06 cfs @ 12.09 hrs, Volume= 17,212 cf, Depth> 4.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
10,405	80	>75% Grass cover, Good, HSG D
39,160	98	Roofs, HSG D
49,565	94	Weighted Average
10,405		20.99% Pervious Area
39,160		79.01% Impervious Area

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

Summary for Subcatchment 8: Former Building/Grass

Runoff = 4.11 cfs @ 12.09 hrs, Volume= 13,962 cf, Depth> 4.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
9,030	80	>75% Grass cover, Good, HSG D
31,175	98	Roofs, HSG D
40,205	94	Weighted Average
9,030		22.46% Pervious Area
31,175		77.54% Impervious Area

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

Summary for Subcatchment 9: Grass

Runoff = 0.74 cfs @ 12.09 hrs, Volume= 2,327 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
10,085	80	>75% Grass cover, Good, HSG D
10,085		100.00% Pervious Area

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

Summary for Reach DP1: Offsite Flow Exiting DMH779

Inflow to DMH 779 from 36" CMP, outside E corner ROW

Inflow Area = 474,995 sf, 68.96% Impervious, Inflow Depth > 4.03" for 10-Yr event
Inflow = 44.85 cfs @ 12.10 hrs, Volume= 159,396 cf
Outflow = 44.85 cfs @ 12.10 hrs, Volume= 159,396 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond DMH1061: Exist. DMH

Inflow Area = 171,190 sf, 60.30% Impervious, Inflow Depth > 3.84" for 10-Yr event
Inflow = 16.06 cfs @ 12.09 hrs, Volume= 54,749 cf
Outflow = 16.06 cfs @ 12.09 hrs, Volume= 54,749 cf, Atten= 0%, Lag= 0.0 min
Primary = 16.06 cfs @ 12.09 hrs, Volume= 54,749 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 46.55' @ 12.09 hrs
Flood Elev= 52.02'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.49'	**48.0" Round Culvert** L= 308.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.49' / 43.26' S= 0.0040 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=15.85 cfs @ 12.09 hrs HW=46.53' (Free Discharge)
1=Culvert (Barrel Controls 15.85 cfs @ 3.58 fps)

Summary for Pond DMH1067: Exist. DMH

Inflow Area = 114,040 sf, 66.02% Impervious, Inflow Depth > 3.94" for 10-Yr event
Inflow = 11.13 cfs @ 12.09 hrs, Volume= 37,441 cf
Outflow = 11.13 cfs @ 12.09 hrs, Volume= 37,441 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.13 cfs @ 12.09 hrs, Volume= 37,441 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 46.97' @ 12.09 hrs
Flood Elev= 52.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.81'	**48.0" Round Culvert** L= 195.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.81' / 44.60' S= 0.0062 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=10.84 cfs @ 12.09 hrs HW=46.96' (Free Discharge)
└─**1=Culvert** (Inlet Controls 10.84 cfs @ 3.65 fps)

Summary for Pond DMH1124: Exist. DMH

Inflow Area = 99,855 sf, 70.44% Impervious, Inflow Depth > 4.03" for 10-Yr event
Inflow = 9.90 cfs @ 12.09 hrs, Volume= 33,500 cf
Outflow = 9.90 cfs @ 12.09 hrs, Volume= 33,500 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.90 cfs @ 12.09 hrs, Volume= 33,500 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 47.85' @ 12.09 hrs
Flood Elev= 54.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.56'	**48.0" Round Culvert** L= 248.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.56' / 45.95' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=9.64 cfs @ 12.09 hrs HW=47.83' (Free Discharge)
└─**1=Culvert** (Barrel Controls 9.64 cfs @ 4.20 fps)

Summary for Pond DMH1258: Exist. DMH

Inflow Area = 50,290 sf, 61.99% Impervious, Inflow Depth > 3.89" for 10-Yr event
Inflow = 4.84 cfs @ 12.09 hrs, Volume= 16,288 cf
Outflow = 4.84 cfs @ 12.09 hrs, Volume= 16,288 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.84 cfs @ 12.09 hrs, Volume= 16,288 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.44' @ 12.09 hrs
Flood Elev= 54.91'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.37'	**30.0" Round Culvert** L= 372.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.37' / 46.61' S= 0.0020 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=4.72 cfs @ 12.09 hrs HW=48.43' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.72 cfs @ 3.51 fps)

Summary for Pond DMH1322: Exist. DMH

Inflow Area = 10,085 sf, 0.00% Impervious, Inflow Depth > 2.77" for 10-Yr event
Inflow = 0.74 cfs @ 12.09 hrs, Volume= 2,327 cf
Outflow = 0.74 cfs @ 12.09 hrs, Volume= 2,327 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.74 cfs @ 12.09 hrs, Volume= 2,327 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.65' @ 12.09 hrs
Flood Elev= 55.14'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.24'	**30.0" Round Culvert** L= 347.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.24' / 47.45' S= 0.0023 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=0.72 cfs @ 12.09 hrs HW=48.64' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.72 cfs @ 2.13 fps)

Summary for Pond DMH1416: Exist. DMH

Inflow Area = 46,030 sf, 84.27% Impervious, Inflow Depth > 4.28" for 10-Yr event
Inflow = 4.77 cfs @ 12.09 hrs, Volume= 16,410 cf
Outflow = 4.77 cfs @ 12.09 hrs, Volume= 16,410 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.77 cfs @ 12.09 hrs, Volume= 16,410 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 49.46' @ 12.09 hrs
Flood Elev= 58.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.65'	**36.0" Round Culvert** L= 748.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.65' / 44.91' S= 0.0050 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=4.63 cfs @ 12.09 hrs HW=49.45' (Free Discharge)
└─**1=Culvert** (Inlet Controls 4.63 cfs @ 3.05 fps)

Summary for Pond DROP708: Exist. Drop

Inflow Area = 217,355 sf, 86.39% Impervious, Inflow Depth > 4.37" for 10-Yr event
Inflow = 21.64 cfs @ 12.10 hrs, Volume= 79,077 cf
Outflow = 21.64 cfs @ 12.10 hrs, Volume= 79,077 cf, Atten= 0%, Lag= 0.0 min
Primary = 21.64 cfs @ 12.10 hrs, Volume= 79,077 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 46.84' @ 12.10 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.91'	**36.0" Round Culvert** L= 300.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.91' / 43.41' S= 0.0050 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=21.41 cfs @ 12.10 hrs HW=46.83' (Free Discharge)
└─**1=Culvert** (Barrel Controls 21.41 cfs @ 6.39 fps)

Summary for Pond DROP758: Exist. Drop

Inflow Area = 262,140 sf, 85.58% Impervious, Inflow Depth > 4.35" for 10-Yr event
Inflow = 26.02 cfs @ 12.11 hrs, Volume= 95,038 cf
Outflow = 26.02 cfs @ 12.11 hrs, Volume= 95,038 cf, Atten= 0%, Lag= 0.0 min
Primary = 26.02 cfs @ 12.11 hrs, Volume= 95,038 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 45.96' @ 12.11 hrs
Flood Elev= 51.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.41'	**36.0" Round Culvert** L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 43.41' / 43.31' S= 0.0048 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=25.70 cfs @ 12.11 hrs HW=45.94' (Free Discharge)
└─**1=Culvert** (Barrel Controls 25.70 cfs @ 5.45 fps)

Summary for Pond DROP799: Exist. Drop

Inflow Area = 212,855 sf, 48.50% Impervious, Inflow Depth > 3.63" for 10-Yr event
Inflow = 18.87 cfs @ 12.10 hrs, Volume= 64,358 cf
Outflow = 18.87 cfs @ 12.10 hrs, Volume= 64,358 cf, Atten= 0%, Lag= 0.0 min
Primary = 18.87 cfs @ 12.10 hrs, Volume= 64,358 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 45.40' @ 12.10 hrs
Flood Elev= 52.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.26'	**48.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 43.26' / 42.87' S= 0.0039 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=18.75 cfs @ 12.10 hrs HW=45.40' (Free Discharge)
└─**1=Culvert** (Barrel Controls 18.75 cfs @ 3.99 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Former Building/Parking Runoff Area=46,030 sf 84.27% Impervious Runoff Depth>5.57"
Tc=6.0 min CN=95 Runoff=6.11 cfs 21,354 cf

Subcatchment 2: Former Runoff Area=171,325 sf 86.96% Impervious Runoff Depth>5.68"
Tc=8.0 min CN=96 Runoff=21.70 cfs 81,116 cf

Subcatchment 3: Grass/Parking Runoff Area=44,785 sf 81.61% Impervious Runoff Depth>5.57"
Tc=8.0 min CN=95 Runoff=5.63 cfs 20,770 cf

Subcatchment 4: Grass Runoff Area=41,665 sf 0.00% Impervious Runoff Depth>3.92"
Tc=8.0 min CN=80 Runoff=4.04 cfs 13,615 cf

Subcatchment 5: Grass/Parking Runoff Area=57,150 sf 48.89% Impervious Runoff Depth>4.89"
Tc=8.0 min CN=89 Runoff=6.65 cfs 23,267 cf

Subcatchment 6: Grass/Parking Runoff Area=14,185 sf 34.90% Impervious Runoff Depth>4.56"
Tc=6.0 min CN=86 Runoff=1.66 cfs 5,388 cf

Subcatchment 7: Former Building/Grass Runoff Area=49,565 sf 79.01% Impervious Runoff Depth>5.45"
Tc=6.0 min CN=94 Runoff=6.52 cfs 22,517 cf

Subcatchment 8: Former Building/Grass Runoff Area=40,205 sf 77.54% Impervious Runoff Depth>5.45"
Tc=6.0 min CN=94 Runoff=5.29 cfs 18,265 cf

Subcatchment 9: Grass Runoff Area=10,085 sf 0.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=80 Runoff=1.04 cfs 3,297 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=58.26 cfs 209,589 cf
Outflow=58.26 cfs 209,589 cf

Pond DMH1061: Exist. DMH Peak Elev=46.86' Inflow=21.03 cfs 72,734 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=21.03 cfs 72,734 cf

Pond DMH1067: Exist. DMH Peak Elev=47.15' Inflow=14.51 cfs 49,467 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=14.51 cfs 49,467 cf

Pond DMH1124: Exist. DMH Peak Elev=48.04' Inflow=12.85 cfs 44,079 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=12.85 cfs 44,079 cf

Pond DMH1258: Exist. DMH Peak Elev=48.61' Inflow=6.33 cfs 21,562 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=6.33 cfs 21,562 cf

Pond DMH1322: Exist. DMH Peak Elev=48.72' Inflow=1.04 cfs 3,297 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=1.04 cfs 3,297 cf

Pond DMH1416: Exist. DMH Peak Elev=49.58' Inflow=6.11 cfs 21,354 cf
36.0" Round Culvert n=0.011 L=748.0' S=0.0050 '/' Outflow=6.11 cfs 21,354 cf

Pond DROP708: Exist. Drop Peak Elev=47.16' Inflow=27.68 cfs 102,470 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=27.68 cfs 102,470 cf

Pond DROP758: Exist. Drop Peak Elev=46.40' Inflow=33.30 cfs 123,240 cf
36.0" Round Culvert n=0.011 L=21.0' S=0.0048 '/' Outflow=33.30 cfs 123,240 cf

Pond DROP799: Exist. Drop Peak Elev=45.75' Inflow=25.00 cfs 86,349 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=25.00 cfs 86,349 cf

Total Runoff Area = 474,995 sf Runoff Volume = 209,589 cf Average Runoff Depth = 5.29"
31.04% Pervious = 147,440 sf 68.96% Impervious = 327,555 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Former Building/Parking Runoff Area=46,030 sf 84.27% Impervious Runoff Depth>6.78"
Tc=6.0 min CN=95 Runoff=7.37 cfs 26,006 cf

Subcatchment 2: Former Runoff Area=171,325 sf 86.96% Impervious Runoff Depth>6.90"
Tc=8.0 min CN=96 Runoff=26.11 cfs 98,459 cf

Subcatchment 3: Grass/Parking Runoff Area=44,785 sf 81.61% Impervious Runoff Depth>6.78"
Tc=8.0 min CN=95 Runoff=6.78 cfs 25,295 cf

Subcatchment 4: Grass Runoff Area=41,665 sf 0.00% Impervious Runoff Depth>5.04"
Tc=8.0 min CN=80 Runoff=5.16 cfs 17,501 cf

Subcatchment 5: Grass/Parking Runoff Area=57,150 sf 48.89% Impervious Runoff Depth>6.07"
Tc=8.0 min CN=89 Runoff=8.17 cfs 28,924 cf

Subcatchment 6: Grass/Parking Runoff Area=14,185 sf 34.90% Impervious Runoff Depth>5.73"
Tc=6.0 min CN=86 Runoff=2.06 cfs 6,771 cf

Subcatchment 7: Former Building/Grass Runoff Area=49,565 sf 79.01% Impervious Runoff Depth>6.66"
Tc=6.0 min CN=94 Runoff=7.88 cfs 27,514 cf

Subcatchment 8: Former Building/Grass Runoff Area=40,205 sf 77.54% Impervious Runoff Depth>6.66"
Tc=6.0 min CN=94 Runoff=6.39 cfs 22,319 cf

Subcatchment 9: Grass Runoff Area=10,085 sf 0.00% Impervious Runoff Depth>5.04"
Tc=6.0 min CN=80 Runoff=1.32 cfs 4,238 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=70.79 cfs 257,026 cf
Outflow=70.79 cfs 257,026 cf

Pond DMH1061: Exist. DMH Peak Elev=47.14' Inflow=25.68 cfs 89,765 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=25.68 cfs 89,765 cf

Pond DMH1067: Exist. DMH Peak Elev=47.31' Inflow=17.66 cfs 60,841 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=17.66 cfs 60,841 cf

Pond DMH1124: Exist. DMH Peak Elev=48.20' Inflow=15.60 cfs 54,071 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=15.60 cfs 54,071 cf

Pond DMH1258: Exist. DMH Peak Elev=48.75' Inflow=7.72 cfs 26,556 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=7.72 cfs 26,556 cf

Pond DMH1322: Exist. DMH Peak Elev=48.78' Inflow=1.32 cfs 4,238 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=1.32 cfs 4,238 cf

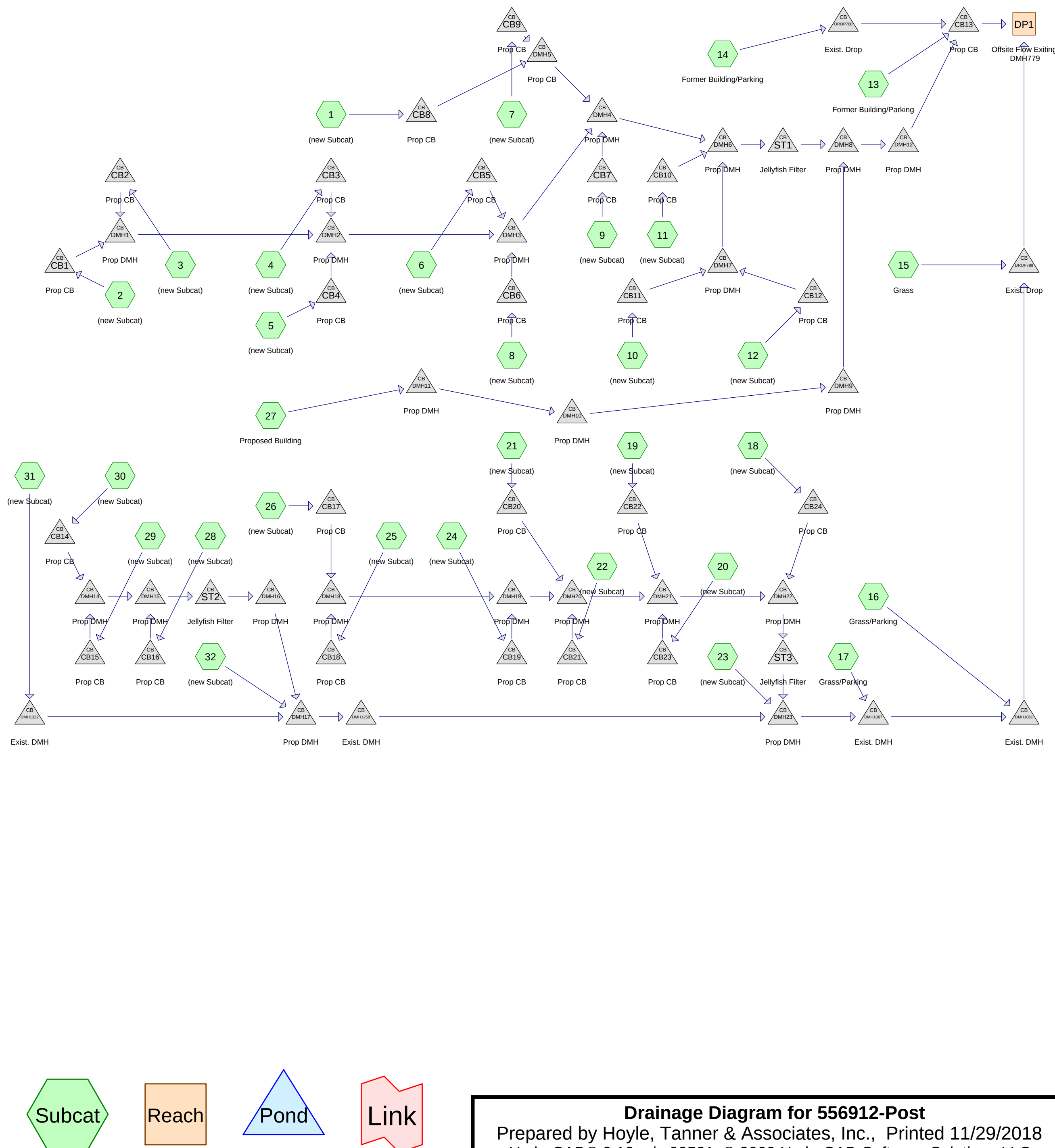
Pond DMH1416: Exist. DMH Peak Elev=49.68' Inflow=7.37 cfs 26,006 cf
36.0" Round Culvert n=0.011 L=748.0' S=0.0050 '/' Outflow=7.37 cfs 26,006 cf

Pond DROP708: Exist. Drop Peak Elev=47.46' Inflow=33.32 cfs 124,464 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=33.32 cfs 124,464 cf

Pond DROP758: Exist. Drop Peak Elev=46.83' Inflow=40.09 cfs 149,759 cf
36.0" Round Culvert n=0.011 L=21.0' S=0.0048 '/' Outflow=40.09 cfs 149,759 cf

Pond DROP799: Exist. Drop Peak Elev=46.05' Inflow=30.76 cfs 107,266 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=30.76 cfs 107,266 cf

Total Runoff Area = 474,995 sf Runoff Volume = 257,026 cf Average Runoff Depth = 6.49"
31.04% Pervious = 147,440 sf 68.96% Impervious = 327,555 sf



Drainage Diagram for 556912-Post
Prepared by Hoyle, Tanner & Associates, Inc., Printed 11/29/2018
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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
258,760	80	>75% Grass cover, Good, HSG D (1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31, 32)
183,065	98	Paved parking, HSG D (2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 18, 19, 20, 21, 22, 23, 24, 25, 28, 29, 30, 31)
33,170	98	Roofs, HSG D (27)
474,995		**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
474,995	HSG D	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32
0	Other	
474,995		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: (new Subcat) Runoff Area=27,805 sf 0.00% Impervious Runoff Depth>1.40"
Tc=8.0 min CN=80 Runoff=0.95 cfs 3,244 cf

Subcatchment 2: (new Subcat) Runoff Area=16,720 sf 84.54% Impervious Runoff Depth>2.64"
Tc=6.0 min CN=95 Runoff=1.10 cfs 3,683 cf

Subcatchment 3: (new Subcat) Runoff Area=11,700 sf 83.76% Impervious Runoff Depth>2.64"
Tc=6.0 min CN=95 Runoff=0.77 cfs 2,577 cf

Subcatchment 4: (new Subcat) Runoff Area=10,120 sf 100.00% Impervious Runoff Depth>2.97"
Tc=6.0 min CN=98 Runoff=0.70 cfs 2,501 cf

Subcatchment 5: (new Subcat) Runoff Area=5,715 sf 18.29% Impervious Runoff Depth>1.61"
Tc=6.0 min CN=83 Runoff=0.24 cfs 766 cf

Subcatchment 6: (new Subcat) Runoff Area=3,460 sf 90.46% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.23 cfs 792 cf

Subcatchment 7: (new Subcat) Runoff Area=3,440 sf 95.78% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.24 cfs 818 cf

Subcatchment 8: (new Subcat) Runoff Area=13,780 sf 93.32% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.95 cfs 3,278 cf

Subcatchment 9: (new Subcat) Runoff Area=5,035 sf 89.08% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.34 cfs 1,153 cf

Subcatchment 10: (new Subcat) Runoff Area=13,700 sf 90.40% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.92 cfs 3,137 cf

Subcatchment 11: (new Subcat) Runoff Area=4,720 sf 92.90% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.32 cfs 1,123 cf

Subcatchment 12: (new Subcat) Runoff Area=8,310 sf 91.70% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.57 cfs 1,977 cf

Subcatchment 13: Former Building/Parking Runoff Area=68,450 sf 0.00% Impervious Runoff Depth>1.40"
Flow Length=451' Slope=0.0110 '/' Tc=16.0 min CN=80 Runoff=1.86 cfs 7,970 cf

Subcatchment 14: Former Building/Parking Runoff Area=14,280 sf 0.00% Impervious Runoff Depth>1.40"
Tc=6.0 min CN=80 Runoff=0.52 cfs 1,667 cf

Subcatchment 15: Grass Runoff Area=29,805 sf 0.00% Impervious Runoff Depth>1.40"
Tc=8.0 min CN=80 Runoff=1.02 cfs 3,477 cf

Subcatchment 16: Grass/Parking Runoff Area=73,455 sf 0.00% Impervious Runoff Depth>1.40"
Flow Length=465' Slope=0.0110 '/' Tc=16.4 min CN=80 Runoff=1.98 cfs 8,552 cf

Subcatchment 17: Grass/Parking Runoff Area=6,205 sf 0.00% Impervious Runoff Depth>1.40"
Tc=6.0 min CN=80 Runoff=0.23 cfs 724 cf

Subcatchment 18: (new Subcat) Runoff Area=8,910 sf 91.75% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.61 cfs 2,120 cf

Subcatchment 19: (new Subcat) Runoff Area=14,855 sf 90.74% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=1.00 cfs 3,401 cf

Subcatchment 20: (new Subcat) Runoff Area=4,705 sf 92.88% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=0.32 cfs 1,119 cf

Subcatchment 21: (new Subcat) Runoff Area=14,070 sf 91.12% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.95 cfs 3,221 cf

Subcatchment 22: (new Subcat) Runoff Area=5,035 sf 88.88% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.34 cfs 1,153 cf

Subcatchment 23: (new Subcat) Runoff Area=7,445 sf 31.09% Impervious Runoff Depth>1.83"
Tc=6.0 min CN=86 Runoff=0.36 cfs 1,138 cf

Subcatchment 24: (new Subcat) Runoff Area=5,575 sf 89.24% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.38 cfs 1,276 cf

Subcatchment 25: (new Subcat) Runoff Area=9,730 sf 97.94% Impervious Runoff Depth>2.97"
Tc=6.0 min CN=98 Runoff=0.68 cfs 2,405 cf

Subcatchment 26: (new Subcat) Runoff Area=4,185 sf 0.00% Impervious Runoff Depth>1.40"
Tc=6.0 min CN=80 Runoff=0.15 cfs 488 cf

Subcatchment 27: Proposed Building Runoff Area=33,170 sf 100.00% Impervious Runoff Depth>2.97"
Tc=6.0 min CN=98 Runoff=2.31 cfs 8,198 cf

Subcatchment 28: (new Subcat) Runoff Area=19,750 sf 92.71% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=1.35 cfs 4,698 cf

Subcatchment 29: (new Subcat) Runoff Area=5,600 sf 88.21% Impervious Runoff Depth>2.75"
Tc=6.0 min CN=96 Runoff=0.38 cfs 1,282 cf

Subcatchment 30: (new Subcat) Runoff Area=15,605 sf 94.26% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=97 Runoff=1.07 cfs 3,712 cf

Subcatchment 31: (new Subcat) Runoff Area=5,160 sf 33.04% Impervious Runoff Depth>1.83"
Tc=6.0 min CN=86 Runoff=0.25 cfs 788 cf

Subcatchment 32: (new Subcat) Runoff Area=4,500 sf 0.00% Impervious Runoff Depth>1.40"
Tc=6.0 min CN=80 Runoff=0.16 cfs 525 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=21.81 cfs 82,962 cf
Outflow=21.81 cfs 82,962 cf

Pond CB1: Prop CB Peak Elev=52.80' Inflow=1.10 cfs 3,683 cf
12.0" Round Culvert n=0.012 L=190.0' S=0.0053 '/' Outflow=1.10 cfs 3,683 cf

Pond CB10: Prop CB Peak Elev=49.38' Inflow=0.32 cfs 1,123 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.32 cfs 1,123 cf

Pond CB11: Prop CB Peak Elev=53.09' Inflow=0.92 cfs 3,137 cf
12.0" Round Culvert n=0.012 L=95.0' S=0.0258 '/' Outflow=0.92 cfs 3,137 cf

Pond CB12: Prop CB Peak Elev=52.78' Inflow=0.57 cfs 1,977 cf
12.0" Round Culvert n=0.012 L=75.0' S=0.0300 '/' Outflow=0.57 cfs 1,977 cf

Pond CB13: Prop CB Peak Elev=44.66' Inflow=11.33 cfs 42,882 cf
48.0" Round Culvert n=0.011 L=15.0' S=0.0067 '/' Outflow=11.33 cfs 42,882 cf

Pond CB14: Prop CB Peak Elev=52.12' Inflow=1.07 cfs 3,712 cf
12.0" Round Culvert n=0.012 L=25.0' S=0.0060 '/' Outflow=1.07 cfs 3,712 cf

Pond CB15: Prop CB Peak Elev=51.80' Inflow=0.38 cfs 1,282 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0300 '/' Outflow=0.38 cfs 1,282 cf

Pond CB16: Prop CB Peak Elev=51.52' Inflow=1.35 cfs 4,698 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=1.35 cfs 4,698 cf

Pond CB17: Prop CB Peak Elev=53.69' Inflow=0.15 cfs 488 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0186 '/' Outflow=0.15 cfs 488 cf

Pond CB18: Prop CB Peak Elev=52.76' Inflow=0.68 cfs 2,405 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=0.68 cfs 2,405 cf

Pond CB19: Prop CB Peak Elev=52.00' Inflow=0.38 cfs 1,276 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0500 '/' Outflow=0.38 cfs 1,276 cf

Pond CB2: Prop CB Peak Elev=52.05' Inflow=0.77 cfs 2,577 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=0.77 cfs 2,577 cf

Pond CB20: Prop CB Peak Elev=53.20' Inflow=0.95 cfs 3,221 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0148 '/' Outflow=0.95 cfs 3,221 cf

Pond CB21: Prop CB Peak Elev=51.79' Inflow=0.34 cfs 1,153 cf
12.0" Round Culvert n=0.012 L=10.0' S=0.0350 '/' Outflow=0.34 cfs 1,153 cf

Pond CB22: Prop CB Peak Elev=53.22' Inflow=1.00 cfs 3,401 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0210 '/' Outflow=1.00 cfs 3,401 cf

Pond CB23: Prop CB Peak Elev=51.48' Inflow=0.32 cfs 1,119 cf
12.0" Round Culvert n=0.012 L=13.0' S=0.0538 '/' Outflow=0.32 cfs 1,119 cf

Pond CB24: Prop CB Peak Elev=52.79' Inflow=0.61 cfs 2,120 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0349 '/' Outflow=0.61 cfs 2,120 cf

Pond CB3: Prop CB Peak Elev=51.22' Inflow=0.70 cfs 2,501 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=0.70 cfs 2,501 cf

Pond CB4: Prop CB Peak Elev=53.74' Inflow=0.24 cfs 766 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0436 '/' Outflow=0.24 cfs 766 cf

Pond CB5: Prop CB Peak Elev=50.53' Inflow=0.23 cfs 792 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.23 cfs 792 cf

Pond CB6: Prop CB Peak Elev=53.10' Inflow=0.95 cfs 3,278 cf
12.0" Round Culvert n=0.012 L=93.0' S=0.0290 '/' Outflow=0.95 cfs 3,278 cf

Pond CB7: Prop CB Peak Elev=49.99' Inflow=0.34 cfs 1,153 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=0.34 cfs 1,153 cf

Pond CB8: Prop CB Peak Elev=52.01' Inflow=0.95 cfs 3,244 cf
12.0" Round Culvert n=0.012 L=100.0' S=0.0080 '/' Outflow=0.95 cfs 3,244 cf

Pond CB9: Prop CB Peak Elev=51.34' Inflow=0.24 cfs 818 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=0.24 cfs 818 cf

Pond DMH1: Prop DMH Peak Elev=51.69' Inflow=1.87 cfs 6,260 cf
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=1.87 cfs 6,260 cf

Pond DMH10: Prop DMH Peak Elev=51.90' Inflow=2.31 cfs 8,198 cf
18.0" Round Culvert n=0.012 L=205.0' S=0.0146 '/' Outflow=2.31 cfs 8,198 cf

Pond DMH1061: Exist. DMH Peak Elev=46.06' Inflow=9.47 cfs 36,603 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=9.47 cfs 36,603 cf

Pond DMH1067: Exist. DMH Peak Elev=46.80' Inflow=8.23 cfs 28,052 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=8.23 cfs 28,052 cf

Pond DMH11: Prop DMH Peak Elev=54.50' Inflow=2.31 cfs 8,198 cf
18.0" Round Culvert n=0.012 L=135.0' S=0.0185 '/' Outflow=2.31 cfs 8,198 cf

Pond DMH12: Prop DMH Peak Elev=45.81' Inflow=9.60 cfs 33,245 cf
30.0" Round Culvert n=0.012 L=70.0' S=0.0050 '/' Outflow=9.60 cfs 33,245 cf

Pond DMH1258: Exist. DMH Peak Elev=48.24' Inflow=3.22 cfs 11,007 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=3.22 cfs 11,007 cf

Pond DMH1322: Exist. DMH Peak Elev=48.48' Inflow=0.25 cfs 788 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.25 cfs 788 cf

Pond DMH14: Prop DMH Peak Elev=51.74' Inflow=1.45 cfs 4,994 cf
15.0" Round Culvert n=0.012 L=157.0' S=0.0051 '/' Outflow=1.45 cfs 4,994 cf

Pond DMH15: Prop DMH Peak Elev=50.94' Inflow=2.80 cfs 9,693 cf
18.0" Round Culvert n=0.012 L=56.0' S=0.0054 '/' Outflow=2.80 cfs 9,693 cf

Pond DMH16: Prop DMH Peak Elev=49.78' Inflow=2.80 cfs 9,693 cf
18.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=2.80 cfs 9,693 cf

Pond DMH17: Prop DMH Peak Elev=48.46' Inflow=3.22 cfs 11,007 cf
30.0" Round Culvert n=0.011 L=64.0' S=0.0020 '/' Outflow=3.22 cfs 11,007 cf

Pond DMH18: Prop DMH Peak Elev=52.62' Inflow=0.83 cfs 2,893 cf
12.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=0.83 cfs 2,893 cf

Pond DMH19: Prop DMH Peak Elev=51.79' Inflow=1.21 cfs 4,169 cf
15.0" Round Culvert n=0.012 L=55.0' S=0.0055 '/' Outflow=1.21 cfs 4,169 cf

Pond DMH2: Prop DMH Peak Elev=50.82' Inflow=2.82 cfs 9,526 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=2.82 cfs 9,526 cf

Pond DMH20: Prop DMH Peak Elev=51.46' Inflow=2.49 cfs 8,543 cf
18.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=2.49 cfs 8,543 cf

Pond DMH21: Prop DMH Peak Elev=50.96' Inflow=3.81 cfs 13,064 cf
18.0" Round Culvert n=0.012 L=50.0' S=0.0060 '/' Outflow=3.81 cfs 13,064 cf

Pond DMH22: Prop DMH Peak Elev=50.74' Inflow=4.42 cfs 15,183 cf
18.0" Round Culvert n=0.012 L=6.0' S=0.0083 '/' Outflow=4.42 cfs 15,183 cf

Pond DMH23: Prop DMH Peak Elev=47.71' Inflow=8.00 cfs 27,327 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=8.00 cfs 27,327 cf

Pond DMH3: Prop DMH Peak Elev=49.83' Inflow=3.99 cfs 13,597 cf
24.0" Round Culvert n=0.012 L=110.0' S=0.0055 '/' Outflow=3.99 cfs 13,597 cf

Pond DMH4: Prop DMH Peak Elev=49.34' Inflow=5.48 cfs 18,811 cf
24.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=5.48 cfs 18,811 cf

Pond DMH5: Prop CB Peak Elev=51.17' Inflow=1.18 cfs 4,062 cf
12.0" Round Culvert n=0.012 L=50.0' S=0.0260 '/' Outflow=1.18 cfs 4,062 cf

Pond DMH6: Prop DMH Peak Elev=49.07' Inflow=7.30 cfs 25,048 cf
24.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=7.30 cfs 25,048 cf

Pond DMH7: Prop DMH Peak Elev=50.49' Inflow=1.49 cfs 5,113 cf
15.0" Round Culvert n=0.012 L=42.0' S=0.0345 '/' Outflow=1.49 cfs 5,113 cf

Pond DMH8: Prop DMH Peak Elev=47.59' Inflow=9.60 cfs 33,245 cf
30.0" Round Culvert n=0.011 L=370.0' S=0.0050 '/' Outflow=9.60 cfs 33,245 cf

Pond DMH9: Prop DMH Peak Elev=48.82' Inflow=2.31 cfs 8,198 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0073 '/' Outflow=2.31 cfs 8,198 cf

Pond DROP708: Exist. Drop Peak Elev=45.18' Inflow=0.52 cfs 1,667 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=0.52 cfs 1,667 cf

Pond DROP799: Exist. Drop Peak Elev=44.85' Inflow=10.47 cfs 40,080 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=10.47 cfs 40,080 cf

Pond ST1: Jellyfish Filter Peak Elev=48.45' Inflow=7.30 cfs 25,048 cf
24.0" Round Culvert n=0.012 L=50.0' S=0.0050 '/' Outflow=7.30 cfs 25,048 cf

Pond ST2: Jellyfish Filter Peak Elev=50.12' Inflow=2.80 cfs 9,693 cf
18.0" Round Culvert n=0.012 L=8.0' S=0.0187 '/' Outflow=2.80 cfs 9,693 cf

Pond ST3: Jellyfish Filter Peak Elev=50.12' Inflow=4.42 cfs 15,183 cf
18.0" Round Culvert n=0.012 L=13.0' S=0.0115 '/' Outflow=4.42 cfs 15,183 cf

Total Runoff Area = 474,995 sf Runoff Volume = 82,962 cf Average Runoff Depth = 2.10"
54.48% Pervious = 258,760 sf 45.52% Impervious = 216,235 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: (new Subcat) Runoff Area=27,805 sf 0.00% Impervious Runoff Depth>2.77"
Tc=8.0 min CN=80 Runoff=1.91 cfs 6,413 cf

Subcatchment 2: (new Subcat) Runoff Area=16,720 sf 84.54% Impervious Runoff Depth>4.28"
Tc=6.0 min CN=95 Runoff=1.73 cfs 5,961 cf

Subcatchment 3: (new Subcat) Runoff Area=11,700 sf 83.76% Impervious Runoff Depth>4.28"
Tc=6.0 min CN=95 Runoff=1.21 cfs 4,171 cf

Subcatchment 4: (new Subcat) Runoff Area=10,120 sf 100.00% Impervious Runoff Depth>4.62"
Tc=6.0 min CN=98 Runoff=1.08 cfs 3,897 cf

Subcatchment 5: (new Subcat) Runoff Area=5,715 sf 18.29% Impervious Runoff Depth>3.05"
Tc=6.0 min CN=83 Runoff=0.46 cfs 1,450 cf

Subcatchment 6: (new Subcat) Runoff Area=3,460 sf 90.46% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=0.36 cfs 1,266 cf

Subcatchment 7: (new Subcat) Runoff Area=3,440 sf 95.78% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=0.36 cfs 1,291 cf

Subcatchment 8: (new Subcat) Runoff Area=13,780 sf 93.32% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=1.46 cfs 5,173 cf

Subcatchment 9: (new Subcat) Runoff Area=5,035 sf 89.08% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=0.53 cfs 1,842 cf

Subcatchment 10: (new Subcat) Runoff Area=13,700 sf 90.40% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=1.44 cfs 5,013 cf

Subcatchment 11: (new Subcat) Runoff Area=4,720 sf 92.90% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=0.50 cfs 1,772 cf

Subcatchment 12: (new Subcat) Runoff Area=8,310 sf 91.70% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=0.88 cfs 3,120 cf

Subcatchment 13: Former Building/Parking Runoff Area=68,450 sf 0.00% Impervious Runoff Depth>2.76"
Flow Length=451' Slope=0.0110 '/' Tc=16.0 min CN=80 Runoff=3.76 cfs 15,760 cf

Subcatchment 14: Former Building/Parking Runoff Area=14,280 sf 0.00% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=80 Runoff=1.04 cfs 3,295 cf

Subcatchment 15: Grass Runoff Area=29,805 sf 0.00% Impervious Runoff Depth>2.77"
Tc=8.0 min CN=80 Runoff=2.05 cfs 6,874 cf

Subcatchment 16: Grass/Parking Runoff Area=73,455 sf 0.00% Impervious Runoff Depth>2.76"
Flow Length=465' Slope=0.0110 '/' Tc=16.4 min CN=80 Runoff=3.98 cfs 16,911 cf

Subcatchment 17: Grass/Parking Runoff Area=6,205 sf 0.00% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=80 Runoff=0.45 cfs 1,432 cf

Subcatchment 18: (new Subcat) Runoff Area=8,910 sf 91.75% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=0.94 cfs 3,345 cf

Subcatchment 19: (new Subcat) Runoff Area=14,855 sf 90.74% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=1.56 cfs 5,435 cf

Subcatchment 20: (new Subcat) Runoff Area=4,705 sf 92.88% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=0.50 cfs 1,766 cf

Subcatchment 21: (new Subcat) Runoff Area=14,070 sf 91.12% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=1.47 cfs 5,148 cf

Subcatchment 22: (new Subcat) Runoff Area=5,035 sf 88.88% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=0.53 cfs 1,842 cf

Subcatchment 23: (new Subcat) Runoff Area=7,445 sf 31.09% Impervious Runoff Depth>3.33"
Tc=6.0 min CN=86 Runoff=0.65 cfs 2,068 cf

Subcatchment 24: (new Subcat) Runoff Area=5,575 sf 89.24% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=0.58 cfs 2,040 cf

Subcatchment 25: (new Subcat) Runoff Area=9,730 sf 97.94% Impervious Runoff Depth>4.62"
Tc=6.0 min CN=98 Runoff=1.04 cfs 3,747 cf

Subcatchment 26: (new Subcat) Runoff Area=4,185 sf 0.00% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=80 Runoff=0.31 cfs 966 cf

Subcatchment 27: Proposed Building Runoff Area=33,170 sf 100.00% Impervious Runoff Depth>4.62"
Tc=6.0 min CN=98 Runoff=3.53 cfs 12,772 cf

Subcatchment 28: (new Subcat) Runoff Area=19,750 sf 92.71% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=2.09 cfs 7,414 cf

Subcatchment 29: (new Subcat) Runoff Area=5,600 sf 88.21% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=96 Runoff=0.59 cfs 2,049 cf

Subcatchment 30: (new Subcat) Runoff Area=15,605 sf 94.26% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=97 Runoff=1.65 cfs 5,858 cf

Subcatchment 31: (new Subcat) Runoff Area=5,160 sf 33.04% Impervious Runoff Depth>3.33"
Tc=6.0 min CN=86 Runoff=0.45 cfs 1,434 cf

Subcatchment 32: (new Subcat) Runoff Area=4,500 sf 0.00% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=80 Runoff=0.33 cfs 1,038 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=36.78 cfs 142,562 cf
Outflow=36.78 cfs 142,562 cf

Pond CB1: Prop CB Peak Elev=52.99' Inflow=1.73 cfs 5,961 cf
12.0" Round Culvert n=0.012 L=190.0' S=0.0053 '/' Outflow=1.73 cfs 5,961 cf

Pond CB10: Prop CB Peak Elev=49.45' Inflow=0.50 cfs 1,772 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.50 cfs 1,772 cf

Pond CB11: Prop CB Peak Elev=53.24' Inflow=1.44 cfs 5,013 cf
12.0" Round Culvert n=0.012 L=95.0' S=0.0258 '/' Outflow=1.44 cfs 5,013 cf

Pond CB12: Prop CB Peak Elev=52.88' Inflow=0.88 cfs 3,120 cf
12.0" Round Culvert n=0.012 L=75.0' S=0.0300 '/' Outflow=0.88 cfs 3,120 cf

Pond CB13: Prop CB Peak Elev=45.12' Inflow=18.98 cfs 73,195 cf
48.0" Round Culvert n=0.011 L=15.0' S=0.0067 '/' Outflow=18.98 cfs 73,195 cf

Pond CB14: Prop CB Peak Elev=52.31' Inflow=1.65 cfs 5,858 cf
12.0" Round Culvert n=0.012 L=25.0' S=0.0060 '/' Outflow=1.65 cfs 5,858 cf

Pond CB15: Prop CB Peak Elev=51.89' Inflow=0.59 cfs 2,049 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0300 '/' Outflow=0.59 cfs 2,049 cf

Pond CB16: Prop CB Peak Elev=51.71' Inflow=2.09 cfs 7,414 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=2.09 cfs 7,414 cf

Pond CB17: Prop CB Peak Elev=53.77' Inflow=0.31 cfs 966 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0186 '/' Outflow=0.31 cfs 966 cf

Pond CB18: Prop CB Peak Elev=52.89' Inflow=1.04 cfs 3,747 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.04 cfs 3,747 cf

Pond CB19: Prop CB Peak Elev=52.08' Inflow=0.58 cfs 2,040 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0500 '/' Outflow=0.58 cfs 2,040 cf

Pond CB2: Prop CB Peak Elev=52.18' Inflow=1.21 cfs 4,171 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=1.21 cfs 4,171 cf

Pond CB20: Prop CB Peak Elev=53.35' Inflow=1.47 cfs 5,148 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0148 '/' Outflow=1.47 cfs 5,148 cf

Pond CB21: Prop CB Peak Elev=51.86' Inflow=0.53 cfs 1,842 cf
12.0" Round Culvert n=0.012 L=10.0' S=0.0350 '/' Outflow=0.53 cfs 1,842 cf

Pond CB22: Prop CB Peak Elev=53.37' Inflow=1.56 cfs 5,435 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0210 '/' Outflow=1.56 cfs 5,435 cf

Pond CB23: Prop CB Peak Elev=51.55' Inflow=0.50 cfs 1,766 cf
12.0" Round Culvert n=0.012 L=13.0' S=0.0538 '/' Outflow=0.50 cfs 1,766 cf

Pond CB24: Prop CB Peak Elev=52.90' Inflow=0.94 cfs 3,345 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0349 '/' Outflow=0.94 cfs 3,345 cf

Pond CB3: Prop CB Peak Elev=51.34' Inflow=1.08 cfs 3,897 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=1.08 cfs 3,897 cf

Pond CB4: Prop CB Peak Elev=53.84' Inflow=0.46 cfs 1,450 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0436 '/' Outflow=0.46 cfs 1,450 cf

Pond CB5: Prop CB Peak Elev=50.60' Inflow=0.36 cfs 1,266 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.36 cfs 1,266 cf

Pond CB6: Prop CB Peak Elev=53.24' Inflow=1.46 cfs 5,173 cf
12.0" Round Culvert n=0.012 L=93.0' S=0.0290 '/' Outflow=1.46 cfs 5,173 cf

Pond CB7: Prop CB Peak Elev=50.06' Inflow=0.53 cfs 1,842 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=0.53 cfs 1,842 cf

Pond CB8: Prop CB Peak Elev=52.27' Inflow=1.91 cfs 6,413 cf
12.0" Round Culvert n=0.012 L=100.0' S=0.0080 '/' Outflow=1.91 cfs 6,413 cf

Pond CB9: Prop CB Peak Elev=51.40' Inflow=0.36 cfs 1,291 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=0.36 cfs 1,291 cf

Pond DMH1: Prop DMH Peak Elev=51.93' Inflow=2.94 cfs 10,132 cf
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=2.94 cfs 10,132 cf

Pond DMH10: Prop DMH Peak Elev=52.09' Inflow=3.53 cfs 12,772 cf
18.0" Round Culvert n=0.012 L=205.0' S=0.0146 '/' Outflow=3.53 cfs 12,772 cf

Pond DMH1061: Exist. DMH Peak Elev=46.53' Inflow=15.78 cfs 62,493 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=15.78 cfs 62,493 cf

Pond DMH1067: Exist. DMH Peak Elev=47.08' Inflow=13.12 cfs 45,581 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=13.12 cfs 45,581 cf

Pond DMH11: Prop DMH Peak Elev=54.69' Inflow=3.53 cfs 12,772 cf
18.0" Round Culvert n=0.012 L=135.0' S=0.0185 '/' Outflow=3.53 cfs 12,772 cf

Pond DMH12: Prop DMH Peak Elev=46.29' Inflow=15.38 cfs 54,140 cf
30.0" Round Culvert n=0.012 L=70.0' S=0.0050 '/' Outflow=15.38 cfs 54,140 cf

Pond DMH1258: Exist. DMH Peak Elev=48.47' Inflow=5.10 cfs 17,793 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=5.10 cfs 17,793 cf

Pond DMH1322: Exist. DMH Peak Elev=48.56' Inflow=0.45 cfs 1,434 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.45 cfs 1,434 cf

Pond DMH14: Prop DMH Peak Elev=51.92' Inflow=2.24 cfs 7,907 cf
15.0" Round Culvert n=0.012 L=157.0' S=0.0051 '/' Outflow=2.24 cfs 7,907 cf

Pond DMH15: Prop DMH Peak Elev=51.21' Inflow=4.33 cfs 15,321 cf
18.0" Round Culvert n=0.012 L=56.0' S=0.0054 '/' Outflow=4.33 cfs 15,321 cf

Pond DMH16: Prop DMH Peak Elev=50.01' Inflow=4.33 cfs 15,321 cf
18.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=4.33 cfs 15,321 cf

Pond DMH17: Prop DMH Peak Elev=48.70' Inflow=5.10 cfs 17,793 cf
30.0" Round Culvert n=0.011 L=64.0' S=0.0020 '/' Outflow=5.10 cfs 17,793 cf

Pond DMH18: Prop DMH Peak Elev=52.79' Inflow=1.34 cfs 4,712 cf
12.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=1.34 cfs 4,712 cf

Pond DMH19: Prop DMH Peak Elev=51.97' Inflow=1.93 cfs 6,752 cf
15.0" Round Culvert n=0.012 L=55.0' S=0.0055 '/' Outflow=1.93 cfs 6,752 cf

Pond DMH2: Prop DMH Peak Elev=51.11' Inflow=4.48 cfs 15,479 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=4.48 cfs 15,479 cf

Pond DMH20: Prop DMH Peak Elev=51.71' Inflow=3.93 cfs 13,742 cf
18.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=3.93 cfs 13,742 cf

Pond DMH21: Prop DMH Peak Elev=51.32' Inflow=5.98 cfs 20,944 cf
18.0" Round Culvert n=0.012 L=50.0' S=0.0060 '/' Outflow=5.98 cfs 20,944 cf

Pond DMH22: Prop DMH Peak Elev=51.17' Inflow=6.92 cfs 24,288 cf
18.0" Round Culvert n=0.012 L=6.0' S=0.0083 '/' Outflow=6.92 cfs 24,288 cf

Pond DMH23: Prop DMH Peak Elev=48.03' Inflow=12.67 cfs 44,150 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=12.67 cfs 44,150 cf

Pond DMH3: Prop DMH Peak Elev=50.10' Inflow=6.30 cfs 21,918 cf
24.0" Round Culvert n=0.012 L=110.0' S=0.0055 '/' Outflow=6.30 cfs 21,918 cf

Pond DMH4: Prop DMH Peak Elev=49.74' Inflow=9.04 cfs 31,464 cf
24.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=9.04 cfs 31,464 cf

Pond DMH5: Prop CB Peak Elev=51.46' Inflow=2.26 cfs 7,704 cf
12.0" Round Culvert n=0.012 L=50.0' S=0.0260 '/' Outflow=2.26 cfs 7,704 cf

Pond DMH6: Prop DMH Peak Elev=49.59' Inflow=11.85 cfs 41,368 cf
24.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=11.85 cfs 41,368 cf

Pond DMH7: Prop DMH Peak Elev=50.66' Inflow=2.31 cfs 8,132 cf
15.0" Round Culvert n=0.012 L=42.0' S=0.0345 '/' Outflow=2.31 cfs 8,132 cf

Pond DMH8: Prop DMH Peak Elev=48.00' Inflow=15.38 cfs 54,140 cf
30.0" Round Culvert n=0.011 L=370.0' S=0.0050 '/' Outflow=15.38 cfs 54,140 cf

Pond DMH9: Prop DMH Peak Elev=49.02' Inflow=3.53 cfs 12,772 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0073 '/' Outflow=3.53 cfs 12,772 cf

Pond DROP708: Exist. Drop Peak Elev=45.29' Inflow=1.04 cfs 3,295 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=1.04 cfs 3,295 cf

Pond DROP799: Exist. Drop Peak Elev=45.34' Inflow=17.79 cfs 69,367 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=17.79 cfs 69,367 cf

Pond ST1: Jellyfish Filter Peak Elev=48.95' Inflow=11.85 cfs 41,368 cf
24.0" Round Culvert n=0.012 L=50.0' S=0.0050 '/' Outflow=11.85 cfs 41,368 cf

Pond ST2: Jellyfish Filter Peak Elev=50.39' Inflow=4.33 cfs 15,321 cf
18.0" Round Culvert n=0.012 L=8.0' S=0.0187 '/' Outflow=4.33 cfs 15,321 cf

Pond ST3: Jellyfish Filter Peak Elev=50.53' Inflow=6.92 cfs 24,288 cf
18.0" Round Culvert n=0.012 L=13.0' S=0.0115 '/' Outflow=6.92 cfs 24,288 cf

Total Runoff Area = 474,995 sf Runoff Volume = 142,562 cf Average Runoff Depth = 3.60"
54.48% Pervious = 258,760 sf 45.52% Impervious = 216,235 sf

Summary for Subcatchment 1: (new Subcat)

Runoff = 1.91 cfs @ 12.12 hrs, Volume= 6,413 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
27,805	80	>75% Grass cover, Good, HSG D
27,805		100.00% Pervious Area

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

Summary for Subcatchment 2: (new Subcat)

Runoff = 1.73 cfs @ 12.09 hrs, Volume= 5,961 cf, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
2,585	80	>75% Grass cover, Good, HSG D
14,135	98	Paved parking, HSG D
16,720	95	Weighted Average
2,585		15.46% Pervious Area
14,135		84.54% Impervious Area

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

Summary for Subcatchment 3: (new Subcat)

Runoff = 1.21 cfs @ 12.09 hrs, Volume= 4,171 cf, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
1,900	80	>75% Grass cover, Good, HSG D
9,800	98	Paved parking, HSG D
11,700	95	Weighted Average
1,900		16.24% Pervious Area
9,800		83.76% Impervious Area

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

Summary for Subcatchment 4: (new Subcat)

Runoff = 1.08 cfs @ 12.09 hrs, Volume= 3,897 cf, Depth> 4.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
10,120	98	Paved parking, HSG D
10,120		100.00% Impervious Area

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

Summary for Subcatchment 5: (new Subcat)

Runoff = 0.46 cfs @ 12.09 hrs, Volume= 1,450 cf, Depth> 3.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
4,670	80	>75% Grass cover, Good, HSG D
1,045	98	Paved parking, HSG D
5,715	83	Weighted Average
4,670		81.71% Pervious Area
1,045		18.29% Impervious Area

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

Summary for Subcatchment 6: (new Subcat)

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 1,266 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
330	80	>75% Grass cover, Good, HSG D
3,130	98	Paved parking, HSG D
3,460	96	Weighted Average
330		9.54% Pervious Area
3,130		90.46% Impervious Area

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

Summary for Subcatchment 7: (new Subcat)

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 1,291 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
145	80	>75% Grass cover, Good, HSG D
3,295	98	Paved parking, HSG D
3,440	97	Weighted Average
145		4.22% Pervious Area
3,295		95.78% Impervious Area

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

Summary for Subcatchment 8: (new Subcat)

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 5,173 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
920	80	>75% Grass cover, Good, HSG D
12,860	98	Paved parking, HSG D
13,780	97	Weighted Average
920		6.68% Pervious Area
12,860		93.32% Impervious Area

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

Summary for Subcatchment 9: (new Subcat)

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
550	80	>75% Grass cover, Good, HSG D
4,485	98	Paved parking, HSG D
5,035	96	Weighted Average
550		10.92% Pervious Area
4,485		89.08% Impervious Area

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

Summary for Subcatchment 10: (new Subcat)

Runoff = 1.44 cfs @ 12.09 hrs, Volume= 5,013 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
1,315	80	>75% Grass cover, Good, HSG D
12,385	98	Paved parking, HSG D
13,700	96	Weighted Average
1,315		9.60% Pervious Area
12,385		90.40% Impervious Area

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

Summary for Subcatchment 11: (new Subcat)

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 1,772 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
335	80	>75% Grass cover, Good, HSG D
4,385	98	Paved parking, HSG D
4,720	97	Weighted Average
335		7.10% Pervious Area
4,385		92.90% Impervious Area

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

Summary for Subcatchment 12: (new Subcat)

Runoff = 0.88 cfs @ 12.09 hrs, Volume= 3,120 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
690	80	>75% Grass cover, Good, HSG D
7,620	98	Paved parking, HSG D
8,310	97	Weighted Average
690		8.30% Pervious Area
7,620		91.70% Impervious Area

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

Summary for Subcatchment 13: Former Building/Parking

Runoff = 3.76 cfs @ 12.22 hrs, Volume= 15,760 cf, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
68,450	80	>75% Grass cover, Good, HSG D
68,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	451	0.0110	0.47		**Lag/CN Method,**

Summary for Subcatchment 14: Former Building/Parking

Runoff = 1.04 cfs @ 12.09 hrs, Volume= 3,295 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
14,280	80	>75% Grass cover, Good, HSG D
14,280		100.00% Pervious Area

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

Summary for Subcatchment 15: Grass

Runoff = 2.05 cfs @ 12.12 hrs, Volume= 6,874 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
29,805	80	>75% Grass cover, Good, HSG D
29,805		100.00% Pervious Area

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

Summary for Subcatchment 16: Grass/Parking

Runoff = 3.98 cfs @ 12.23 hrs, Volume= 16,911 cf, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
73,455	80	>75% Grass cover, Good, HSG D
73,455		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4	465	0.0110	0.47		**Lag/CN Method,**

Summary for Subcatchment 17: Grass/Parking

Runoff = 0.45 cfs @ 12.09 hrs, Volume= 1,432 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
6,205	80	>75% Grass cover, Good, HSG D
6,205		100.00% Pervious Area

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

Summary for Subcatchment 18: (new Subcat)

Runoff = 0.94 cfs @ 12.09 hrs, Volume= 3,345 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
735	80	>75% Grass cover, Good, HSG D
8,175	98	Paved parking, HSG D
8,910	97	Weighted Average
735		8.25% Pervious Area
8,175		91.75% Impervious Area

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

Summary for Subcatchment 19: (new Subcat)

Runoff = 1.56 cfs @ 12.09 hrs, Volume= 5,435 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
1,375	80	>75% Grass cover, Good, HSG D
13,480	98	Paved parking, HSG D
14,855	96	Weighted Average
1,375		9.26% Pervious Area
13,480		90.74% Impervious Area

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

Summary for Subcatchment 20: (new Subcat)

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 1,766 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
335	80	>75% Grass cover, Good, HSG D
4,370	98	Paved parking, HSG D
4,705	97	Weighted Average
335		7.12% Pervious Area
4,370		92.88% Impervious Area

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

Summary for Subcatchment 21: (new Subcat)

Runoff = 1.47 cfs @ 12.09 hrs, Volume= 5,148 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
1,250	80	>75% Grass cover, Good, HSG D
12,820	98	Paved parking, HSG D
14,070	96	Weighted Average
1,250		8.88% Pervious Area
12,820		91.12% Impervious Area

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

Summary for Subcatchment 22: (new Subcat)

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
560	80	>75% Grass cover, Good, HSG D
4,475	98	Paved parking, HSG D
5,035	96	Weighted Average
560		11.12% Pervious Area
4,475		88.88% Impervious Area

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

Summary for Subcatchment 23: (new Subcat)

Runoff = 0.65 cfs @ 12.09 hrs, Volume= 2,068 cf, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
5,130	80	>75% Grass cover, Good, HSG D
2,315	98	Paved parking, HSG D
7,445	86	Weighted Average
5,130		68.91% Pervious Area
2,315		31.09% Impervious Area

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

Summary for Subcatchment 24: (new Subcat)

Runoff = 0.58 cfs @ 12.09 hrs, Volume= 2,040 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
600	80	>75% Grass cover, Good, HSG D
4,975	98	Paved parking, HSG D
5,575	96	Weighted Average
600		10.76% Pervious Area
4,975		89.24% Impervious Area

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

Summary for Subcatchment 25: (new Subcat)

Runoff = 1.04 cfs @ 12.09 hrs, Volume= 3,747 cf, Depth> 4.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
200	80	>75% Grass cover, Good, HSG D
9,530	98	Paved parking, HSG D
9,730	98	Weighted Average
200		2.06% Pervious Area
9,530		97.94% Impervious Area

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

Summary for Subcatchment 26: (new Subcat)

Runoff = 0.31 cfs @ 12.09 hrs, Volume= 966 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
4,185	80	>75% Grass cover, Good, HSG D
4,185		100.00% Pervious Area

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

Summary for Subcatchment 27: Proposed Building

Runoff = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf, Depth> 4.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
33,170	98	Roofs, HSG D
33,170		100.00% Impervious Area

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

Summary for Subcatchment 28: (new Subcat)

Runoff = 2.09 cfs @ 12.09 hrs, Volume= 7,414 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
1,440	80	>75% Grass cover, Good, HSG D
18,310	98	Paved parking, HSG D
19,750	97	Weighted Average
1,440		7.29% Pervious Area
18,310		92.71% Impervious Area

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

Summary for Subcatchment 29: (new Subcat)

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 2,049 cf, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
660	80	>75% Grass cover, Good, HSG D
4,940	98	Paved parking, HSG D
5,600	96	Weighted Average
660		11.79% Pervious Area
4,940		88.21% Impervious Area

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

Summary for Subcatchment 30: (new Subcat)

Runoff = 1.65 cfs @ 12.09 hrs, Volume= 5,858 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
895	80	>75% Grass cover, Good, HSG D
14,710	98	Paved parking, HSG D
15,605	97	Weighted Average
895		5.74% Pervious Area
14,710		94.26% Impervious Area

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

Summary for Subcatchment 31: (new Subcat)

Runoff = 0.45 cfs @ 12.09 hrs, Volume= 1,434 cf, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
3,455	80	>75% Grass cover, Good, HSG D
1,705	98	Paved parking, HSG D
5,160	86	Weighted Average
3,455		66.96% Pervious Area
1,705		33.04% Impervious Area

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

Summary for Subcatchment 32: (new Subcat)

Runoff = 0.33 cfs @ 12.09 hrs, Volume= 1,038 cf, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=4.86"

Area (sf)	CN	Description
4,500	80	>75% Grass cover, Good, HSG D
4,500		100.00% Pervious Area

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

Summary for Reach DP1: Offsite Flow Exiting DMH779

Offsite flow exiting DMH 779

Inflow Area = 474,995 sf, 45.52% Impervious, Inflow Depth > 3.60" for 10-Yr event
Inflow = 36.78 cfs @ 12.10 hrs, Volume= 142,562 cf
Outflow = 36.78 cfs @ 12.10 hrs, Volume= 142,562 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond CB1: Prop CB

Inflow Area = 16,720 sf, 84.54% Impervious, Inflow Depth > 4.28" for 10-Yr event
Inflow = 1.73 cfs @ 12.09 hrs, Volume= 5,961 cf
Outflow = 1.73 cfs @ 12.09 hrs, Volume= 5,961 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.73 cfs @ 12.09 hrs, Volume= 5,961 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.99' @ 12.09 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.20'	**12.0" Round Culvert** L= 190.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.20' / 51.20' S= 0.0053 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.69 cfs @ 12.09 hrs HW=52.97' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.69 cfs @ 3.57 fps)

Summary for Pond CB10: Prop CB

Inflow Area =	4,720 sf,	92.90% Impervious,	Inflow Depth > 4.50"	for 10-Yr event
Inflow =	0.50 cfs @	12.09 hrs, Volume=	1,772 cf	
Outflow =	0.50 cfs @	12.09 hrs, Volume=	1,772 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.50 cfs @	12.09 hrs, Volume=	1,772 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 49.45' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.10'	**12.0" Round Culvert** L= 7.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.10' / 48.70' S= 0.0571 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.48 cfs @ 12.09 hrs HW=49.45' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.48 cfs @ 2.00 fps)

Summary for Pond CB11: Prop CB

Inflow Area =	13,700 sf,	90.40% Impervious,	Inflow Depth > 4.39"	for 10-Yr event
Inflow =	1.44 cfs @	12.09 hrs, Volume=	5,013 cf	
Outflow =	1.44 cfs @	12.09 hrs, Volume=	5,013 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.44 cfs @	12.09 hrs, Volume=	5,013 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.24' @ 12.09 hrs
Flood Elev= 56.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.60'	**12.0" Round Culvert** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.60' / 50.15' S= 0.0258 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.40 cfs @ 12.09 hrs HW=53.23' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.40 cfs @ 2.70 fps)

Summary for Pond CB12: Prop CB

Inflow Area =	8,310 sf,	91.70% Impervious,	Inflow Depth > 4.50"	for 10-Yr event
Inflow =	0.88 cfs @	12.09 hrs, Volume=	3,120 cf	
Outflow =	0.88 cfs @	12.09 hrs, Volume=	3,120 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.88 cfs @	12.09 hrs, Volume=	3,120 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.88' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.40'	**12.0" Round Culvert** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.40' / 50.15' S= 0.0300 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.85 cfs @ 12.09 hrs HW=52.87' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.85 cfs @ 2.34 fps)

Summary for Pond CB13: Prop CB

Inflow Area = 240,405 sf, 48.43% Impervious, Inflow Depth > 3.65" for 10-Yr event
Inflow = 18.98 cfs @ 12.10 hrs, Volume= 73,195 cf
Outflow = 18.98 cfs @ 12.10 hrs, Volume= 73,195 cf, Atten= 0%, Lag= 0.0 min
Primary = 18.98 cfs @ 12.10 hrs, Volume= 73,195 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 45.12' @ 12.10 hrs
Flood Elev= 51.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.25'	**48.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 43.25' / 43.15' S= 0.0067 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=18.88 cfs @ 12.10 hrs HW=45.12' (Free Discharge)
└─**1=Culvert** (Barrel Controls 18.88 cfs @ 4.81 fps)

Summary for Pond CB14: Prop CB

Inflow Area = 15,605 sf, 94.26% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 1.65 cfs @ 12.09 hrs, Volume= 5,858 cf
Outflow = 1.65 cfs @ 12.09 hrs, Volume= 5,858 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.65 cfs @ 12.09 hrs, Volume= 5,858 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.31' @ 12.09 hrs
Flood Elev= 55.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.50'	**12.0" Round Culvert** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.50' / 51.35' S= 0.0060 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.61 cfs @ 12.09 hrs HW=52.30' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.61 cfs @ 3.28 fps)

Summary for Pond CB15: Prop CB

Inflow Area = 5,600 sf, 88.21% Impervious, Inflow Depth > 4.39" for 10-Yr event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 2,049 cf
Outflow = 0.59 cfs @ 12.09 hrs, Volume= 2,049 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.09 hrs, Volume= 2,049 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.89' @ 12.09 hrs
Flood Elev= 55.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.50'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.50' / 51.35' S= 0.0300 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.57 cfs @ 12.09 hrs HW=51.89' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.57 cfs @ 3.03 fps)

Summary for Pond CB16: Prop CB

Inflow Area = 19,750 sf, 92.71% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 2.09 cfs @ 12.09 hrs, Volume= 7,414 cf
Outflow = 2.09 cfs @ 12.09 hrs, Volume= 7,414 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.09 cfs @ 12.09 hrs, Volume= 7,414 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.71' @ 12.09 hrs
Flood Elev= 55.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.90'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.90' / 50.55' S= 0.0700 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.03 cfs @ 12.09 hrs HW=51.70' (Free Discharge)
└─**1=Culvert** (Inlet Controls 2.03 cfs @ 3.04 fps)

Summary for Pond CB17: Prop CB

Inflow Area = 4,185 sf, 0.00% Impervious, Inflow Depth > 2.77" for 10-Yr event
Inflow = 0.31 cfs @ 12.09 hrs, Volume= 966 cf
Outflow = 0.31 cfs @ 12.09 hrs, Volume= 966 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.31 cfs @ 12.09 hrs, Volume= 966 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.77' @ 12.09 hrs
Flood Elev= 57.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.50'	**12.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.50' / 52.20' S= 0.0186 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.30 cfs @ 12.09 hrs HW=53.77' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.30 cfs @ 1.76 fps)

Summary for Pond CB18: Prop CB

Inflow Area = 9,730 sf, 97.94% Impervious, Inflow Depth > 4.62" for 10-Yr event
Inflow = 1.04 cfs @ 12.09 hrs, Volume= 3,747 cf
Outflow = 1.04 cfs @ 12.09 hrs, Volume= 3,747 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.09 hrs, Volume= 3,747 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.89' @ 12.09 hrs
Flood Elev= 55.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.30'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.30' / 52.20' S= 0.0200 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.01 cfs @ 12.09 hrs HW=52.88' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.01 cfs @ 3.09 fps)

Summary for Pond CB19: Prop CB

Inflow Area = 5,575 sf, 89.24% Impervious, Inflow Depth > 4.39" for 10-Yr event
Inflow = 0.58 cfs @ 12.09 hrs, Volume= 2,040 cf
Outflow = 0.58 cfs @ 12.09 hrs, Volume= 2,040 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.09 hrs, Volume= 2,040 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.08' @ 12.09 hrs
Flood Elev= 55.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.70'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.70' / 51.45' S= 0.0500 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.57 cfs @ 12.09 hrs HW=52.08' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.57 cfs @ 2.09 fps)

Summary for Pond CB2: Prop CB

Inflow Area = 11,700 sf, 83.76% Impervious, Inflow Depth > 4.28" for 10-Yr event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 4,171 cf
Outflow = 1.21 cfs @ 12.09 hrs, Volume= 4,171 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.09 hrs, Volume= 4,171 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.18' @ 12.09 hrs
Flood Elev= 56.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.60'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.60' / 51.20' S= 0.0800 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.18 cfs @ 12.09 hrs HW=52.17' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.18 cfs @ 2.56 fps)

Summary for Pond CB20: Prop CB

Inflow Area = 14,070 sf, 91.12% Impervious, Inflow Depth > 4.39" for 10-Yr event
Inflow = 1.47 cfs @ 12.09 hrs, Volume= 5,148 cf
Outflow = 1.47 cfs @ 12.09 hrs, Volume= 5,148 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.47 cfs @ 12.09 hrs, Volume= 5,148 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.35' @ 12.09 hrs
Flood Elev= 56.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.70'	**12.0" Round Culvert** L= 105.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.70' / 51.15' S= 0.0148 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.43 cfs @ 12.09 hrs HW=53.34' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.43 cfs @ 2.72 fps)

Summary for Pond CB21: Prop CB

Inflow Area = 5,035 sf, 88.88% Impervious, Inflow Depth > 4.39" for 10-Yr event
Inflow = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf
Outflow = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.86' @ 12.09 hrs
Flood Elev= 55.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.50'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.50' / 51.15' S= 0.0350 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.51 cfs @ 12.09 hrs HW=51.86' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.51 cfs @ 2.03 fps)

Summary for Pond CB22: Prop CB

Inflow Area =	14,855 sf,	90.74% Impervious,	Inflow Depth > 4.39"	for 10-Yr event	
Inflow =	1.56 cfs @	12.09 hrs,	Volume=	5,435 cf	
Outflow =	1.56 cfs @	12.09 hrs,	Volume=	5,435 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.56 cfs @	12.09 hrs,	Volume=	5,435 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.37' @ 12.09 hrs
Flood Elev= 56.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.70'	**12.0" Round Culvert** L= 105.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.70' / 50.50' S= 0.0210 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.51 cfs @ 12.09 hrs HW=53.36' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.51 cfs @ 2.76 fps)

Summary for Pond CB23: Prop CB

Inflow Area =	4,705 sf,	92.88% Impervious,	Inflow Depth > 4.50"	for 10-Yr event	
Inflow =	0.50 cfs @	12.09 hrs,	Volume=	1,766 cf	
Outflow =	0.50 cfs @	12.09 hrs,	Volume=	1,766 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.50 cfs @	12.09 hrs,	Volume=	1,766 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.55' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.20'	**12.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.20' / 50.50' S= 0.0538 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.48 cfs @ 12.09 hrs HW=51.55' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.48 cfs @ 2.00 fps)

Summary for Pond CB24: Prop CB

Inflow Area = 8,910 sf, 91.75% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 0.94 cfs @ 12.09 hrs, Volume= 3,345 cf
Outflow = 0.94 cfs @ 12.09 hrs, Volume= 3,345 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.94 cfs @ 12.09 hrs, Volume= 3,345 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.90' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.40'	**12.0" Round Culvert** L= 73.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.40' / 49.85' S= 0.0349 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.92 cfs @ 12.09 hrs HW=52.89' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.92 cfs @ 2.39 fps)

Summary for Pond CB3: Prop CB

Inflow Area = 10,120 sf,100.00% Impervious, Inflow Depth > 4.62" for 10-Yr event
Inflow = 1.08 cfs @ 12.09 hrs, Volume= 3,897 cf
Outflow = 1.08 cfs @ 12.09 hrs, Volume= 3,897 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.08 cfs @ 12.09 hrs, Volume= 3,897 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.34' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.80'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.80' / 50.45' S= 0.0700 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.05 cfs @ 12.09 hrs HW=51.33' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 1.05 cfs @ 2.48 fps)

Summary for Pond CB4: Prop CB

Inflow Area = 5,715 sf, 18.29% Impervious, Inflow Depth > 3.05" for 10-Yr event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 1,450 cf
Outflow = 0.46 cfs @ 12.09 hrs, Volume= 1,450 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.09 hrs, Volume= 1,450 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.84' @ 12.09 hrs
Flood Elev= 57.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.50'	**12.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.50' / 50.45' S= 0.0436 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.45 cfs @ 12.09 hrs HW=53.83' (Free Discharge)
1=Culvert (Inlet Controls 0.45 cfs @ 1.96 fps)

Summary for Pond CB5: Prop CB

Inflow Area = 3,460 sf, 90.46% Impervious, Inflow Depth > 4.39" for 10-Yr event
Inflow = 0.36 cfs @ 12.09 hrs, Volume= 1,266 cf
Outflow = 0.36 cfs @ 12.09 hrs, Volume= 1,266 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.09 hrs, Volume= 1,266 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.60' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.30'	**12.0" Round Culvert** L= 7.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.30' / 49.90' S= 0.0571 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.35 cfs @ 12.09 hrs HW=50.59' (Free Discharge)
1=Culvert (Inlet Controls 0.35 cfs @ 1.84 fps)

Summary for Pond CB6: Prop CB

Inflow Area = 13,780 sf, 93.32% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 1.46 cfs @ 12.09 hrs, Volume= 5,173 cf
Outflow = 1.46 cfs @ 12.09 hrs, Volume= 5,173 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.46 cfs @ 12.09 hrs, Volume= 5,173 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 53.24' @ 12.09 hrs
Flood Elev= 56.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.60'	**12.0" Round Culvert** L= 93.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.60' / 49.90' S= 0.0290 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.42 cfs @ 12.09 hrs HW=53.23' (Free Discharge)
1=Culvert (Inlet Controls 1.42 cfs @ 2.71 fps)

Summary for Pond CB7: Prop CB

Inflow Area = 5,035 sf, 89.08% Impervious, Inflow Depth > 4.39" for 10-Yr event
Inflow = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf
Outflow = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.09 hrs, Volume= 1,842 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.06' @ 12.09 hrs
Flood Elev= 56.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.70'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.70' / 49.30' S= 0.0800 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.51 cfs @ 12.09 hrs HW=50.06' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.51 cfs @ 2.03 fps)

Summary for Pond CB8: Prop CB

Inflow Area = 27,805 sf, 0.00% Impervious, Inflow Depth > 2.77" for 10-Yr event
Inflow = 1.91 cfs @ 12.12 hrs, Volume= 6,413 cf
Outflow = 1.91 cfs @ 12.12 hrs, Volume= 6,413 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.91 cfs @ 12.12 hrs, Volume= 6,413 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.27' @ 12.12 hrs
Flood Elev= 55.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.50'	**12.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.50' / 50.70' S= 0.0080 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.86 cfs @ 12.12 hrs HW=52.26' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.86 cfs @ 4.03 fps)

Summary for Pond CB9: Prop CB

Inflow Area = 3,440 sf, 95.78% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 0.36 cfs @ 12.09 hrs, Volume= 1,291 cf
Outflow = 0.36 cfs @ 12.09 hrs, Volume= 1,291 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.09 hrs, Volume= 1,291 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.40' @ 12.09 hrs
Flood Elev= 55.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.10'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.10' / 50.70' S= 0.0200 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.35 cfs @ 12.09 hrs HW=51.39' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.35 cfs @ 1.84 fps)

Summary for Pond DMH1: Prop DMH

Inflow Area = 28,420 sf, 84.22% Impervious, Inflow Depth > 4.28" for 10-Yr event
Inflow = 2.94 cfs @ 12.09 hrs, Volume= 10,132 cf
Outflow = 2.94 cfs @ 12.09 hrs, Volume= 10,132 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.94 cfs @ 12.09 hrs, Volume= 10,132 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.93' @ 12.09 hrs
Flood Elev= 56.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.95'	**15.0" Round Culvert** L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.95' / 50.20' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.86 cfs @ 12.09 hrs HW=51.91' (Free Discharge)
└─**1=Culvert** (Barrel Controls 2.86 cfs @ 3.91 fps)

Summary for Pond DMH10: Prop DMH

Inflow Area = 33,170 sf,100.00% Impervious, Inflow Depth > 4.62" for 10-Yr event
Inflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf
Outflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.09' @ 12.09 hrs
Flood Elev= 58.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.20'	**18.0" Round Culvert** L= 205.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.20' / 48.20' S= 0.0146 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=3.44 cfs @ 12.09 hrs HW=52.08' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.44 cfs @ 3.19 fps)

Summary for Pond DMH1061: Exist. DMH

Inflow Area = 204,785 sf, 48.74% Impervious, Inflow Depth > 3.66" for 10-Yr event
Inflow = 15.78 cfs @ 12.10 hrs, Volume= 62,493 cf
Outflow = 15.78 cfs @ 12.10 hrs, Volume= 62,493 cf, Atten= 0%, Lag= 0.0 min
Primary = 15.78 cfs @ 12.10 hrs, Volume= 62,493 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 46.53' @ 12.10 hrs
Flood Elev= 52.02'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.49'	**48.0" Round Culvert** L= 308.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.49' / 43.26' S= 0.0040 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=15.68 cfs @ 12.10 hrs HW=46.52' (Free Discharge)
1=Culvert (Barrel Controls 15.68 cfs @ 3.57 fps)

Summary for Pond DMH1067: Exist. DMH

Inflow Area = 131,330 sf, 76.00% Impervious, Inflow Depth > 4.16" for 10-Yr event
Inflow = 13.12 cfs @ 12.09 hrs, Volume= 45,581 cf
Outflow = 13.12 cfs @ 12.09 hrs, Volume= 45,581 cf, Atten= 0%, Lag= 0.0 min
Primary = 13.12 cfs @ 12.09 hrs, Volume= 45,581 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 47.08' @ 12.09 hrs
Flood Elev= 52.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.81'	**48.0" Round Culvert** L= 195.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.81' / 44.60' S= 0.0062 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=12.78 cfs @ 12.09 hrs HW=47.06' (Free Discharge)
1=Culvert (Inlet Controls 12.78 cfs @ 3.81 fps)

Summary for Pond DMH11: Prop DMH

Inflow Area = 33,170 sf,100.00% Impervious, Inflow Depth > 4.62" for 10-Yr event
Inflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf
Outflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 54.69' @ 12.09 hrs
Flood Elev= 58.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.80'	**18.0" Round Culvert** L= 135.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.80' / 51.30' S= 0.0185 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=3.44 cfs @ 12.09 hrs HW=54.68' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 3.44 cfs @ 3.19 fps)

Summary for Pond DMH12: Prop DMH

Inflow Area =	157,675 sf,	73.84% Impervious,	Inflow Depth > 4.12"	for 10-Yr event
Inflow =	15.38 cfs @	12.09 hrs, Volume=	54,140 cf	
Outflow =	15.38 cfs @	12.09 hrs, Volume=	54,140 cf,	Atten= 0%, Lag= 0.0 min
Primary =	15.38 cfs @	12.09 hrs, Volume=	54,140 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 46.29' @ 12.09 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.35'	**30.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.35' / 44.00' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=15.04 cfs @ 12.09 hrs HW=46.26' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 15.04 cfs @ 5.17 fps)

Summary for Pond DMH1258: Exist. DMH

Inflow Area =	50,615 sf,	78.37% Impervious,	Inflow Depth > 4.22"	for 10-Yr event
Inflow =	5.10 cfs @	12.09 hrs, Volume=	17,793 cf	
Outflow =	5.10 cfs @	12.09 hrs, Volume=	17,793 cf,	Atten= 0%, Lag= 0.0 min
Primary =	5.10 cfs @	12.09 hrs, Volume=	17,793 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.47' @ 12.09 hrs
Flood Elev= 54.91'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.37'	**30.0" Round Culvert** L= 372.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.37' / 46.61' S= 0.0020 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=4.96 cfs @ 12.09 hrs HW=48.46' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 4.96 cfs @ 3.56 fps)

Summary for Pond DMH1322: Exist. DMH

Inflow Area = 5,160 sf, 33.04% Impervious, Inflow Depth > 3.33" for 10-Yr event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 1,434 cf
Outflow = 0.45 cfs @ 12.09 hrs, Volume= 1,434 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.09 hrs, Volume= 1,434 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.56' @ 12.09 hrs
Flood Elev= 55.14'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.24'	**30.0" Round Culvert** L= 347.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.24' / 47.45' S= 0.0023 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=0.43 cfs @ 12.09 hrs HW=48.56' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.43 cfs @ 1.83 fps)

Summary for Pond DMH14: Prop DMH

Inflow Area = 21,205 sf, 92.67% Impervious, Inflow Depth > 4.47" for 10-Yr event
Inflow = 2.24 cfs @ 12.09 hrs, Volume= 7,907 cf
Outflow = 2.24 cfs @ 12.09 hrs, Volume= 7,907 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.24 cfs @ 12.09 hrs, Volume= 7,907 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.92' @ 12.09 hrs
Flood Elev= 55.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.10'	**15.0" Round Culvert** L= 157.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.10' / 50.30' S= 0.0051 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.18 cfs @ 12.09 hrs HW=51.91' (Free Discharge)
└─**1=Culvert** (Barrel Controls 2.18 cfs @ 3.70 fps)

Summary for Pond DMH15: Prop DMH

Inflow Area = 40,955 sf, 92.69% Impervious, Inflow Depth > 4.49" for 10-Yr event
Inflow = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf
Outflow = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.21' @ 12.09 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.05'	**18.0" Round Culvert** L= 56.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.05' / 49.75' S= 0.0054 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=4.21 cfs @ 12.09 hrs HW=51.19' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.21 cfs @ 4.06 fps)

Summary for Pond DMH16: Prop DMH

Inflow Area =	40,955 sf,	92.69% Impervious,	Inflow Depth > 4.49"	for 10-Yr event
Inflow =	4.33 cfs @	12.09 hrs, Volume=	15,321 cf	
Outflow =	4.33 cfs @	12.09 hrs, Volume=	15,321 cf,	Atten= 0%, Lag= 0.0 min
Primary =	4.33 cfs @	12.09 hrs, Volume=	15,321 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.01' @ 12.09 hrs
Flood Elev= 56.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.00'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.00' / 48.60' S= 0.0200 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=4.21 cfs @ 12.09 hrs HW=49.99' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.21 cfs @ 4.80 fps)

Summary for Pond DMH17: Prop DMH

Inflow Area =	50,615 sf,	78.37% Impervious,	Inflow Depth > 4.22"	for 10-Yr event
Inflow =	5.10 cfs @	12.09 hrs, Volume=	17,793 cf	
Outflow =	5.10 cfs @	12.09 hrs, Volume=	17,793 cf,	Atten= 0%, Lag= 0.0 min
Primary =	5.10 cfs @	12.09 hrs, Volume=	17,793 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.70' @ 12.09 hrs
Flood Elev= 55.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.58'	**30.0" Round Culvert** L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.58' / 47.45' S= 0.0020 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=4.97 cfs @ 12.09 hrs HW=48.68' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.97 cfs @ 3.50 fps)

Summary for Pond DMH18: Prop DMH

Inflow Area = 13,915 sf, 68.49% Impervious, Inflow Depth > 4.06" for 10-Yr event
Inflow = 1.34 cfs @ 12.09 hrs, Volume= 4,712 cf
Outflow = 1.34 cfs @ 12.09 hrs, Volume= 4,712 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.34 cfs @ 12.09 hrs, Volume= 4,712 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 52.79' @ 12.09 hrs
Flood Elev= 56.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.10'	**12.0" Round Culvert** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.10' / 51.45' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.31 cfs @ 12.09 hrs HW=52.78' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.31 cfs @ 3.27 fps)

Summary for Pond DMH19: Prop DMH

Inflow Area = 19,490 sf, 74.42% Impervious, Inflow Depth > 4.16" for 10-Yr event
Inflow = 1.93 cfs @ 12.09 hrs, Volume= 6,752 cf
Outflow = 1.93 cfs @ 12.09 hrs, Volume= 6,752 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.93 cfs @ 12.09 hrs, Volume= 6,752 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.97' @ 12.09 hrs
Flood Elev= 56.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.20'	**15.0" Round Culvert** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.20' / 50.90' S= 0.0055 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.88 cfs @ 12.09 hrs HW=51.96' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.88 cfs @ 3.43 fps)

Summary for Pond DMH2: Prop DMH

Inflow Area = 44,255 sf, 79.31% Impervious, Inflow Depth > 4.20" for 10-Yr event
Inflow = 4.48 cfs @ 12.09 hrs, Volume= 15,479 cf
Outflow = 4.48 cfs @ 12.09 hrs, Volume= 15,479 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.48 cfs @ 12.09 hrs, Volume= 15,479 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.11' @ 12.09 hrs
Flood Elev= 56.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.95'	**18.0" Round Culvert** L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.95' / 49.40' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=4.36 cfs @ 12.09 hrs HW=51.09' (Free Discharge)
└─**1=Culvert** (Barrel Controls 4.36 cfs @ 4.20 fps)

Summary for Pond DMH20: Prop DMH

Inflow Area = 38,595 sf, 82.39% Impervious, Inflow Depth > 4.27" for 10-Yr event
Inflow = 3.93 cfs @ 12.09 hrs, Volume= 13,742 cf
Outflow = 3.93 cfs @ 12.09 hrs, Volume= 13,742 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.93 cfs @ 12.09 hrs, Volume= 13,742 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.71' @ 12.09 hrs
Flood Elev= 56.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.65'	**18.0" Round Culvert** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.65' / 50.00' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=3.82 cfs @ 12.09 hrs HW=51.69' (Free Discharge)
└─**1=Culvert** (Barrel Controls 3.82 cfs @ 4.12 fps)

Summary for Pond DMH21: Prop DMH

Inflow Area = 58,155 sf, 85.38% Impervious, Inflow Depth > 4.32" for 10-Yr event
Inflow = 5.98 cfs @ 12.09 hrs, Volume= 20,944 cf
Outflow = 5.98 cfs @ 12.09 hrs, Volume= 20,944 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.98 cfs @ 12.09 hrs, Volume= 20,944 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.32' @ 12.09 hrs
Flood Elev= 56.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.90'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.90' / 49.60' S= 0.0060 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=5.82 cfs @ 12.09 hrs HW=51.29' (Free Discharge)
└─**1=Culvert** (Barrel Controls 5.82 cfs @ 4.43 fps)

Summary for Pond DMH22: Prop DMH

Inflow Area = 67,065 sf, 86.22% Impervious, Inflow Depth > 4.35" for 10-Yr event
Inflow = 6.92 cfs @ 12.09 hrs, Volume= 24,288 cf
Outflow = 6.92 cfs @ 12.09 hrs, Volume= 24,288 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.92 cfs @ 12.09 hrs, Volume= 24,288 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.17' @ 12.09 hrs
Flood Elev= 57.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	**18.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.50' / 49.45' S= 0.0083 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=6.74 cfs @ 12.09 hrs HW=51.14' (Free Discharge)
└─**1=Culvert** (Barrel Controls 6.74 cfs @ 4.34 fps)

Summary for Pond DMH23: Prop DMH

Inflow Area = 125,125 sf, 79.76% Impervious, Inflow Depth > 4.23" for 10-Yr event
Inflow = 12.67 cfs @ 12.09 hrs, Volume= 44,150 cf
Outflow = 12.67 cfs @ 12.09 hrs, Volume= 44,150 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.67 cfs @ 12.09 hrs, Volume= 44,150 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.03' @ 12.09 hrs
Flood Elev= 55.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.56'	**48.0" Round Culvert** L= 248.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.56' / 45.95' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=12.33 cfs @ 12.09 hrs HW=48.01' (Free Discharge)
└─**1=Culvert** (Barrel Controls 12.33 cfs @ 4.47 fps)

Summary for Pond DMH3: Prop DMH

Inflow Area = 61,495 sf, 83.08% Impervious, Inflow Depth > 4.28" for 10-Yr event
Inflow = 6.30 cfs @ 12.09 hrs, Volume= 21,918 cf
Outflow = 6.30 cfs @ 12.09 hrs, Volume= 21,918 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.30 cfs @ 12.09 hrs, Volume= 21,918 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.10' @ 12.09 hrs
Flood Elev= 56.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.90'	**24.0" Round Culvert** L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.90' / 48.30' S= 0.0055 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=6.13 cfs @ 12.09 hrs HW=50.09' (Free Discharge)
└─**1=Culvert** (Barrel Controls 6.13 cfs @ 4.54 fps)

Summary for Pond DMH4: Prop DMH

Inflow Area =	97,775 sf, 60.21% Impervious,	Inflow Depth > 3.86"	for 10-Yr event
Inflow =	9.04 cfs @ 12.09 hrs,	Volume=	31,464 cf
Outflow =	9.04 cfs @ 12.09 hrs,	Volume=	31,464 cf, Atten= 0%, Lag= 0.0 min
Primary =	9.04 cfs @ 12.09 hrs,	Volume=	31,464 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 49.74' @ 12.09 hrs
Flood Elev= 56.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.20'	**24.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.20' / 47.70' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=8.88 cfs @ 12.09 hrs HW=49.72' (Free Discharge)
└─**1=Culvert** (Barrel Controls 8.88 cfs @ 4.80 fps)

Summary for Pond DMH5: Prop CB

Inflow Area =	31,245 sf, 10.55% Impervious,	Inflow Depth > 2.96"	for 10-Yr event
Inflow =	2.26 cfs @ 12.11 hrs,	Volume=	7,704 cf
Outflow =	2.26 cfs @ 12.11 hrs,	Volume=	7,704 cf, Atten= 0%, Lag= 0.0 min
Primary =	2.26 cfs @ 12.11 hrs,	Volume=	7,704 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.46' @ 12.11 hrs
Flood Elev= 55.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.60'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.60' / 49.30' S= 0.0260 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.21 cfs @ 12.11 hrs HW=51.44' (Free Discharge)
└─**1=Culvert** (Inlet Controls 2.21 cfs @ 3.13 fps)

Summary for Pond DMH6: Prop DMH

Inflow Area = 124,505 sf, 66.87% Impervious, Inflow Depth > 3.99" for 10-Yr event
Inflow = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf
Outflow = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 49.59' @ 12.09 hrs
Flood Elev= 56.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.60'	**24.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.60' / 47.55' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=11.61 cfs @ 12.09 hrs HW=49.56' (Free Discharge)
└─**1=Culvert** (Barrel Controls 11.61 cfs @ 4.69 fps)

Summary for Pond DMH7: Prop DMH

Inflow Area = 22,010 sf, 90.89% Impervious, Inflow Depth > 4.43" for 10-Yr event
Inflow = 2.31 cfs @ 12.09 hrs, Volume= 8,132 cf
Outflow = 2.31 cfs @ 12.09 hrs, Volume= 8,132 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 12.09 hrs, Volume= 8,132 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.66' @ 12.09 hrs
Flood Elev= 57.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.90'	**15.0" Round Culvert** L= 42.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.90' / 48.45' S= 0.0345 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.25 cfs @ 12.09 hrs HW=50.65' (Free Discharge)
└─**1=Culvert** (Inlet Controls 2.25 cfs @ 2.94 fps)

Summary for Pond DMH8: Prop DMH

Inflow Area = 157,675 sf, 73.84% Impervious, Inflow Depth > 4.12" for 10-Yr event
Inflow = 15.38 cfs @ 12.09 hrs, Volume= 54,140 cf
Outflow = 15.38 cfs @ 12.09 hrs, Volume= 54,140 cf, Atten= 0%, Lag= 0.0 min
Primary = 15.38 cfs @ 12.09 hrs, Volume= 54,140 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.00' @ 12.09 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.30'	**30.0" Round Culvert** L= 370.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.30' / 44.45' S= 0.0050 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=15.04 cfs @ 12.09 hrs HW=47.98' (Free Discharge)
└─**1=Culvert** (Barrel Controls 15.04 cfs @ 6.09 fps)

Summary for Pond DMH9: Prop DMH

Inflow Area = 33,170 sf,100.00% Impervious, Inflow Depth > 4.62" for 10-Yr event
Inflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf
Outflow = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.53 cfs @ 12.09 hrs, Volume= 12,772 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 49.02' @ 12.09 hrs
Flood Elev= 56.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.10'	**18.0" Round Culvert** L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.10' / 47.30' S= 0.0073 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=3.44 cfs @ 12.09 hrs HW=49.00' (Free Discharge)
└─**1=Culvert** (Barrel Controls 3.44 cfs @ 4.43 fps)

Summary for Pond DROP708: Exist. Drop

Inflow Area = 14,280 sf, 0.00% Impervious, Inflow Depth > 2.77" for 10-Yr event
Inflow = 1.04 cfs @ 12.09 hrs, Volume= 3,295 cf
Outflow = 1.04 cfs @ 12.09 hrs, Volume= 3,295 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.09 hrs, Volume= 3,295 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 45.29' @ 12.09 hrs
Flood Elev= 55.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.91'	**36.0" Round Culvert** L= 300.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.91' / 43.41' S= 0.0050 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=1.00 cfs @ 12.09 hrs HW=45.29' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.00 cfs @ 2.94 fps)

Summary for Pond DROP799: Exist. Drop

Inflow Area = 234,590 sf, 42.54% Impervious, Inflow Depth > 3.55" for 10-Yr event
Inflow = 17.79 cfs @ 12.10 hrs, Volume= 69,367 cf
Outflow = 17.79 cfs @ 12.10 hrs, Volume= 69,367 cf, Atten= 0%, Lag= 0.0 min
Primary = 17.79 cfs @ 12.10 hrs, Volume= 69,367 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 45.34' @ 12.10 hrs
Flood Elev= 52.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.26'	**48.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 43.26' / 42.87' S= 0.0039 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=17.77 cfs @ 12.10 hrs HW=45.34' (Free Discharge)
1=Culvert (Barrel Controls 17.77 cfs @ 3.92 fps)

Summary for Pond ST1: Jellyfish Filter

Inflow Area = 124,505 sf, 66.87% Impervious, Inflow Depth > 3.99" for 10-Yr event
Inflow = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf
Outflow = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.85 cfs @ 12.09 hrs, Volume= 41,368 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 48.95' @ 12.09 hrs
Flood Elev= 56.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.05'	**24.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.05' / 46.80' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=11.61 cfs @ 12.09 hrs HW=48.93' (Free Discharge)
1=Culvert (Barrel Controls 11.61 cfs @ 4.91 fps)

Summary for Pond ST2: Jellyfish Filter

Inflow Area = 40,955 sf, 92.69% Impervious, Inflow Depth > 4.49" for 10-Yr event
Inflow = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf
Outflow = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.33 cfs @ 12.09 hrs, Volume= 15,321 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.39' @ 12.09 hrs
Flood Elev= 56.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.25'	**18.0" Round Culvert** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.25' / 49.10' S= 0.0187 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=4.21 cfs @ 12.09 hrs HW=50.37' (Free Discharge)
└—**1=Culvert** (Barrel Controls 4.21 cfs @ 4.14 fps)

Summary for Pond ST3: Jellyfish Filter

Inflow Area =	67,065 sf, 86.22% Impervious,	Inflow Depth > 4.35" for 10-Yr event		
Inflow =	6.92 cfs @	12.09 hrs, Volume=	24,288 cf	
Outflow =	6.92 cfs @	12.09 hrs, Volume=	24,288 cf,	Atten= 0%, Lag= 0.0 min
Primary =	6.92 cfs @	12.09 hrs, Volume=	24,288 cf	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 50.53' @ 12.09 hrs
Flood Elev= 57.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.95'	**18.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.95' / 48.80' S= 0.0115 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=6.74 cfs @ 12.09 hrs HW=50.50' (Free Discharge)
└—**1=Culvert** (Barrel Controls 6.74 cfs @ 4.58 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: (new Subcat) Runoff Area=27,805 sf 0.00% Impervious Runoff Depth>3.92"
Tc=8.0 min CN=80 Runoff=2.70 cfs 9,086 cf

Subcatchment 2: (new Subcat) Runoff Area=16,720 sf 84.54% Impervious Runoff Depth>5.57"
Tc=6.0 min CN=95 Runoff=2.22 cfs 7,757 cf

Subcatchment 3: (new Subcat) Runoff Area=11,700 sf 83.76% Impervious Runoff Depth>5.57"
Tc=6.0 min CN=95 Runoff=1.55 cfs 5,428 cf

Subcatchment 4: (new Subcat) Runoff Area=10,120 sf 100.00% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=1.37 cfs 4,991 cf

Subcatchment 5: (new Subcat) Runoff Area=5,715 sf 18.29% Impervious Runoff Depth>4.24"
Tc=6.0 min CN=83 Runoff=0.63 cfs 2,018 cf

Subcatchment 6: (new Subcat) Runoff Area=3,460 sf 90.46% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.46 cfs 1,639 cf

Subcatchment 7: (new Subcat) Runoff Area=3,440 sf 95.78% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=0.46 cfs 1,663 cf

Subcatchment 8: (new Subcat) Runoff Area=13,780 sf 93.32% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=1.86 cfs 6,661 cf

Subcatchment 9: (new Subcat) Runoff Area=5,035 sf 89.08% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.67 cfs 2,385 cf

Subcatchment 10: (new Subcat) Runoff Area=13,700 sf 90.40% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=1.83 cfs 6,488 cf

Subcatchment 11: (new Subcat) Runoff Area=4,720 sf 92.90% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=0.64 cfs 2,281 cf

Subcatchment 12: (new Subcat) Runoff Area=8,310 sf 91.70% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=1.12 cfs 4,017 cf

Subcatchment 13: Former Building/Parking Runoff Area=68,450 sf 0.00% Impervious Runoff Depth>3.92"
Flow Length=451' Slope=0.0110 '/' Tc=16.0 min CN=80 Runoff=5.31 cfs 22,333 cf

Subcatchment 14: Former Building/Parking Runoff Area=14,280 sf 0.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=80 Runoff=1.47 cfs 4,668 cf

Subcatchment 15: Grass Runoff Area=29,805 sf 0.00% Impervious Runoff Depth>3.92"
Tc=8.0 min CN=80 Runoff=2.89 cfs 9,739 cf

Subcatchment 16: Grass/Parking Runoff Area=73,455 sf 0.00% Impervious Runoff Depth>3.91"
Flow Length=465' Slope=0.0110 '/' Tc=16.4 min CN=80 Runoff=5.64 cfs 23,964 cf

Subcatchment 17: Grass/Parking Runoff Area=6,205 sf 0.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=80 Runoff=0.64 cfs 2,028 cf

Subcatchment 18: (new Subcat) Runoff Area=8,910 sf 91.75% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=1.20 cfs 4,307 cf

Subcatchment 19: (new Subcat) Runoff Area=14,855 sf 90.74% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=1.99 cfs 7,035 cf

Subcatchment 20: (new Subcat) Runoff Area=4,705 sf 92.88% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=0.63 cfs 2,274 cf

Subcatchment 21: (new Subcat) Runoff Area=14,070 sf 91.12% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=1.88 cfs 6,664 cf

Subcatchment 22: (new Subcat) Runoff Area=5,035 sf 88.88% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.67 cfs 2,385 cf

Subcatchment 23: (new Subcat) Runoff Area=7,445 sf 31.09% Impervious Runoff Depth>4.56"
Tc=6.0 min CN=86 Runoff=0.87 cfs 2,828 cf

Subcatchment 24: (new Subcat) Runoff Area=5,575 sf 89.24% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.75 cfs 2,640 cf

Subcatchment 25: (new Subcat) Runoff Area=9,730 sf 97.94% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=1.32 cfs 4,799 cf

Subcatchment 26: (new Subcat) Runoff Area=4,185 sf 0.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=80 Runoff=0.43 cfs 1,368 cf

Subcatchment 27: Proposed Building Runoff Area=33,170 sf 100.00% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=4.49 cfs 16,359 cf

Subcatchment 28: (new Subcat) Runoff Area=19,750 sf 92.71% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=2.66 cfs 9,546 cf

Subcatchment 29: (new Subcat) Runoff Area=5,600 sf 88.21% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.75 cfs 2,652 cf

Subcatchment 30: (new Subcat) Runoff Area=15,605 sf 94.26% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=2.10 cfs 7,543 cf

Subcatchment 31: (new Subcat) Runoff Area=5,160 sf 33.04% Impervious Runoff Depth>4.56"
Tc=6.0 min CN=86 Runoff=0.60 cfs 1,960 cf

Subcatchment 32: (new Subcat) Runoff Area=4,500 sf 0.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=80 Runoff=0.46 cfs 1,471 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=48.73 cfs 190,974 cf
Outflow=48.73 cfs 190,974 cf

Pond CB1: Prop CB Peak Elev=53.13' Inflow=2.22 cfs 7,757 cf
12.0" Round Culvert n=0.012 L=190.0' S=0.0053 '/' Outflow=2.22 cfs 7,757 cf

Pond CB10: Prop CB Peak Elev=49.50' Inflow=0.64 cfs 2,281 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.64 cfs 2,281 cf

Pond CB11: Prop CB Peak Elev=53.34' Inflow=1.83 cfs 6,488 cf
12.0" Round Culvert n=0.012 L=95.0' S=0.0258 '/' Outflow=1.83 cfs 6,488 cf

Pond CB12: Prop CB Peak Elev=52.95' Inflow=1.12 cfs 4,017 cf
12.0" Round Culvert n=0.012 L=75.0' S=0.0300 '/' Outflow=1.12 cfs 4,017 cf

Pond CB13: Prop CB Peak Elev=45.44' Inflow=25.08 cfs 97,771 cf
48.0" Round Culvert n=0.011 L=15.0' S=0.0067 '/' Outflow=25.08 cfs 97,771 cf

Pond CB14: Prop CB Peak Elev=52.45' Inflow=2.10 cfs 7,543 cf
12.0" Round Culvert n=0.012 L=25.0' S=0.0060 '/' Outflow=2.10 cfs 7,543 cf

Pond CB15: Prop CB Peak Elev=51.96' Inflow=0.75 cfs 2,652 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0300 '/' Outflow=0.75 cfs 2,652 cf

Pond CB16: Prop CB Peak Elev=51.89' Inflow=2.66 cfs 9,546 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=2.66 cfs 9,546 cf

Pond CB17: Prop CB Peak Elev=53.83' Inflow=0.43 cfs 1,368 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0186 '/' Outflow=0.43 cfs 1,368 cf

Pond CB18: Prop CB Peak Elev=52.98' Inflow=1.32 cfs 4,799 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.32 cfs 4,799 cf

Pond CB19: Prop CB Peak Elev=52.14' Inflow=0.75 cfs 2,640 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0500 '/' Outflow=0.75 cfs 2,640 cf

Pond CB2: Prop CB Peak Elev=52.27' Inflow=1.55 cfs 5,428 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=1.55 cfs 5,428 cf

Pond CB20: Prop CB Peak Elev=53.46' Inflow=1.88 cfs 6,664 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0148 '/' Outflow=1.88 cfs 6,664 cf

Pond CB21: Prop CB Peak Elev=51.91' Inflow=0.67 cfs 2,385 cf
12.0" Round Culvert n=0.012 L=10.0' S=0.0350 '/' Outflow=0.67 cfs 2,385 cf

Pond CB22: Prop CB Peak Elev=53.48' Inflow=1.99 cfs 7,035 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0210 '/' Outflow=1.99 cfs 7,035 cf

Pond CB23: Prop CB Peak Elev=51.60' Inflow=0.63 cfs 2,274 cf
12.0" Round Culvert n=0.012 L=13.0' S=0.0538 '/' Outflow=0.63 cfs 2,274 cf

Pond CB24: Prop CB Peak Elev=52.97' Inflow=1.20 cfs 4,307 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0349 '/' Outflow=1.20 cfs 4,307 cf

Pond CB3: Prop CB Peak Elev=51.42' Inflow=1.37 cfs 4,991 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=1.37 cfs 4,991 cf

Pond CB4: Prop CB Peak Elev=53.90' Inflow=0.63 cfs 2,018 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0436 '/' Outflow=0.63 cfs 2,018 cf

Pond CB5: Prop CB Peak Elev=50.64' Inflow=0.46 cfs 1,639 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.46 cfs 1,639 cf

Pond CB6: Prop CB Peak Elev=53.35' Inflow=1.86 cfs 6,661 cf
12.0" Round Culvert n=0.012 L=93.0' S=0.0290 '/' Outflow=1.86 cfs 6,661 cf

Pond CB7: Prop CB Peak Elev=50.11' Inflow=0.67 cfs 2,385 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=0.67 cfs 2,385 cf

Pond CB8: Prop CB Peak Elev=52.50' Inflow=2.70 cfs 9,086 cf
12.0" Round Culvert n=0.012 L=100.0' S=0.0080 '/' Outflow=2.70 cfs 9,086 cf

Pond CB9: Prop CB Peak Elev=51.44' Inflow=0.46 cfs 1,663 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=0.46 cfs 1,663 cf

Pond DMH1: Prop DMH Peak Elev=52.11' Inflow=3.77 cfs 13,184 cf
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=3.77 cfs 13,184 cf

Pond DMH10: Prop DMH Peak Elev=52.23' Inflow=4.49 cfs 16,359 cf
18.0" Round Culvert n=0.012 L=205.0' S=0.0146 '/' Outflow=4.49 cfs 16,359 cf

Pond DMH1061: Exist. DMH Peak Elev=46.85' Inflow=20.79 cfs 83,464 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=20.79 cfs 83,464 cf

Pond DMH1067: Exist. DMH Peak Elev=47.27' Inflow=16.96 cfs 59,500 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=16.96 cfs 59,500 cf

Pond DMH11: Prop DMH Peak Elev=54.83' Inflow=4.49 cfs 16,359 cf
18.0" Round Culvert n=0.012 L=135.0' S=0.0185 '/' Outflow=4.49 cfs 16,359 cf

Pond DMH12: Prop DMH Peak Elev=46.64' Inflow=19.92 cfs 70,771 cf
30.0" Round Culvert n=0.012 L=70.0' S=0.0050 '/' Outflow=19.92 cfs 70,771 cf

Pond DMH1258: Exist. DMH Peak Elev=48.64' Inflow=6.58 cfs 23,172 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=6.58 cfs 23,172 cf

Pond DMH1322: Exist. DMH Peak Elev=48.61' Inflow=0.60 cfs 1,960 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.60 cfs 1,960 cf

Pond DMH14: Prop DMH Peak Elev=52.05' Inflow=2.85 cfs 10,195 cf
15.0" Round Culvert n=0.012 L=157.0' S=0.0051 '/' Outflow=2.85 cfs 10,195 cf

Pond DMH15: Prop DMH Peak Elev=51.41' Inflow=5.51 cfs 19,741 cf
18.0" Round Culvert n=0.012 L=56.0' S=0.0054 '/' Outflow=5.51 cfs 19,741 cf

Pond DMH16: Prop DMH Peak Elev=50.19' Inflow=5.51 cfs 19,741 cf
18.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=5.51 cfs 19,741 cf

Pond DMH17: Prop DMH Peak Elev=48.86' Inflow=6.58 cfs 23,172 cf
30.0" Round Culvert n=0.011 L=64.0' S=0.0020 '/' Outflow=6.58 cfs 23,172 cf

Pond DMH18: Prop DMH Peak Elev=52.91' Inflow=1.75 cfs 6,167 cf
12.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=1.75 cfs 6,167 cf

Pond DMH19: Prop DMH Peak Elev=52.10' Inflow=2.49 cfs 8,807 cf
15.0" Round Culvert n=0.012 L=55.0' S=0.0055 '/' Outflow=2.49 cfs 8,807 cf

Pond DMH2: Prop DMH Peak Elev=51.32' Inflow=5.77 cfs 20,193 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=5.77 cfs 20,193 cf

Pond DMH20: Prop DMH Peak Elev=51.89' Inflow=5.05 cfs 17,855 cf
18.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=5.05 cfs 17,855 cf

Pond DMH21: Prop DMH Peak Elev=51.62' Inflow=7.67 cfs 27,165 cf
18.0" Round Culvert n=0.012 L=50.0' S=0.0060 '/' Outflow=7.67 cfs 27,165 cf

Pond DMH22: Prop DMH Peak Elev=51.58' Inflow=8.87 cfs 31,471 cf
18.0" Round Culvert n=0.012 L=6.0' S=0.0083 '/' Outflow=8.87 cfs 31,471 cf

Pond DMH23: Prop DMH Peak Elev=48.24' Inflow=16.32 cfs 57,471 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=16.32 cfs 57,471 cf

Pond DMH3: Prop DMH Peak Elev=50.30' Inflow=8.09 cfs 28,492 cf
24.0" Round Culvert n=0.012 L=110.0' S=0.0055 '/' Outflow=8.09 cfs 28,492 cf

Pond DMH4: Prop DMH Peak Elev=50.04' Inflow=11.85 cfs 41,625 cf
24.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=11.85 cfs 41,625 cf

Pond DMH5: Prop CB Peak Elev=51.79' Inflow=3.14 cfs 10,749 cf
12.0" Round Culvert n=0.012 L=50.0' S=0.0260 '/' Outflow=3.14 cfs 10,749 cf

Pond DMH6: Prop DMH Peak Elev=50.02' Inflow=15.43 cfs 54,412 cf
24.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=15.43 cfs 54,412 cf

Pond DMH7: Prop DMH Peak Elev=50.78' Inflow=2.95 cfs 10,505 cf
15.0" Round Culvert n=0.012 L=42.0' S=0.0345 '/' Outflow=2.95 cfs 10,505 cf

Pond DMH8: Prop DMH Peak Elev=48.30' Inflow=19.92 cfs 70,771 cf
30.0" Round Culvert n=0.011 L=370.0' S=0.0050 '/' Outflow=19.92 cfs 70,771 cf

Pond DMH9: Prop DMH Peak Elev=49.17' Inflow=4.49 cfs 16,359 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0073 '/' Outflow=4.49 cfs 16,359 cf

Pond DROP708: Exist. Drop Peak Elev=45.37' Inflow=1.47 cfs 4,668 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=1.47 cfs 4,668 cf

Pond DROP799: Exist. Drop Peak Elev=45.67' Inflow=23.65 cfs 93,203 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=23.65 cfs 93,203 cf

Pond ST1: Jellyfish Filter Peak Elev=49.38' Inflow=15.43 cfs 54,412 cf
24.0" Round Culvert n=0.012 L=50.0' S=0.0050 '/' Outflow=15.43 cfs 54,412 cf

Pond ST2: Jellyfish Filter Peak Elev=50.58' Inflow=5.51 cfs 19,741 cf
18.0" Round Culvert n=0.012 L=8.0' S=0.0187 '/' Outflow=5.51 cfs 19,741 cf

Pond ST3: Jellyfish Filter Peak Elev=50.95' Inflow=8.87 cfs 31,471 cf
18.0" Round Culvert n=0.012 L=13.0' S=0.0115 '/' Outflow=8.87 cfs 31,471 cf

Total Runoff Area = 474,995 sf Runoff Volume = 190,974 cf Average Runoff Depth = 4.82"
54.48% Pervious = 258,760 sf 45.52% Impervious = 216,235 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: (new Subcat) Runoff Area=27,805 sf 0.00% Impervious Runoff Depth>5.04"
Tc=8.0 min CN=80 Runoff=3.44 cfs 11,679 cf

Subcatchment 2: (new Subcat) Runoff Area=16,720 sf 84.54% Impervious Runoff Depth>6.78"
Tc=6.0 min CN=95 Runoff=2.68 cfs 9,446 cf

Subcatchment 3: (new Subcat) Runoff Area=11,700 sf 83.76% Impervious Runoff Depth>6.78"
Tc=6.0 min CN=95 Runoff=1.87 cfs 6,610 cf

Subcatchment 4: (new Subcat) Runoff Area=10,120 sf 100.00% Impervious Runoff Depth>7.14"
Tc=6.0 min CN=98 Runoff=1.64 cfs 6,018 cf

Subcatchment 5: (new Subcat) Runoff Area=5,715 sf 18.29% Impervious Runoff Depth>5.38"
Tc=6.0 min CN=83 Runoff=0.79 cfs 2,564 cf

Subcatchment 6: (new Subcat) Runoff Area=3,460 sf 90.46% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=0.56 cfs 1,989 cf

Subcatchment 7: (new Subcat) Runoff Area=3,440 sf 95.78% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=0.56 cfs 2,012 cf

Subcatchment 8: (new Subcat) Runoff Area=13,780 sf 93.32% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=2.23 cfs 8,058 cf

Subcatchment 9: (new Subcat) Runoff Area=5,035 sf 89.08% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=0.81 cfs 2,894 cf

Subcatchment 10: (new Subcat) Runoff Area=13,700 sf 90.40% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=2.21 cfs 7,875 cf

Subcatchment 11: (new Subcat) Runoff Area=4,720 sf 92.90% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=0.76 cfs 2,760 cf

Subcatchment 12: (new Subcat) Runoff Area=8,310 sf 91.70% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=1.34 cfs 4,859 cf

Subcatchment 13: Former Building/Parking Runoff Area=68,450 sf 0.00% Impervious Runoff Depth>5.03"
Flow Length=451' Slope=0.0110 '/' Tc=16.0 min CN=80 Runoff=6.78 cfs 28,710 cf

Subcatchment 14: Former Building/Parking Runoff Area=14,280 sf 0.00% Impervious Runoff Depth>5.04"
Tc=6.0 min CN=80 Runoff=1.87 cfs 6,000 cf

Subcatchment 15: Grass Runoff Area=29,805 sf 0.00% Impervious Runoff Depth>5.04"
Tc=8.0 min CN=80 Runoff=3.69 cfs 12,519 cf

Subcatchment 16: Grass/Parking Runoff Area=73,455 sf 0.00% Impervious Runoff Depth>5.03"
Flow Length=465' Slope=0.0110 '/' Tc=16.4 min CN=80 Runoff=7.21 cfs 30,807 cf

Subcatchment 17: Grass/Parking Runoff Area=6,205 sf 0.00% Impervious Runoff Depth>5.04"
Tc=6.0 min CN=80 Runoff=0.81 cfs 2,607 cf

Subcatchment 18: (new Subcat) Runoff Area=8,910 sf 91.75% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=1.44 cfs 5,210 cf

Subcatchment 19: (new Subcat) Runoff Area=14,855 sf 90.74% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=2.39 cfs 8,539 cf

Subcatchment 20: (new Subcat) Runoff Area=4,705 sf 92.88% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=0.76 cfs 2,751 cf

Subcatchment 21: (new Subcat) Runoff Area=14,070 sf 91.12% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=2.27 cfs 8,088 cf

Subcatchment 22: (new Subcat) Runoff Area=5,035 sf 88.88% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=0.81 cfs 2,894 cf

Subcatchment 23: (new Subcat) Runoff Area=7,445 sf 31.09% Impervious Runoff Depth>5.73"
Tc=6.0 min CN=86 Runoff=1.08 cfs 3,554 cf

Subcatchment 24: (new Subcat) Runoff Area=5,575 sf 89.24% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=0.90 cfs 3,205 cf

Subcatchment 25: (new Subcat) Runoff Area=9,730 sf 97.94% Impervious Runoff Depth>7.14"
Tc=6.0 min CN=98 Runoff=1.58 cfs 5,786 cf

Subcatchment 26: (new Subcat) Runoff Area=4,185 sf 0.00% Impervious Runoff Depth>5.04"
Tc=6.0 min CN=80 Runoff=0.55 cfs 1,759 cf

Subcatchment 27: Proposed Building Runoff Area=33,170 sf 100.00% Impervious Runoff Depth>7.14"
Tc=6.0 min CN=98 Runoff=5.39 cfs 19,726 cf

Subcatchment 28: (new Subcat) Runoff Area=19,750 sf 92.71% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=3.20 cfs 11,549 cf

Subcatchment 29: (new Subcat) Runoff Area=5,600 sf 88.21% Impervious Runoff Depth>6.90"
Tc=6.0 min CN=96 Runoff=0.90 cfs 3,219 cf

Subcatchment 30: (new Subcat) Runoff Area=15,605 sf 94.26% Impervious Runoff Depth>7.02"
Tc=6.0 min CN=97 Runoff=2.52 cfs 9,125 cf

Subcatchment 31: (new Subcat) Runoff Area=5,160 sf 33.04% Impervious Runoff Depth>5.73"
Tc=6.0 min CN=86 Runoff=0.75 cfs 2,463 cf

Subcatchment 32: (new Subcat) Runoff Area=4,500 sf 0.00% Impervious Runoff Depth>5.04"
Tc=6.0 min CN=80 Runoff=0.59 cfs 1,891 cf

Reach DP1: Offsite Flow Exiting DMH779 Inflow=60.00 cfs 237,169 cf
Outflow=60.00 cfs 237,169 cf

Pond CB1: Prop CB Peak Elev=53.29' Inflow=2.68 cfs 9,446 cf
12.0" Round Culvert n=0.012 L=190.0' S=0.0053 '/' Outflow=2.68 cfs 9,446 cf

Pond CB10: Prop CB Peak Elev=49.54' Inflow=0.76 cfs 2,760 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.76 cfs 2,760 cf

Pond CB11: Prop CB Peak Elev=53.44' Inflow=2.21 cfs 7,875 cf
12.0" Round Culvert n=0.012 L=95.0' S=0.0258 '/' Outflow=2.21 cfs 7,875 cf

Pond CB12: Prop CB Peak Elev=53.01' Inflow=1.34 cfs 4,859 cf
12.0" Round Culvert n=0.012 L=75.0' S=0.0300 '/' Outflow=1.34 cfs 4,859 cf

Pond CB13: Prop CB Peak Elev=45.71' Inflow=30.83 cfs 121,202 cf
48.0" Round Culvert n=0.011 L=15.0' S=0.0067 '/' Outflow=30.83 cfs 121,202 cf

Pond CB14: Prop CB Peak Elev=52.59' Inflow=2.52 cfs 9,125 cf
12.0" Round Culvert n=0.012 L=25.0' S=0.0060 '/' Outflow=2.52 cfs 9,125 cf

Pond CB15: Prop CB Peak Elev=52.01' Inflow=0.90 cfs 3,219 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0300 '/' Outflow=0.90 cfs 3,219 cf

Pond CB16: Prop CB Peak Elev=52.11' Inflow=3.20 cfs 11,549 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=3.20 cfs 11,549 cf

Pond CB17: Prop CB Peak Elev=53.87' Inflow=0.55 cfs 1,759 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0186 '/' Outflow=0.55 cfs 1,759 cf

Pond CB18: Prop CB Peak Elev=53.06' Inflow=1.58 cfs 5,786 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.58 cfs 5,786 cf

Pond CB19: Prop CB Peak Elev=52.19' Inflow=0.90 cfs 3,205 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0500 '/' Outflow=0.90 cfs 3,205 cf

Pond CB2: Prop CB Peak Elev=52.35' Inflow=1.87 cfs 6,610 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=1.87 cfs 6,610 cf

Pond CB20: Prop CB Peak Elev=53.56' Inflow=2.27 cfs 8,088 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0148 '/' Outflow=2.27 cfs 8,088 cf

Pond CB21: Prop CB Peak Elev=51.96' Inflow=0.81 cfs 2,894 cf
12.0" Round Culvert n=0.012 L=10.0' S=0.0350 '/' Outflow=0.81 cfs 2,894 cf

Pond CB22: Prop CB Peak Elev=53.60' Inflow=2.39 cfs 8,539 cf
12.0" Round Culvert n=0.012 L=105.0' S=0.0210 '/' Outflow=2.39 cfs 8,539 cf

Pond CB23: Prop CB Peak Elev=51.64' Inflow=0.76 cfs 2,751 cf
12.0" Round Culvert n=0.012 L=13.0' S=0.0538 '/' Outflow=0.76 cfs 2,751 cf

Pond CB24: Prop CB Peak Elev=53.04' Inflow=1.44 cfs 5,210 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0349 '/' Outflow=1.44 cfs 5,210 cf

Pond CB3: Prop CB Peak Elev=51.49' Inflow=1.64 cfs 6,018 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0700 '/' Outflow=1.64 cfs 6,018 cf

Pond CB4: Prop CB Peak Elev=53.95' Inflow=0.79 cfs 2,564 cf
12.0" Round Culvert n=0.012 L=70.0' S=0.0436 '/' Outflow=0.79 cfs 2,564 cf

Pond CB5: Prop CB Peak Elev=50.67' Inflow=0.56 cfs 1,989 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0571 '/' Outflow=0.56 cfs 1,989 cf

Pond CB6: Prop CB Peak Elev=53.45' Inflow=2.23 cfs 8,058 cf
12.0" Round Culvert n=0.012 L=93.0' S=0.0290 '/' Outflow=2.23 cfs 8,058 cf

Pond CB7: Prop CB Peak Elev=50.16' Inflow=0.81 cfs 2,894 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0800 '/' Outflow=0.81 cfs 2,894 cf

Pond CB8: Prop CB Peak Elev=52.93' Inflow=3.44 cfs 11,679 cf
12.0" Round Culvert n=0.012 L=100.0' S=0.0080 '/' Outflow=3.44 cfs 11,679 cf

Pond CB9: Prop CB Peak Elev=51.47' Inflow=0.56 cfs 2,012 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=0.56 cfs 2,012 cf

Pond DMH1: Prop DMH Peak Elev=52.29' Inflow=4.55 cfs 16,057 cf
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=4.55 cfs 16,057 cf

Pond DMH10: Prop DMH Peak Elev=52.36' Inflow=5.39 cfs 19,726 cf
18.0" Round Culvert n=0.012 L=205.0' S=0.0146 '/' Outflow=5.39 cfs 19,726 cf

Pond DMH1061: Exist. DMH Peak Elev=47.13' Inflow=25.52 cfs 103,448 cf
48.0" Round Culvert n=0.025 L=308.0' S=0.0040 '/' Outflow=25.52 cfs 103,448 cf

Pond DMH1067: Exist. DMH Peak Elev=47.44' Inflow=20.56 cfs 72,641 cf
48.0" Round Culvert n=0.011 L=195.0' S=0.0062 '/' Outflow=20.56 cfs 72,641 cf

Pond DMH11: Prop DMH Peak Elev=54.96' Inflow=5.39 cfs 19,726 cf
18.0" Round Culvert n=0.012 L=135.0' S=0.0185 '/' Outflow=5.39 cfs 19,726 cf

Pond DMH12: Prop DMH Peak Elev=46.98' Inflow=24.18 cfs 86,492 cf
30.0" Round Culvert n=0.012 L=70.0' S=0.0050 '/' Outflow=24.18 cfs 86,492 cf

Pond DMH1258: Exist. DMH Peak Elev=48.78' Inflow=7.96 cfs 28,247 cf
30.0" Round Culvert n=0.011 L=372.0' S=0.0020 '/' Outflow=7.96 cfs 28,247 cf

Pond DMH1322: Exist. DMH Peak Elev=48.65' Inflow=0.75 cfs 2,463 cf
30.0" Round Culvert n=0.011 L=347.0' S=0.0023 '/' Outflow=0.75 cfs 2,463 cf

Pond DMH14: Prop DMH Peak Elev=52.17' Inflow=3.43 cfs 12,344 cf
15.0" Round Culvert n=0.012 L=157.0' S=0.0051 '/' Outflow=3.43 cfs 12,344 cf

Pond DMH15: Prop DMH Peak Elev=51.60' Inflow=6.62 cfs 23,893 cf
18.0" Round Culvert n=0.012 L=56.0' S=0.0054 '/' Outflow=6.62 cfs 23,893 cf

Pond DMH16: Prop DMH Peak Elev=50.35' Inflow=6.62 cfs 23,893 cf
18.0" Round Culvert n=0.012 L=20.0' S=0.0200 '/' Outflow=6.62 cfs 23,893 cf

Pond DMH17: Prop DMH Peak Elev=49.01' Inflow=7.96 cfs 28,247 cf
30.0" Round Culvert n=0.011 L=64.0' S=0.0020 '/' Outflow=7.96 cfs 28,247 cf

Pond DMH18: Prop DMH Peak Elev=53.03' Inflow=2.13 cfs 7,545 cf
12.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=2.13 cfs 7,545 cf

Pond DMH19: Prop DMH Peak Elev=52.22' Inflow=3.03 cfs 10,750 cf
15.0" Round Culvert n=0.012 L=55.0' S=0.0055 '/' Outflow=3.03 cfs 10,750 cf

Pond DMH2: Prop DMH Peak Elev=51.53' Inflow=6.99 cfs 24,639 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=6.99 cfs 24,639 cf

Pond DMH20: Prop DMH Peak Elev=52.07' Inflow=6.10 cfs 21,732 cf
18.0" Round Culvert n=0.012 L=130.0' S=0.0050 '/' Outflow=6.10 cfs 21,732 cf

Pond DMH21: Prop DMH Peak Elev=52.08' Inflow=9.26 cfs 33,023 cf
18.0" Round Culvert n=0.012 L=50.0' S=0.0060 '/' Outflow=9.26 cfs 33,023 cf

Pond DMH22: Prop DMH Peak Elev=51.85' Inflow=10.70 cfs 38,233 cf
18.0" Round Culvert n=0.012 L=6.0' S=0.0083 '/' Outflow=10.70 cfs 38,233 cf

Pond DMH23: Prop DMH Peak Elev=48.43' Inflow=19.74 cfs 70,034 cf
48.0" Round Culvert n=0.011 L=248.0' S=0.0025 '/' Outflow=19.74 cfs 70,034 cf

Pond DMH3: Prop DMH Peak Elev=50.48' Inflow=9.77 cfs 34,686 cf
24.0" Round Culvert n=0.012 L=110.0' S=0.0055 '/' Outflow=9.77 cfs 34,686 cf

Pond DMH4: Prop DMH Peak Elev=50.34' Inflow=14.49 cfs 51,271 cf
24.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=14.49 cfs 51,271 cf

Pond DMH5: Prop CB Peak Elev=52.21' Inflow=3.98 cfs 13,691 cf
12.0" Round Culvert n=0.012 L=50.0' S=0.0260 '/' Outflow=3.98 cfs 13,691 cf

Pond DMH6: Prop DMH Peak Elev=50.45' Inflow=18.80 cfs 66,766 cf
24.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=18.80 cfs 66,766 cf

Pond DMH7: Prop DMH Peak Elev=50.89' Inflow=3.55 cfs 12,735 cf
15.0" Round Culvert n=0.012 L=42.0' S=0.0345 '/' Outflow=3.55 cfs 12,735 cf

Pond DMH8: Prop DMH Peak Elev=48.60' Inflow=24.18 cfs 86,492 cf
30.0" Round Culvert n=0.011 L=370.0' S=0.0050 '/' Outflow=24.18 cfs 86,492 cf

Pond DMH9: Prop DMH Peak Elev=49.30' Inflow=5.39 cfs 19,726 cf
18.0" Round Culvert n=0.012 L=110.0' S=0.0073 '/' Outflow=5.39 cfs 19,726 cf

Pond DROP708: Exist. Drop Peak Elev=45.42' Inflow=1.87 cfs 6,000 cf
36.0" Round Culvert n=0.011 L=300.0' S=0.0050 '/' Outflow=1.87 cfs 6,000 cf

Pond DROP799: Exist. Drop Peak Elev=45.97' Inflow=29.17 cfs 115,967 cf
48.0" Round Culvert n=0.025 L=100.0' S=0.0039 '/' Outflow=29.17 cfs 115,967 cf

Pond ST1: Jellyfish Filter Peak Elev=49.94' Inflow=18.80 cfs 66,766 cf
24.0" Round Culvert n=0.012 L=50.0' S=0.0050 '/' Outflow=18.80 cfs 66,766 cf

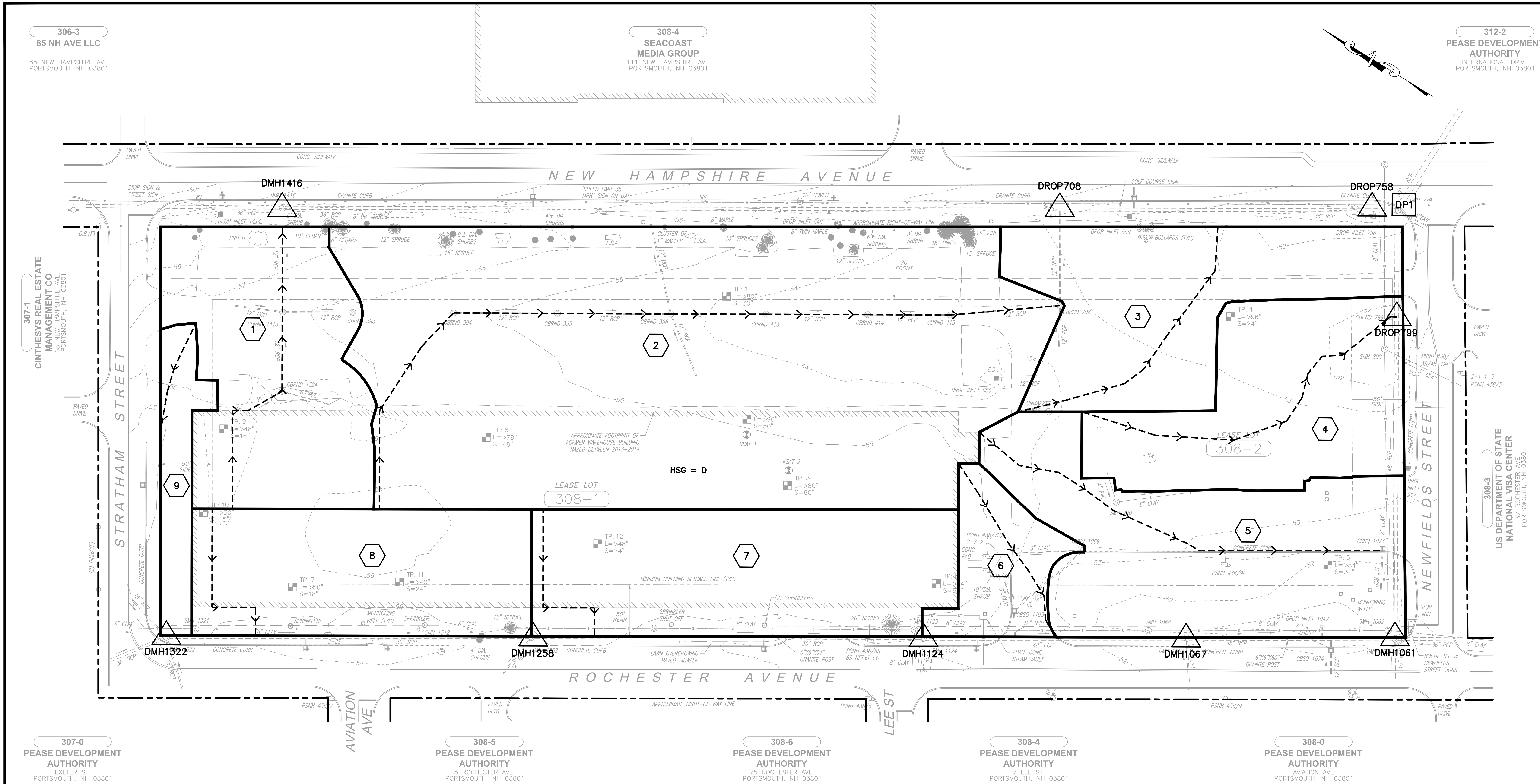
Pond ST2: Jellyfish Filter Peak Elev=50.76' Inflow=6.62 cfs 23,893 cf
18.0" Round Culvert n=0.012 L=8.0' S=0.0187 '/' Outflow=6.62 cfs 23,893 cf

Pond ST3: Jellyfish Filter Peak Elev=51.28' Inflow=10.70 cfs 38,233 cf
18.0" Round Culvert n=0.012 L=13.0' S=0.0115 '/' Outflow=10.70 cfs 38,233 cf

Total Runoff Area = 474,995 sf Runoff Volume = 237,169 cf Average Runoff Depth = 5.99"
54.48% Pervious = 258,760 sf 45.52% Impervious = 216,235 sf

APPENDIX I

PRE- AND POST-DEVELOPMENT WATERSHED PLANS



EXISTING DRAINAGE TABLE

CBRND 393
RIM=55.86
SUMP=52.49
INV.OUT=55.24

CBRND 394
RIM=55.21
SUMP=51.67
INV.OUT=52.17

CBRND 395
RIM=54.54
SUMP=50.90
INV.IN-50.89
INV.OUT=50.88

CBRND 396
RIM=54.01
SUMP=50.01
INV.IN=49.83
INV.IN=50.16(S36°W)
INV.OUT=50.11(N46°W)

CBRND 413
RIM=53.74
SUMP=50.15
INV.IN=INACCESSIBLE
INV.OUT=50.14

CBRND 414
RIM=53.45
SUMP=49.83
INV.IN=49.85
INV.OUT=49.55

CBRND 415
RIM=53.27
SUMP=48.92
INV.IN=49.01
INV.OUT=49.03

CBRND 708
RIM=53.06
SUMP=48.10
INV.IN=48.28
INV.IN=48.29(S66°W)
INV.OUT=48.11(N56°E)

CBRND 799
RIM=50.75
SUMP=45.04
INV.OUT=45.18

CBRND 1324
RIM=54.83
SUMP=52.27
INV.IN=52.90(N61°W)
INV.IN=52.81(S16°E)
INV.OUT=52.32(N59°E)

CBRND 1413
RIM=56.36
SUMP=51.80
INV.IN=51.73(N26°W)
INV.IN=51.71(CBRND 1324)
INV.IN=51.73(S39°E)
INV.OUT=51.61(DMH 1416)

CBSQ 1069
RIM=53.00
SUMP=49.00
INV.IN=49.12(N66°W)
INV.OUT=48.11(CBSQ 1193)

CBSQ 1073
RIM=52.09
SUMP=48.59
INV.OUT=48.39

CBSQ 1074
RIM=50.62
SUMP=46.07
INV.IN=46.14(12"RCP)
INV.IN=46.10(6"CLAY)
INV.OUT=46.07(12"RCP)

CBSQ 1193
RIM=52.61
SUMP=48.56
INV.IN=48.80(N41°E)
INV.IN=48.38(CBSQ 1069)
INV.OUT=48.37(S56°W)

DROP INLET 549
RIM=53.97
SUMP=49.47
INV.OUT=49.02(12"RCP)

DROP INLET 559
RIM=52.45
SUMP=48.05
INV.OUT=47.50(12"RCP)

DROP INLET 686
RIM=52.40
SUMP=49.89
INV.OUT=49.88(12"RCP)

DROP INLET 758
RIM=49.54
SUMP=45.89
INV.OUT=45.84(12"RCP)

DROP INLET 917
RIM=53.15
SUMP=50.79
INV.OUT=50.79(10"CMP)

DROP INLET 1042
RIM=50.79
SUMP=47.69
INV.OUT=47.46(10"CMP)

DROP INLET 1414
RIM=56.21
SUMP=53.54
INV.OUT=53.21(12"RCP)

DMH 1061
RIM=52.02
SUMP=44.37
INV.IN=44.60(DMH 1067)
INV.IN=44.57(S59°W)
INV.IN=44.62(S31°E)
INV.OUT=44.49 (DMH 779)

DMH 779
RIM=51.93
SUMP=41.54
INV.IN=42.87 (DMH 1061)
INV.IN=INACCESSIBLE(S14°E)
INV.IN=43.31(DMH 1416)
INV.OUT=42.17(S79°E)

DMH 1067
RIM=52.35
SUMP=45.70
INV.IN=45.95(DMH 1124)
INV.IN=45.90(S56°W)
INV.OUT=45.81 (DMH 1061)

DMH 1124
RIM=54.01
SUMP=46.80
INV.IN=46.61(DMH 1258)
INV.IN=46.76(S66°W)
INV.OUT=46.56(DMH 1067)

DMH 1258
RIM=54.91
SUMP=47.57
INV.IN=47.45(DMH 1322)
INV.IN=47.54(N84°W)
INV.OUT=47.37(DMH 1124)

DMH 1322
RIM=55.14
SUMP=48.40
INV.IN=48.57(N54°W)
INV.IN=48.62(S41W)
INV.IN=48.74(N16°E)
INV.OUT=48.24(DMH 1258)

DMH 1416
RIM=58.30
SUMP=48.77
INV.IN=48.76(N31°W)
INV.IN=50.47(CBRND 1413)
INV.OUT=48.65(DMH 779)

EXISTING SEWER TABLE

SMH 800
RIM=51.36
SHELF=42.47
TROUGH=41.84
INV.IN=41.76(SMH 1062)
INV.IN=47.07(S06°E)
INV.OUT=41.71(SMH 784)

SMH 920
RIM=53.49
SHELF=43.96
TROUGH=43.66
INV.IN=45.54(N33°E)
INV.OUT=43.39(S04°E)

SMH 1062
RIM=51.84
SHELF=43.60
TROUGH=42.77
INV.IN=42.80(N76°W)
INV.IN=42.78(SMH1068)
INV.IN=42.78(S26°E)
INV.OUT=42.79

SMH 1068
RIM=52.16
SHELF=44.36
TROUGH=43.77
INV.IN=43.66(N12°W)
INV.OUT=43.39(SMH 1062)

SMH 1123
RIM=54.64
SHELF=45.31
TROUGH=44.74
INV.IN=44.66
INV.IN=44.72(S04°W)
INV.OUT=44.60

SMH 1312
RIM=54.60
SHELF=47.39
TROUGH=46.79
INV.IN=46.81(SMH 1321)
INV.OUT=46.75(SMH 1543)

SMH 1321
RIM=55.03
SHELF=49.75
TROUGH=49.24
INV.IN=49.28(N31°W)
INV.OUT=49.21(SMH 1312)

DRAINAGE LEGEND

SUBCATCHMENT BOUNDARY	
Tc FLOW LINE	
HSG = B	HYDROLOGIC SOIL GROUP BOUNDARY
1A	SUBCATCHMENT DESIGNATION
1R	REACH DESIGNATION
1P	POND DESIGNATION

GRAPHIC SCALE

50 0 25 50 60

(IN FEET)
1 inch = 50 ft.

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE:	ORIGINAL DATE:	DESIGNED BY	DRAWN BY	CHECKED BY
AS SHOWN	NOVEMBER 16, 2018	SMT	SMT	WRD

CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

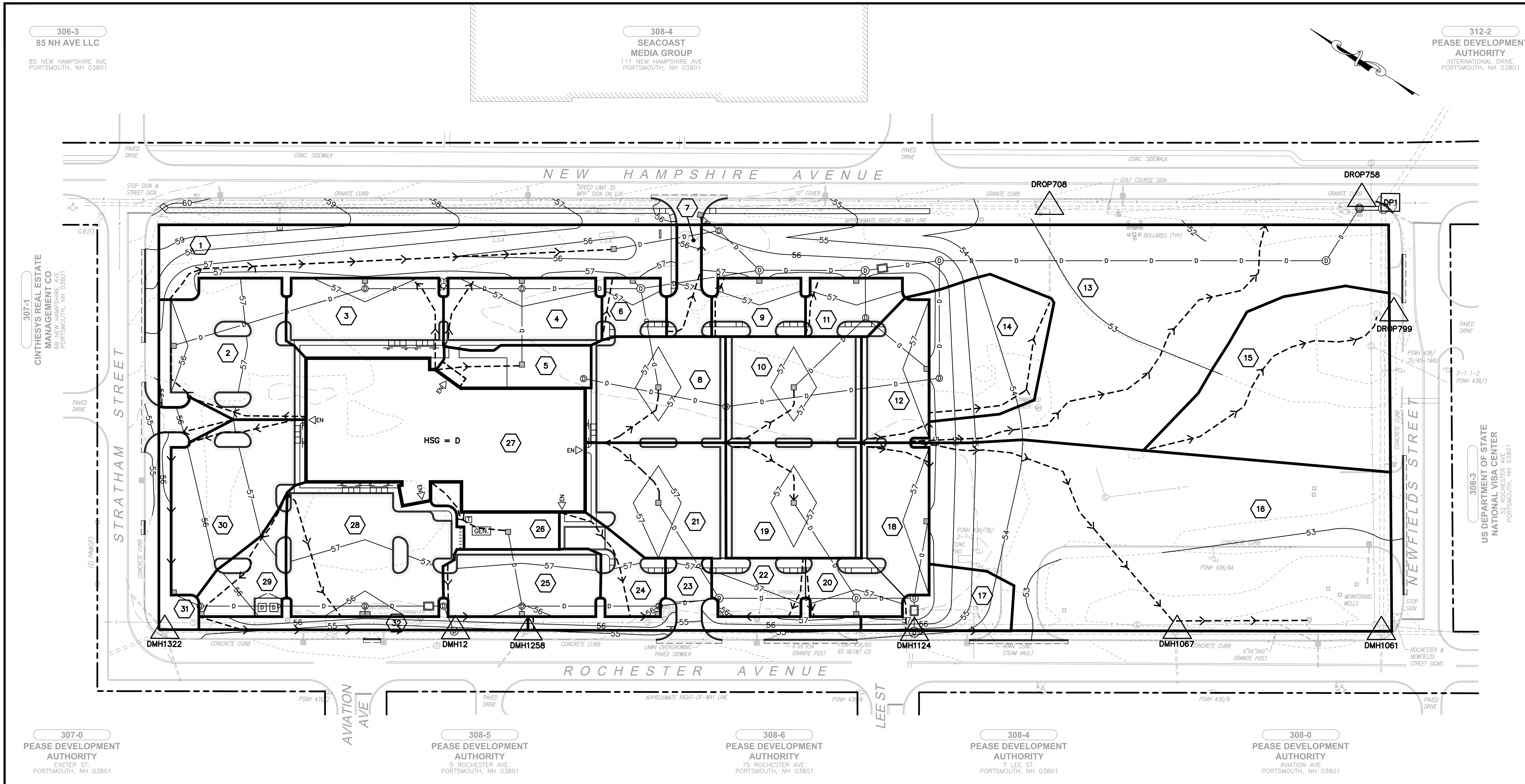
PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

PRE-DEVELOPMENT DRAINAGE PLAN

DR1

PROJECT NO. 556912

SHEET 1 OF 2



DRAINAGE LEGEND

- SUBCATCHMENT BOUNDARY
- Tc FLOW LINE
- HSG = B HYDROLOGIC SOIL GROUP BOUNDARY
- 1A SUBCATCHMENT DESIGNATION
- 1R REACH DESIGNATION
- 1P POND DESIGNATION

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

REV.	REVISION DESCRIPTION	DATE
2	100% DESIGN PLANS – ISSUED FOR SITE REVIEW	12/04/18
1	90% DESIGN PLANS – ISSUED FOR PDA REVIEW	11/16/18

THIS DOCUMENT IS PREPARED AS AN INSTRUMENT OF SERVICE AND SHALL REMAIN THE PROPERTY OF HOYLE, TANNER. IT MAY NOT BE USED, REPRODUCED, DISSEMINATED OR TRANSFERRED IN ANY MANNER, INCLUDING ELECTRONICALLY, FOR ANY OTHER PURPOSE THAN THIS PROJECT, WITHOUT THE WRITTEN PERMISSION OF HOYLE, TANNER.

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
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Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

ORIGINAL DATE: NOVEMBER 16, 2018

SCALE: AS SHOWN

CLIENT
TWO INTERNATIONAL GROUP
1 NEW HAMPSHIRE AVENUE, SUITE 123
PORTSMOUTH, NH 03801

PROJECT
PROPOSED 4 STORY OFFICE BUILDING
100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

POST-DEVELOPMENT DRAINAGE PLAN

DR2

PROJECT NO. 556912

SHEET 2 OF 2

OWNER AUTHORIZATION FORM

I, Daniel L. Plummer, authorize Hoyle, Tanner & Associates, Inc. (Hoyle, Tanner) to act as an agent on behalf of Two International Group, LLC. I authorize Hoyle, Tanner to sign any permit related documents and speak on my behalf regarding the proposed 4-Story Office Building on the property located at 100 New Hampshire Avenue, in Portsmouth, New Hampshire.

Daniel L. Plummer

Signature

11-29-18

Date

Hoyle, Tanner & Associates, Inc.

Pease Development Authority
Application for Site Review

Applicant: Two International Group, LLC Attn: Dan Plummer	**For PDA Use Only**
Address: 1 New Hampshire Avenue, Suite 101 Portsmouth, NH 03801	Date Submitted: / /
	Application Complete: / /
Phone: 603-436-8686	Municipal Review:
Other interested Parties: NA	Date Forwarded: / /
Address NA	Fee $ Paid: / /
	Check #
Phone: NA	Notes:
Site Location: 100 New Hampshire Avenue Zone: Industrial	Plan # 308 Lot # 1 & 2

Individual in Charge of Project: Hoyle, Tanner & Associates, Inc. Attn: Shawn Tobey

Address: 100 International Drive, Suite 360
Portsmouth, NH 03801

Change of Use: Yes [ ] No [X] Exiting Use: Commercial Proposed Use: Commercial

Description of Project: The project includes the construction of a new four story office building with a footprint of 32,250 SF and a total of 129,000 SF. The design also includes the construction of 517 parking spaces, a loading area, sidewalks, drainage infrastructure, supporting utilities, landscaping and lighting. The existing site was part of the former Pease Air Force Base and contained a large warehouse building and parking lots. The building was removed in advance of future development and the remaining portions of the site were left in their original condition.

Attachments (Check as Applicable)

[X] 9 stamped copies of site plan [ ] Original Mylar [X] Base Application Fee

[X] Abutter's List (PDA) [ ] Copy of Building permit application [ ] Copies of approvals for required state/federal permits

I hereby apply for Site Review and Acknowledge I will comply with all regulations and any conditions established by the Review Committee(s) and PDA Board in the development and construction of this project.

Applicant's Signature: Daniel L Plummer Date: 11-29-18

December 4, 2018

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Drive, Suite 360
Portsmouth, New Hampshire 03801
603-431-2520
603-431-8067 fax
www.hoyletanner.com

Juliet T. H. Walker
Planning Director
1 Junkins Ave
Portsmouth, NH 03801

Re: Application for Site Review
Proposed Four Story Office Building
100 New Hampshire Avenue
Pease International Tradeport
Portsmouth, NH

Dear Ms. Walker,

On behalf of Two International Group, Hoyle, Tanner and Associates is pleased to submit this application for site review for the proposed development of 100 New Hampshire Avenue located on the Pease International Tradeport. The development includes the construction of a four story office building with a footprint of 32,250 square feet and 129,000 square feet of total office space. The design also includes the construction of 517 new parking spaces, a loading area, sidewalks, drainage infrastructure, supporting utilities, landscaping and lighting.

A NHDES Alteration of Terrain permit will be submitted concurrently with the Portsmouth and Pease Site Review process. The drainage systems for the new development have been designed to meet all current NHDES regulations and features deep sump catch basins with in line underground treatment devices. The overall impervious cover for the site has been reduced.

Hoyle, Tanner met with the Pease Development Authority (PDA) on November 16th, 2018 to present and discuss all aspects of the project. At the meeting, 90% design plans were submitted to the PDA and are currently under review. All PDA comments will be addressed during the pre-TAC work submission and included in the revised plans submitted for the TAC meeting. If you have any questions or comments, please do not hesitate to contact us. We look forward to the opportunity to present this project at the Technical Advisory Work Session for preliminary approval on December 11th.

Sincerely,

HOYLE, TANNER & ASSOCIATES, INC.

Shawn Tobey

Shawn M. Tobey, P.E.
Project Manager

Cc: Maria Stowell, PDA

December 4, 2018

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Drive, Suite 360
Portsmouth, New Hampshire 03801
603-431-2520
603-431-8067 fax
www.hoyletanner.com

Maria Stowell
Pease Development Authority
55 International Drive
Pease International Tradeport
Portsmouth, NH 03801

Re: Traffic Generation Statement
Proposed Four Story Office Building
Pease International Tradeport
100 New Hampshire Avenue
Portsmouth, NH

Dear Maria,

We are writing to provide you with an estimate for weekday, AM, peak hour traffic associated with the proposed development of 100 New Hampshire Avenue. The project includes the construction of a four story office building with a total of 129,000 SF.

We have reviewed the trip generation and estimate the proposed facility will generate 230 passenger trips during the weekday, AM, peak hour during the year 2019.

This calculation is based on the Institute of Transportation Engineers (ITE) land use code 710 (General Office Building) using 129,000 square feet of office space as the criteria for generating average vehicle trips. We have reviewed both AM and PM peak trips and are using the highest peak values to conservatively generate the above passenger trips.

If you have any questions or comments, please do not hesitate to contact us.

Sincerely,

HOYLE, TANNER & ASSOCIATES, INC.

Shawn Tobey

Shawn M. Tobey, P.E.
Project Manager

Cc: Juliet T. H. Walker, Planning Director