SITE PLAN FOR COPLEY PROPERTIES, LLC

STRATHAM TAX MAP 13 LOT 22

89 & 91 PORTSMOUTH AVENUE (SITE)

STRATHAM, NH 03885

OWNER
TAX MAP 13 LOT 22
JOEWES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

APPLICANT
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

CIVIL ENGINEER
EMANUEL ENGINEERING, INC.
118 PORTSMOUTH AVENUE, SUITE A202
STRATHAM, NH 03885

LAND SURVEYOR
JAMES VERRA & ASSOCIATES, INC.
101 SHATTUCK WAY, SUITE 8
NEWINGTON, NH 03801

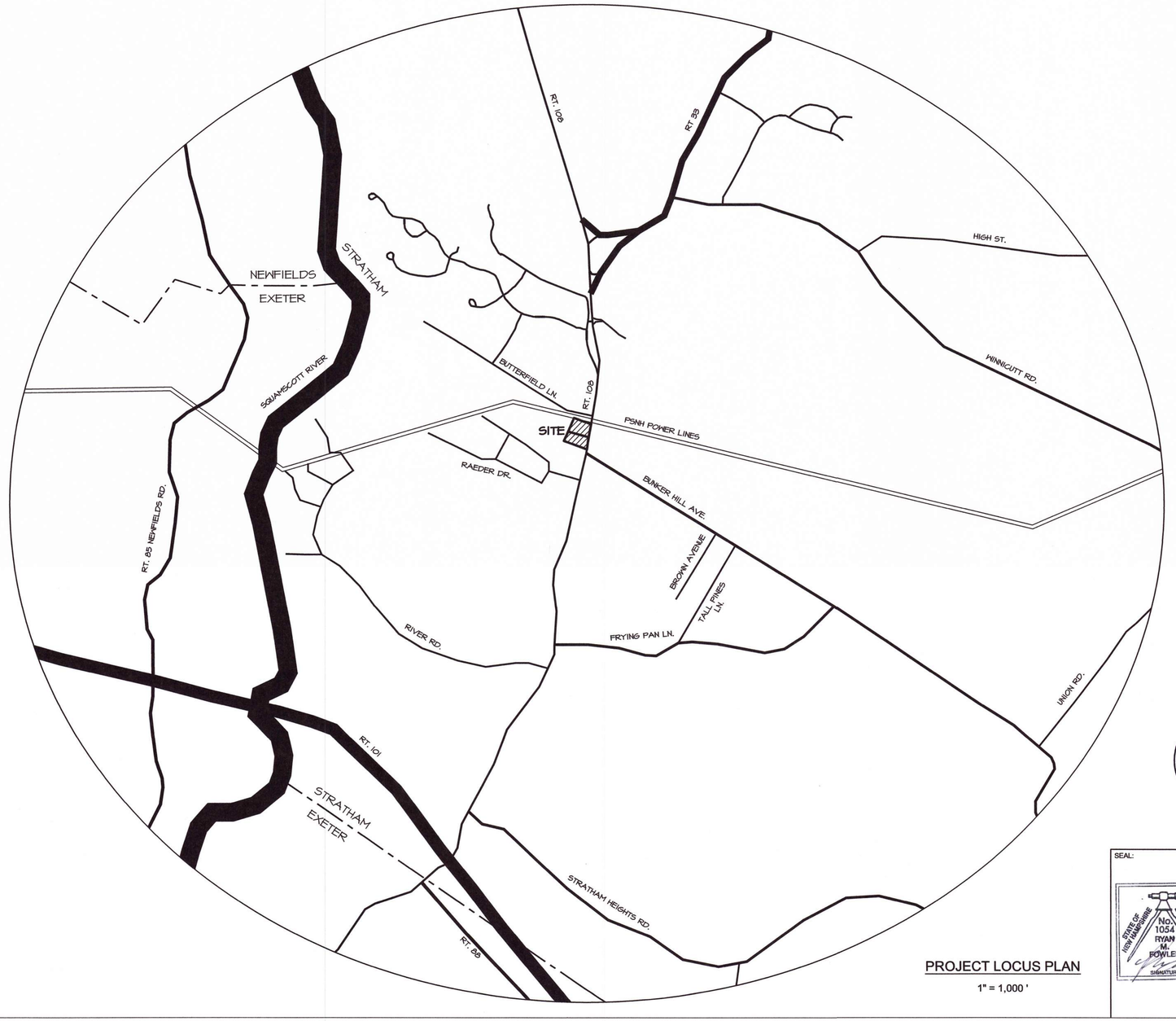
ARCHITECT
ART FORM ARCHITECTURE
44 LAFAYETTE ROAD (RTE 1)
P.O. BOX 535
NORTH HAMPTON, NH, 03862

WETLAND SCIENTIST
JOSEPH W. NOEL, C.W.S. 086
P.O. BOX 174
SOUTH BERWICK, ME 03908

LIGHTING DESIGNER
HOLBROOK-ASSOCIATED
35 RESERVOIR PARK DRIVE
ROCKLAND, MA 02370

APPROVALS:

- NHDOT DRIVEWAY PERMIT #DOT-DRI-000233, DATED APRIL 21, 2025
- NHDES CONDITIONAL FINAL WATER SYSTEM APPROVAL: ID# DR006803, DATED SEPTEMBER 5, 2024
- NHDES SUBSURFACE CONSTRUCTION PERMIT: APPROVAL #: eCA2025050921, DATED MAY 9, 2025
- EPA NPDES NOTICE OF INTENT (NOT) CONSTRUCTION PERMIT: 01R10I00I DATED APRIL 18, 2025



PROJECT LOCUS PLAN
1" = 1,000 '

PROJECT DRAWING SET:

	COVER SHEET
VE1-VE2	PROPOSED EASEMENT PLAN
C1	EXISTING CONDITIONS
C2	SITE PLAN
C3	GRADING & DRAINAGE PLAN
C4	UTILITIES PLAN
D1	NOTES
D2	POROUS PAVEMENT NOTES
D3	SITE DETAILS
D4	UTILITY & SITE DETAILS
D5	EROSION CONTROL DETAILS
D6-D7	DRAINAGE DETAILS
D8	WELL DECOMMISSIONING NOTES
L1-L2	LANDSCAPING PLAN
SK1	NHDOT EXISTING SKETCH
SK2	NHDOT PROPOSED SKETCH
SK3	FIRE TRUCK TURNING TEMPLATE (ENTERING SITE)
SK4	FIRE TRUCK TURNING TEMPLATE (EXITING SITE)
SD1-SD3	SUBSURFACE DISPOSAL SYSTEM
X	ARCHITECTURAL RENDERINGS AND ELEVATIONS (BY ART FROM ARCHITECTURE, LLC)
X	LIGHTING PLAN (BY HOLBROOK ASSOCIATED)

NEW HAMPSHIRE Designer of Subsurface Disposal Systems
Bruce D. Scamman No. 1426
Water Supply & Pollution Control
6/9/26

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
7	JUN 5, 2026	FOR APPROVAL	
6	MAY 20, 2025	FOR APPROVAL	
1	MAY 22, 2024	FOR APPROVAL	

DRAWN: NCB | DESIGN: NCB
CHECKED: BDS | CHECKED: BDS

STATE OF NEW HAMPSHIRE · JOSEPH W. NOEL · No. 086 · CERTIFIED WETLAND SCIENTIST
6/9/26

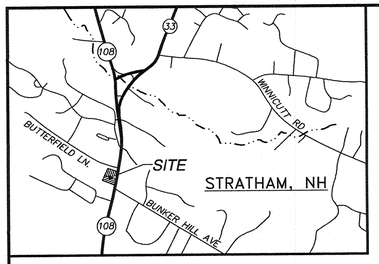
EEI
CIVIL & STRUCTURAL CONSULTANTS, LAND PLANNERS
100 GRIFFIN ROAD, UNIT C, PORTSMOUTH, NH 03801
603-772-4400 | EMANUELENGINEERING.COM ©2025

CLIENT:
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

SEAL:
STATE OF NEW HAMPSHIRE · No. 1054 · RYAN M. FOWLER · LICENSED LAND SURVEYOR · SIGNATURE
STATE OF NEW HAMPSHIRE · BRUCE D. SCAMMAN No. 11236 · LICENSED PROFESSIONAL ENGINEER
6/9/26

TITLE:
COVER SHEET
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVENUE
(SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	AS SHOWN	COVER



LOCUS
(N.T.S.)

LEGEND:

- "X" MARK FOUND
- IRON PIPE
- BOUND as DESCRIBED
- DRILL HOLE
- UTILITY POLE
- GUY
- LIGHT POLE
- BOLLARD
- WELL
- SIGN
- WETLAND HATCH
- STONE WALL
- CHAIN LINK FENCE
- WETLAND

NH STATE PLANE COORDINATE SYSTEM
NAD 1983

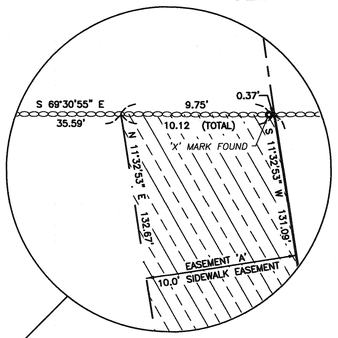
SURVEYOR'S CERTIFICATION

"I HEREBY CERTIFY THAT THIS SURVEY AND PLAT WERE PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION AND IS THE RESULT OF AN ACTUAL FIELD SURVEY MADE ON THE GROUND AND HAS AN ERROR OF CLOSURE OF GREATER ACCURACY THAN ONE PART IN FIFTEEN THOUSAND (1:15,000)."

LICENSED LAND SURVEYOR — DATE 5/21/25

STATE OF NEW HAMPSHIRE — No. 1054 — RYAN M. FOWLER — LICENSED LAND SURVEYOR — SIGNATURE

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.



DETAIL
1" = 5'

NOTES:

1. OWNER OF RECORD: JOEWES, LLC
   ADDRESS: 94 PORTSMOUTH AVENUE, STRATHAM, NH 03885
   DEED REFERENCE.....BK: 6616 PG: 0044 AND BK: 6580 PG: 1163
   TAX SHEET / LOT.....13/22
   APPLICANT .....COPELY PROPERTIES
   ADDRESS .....94 PORTSMOUTH AVENUE, STRATHAM, NH
   TOTAL LOT AREA TO BE MERGED: 10,656 S.F.± OR 3.229 ACRES±
   MERGER DEED: BK: 6620 PG: 2057

2. ZONED: .....PROFESSIONAL/RESIDENTIAL
   MINIMUM LOT AREA .....1 ACRE
   FRONTAGE .....150'
   FRONT YARD SETBACK .....30'
   SIDE YARD SETBACK .....20'
   REAR YARD SETBACK .....20'
   MAXIMUM HEIGHT .....35'
   MAXIMUM BUILDING COVERAGE ...30%
   WETLAND BUILDING ACTIVITY SETBACK: 50'
   VERY POORLY DRAINED SOILS BUILDING ACTIVITY SETBACK: 100'
   VERY POORLY DRAINED SUBSURFACE BUILDING ACTIVITY: 75'
   POORLY DRAINED SUBSURFACE ACTIVITY: 50'
   WETLAND NO DISTURBANCE BUFFER: 25'
   VERY POORLY DRAINED SOILS BUFFER: 50'

3. THE INTENT OF THIS PLAN IS TO SHOW A PROPOSED SIDEWALK EASEMENT, AND A ACCESS/FUTURE ROAD EASEMENT TO THE TOWN OF STRATHAM. SITE IS CURRENTLY BEING REDEVELOPED, AND BUILDINGS SHOWN HEREON ARE PROPOSED, AND NOT YET CONSTRUCTED AT THE TIME OF THIS PLAN. SEE REFERENCE PLAN #7 TO SHOW CURRENT/PRIOR SITE CONDITIONS. THE INTENT IS TO COMBINE LOTS 23 AND 24 INTO ONE SINGLE LOT.

4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE CATCH BASINS, MANHOLES, WATER GATES ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY COMPANIES AND GOVERNMENTAL AGENCIES. ALL CONTRACTORS SHOULD NOTIFY, IN WRITING, SAID AGENCIES PRIOR TO ANY EXCAVATION WORK AND CALL DIG-SAFE @ 1-888-DIG-SAFE.

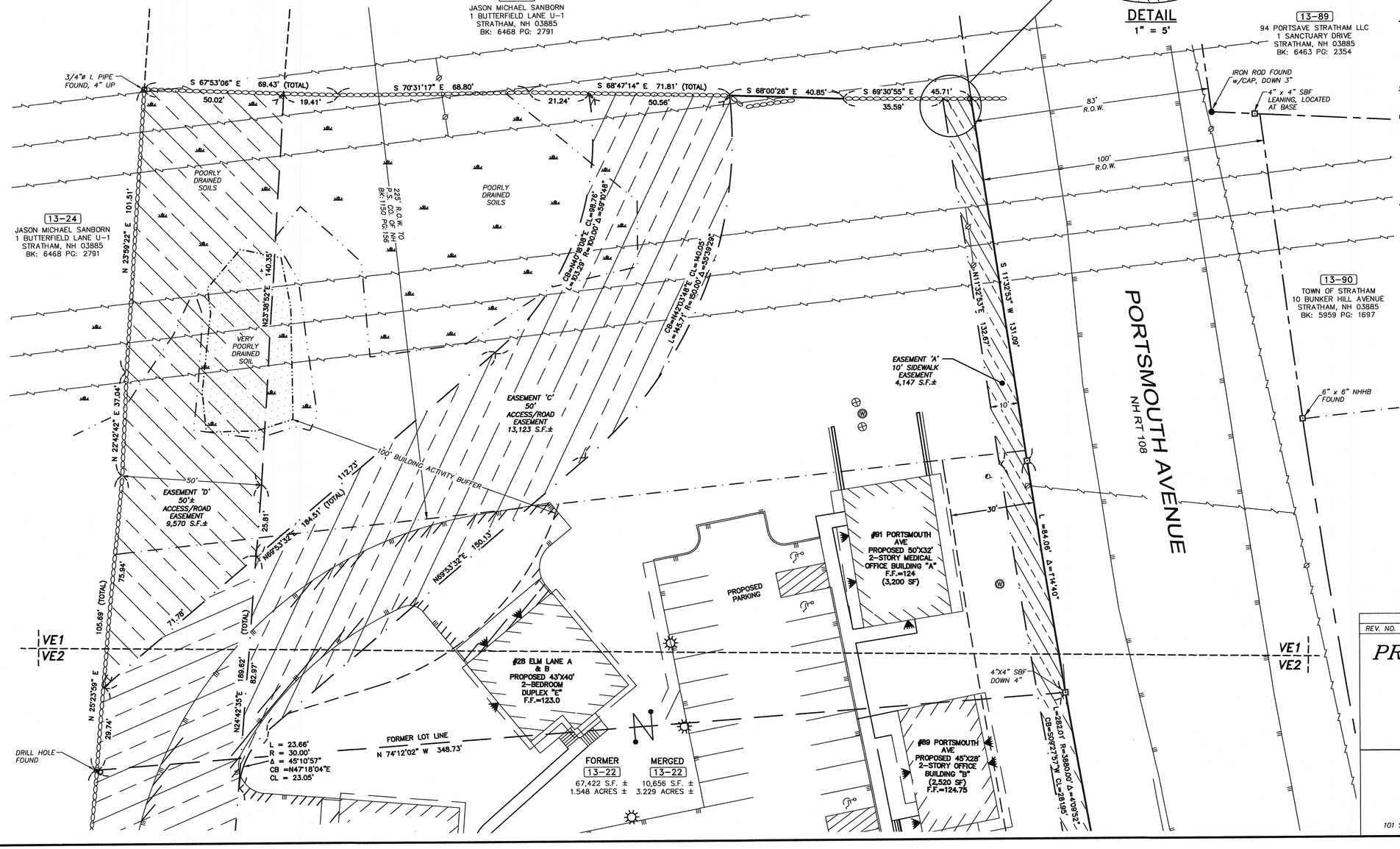
5. HORIZONTAL DATUM: NAD83, VERTICAL DATUM: NAVD88. ESTABLISHED BY SURVEY GRADE GPS OBSERVATION AND PROCESSED BY OPUS.

6. THE PLAN IS BASED UPON A FIELD SURVEY COMPLETED IN OCTOBER – NOVEMBER OF 2022 WITH TRIMBLE S5 ROBOTIC TOTAL STATION, CARLSON BRX7 RTK GPS UNITS, PANASONIC FZ-M1/TRIMBLE TSC7 DATA COLLECTORS.

7. THE PARCEL SHOWN HEREON LIES WITHIN ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS IDENTIFIED ON FLOOD INSURANCE RATE MAP, ROCKINGHAM COUNTY, NEW HAMPSHIRE, MAP NUMBER 33015C0245F, EFFECTIVE DATE 1/29/2021 BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

8. CONTRACTOR TO VERIFY SITE BENCHMARKS BY LEVELING BETWEEN 2 BENCHMARKS PRIOR TO THE ESTABLISHMENT OF ANY GRADES OR ELEVATIONS. DISCREPANCIES ARE TO BE REPORTED TO JAMES VERRA AND ASSOCIATES, INC.

9. NO OVERALL WIDTH WAS GIVEN IN BK: 1147 PG: 119 OR BK: 1258 PG: 190, HOWEVER REFERENCE PLAN #6 SHOWS THE OVERALL LINE TO BE 225' WIDE. REFERENCE PLAN #4 SHOWS THE POWER LINE EASEMENT BEING 300' OFF OUR SUBJECT PARCEL, HOWEVER WE DID NOT FIND ANY EVIDENCE THAT THE EASEMENT ON OUR SUBJECT PARCEL IS LARGER THAN 225'.



STATE OF NEW HAMPSHIRE — JOSEPH W. NOEL — No. 086 — CERTIFIED WETLAND SCIENTIST — 5/20/25

STATE OF NEW HAMPSHIRE — BRUCE D. SCAMMAN No. 11236 — LICENSED PROFESSIONAL ENGINEER — 5/20/25

APPROVED BY THE STRATHAM PLANNING BOARD

CHAIRMAN _____ DATE _____

REV. NO.	DATE	DESCRIPTION	APPR'D

PROPOSED SITE & EASEMENT PLAN
89 & 91 PORTSMOUTH AVENUE
STRATHAM, NH
TAX MAP 13 LOT 22
PREPARED FOR: COPLEY PROPERTIES LLC
LAND OF: JOEWES, LLC

JVA
JAMES VERRA & ASSOCIATES, INC.
101 SHATTUCK WAY, SUITE 8, NEWINGTON, N.H., 03801-7876 603-436-3557

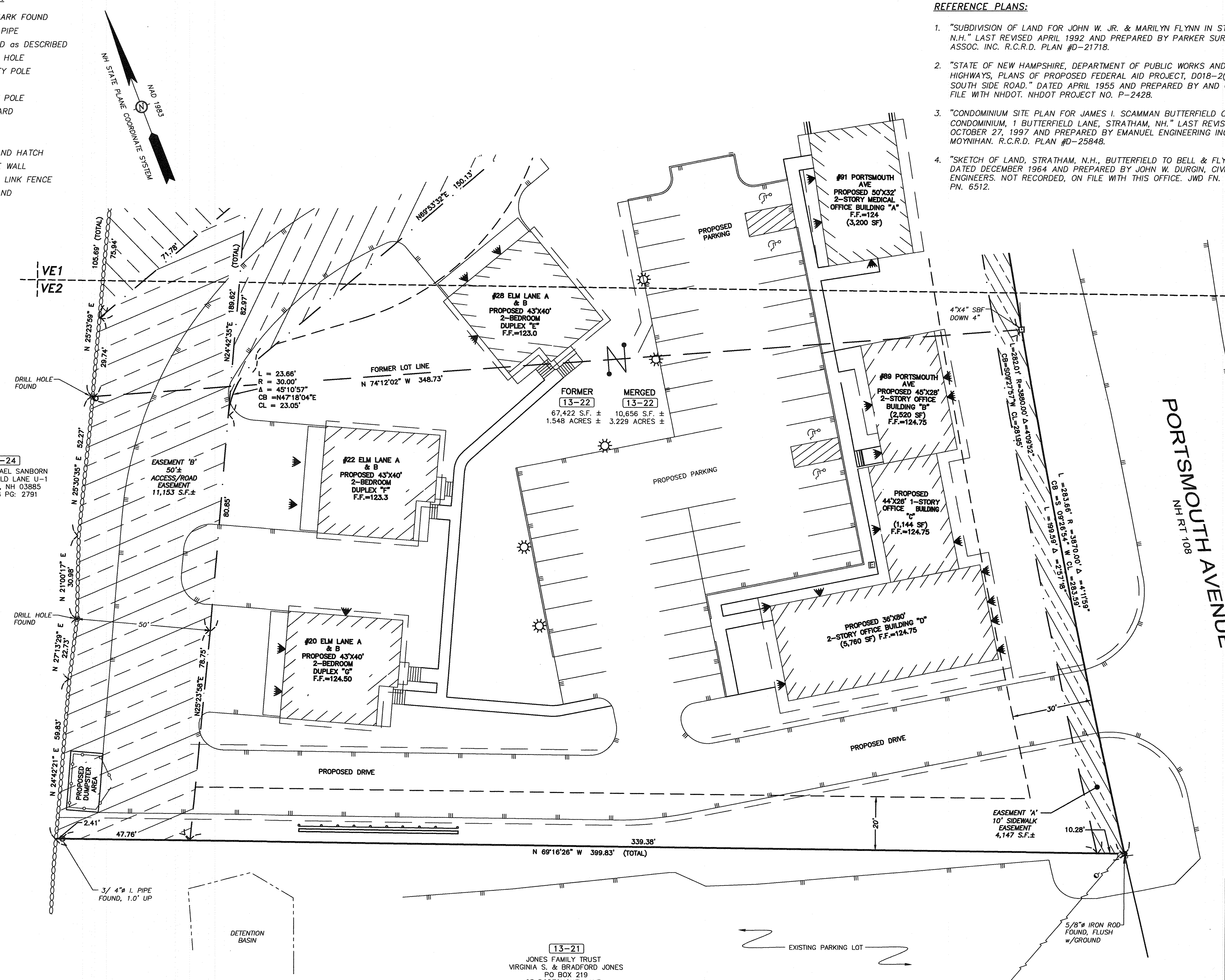
RMF — DRAWN BY
RMF — PROJECT MGR

DATE:	05-20-2025
JOB NO:	23-2069
SCALE:	1" = 20'
DWG NAME:	23-2069_ES
PLAN NO:	23-2069_ES
SHEET:	VE1

J:\2023 PROJECTS\23-2069 COPLEY PROPERTIES 89-91 PORTSMOUTH AVE STRATHAM\23-2069\DWG\23-2069_ESMNT.dwg 2025-05-20

LEGEND:

- "X" MARK FOUND
- IRON PIPE
- BOUND as DESCRIBED
- DRILL HOLE
- UTILITY POLE
- GUY
- LIGHT POLE
- BOLLARD
- WELL
- SIGN
- WETLAND HATCH
- STONE WALL
- CHAIN LINK FENCE
- WETLAND



REFERENCE PLANS:

1. "SUBDIVISION OF LAND FOR JOHN W. JR. & MARILYN FLYNN IN STRATHAM, N.H." LAST REVISED APRIL 1992 AND PREPARED BY PARKER SURVEY ASSOC. INC. R.C.R.D. PLAN #D-21718.
2. "STATE OF NEW HAMPSHIRE, DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS, PLANS OF PROPOSED FEDERAL AID PROJECT, D018-2(A) SOUTH SIDE ROAD." DATED APRIL 1955 AND PREPARED BY AND ON FILE WITH NHDOT. NHDOT PROJECT NO. P-2428.
3. "CONDOMINIUM SITE PLAN FOR JAMES I. SCAMMAN BUTTERFIELD ONE CONDOMINIUM, 1 BUTTERFIELD LANE, STRATHAM, NH." LAST REVISED OCTOBER 27, 1997 AND PREPARED BY EMANUEL ENGINEERING INC. & R.G. MOYNIHAN. R.C.R.D. PLAN #D-25848.
4. "SKETCH OF LAND, STRATHAM, N.H., BUTTERFIELD TO BELL & FLYNN." DATED DECEMBER 1964 AND PREPARED BY JOHN W. DURGIN, CIVIL ENGINEERS. NOT RECORDED, ON FILE WITH THIS OFFICE. JWD FN. 3043 PN. 6512.
5. "PLAN OF LAND, STRATHAM, N.H. FOR IRVING COHEN." DATED MARCH 1970 AND PREPARED BY JOHN W. DURGIN, CIVIL ENGINEERS. NOT RECORDED, ON FILE WITH THIS OFFICE. JWD FN. 3043 PN. 5205.
6. "PORTSMOUTH - NASHUA 110 K.V. LINE MILE - 11." PREPARED BY P.S. CO. OF N.H. U-181. R-6775-11. NOT RECORDED, CONTAINED IN THE RECORDS OF JWD FN. 3043.
7. "EXISTING CONDITIONS PLAN, 89-91 PORTSMOUTH AVE. STRATHAM, NH, TAX MAP 13 LOT 23 AND 24, PREPARED FOR COPLEY PROPERTIES LLC, LAND OF ANDREW J. GODDARD." DATED NOVEMBER 9, 2023, PREPARED BY AND ON FILE WITH THIS OFFICE. JVA JOB #23-2069.
8. "SITE PLAN FOR COPLEY PROPERTIES, LLC, STRATHAM TAX MAP 13, LOTS 22 & 23, 89 & 91 PORTSMOUTH AVENUE (SITE) STRATHAM, NH 03885." LAST REVISED AUGUST 2, 2024 AND PREPARED BY EMANUEL ENGINEERING INC. ON FILE WITH THE TOWN OF STRATHAM, NH. EEI PROJ. #23-1109
9. "SITE PLAN FOR GGF LIMITED LIABILITY COMPANY, 91 PORTSMOUTH AVE. (SITE) STRATHAM, NH 03885" LAST REVISED APRIL 30, 2003 AND PREPARED BY EMANUEL ENGINEERING INC. R.C.R.D. PLAN #D-30767

STATE OF NEW HAMPSHIRE
JOSEPH W. NOEL
No. 086
CERTIFIED WETLAND SCIENTIST
5/20/25

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
5/20/25

SURVEYOR'S CERTIFICATION

"I HEREBY CERTIFY THAT THIS SURVEY AND PLAT WERE PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION AND IS THE RESULT OF AN ACTUAL FIELD SURVEY MADE ON THE GROUND AND HAS AN ERROR OF CLOSURE OF GREATER ACCURACY THAN ONE PART IN FIFTEEN THOUSAND (1:15,000)."

LICENSED LAND SURVEYOR

5/20/25
DATE

STATE OF NEW HAMPSHIRE
RYAN M. FOWLER
No. 1054
LICENSED LAND SURVEYOR
SIGNATURE

GRAPHIC SCALE

20' 0 10' 20' 40' 80'

(IN FEET)
1 inch = 20 ft.

APPROVED BY THE STRATHAM PLANNING BOARD

CHAIRMAN

DATE

REV. NO.	DATE	DESCRIPTION	APPR'D

PROPOSED SITE & EASEMENT PLAN
89 & 91 PORTSMOUTH AVENUE
STRATHAM, NH
TAX MAP 13 LOT 22
PREPARED FOR: COPLEY PROPERTIES LLC
LAND OF: JOEWES, LLC

JAMES VERRA & ASSOCIATES, INC.

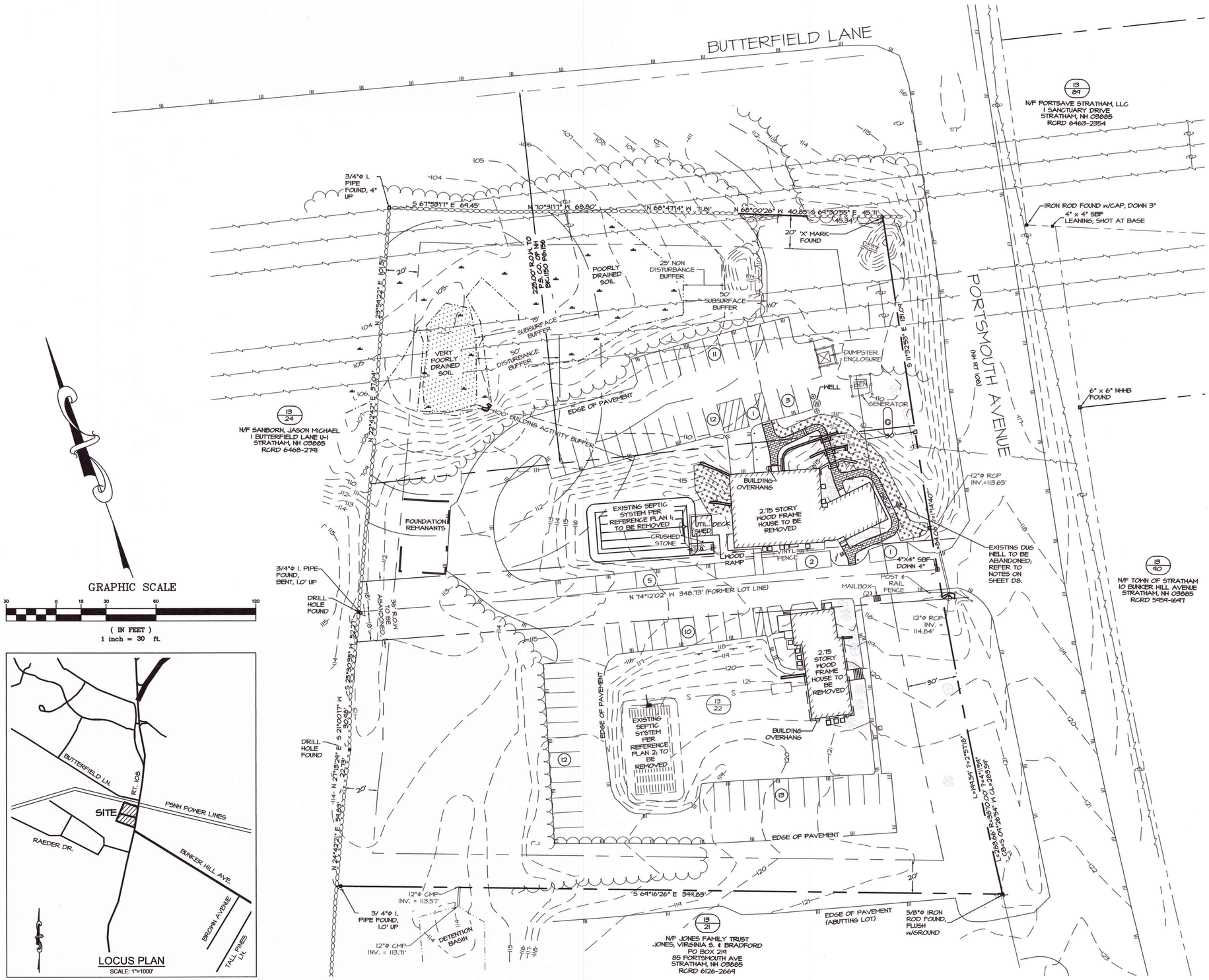
101 SHATTUCK WAY, SUITE 8, NEWINGTON, N.H., 03801-7876 603-436-3557

RMF
DRAWN BY

RMF
PROJECT MGR

DATE:	05-20-2025
JOB NO:	23-2069
SCALE:	1" = 20'
DWG NAME:	23-2069_ES
PLAN NO:	23-2069_ES
SHEET:	VE2

J:\2023 PROJECTS\23-2069 COPLEY PROPERTIES 89-91 PORTSMOUTH AVE STRATHAM\23-2069\DWG\23-2069_ESMNT.dwg 2025-05-20



REFERENCE PLANS:

1. "REPLACEMENT SUBSURFACE DISPOSAL SYSTEM FOR RADIATION SAFETY & CONTROL SERVICES, INC, 91 PORTSMOUTH AVENUE, STRATHAM, NH 03885." BY EMANUEL ENGINEERING, INC.; DATED MAY 1, 2004; SCALE 1"=20'.
2. "COMMERCIAL SITE PLAN - EFFLUENT DISPOSAL SYSTEM DESIGN, 89 PORTSMOUTH AVENUE, STRATHAM, NH 03885." BY BEALS ASSOCIATES, PLCC; DATED AUGUST 25, 2004; SCALE 1"=20'.
3. "SITE PLAN FOR 66F LIMITED LIABILITY COMPANY, 91 PORTSMOUTH AVENUE, STRATHAM, NH 03885." BY EMANUEL ENGINEERING, INC.; DATED APRIL 2003; SCALE 1"=20', RCRD D-30767.
4. "EXISTING AND PROPOSED SITE PLAN IN STRATHAM NH FOR FARRELL, MARTIN, & PULITZER" BY WILLIAM G. COLLINS ASSOCIATES, DATED APRIL 1987, SCALE 1" = 40', RCRD D-16585.

NOTES:

1. OWNER OF RECORD:
   TAX MAP 13, LOT 22
   JOENES, LLC
   94 PORTSMOUTH AVENUE
   STRATHAM, NH 03885
   RCRD BK6580 PG1163
   RCRD BK6616 PG0044
   RCRD BK6620 PG2051 (LOT MERGER)
2. THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS OF STRATHAM TAX MAP 13 LOT 22.
3. PARCELS ARE ZONED PROFESSIONAL/RESIDENTIAL PER THE TOWN OF STRATHAM OFFICIAL ZONING MAP 2022.
   DIMENSIONAL REQUIREMENTS:
   - MINIMUM AREA= 1-ACRE
     - AREA PROVIDED = 3.23 ACRES
   - MINIMUM CONTIGUOUS FRONTAGE = 150 FT
     - FRONTAGE PROVIDED = 414.74 FT
   - LOT DEPTH MINIMUM = 150 FT
     - LOT DEPTH PROVIDED = ~297 FT
   - FRONT YARD MINIMUM = 30 FT
   - REAR YARD MINIMUM = 20 FT
   - SIDE YARD MINIMUM = 20 FT
   - BUILDING HEIGHT MAXIMUM = 35 FT
   - MAXIMUM BUILDING COVER/LOT= 30%
     - BUILDING COVER/LOT PROVIDED
       - TOTAL LOT AREA = ~140,651 SF (3.23 ACRES)
       - EXISTING BUILDING AREA = +/- 1,696 SF + 3,277 SF = +/- 4,973 SF
         - BUILDING COVER/LOT: (4,973 SF) / 140,651 SF = 3.5%
   - MAXIMUM BUILDING FOOTPRINT = 1,600 SF
   - MINIMUM OPEN SPACE/LOT = 50% OF LOT
     - TOTAL LOT AREA = ~140,651 SF (3.23 ACRES)
   - OPEN SPACE AREA = +/- 94,029 SF
     - OPEN SPACE/LOT: 94,029 SF / 140,651 SF = 66.9%
   - FRONT OPEN SPACE SETBACK = 30' MIN (50' AVG)
   - SIDE/REAR OPEN SPACE SETBACK = 20' MIN (30' AVG)
5. PARCELS ARE NOT IN A FLOOD HAZARD ZONE; REFERENCE FLOOD INSURANCE RATE MAP 33015C0245F, DATED JANUARY 24, 2021.
6. PROPERTY TO BE SERVICED BY ON-SITE WELL AND SEPTIC.
7. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
8. THIS PLAN WAS PREPARED WITH FIELDWORK CONDUCTED BY JAMES VERRA AND ASSOCIATES, INC. IN OCTOBER OF 2023.
9. WETLANDS WERE DELINEATED BY JOSEPH NOEL ON SEPTEMBER 20, 2023.

STATE OF NEW HAMPSHIRE
JOSEPH W. NOEL
No. 086
CERTIFIED WETLAND SCIENTIST
6/9/26

LEGEND

- IRON PIPE FOUND
- DRILL HOLE FOUND
- NH/GRANITE BOUND FOUND (TYP)
- TYPICAL
- PROPERTY LINE
- EDGE OF PAVEMENT (EOP)
- OVERHEAD UTILITIES
- UTILITY POLE
- GUY WIRE
- LIGHT FIXTURE
- SIGN
- AC UNIT
- DRAIN LINE
- SEPTIC LINE
- WATER LINE
- WATER SHUT OFF
- WELL
- FENCE
- RIPRAP
- STONE WALL
- WETLANDS
- TREE LINE
- TREE/SHRUB

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
7	JUN 5, 2026	FOR APPROVAL	
6	MAY 20, 2025	FOR APPROVAL	
1	MAY 22, 2024	FOR APPROVAL	

DRAWN: NCB	DESIGN: NCB
CHECKED: BDS	CHECKED: BDS

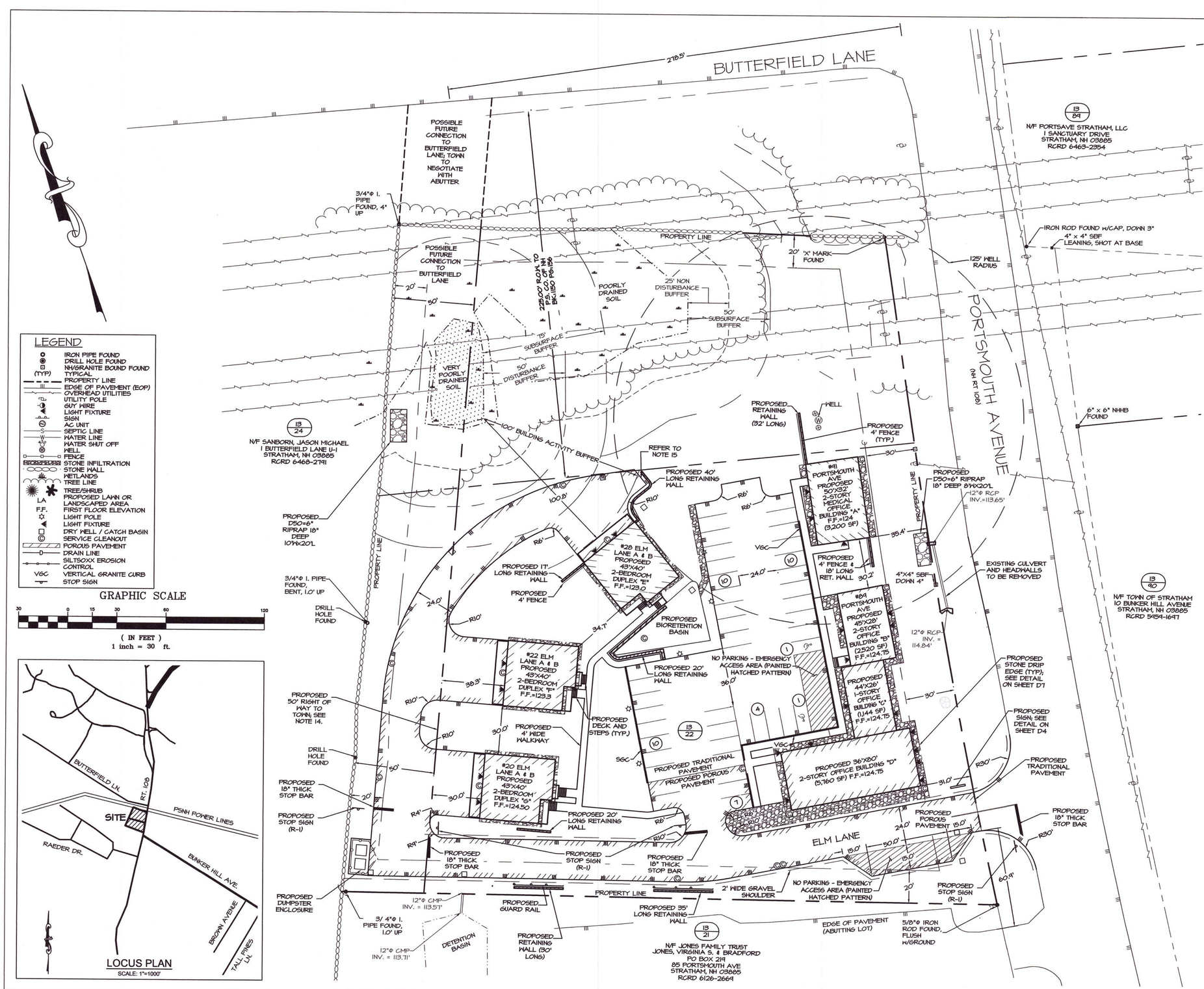
EEI
CIVIL & STRUCTURAL CONSULTANTS, LAND PLANNERS
100 GRIFFIN ROAD, UNIT C, PORTSMOUTH, NH 03801
603-772-4400 | EMANUELENGINEERING.COM ©2025

CLIENT:
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

SEAL:
STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 1054 RYAN M. FOWLER SIGNATURE
STATE OF NEW HAMPSHIRE BRUCE D. SCAMMAN No. 11236 LICENSED PROFESSIONAL ENGINEER
6/9/26

TITLE:
EXISTING CONDITIONS
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	1"=30'	C1



LEGEND

- IRON PIPE FOUND
- DRILL HOLE FOUND
- NH/GRANITE BOUND FOUND
- (TYP) TYPICAL
- PROPERTY LINE
- EDGE OF PAVEMENT (EOP)
- OVERHEAD UTILITIES
- UTILITY POLE
- GUY WIRE
- LIGHT FIXTURE
- SIGN
- AC UNIT
- SEPTIC LINE
- WATER LINE
- WATER SHUT OFF
- WELL
- FENCE
- STONE INFILTRATION
- STONE WALL
- WETLANDS
- TREE LINE
- TREE/SHRUB
- LA PROPOSED LAWN OR LANDSCAPED AREA
- F.F. FIRST FLOOR ELEVATION
- LIGHT POLE
- LIGHT FIXTURE
- DRY WELL / CATCH BASIN
- SERVICE CLEANOUT
- POROUS PAVEMENT
- DRAIN LINE
- SILTSOXX EROSION CONTROL
- VGC VERTICAL GRANITE CURB
- STOP SIGN

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

LOCUS PLAN
SCALE: 1"=1000'

NOTES:

1. OWNER OF RECORD:
   TAX MAP 13, LOT 22
   JOENES, LLC
   94 PORTSMOUTH AVENUE
   STRATHAM, NH 03885
   RCRD BK6580 PG1163
   RCRD BK6616 PG0044
   RCRD BK6620 PG2057 (LOT MERGER)
2. THE INTENT OF THIS PLAN IS TO SHOW A PROPOSED 2-STORY 36'X80' OFFICE BUILDING, 44'x26' 1-STORY OFFICE BUILDING, 45'X28' 2-STORY OFFICE BUILDING, 50'X32' 2-STORY OFFICE BUILDING, AND THREE 43'x40' 2-BEDROOM DUPLEXES ALONG WITH ASSOCIATED PARKING AND UTILITIES ON SITE.
3. PARCELS ARE ZONED PROFESSIONAL / RESIDENTIAL PER THE TOWN OF STRATHAM OFFICIAL ZONING MAP 2022.
   DIMENSIONAL REQUIREMENTS:
   - MINIMUM AREA= 1-ACRE
     - AREA PROVIDED = 3.23 ACRES
   - MINIMUM CONTIGUOUS FRONTAGE = 150 FT
     - FRONTAGE PROVIDED = 414.74 FT
   - LOT DEPTH MINIMUM = 150 FT
     - LOT DEPTH PROVIDED = ~291 FT
   - FRONT YARD MINIMUM = 30 FT
   - REAR YARD MINIMUM = 20 FT
   - SIDE YARD MINIMUM = 20 FT
   - BUILDING HEIGHT MAXIMUM = 35 FT
   - BUILDING HEIGHT PROVIDED = 34.75 FT
   - MAXIMUM BUILDING COVER/LOT= 30%
     - BUILDING COVER/LOT PROVIDED
       - TOTAL LOT AREA = ~140,651 SF (3.23 ACRES)
         - PROPOSED BUILDING AREA = 2,880 SF + 1,144 SF +1,260 SF + 1,600 SF + 3*1,720 SF = +/-12,044 SF
         - BUILDING COVER/LOT: (12,044 SF) / 140,651 SF = 8.6%
   - MAXIMUM BUILDING FOOTPRINT = 1,600 SF
   - MINIMUM OPEN SPACE/LOT = 50% OF LOT
     - TOTAL LOT AREA = ~140,651 SF (3.22 ACRES)
       - OPEN SPACE AREA = +/- 79,041 SF
       - OPEN SPACE/LOT: 91,424 SF / 140,651 SF = 65.0%
   - FRONT OPEN SPACE SETBACK = 30' MIN (50' AVG)
   - SIDE/REAR OPEN SPACE SETBACK = 20' MIN (80' AVG)
4. PARCELS ARE NOT IN A FLOOD HAZARD ZONE; REFERENCE FLOOD INSURANCE RATE MAP 33015C0245F, DATED JANUARY 29, 2021.
5. PROPERTY TO BE SERVICED BY ON-SITE WELL AND SEPTIC.
6. ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
7. THIS PLAN WAS PREPARED WITH FIELDWORK CONDUCTED BY JAMES VERRA AND ASSOCIATES, INC. IN OCTOBER OF 2023.
8. WETLANDS WERE DELINEATED BY JOSEPH NOEL ON SEPTEMBER 20, 2023.
9. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
10. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
11. PARKING REQUIREMENTS PER THE 2022 SITE PLAN REVIEW REGULATIONS FOR THE TOWN OF STRATHAM, NH AS AMENDED JULY 2022:
    - PARKING SPACE DIMENSIONS = 9'(W)x18'(L)
    - TRAVEL LANE WIDTH = 24 FEET

    REQUIRED:
    - FOR OTHER BUSINESS OR OFFICE USES NOT OTHERWISE LISTED IN THE REGULATIONS = 3 SPACES PER 1,000 SF OF GROSS FLOOR AREA
    - MEDICAL OFFICES = 4.5 SPACES PER 1,000 SF OF GROSS FLOOR AREA
    - 9,424 SF x (3 SPACE / 1,000 SF) + 3,200 SF x (4.5 SPACE / 1,000 SF)= 43 SPACES

    PROVIDED:
    - PROPOSED PARKING SPACES PROVIDED = 43 SPACES

NOTES (CONTINUED):

12. EDGE OF POROUS PAVEMENT SHALL BE INSTALLED PER "POROUS PAVEMENT EDGE DETAIL" ON SHEET D4 WHERE POROUS PAVEMENT MEETS SOIL. EDGE OF POROUS PAVEMENT SHALL BE INSTALLED PER "POROUS PAVEMENT TRANSITION TO TRADITIONAL PAVEMENT OR CONCRETE DETAIL" ON SHEET D4 WHERE POROUS PAVEMENT MEETS TRADITIONAL PAVEMENT.
13. PROPOSED AREA OF DISTURBANCE = 99,210 SF
14. THE CONVEYANCE OF THE PROPOSED 50' RIGHT OF WAY ALONG THE REAR OF THE PROPERTY LINE IS TO BE DETERMINED BY THE PLANNING BOARD. THE DRIVEWAY FOR BUILDING "E" WILL NEED TO BE RECONFIGURED TO ENTER THE FUTURE RIGHT OF WAY AT A RIGHT ANGLE.
15. POROUS PAVEMENT TO BE LINED WITH A 20 MIL PVC LINER WHEN WITHIN THE 125' WELL RADIUS. SEE DETAIL ON SHEET D7 FOR ADDITIONAL INFORMATION.

REFERENCE PLANS:

1. "REPLACEMENT SUBSURFACE DISPOSAL SYSTEM FOR RADIATION SAFETY & CONTROL SERVICES, INC, 91 PORTSMOUTH AVENUE, STRATHAM, NH 03885." BY EMANUEL ENGINEERING, INC.; DATED MAY 1, 2009; SCALE 1"=20'.
2. "COMMERCIAL SITE PLAN - EFFLUENT DISPOSAL SYSTEM DESIGN, 84 PORTSMOUTH AVENUE, STRATHAM, NH 03885." BY BEALS ASSOCIATES, PLLC; DATED AUGUST 25, 2004; SCALE 1"=20'.
3. "SITE PLAN FOR GSF LIMITED LIABILITY COMPANY, 91 PORTSMOUTH AVENUE, STRATHAM, NH 03885." BY EMANUEL ENGINEERING, INC.; DATED APRIL 2003; SCALE 1"=20', RCRD D-30767.
4. "EXISTING AND PROPOSED SITE PLAN IN STRATHAM NH FOR FARRELL, MARTIN, & PULITZER" BY WILLIAM G. COLLINS ASSOCIATES, DATED APRIL 1987, SCALE 1" = 40', RCRD D-16585.

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CLIENT:
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

SEAL:
STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
6/9/26

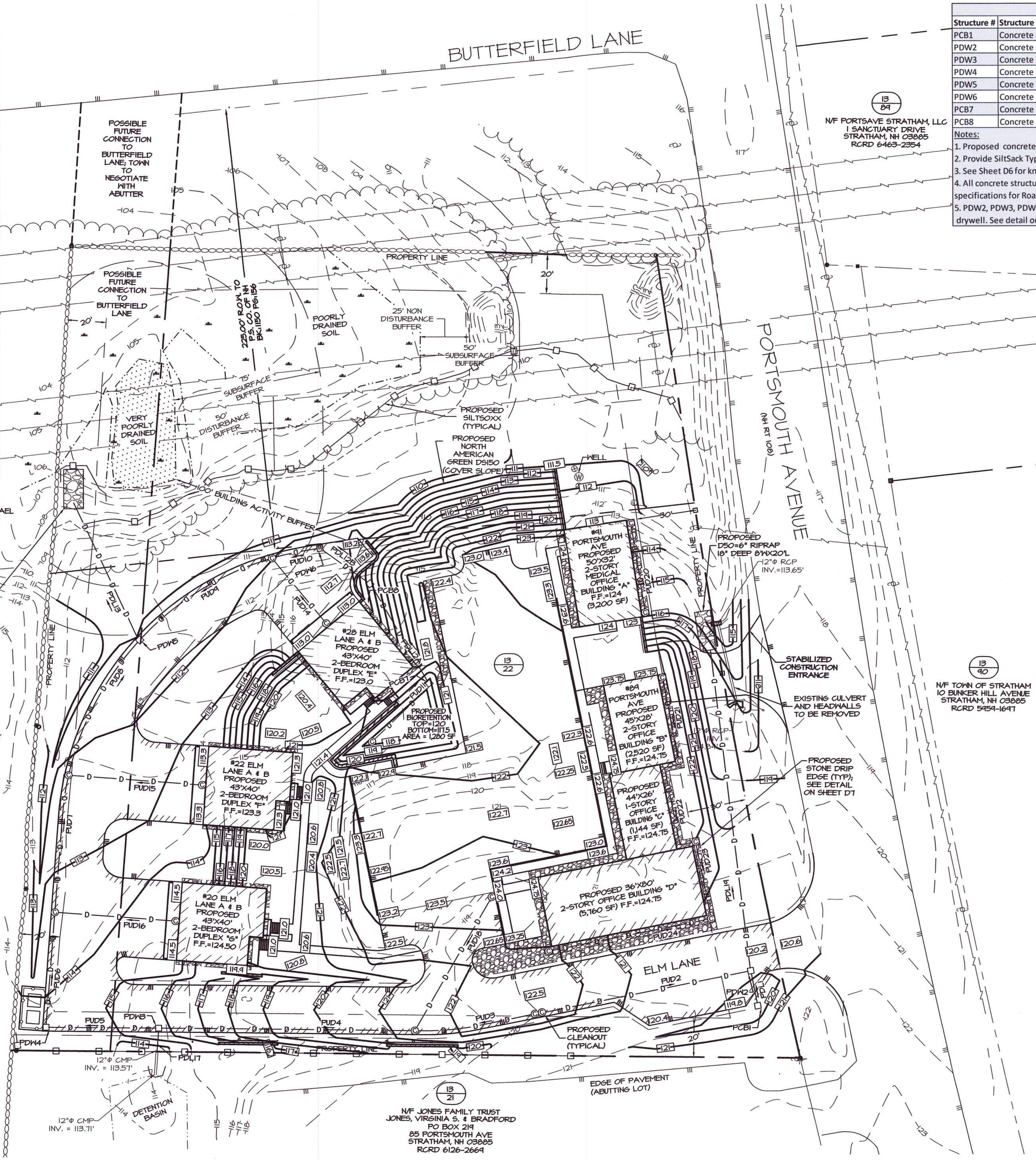
TITLE:
SITE PLAN
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

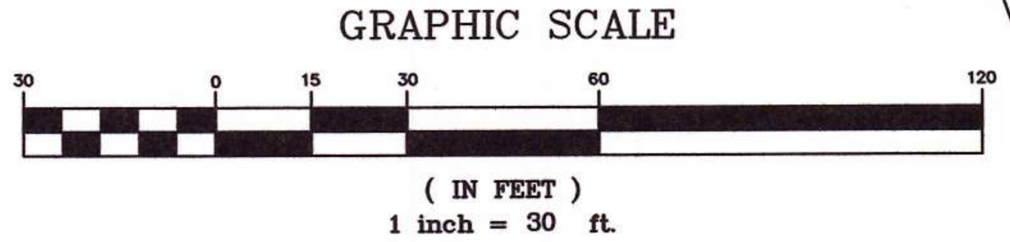
PROJECT:	SCALE:	SHEET:
23-1109	1"=30'	C2

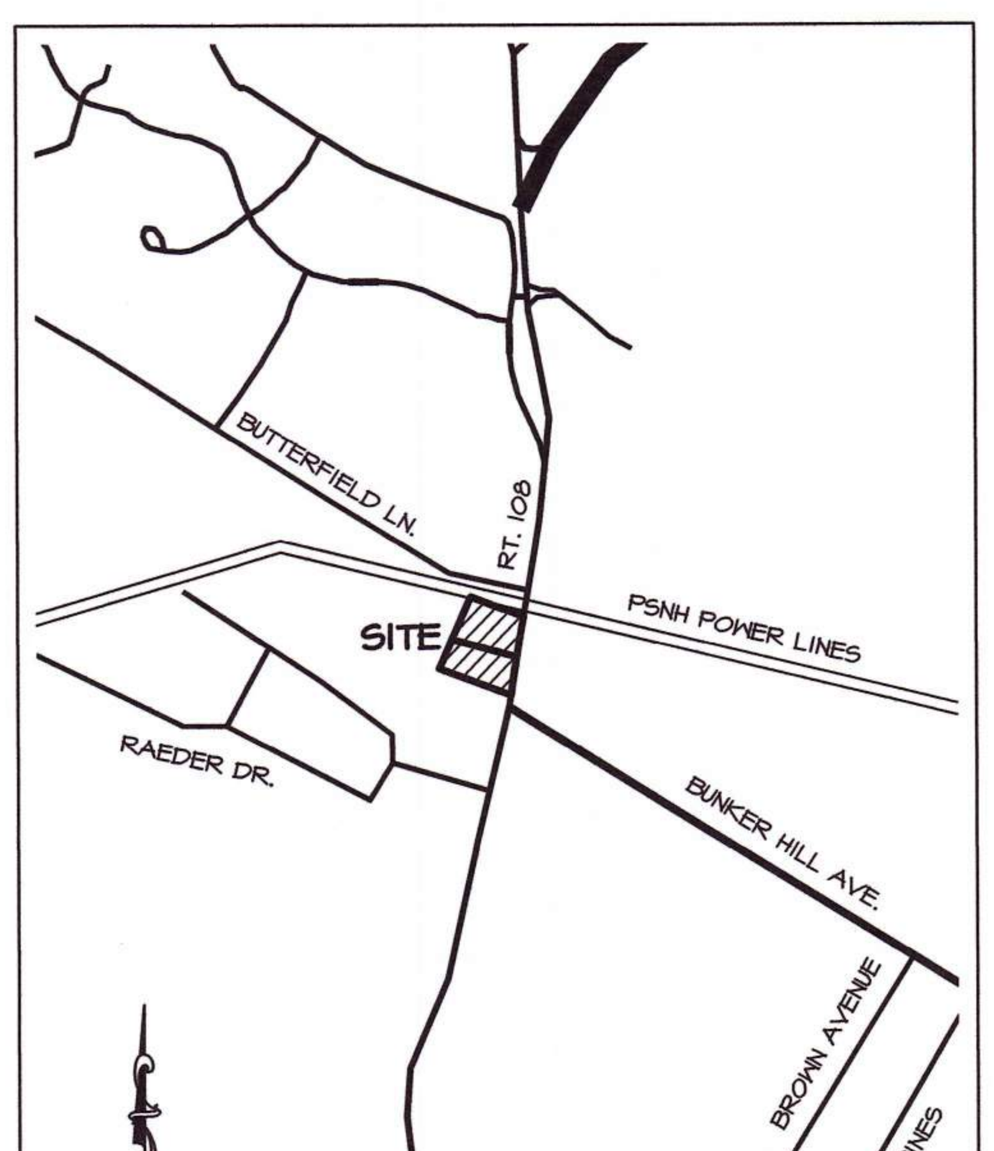
Drainage Pipe Listing							
Pipe #	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	Material	Diameter (inches)	Pipe Type
PDL1	117.10	116.95	15	0.010	HDPE	12	Solid
PUD2	119.05	116.95	105	0.020	SDR-35	6	Perforated
PUD3	119.05	118.05	65	0.015	SDR-35	6	Perforated
PUD4	118.05	112.50	125	0.044	SDR-35	6	Perforated
PUD5	112.50	111.05	55	0.026	SDR-35	6	Perforated
PUD6	111.05	110.10	55	0.017	SDR-35	6	Perforated
PUD7	110.10	108.90	70	0.017	SDR-35	6	Perforated
PUD8	108.90	107.75	75	0.015	SDR-35	6	Perforated
PUD9	108.70	107.75	75	0.013	SDR-35	6	Perforated
PUD10	109.05	108.70	20	0.017	SDR-35	6	Perforated
PUD11	114.58	114.58	40	0.000	SDR-35	6	Perforated
PDL12A	114.58	111.00	50	0.072	HDPE	12	Solid
PDL12B	109.50	109.05	35	0.013	HDPE	12	Solid
PDL13	107.75	107.50	75	0.003	HDPE	12	Solid
PUD14	109.75	108.70	45	0.023	SDR-35	4	Perforated
PUD15	109.75	108.90	60	0.014	SDR-35	4	Perforated
PUD16	111.25	110.10	60	0.019	SDR-35	4	Perforated
PDL17	113.57	112.50	10	0.107	CMP	12	Solid
PUD18	120.75	118.05	75	0.036	SDR-35	4	Perforated
PDL19	116.95	116.50	175	0.003	SDR-35	12	See Note 6
PUD20	114.33	111.33	45	0.067	SDR-35	4	Perforated
PUD21	122.10	122.10	40	0.000	SDR-35	4	Perforated
PUD22	122.10	120.33	55	0.032	SDR-35	4	Perforated
PUD23	120.33	119.00	35	0.067	SDR-35	4	Perforated
PUD24	121.30	119.00	80	0.067	SDR-35	4	Perforated

Notes:

1. See bioretention detail on Sheet D6 for additional information.
2. Pipes PDL13, PDL17, and PDL19 to have animal guard grates where they daylight (see Sheet D6).
3. Pipes PDL13, PDL17, and PDL19 to have flared entrance/exit where they daylight (see Sheet D6).
4. Cleanouts to be provided at ends of pipe or changes in direction, unless drainage structures are already provided. See detail on Sheet D4.
5. Perforated pipes shall have two rows of holes ½" in diameter, 5 inches on center, and spaced 120° apart. Perforations shall be mirrored about the y-axis, and both shall be located on the bottom half of the pipe.
6. Pipe PDL19 to be perforated within porous pavement area, and remain solid in all other sections.







LOCUS PLAN
SCALE: 1"=1000'

Drainage Structure Chart							
Structure #	Structure	Size	Lid/Rim	Rim Elevation	Sump	Inlet	Inlet Elevation
PCB1	Concrete Catch Basin	4' Diameter	NEENAH #R-3570	119.30	3'	Lid/Rim	Same as Rim
PDW2	Concrete Drywell	4' Diameter	NEENAH #R-3570	120.20	3'	Lid/Rim	Same as Rim
PDW3	Concrete Drywell	4' Diameter	NEENAH #R-3570	115.75	3'	Lid/Rim	Same as Rim
PDW4	Concrete Drywell	4' Diameter	NEENAH #R-3570	114.30	3'	Lid/Rim	Same as Rim
PDW5	Concrete Drywell	4' Diameter	NEENAH #R-3570	111.00	3'	Lid/Rim	Same as Rim
PDW6	Concrete Drywell	4' Diameter	NEENAH #R-3570	112.30	3'	Lid/Rim	Same as Rim
PCB7	Concrete Catch Basin	4' Diameter	Concrete Cover	120.60	3'	(4) 4"x12" Knockouts	119.25
PCB8	Concrete Drywell	4' Diameter	Solid & Sealed	114.00	3'	Lid/Rim	Same as Rim

Notes:

1. Proposed concrete catch basins and drywells to be by Shea Concrete or equal.
2. Provide SiltSack Type C within PCB1, PDW2, PDW3, PDW4, PDW5, and PDW6 during construction. See Detail on Sheet D5.
3. See Sheet D6 for knockout details.
4. All concrete structures must be installed in accordance with New Hampshire Department of Transportation Standards and specifications for Road and Bridge Construction.
5. PDW2, PDW3, PDW4, PDW5 & PDW6 to be underlain by Mirafi 140N geotextile fabric extended 10' out in all directions from edge of drywell. See detail on Sheet D6.

NOTES:

1. OWNER OF RECORD:
   TAX MAP 13, LOT 22
   JOEWES, LLC
   94 PORTSMOUTH AVENUE
   STRATHAM, NH 03885
   RCRD BK6580 PG1163
   RCRD BK6616 PG0044
   RCRD BK6620 PG2057 (LOT MERGER)
2. THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED GRADING AND DRAINAGE ON SITE ASSOCIATED WITH THE PROPOSED SITE IMPROVEMENTS.
3. PARCELS ARE ZONED PROFESSIONAL / RESIDENTIAL PER THE TOWN OF STRATHAM OFFICIAL ZONING MAP 2022.
4. PARCELS ARE NOT IN A FLOOD HAZARD ZONE; REFERENCE FLOOD INSURANCE RATE MAP 33015C0245F, DATED JANUARY 29, 2021.
5. PROPERTY TO BE SERVICED BY ON-SITE WELL AND SEPTIC.
6. ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
7. THIS PLAN WAS PREPARED WITH FIELDWORK CONDUCTED BY JAMES VERRA AND ASSOCIATES, INC. IN OCTOBER OF 2023.
8. WETLANDS WERE DELINEATED BY JOSEPH NOEL ON SEPTEMBER 20, 2023.
9. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
10. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.

REFERENCE PLANS:

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STATE OF NEW HAMPSHIRE
JOSEPH W. NOËL
No. 086
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LEGEND

○	IRON PIPE FOUND
◉	DRILL HOLE FOUND
⊡	NH/GRANITE BOUND FOUND
(TYP)	TYPICAL
	PROPERTY LINE
	EDGE OF PAVEMENT (EOP)
	OVERHEAD UTILITIES
	UTILITY POLE
	GUY WIRE
	LIGHT FIXTURE
	SIGN
	AC UNIT
—S—	SEPTIC LINE
—W—	WATER LINE
	WATER SHUT OFF
	WELL
	FENCE
	STONE INFILTRATION
	STONE WALL
	WETLANDS
	TREE LINE
	TREE/SHRUB
LA	PROPOSED LAWN OR LANDSCAPED AREA
F.F.	FIRST FLOOR ELEVATION
	LIGHT POLE
	LIGHT FIXTURE
	DRY WELL / CATCH BASIN
	SERVICE CLEANOUT
	POROUS PAVEMENT
—D—	DRAIN LINE
	SILTSOXX EROSION CONTROL
VGC	VERTICAL GRANITE CURB
	STOP SIGN

SEAL:

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED
PROFESSIONAL ENGINEER
6/9/26

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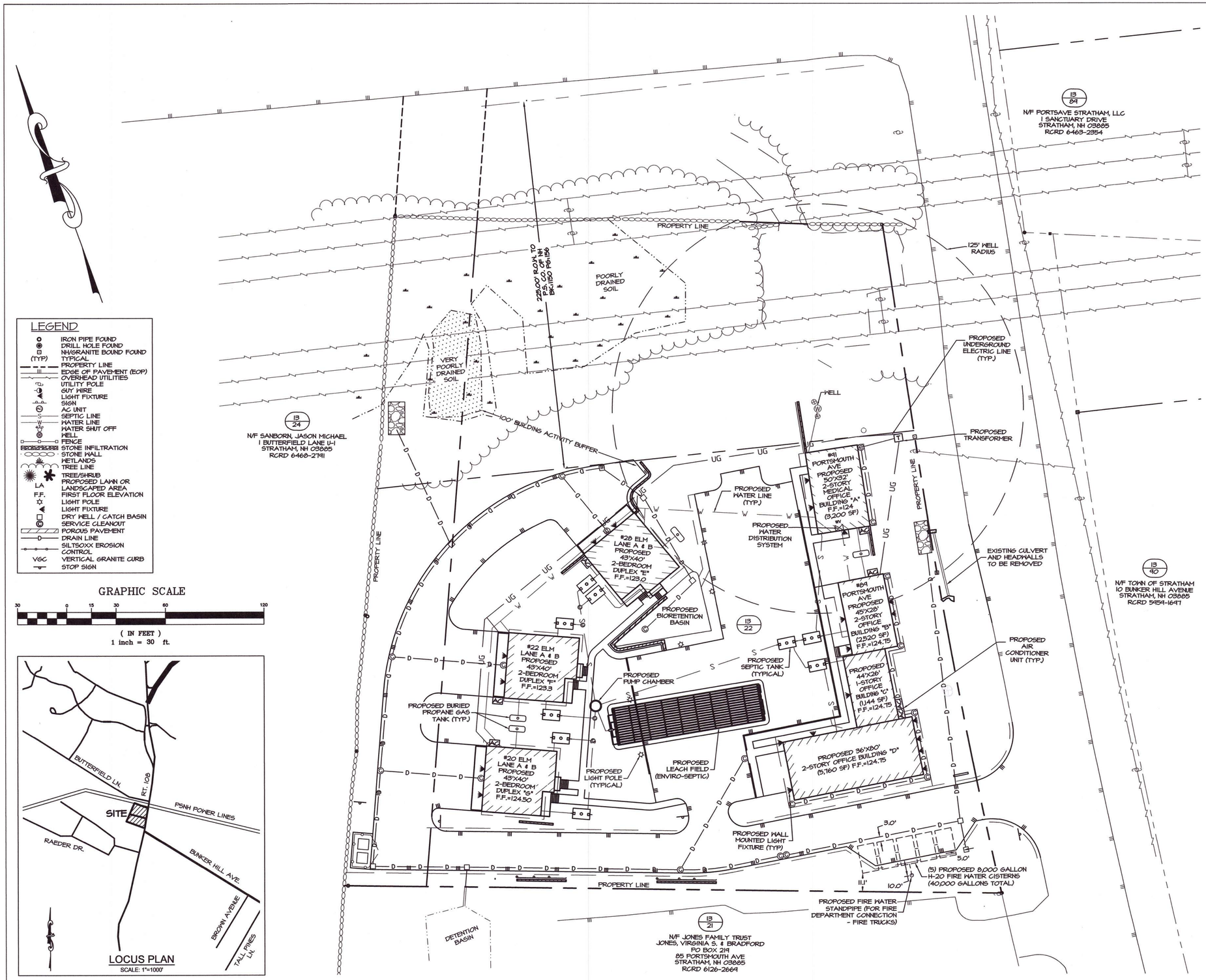
CLIENT:
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

TITLE:
GRADING & DRAINAGE PLAN FOR COPLEY PROPERTIES, LLC 89 & 91 PORTSMOUTH AVE (SITE) STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	1"=30'	C3



NOTES:

1. OWNER OF RECORD:
   TAX MAP 13, LOT 22
   JOEMES, LLC
   94 PORTSMOUTH AVENUE
   STRATHAM, NH 03885
   RCRD BK6580 P61163
   RCRD BK6616 P60044
   RCRD BK6620 P62057 (LOT MERGER)
2. THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED UTILITIES ON SITE ASSOCIATED WITH THE PROPOSED SITE IMPROVEMENTS.
3. PARCELS ARE ZONED PROFESSIONAL / RESIDENTIAL PER THE TOWN OF STRATHAM OFFICIAL ZONING MAP 2022.
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10. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
11. ALL PROPOSED OUTDOOR LIGHTING SHALL BE FULL CUTOFF, DOWN LIT, FULLY SHIELDED, AND MOTION DETECTION. LIGHTING TO BE APPROVED BY AN ELECTRICAL ENGINEER. SEE LIGHTING PLAN BY HOLBROOK ASSOCIATED FOR ADDITIONAL INFORMATION.
12. COORDINATION WITH UNITIL SHALL TAKE PLACE BEFORE INSTALLATION OF UTILITIES.
13. REFER TO SEPTIC PLAN SHEETS BY EMANUEL ENGINEERING, INC. FOR PROPOSED SEPTIC DESIGN INFORMATION.
14. PROPOSED BUILDINGS "A", "B", "C", AND "D" ARE TO BE PROVIDED WITH FIRE PROTECTION SPRINKLER SYSTEMS. THE DESIGN, INSTALLATION, AND CONNECTION OF THESE SPRINKLER SYSTEMS SHALL BE COORDINATED WITH THE SITE UTILITIES PLAN, INCLUDING ADEQUATE WATER SERVICE SIZING, BACKFLOW PREVENTION, AND FIRE DEPARTMENT CONNECTION LOCATIONS, IN ACCORDANCE WITH LOCAL FIRE CODE REQUIREMENTS.

REFERENCE PLANS:

1. "REPLACEMENT SUBSURFACE DISPOSAL SYSTEM FOR RADIATION SAFETY & CONTROL SERVICES, INC, 91 PORTSMOUTH AVENUE, STRATHAM, NH 03885." BY EMANUEL ENGINEERING, INC.; DATED MAY 1, 2009; SCALE 1"=20'.
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STRATHAM, NH 03885

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STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED
PROFESSIONAL ENGINEER
6/9/26

TITLE:
UTILITIES PLAN
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	1"=30'	C4

EROSION AND SEDIMENTATION CONTROL - CONSTRUCTION PHASING AND SEQUENCING:

1. SEE "EROSION AND SEDIMENTATION CONTROL GENERAL NOTES" WHICH ARE TO BE AN INTEGRAL PART OF THIS PROCESS.
2. INSTALL SILT FENCING AND/OR HAY BALE BARRIERS AS PER DETAILS AND AT SEDIMENT MIGRATION.
3. CONSTRUCT TREATMENT SWALES , LEVEL SPREADERS AND DETENTION STRUCTURES AS DEPICTED ON DRAWINGS.
4. INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE(S) AS PER DETAIL AND AT LOCATIONS SHOWN ON THE DRAWINGS. MAINTAIN (TOP DRESS) REGULARLY TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS.
5. STRIP AND STOCKPILE TOPSOIL. STABILIZE PILES OF SOIL CONSTRUCTION MATERIAL.
6. ROUGH GRADE SITE. INSTALL CULVERTS AND ROAD DITCHES.
7. FINISH GRADE AND COMPACT SITE.
8. RE-SPREAD AND ADD TOPSOIL TO ALL ROADSIDE SLOPES. TOTAL TOPSOIL THICKNESS TO BE A MINIMUM OF FOUR TO SIX INCHES.
9. STABILIZE ALL AREAS OF BARE SOIL WITH MULCH AND SEEDING.
10. RE-SEED PER EROSION AND SEDIMENTATION CONTROL GENERAL NOTES.
11. SILT FENCING AND HAY BALES TO REMAIN AND BE MAINTAINED FOR TWENTY FOUR MONTHS AFTER CONSTRUCTION TO INSURE ESTABLISHMENT OF ADEQUATE SOIL STABILIZATION AND VEGETATIVE COVER. ALL SILT FENCING, HAY BALES AND TRAPPED SILT ARE THEN TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.
12. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
13. PONDS AND SWALES SHALL BE INSTALLED EARLY ON IN THE CONSTRUCTION SEQUENCE - BEFORE ROUGH GRADING THE SITE.
14. ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
15. ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
16. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
17. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
18. BUOYANCY CALCULATIONS HAVE NOT BEEN PERFORMED. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANCHORAGE FOR ALL TANKS WHERE REQUIRED.

WINTER CONSTRUCTION NOTES (OCTOBER 15 TO MAY 1):

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, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPETED IN ADVANCE OF THAW OR SPRING MELT EVENT.
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 OCTOBER 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.

ROCK INFILTRATION AREA MAINTENANCE:

THE ROCK INFILTRATION AREA SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE ROCK HAS BEEN DISPLACED, UNDERMINED, OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW ANY OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS; FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAIL WATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

EROSION AND SEDIMENTATION CONTROL - GENERAL NOTES:

1. CONDUCT ALL CONSTRUCTION IN A MANNER AND SEQUENCE THAT CAUSES THE LEAST PRACTICAL DISTURBANCE OF THE PHYSICAL ENVIRONMENT, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. SEE ENV-WQ 1505.03.
2. ALL EROSION AND SEDIMENTATION CONTROL MEASURES IN THE PLAN SHALL MEET THE DESIGN BASED ON NEW HAMPSHIRE STORMWATER MANUAL, VOLUMES 1-3: DATED DECEMBER 2008, PREPARED BY NHDES.
3. 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% VEGETATED GROWTH HAS BEEN ESTABLISHED.
    - A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED.
    - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
5. SEE WINTER CONSTRUCTION NOTES IF SCHEDULE AND DATES ARE APPLICABLE.
6. ALL DITCHES, SWALES AND PONDS MUST BE STABILIZED PRIOR TO DIRECTING FLOW TO THEM.
7. ALL GROUND AREAS OPENED UP FOR CONSTRUCTION WILL BE STABILIZED IN THE SHORTEST PRACTICAL TIME. ALL SOILS FINISH GRADED MUST BE STABILIZED WITHIN SEVENTY TWO HOURS OF DISTURBANCE.
8. EMPLOY TEMPORARY EROSION AND SEDIMENTATION CONTROL DEVICES AS DETAILED ON THIS PLAN AS NECESSARY UNTIL ADEQUATE STABILIZATION HAS BEEN ASSURED.
9. TEMPORARY & LONG TERM SEEDING: USE SEED MIXTURES, FERTILIZER, LIME AND MULCHING AS RECOMMENDED (SEE SEEDING AND STABILIZATION NOTES).
10. STRAW OR HAY BALE BARRIERS AND SILTATION FENCING TO BE SECURELY EMBEDDED AND STAKED AS DETAILED. WHEREVER POSSIBLE A VEGETATED STRIP OF AT LEAST TWENTY FIVE FEET IS TO BE KEPT BETWEEN SILT FENCE AND ANY EDGE OF WET AREA.
11. SEEDED AREAS WILL BE FERTILIZED AND RE-SEEDED AS NECESSARY TO ENSURE VEGETATIVE ESTABLISHMENT.
12. SEDIMENT BASIN(S), IF REQUIRED, TO BE CHECKED AFTER EACH SIGNIFICANT RAINFALL AND CLEANED AS NEEDED TO RETAIN DESIGN CAPACITY.
13. STRAW BALE AND/OR SILT FENCE BARRIERS WILL BE CHECKED REGULARLY AND AFTER EACH SIGNIFICANT RAINFALL. NECESSARY REPAIRS WILL BE MADE TO CORRECT UNDERMINING OR DETERIORATION OF THE BARRIER AS WELL AS CLEANING, REMOVAL AND PROPER DISPOSAL OF TRAPPED SEDIMENT.
14. TREATMENT SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATIVE COVER HAS BEEN ESTABLISHED.
15. 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.
16. TEMPORARY WATER DIVERSION (SWALES, BASINS, ETC.) MUST BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED.

SEEDING AND STABILIZATION FOR LOAMED SITE:

1. FOR TEMPORARY & LONG TERM SEEDINGS (BY SEPTEMBER 15 OF THE SAME YEAR OF DISTURBANCE) USE AGWAY'S SOIL CONSERVATION GRASS SEED OR EQUAL.
2. COMPONENTS: ANNUAL RYE GRASS, PERENNIAL RYE GRASS, WHITE CLOVER, 2 FESCUES, SEED AT A RATE OF 100 POUNDS PER ACRE.
3. FERTILIZER & LIME:
    NITROGEN (N) 50 LBS/ACRE, PHOSPHATE (P205) 100 LBS/ACRE, POTASH (K20) 100 LBS/ACRE, LIME 2000 LBS/ACRE.
4. MULCH: HAY OR STRAW 1.5-2 TONS/ACRE.
5. GRADING AND SHAPING:
    SLOPES SHALL NOT BE STEEPER THAN 2:1; 3:1 SLOPES OR FLATTER ARE PREFERRED. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
6. SEED BED PREPARATION
    - SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
    - STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

STABILIZATION CONSTRUCTION ENTRANCE SPECIFICATIONS:

1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE (MINIMUM), RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 75 FEET (OR 50 FEET WITH A 3 TO 6 INCH MOUNTABLE BERM).
3. THE THICKNESS OF THE STONE FOR THE STABILIZATION ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARDS THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED PROMPTLY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

FILTREXX LAND IMPROVEMENT SYSTEMS INSPECTION & MAINTENANCE:

1. CONSULT FILTREXX SWPP CUT SHEETS FOR ALL FILTREXX PRODUCTS PRIOR TO INSTALLATION AND FOR MAINTENANCE GUIDELINES. HTTP://WWW.FILTREXX.COM/DESIGN_CUT_SHEETS.HTM
2. ROUTINE INSPECTION SHOULD BE CONDUCTED WITHIN 24 HRS OF A RUNOFF EVENT OR AS DESIGNATED BY THE REGULATING AUTHORITY. UNITS SHOULD BE REGULARLY INSPECTED TO MAKE SURE THEY MAINTAIN THEIR SHAPE AND ARE PRODUCING ADEQUATE HYDRAULIC FLOW-THROUGH, DITCH/CHANNEL EROSION CONTROL, AND SEDIMENT REMOVAL.
3. IF PONDING BECOMES EXCESSIVE, ADDITIONAL CHECK DAMS, LEVEL SPREADERS, OR SEDIMENT CONTROL UNITS FOR SEDIMENT REMOVAL MAY BE REQUIRED.
4. SEDIMENT ACCUMULATION SHOULD BE REMOVED ONCE IT REACHES THE HEIGHT OF THE CHECK DAM OR UNIT. ALTERNATIVELY, ANOTHER UNIT MAY BE INSTALLED SLIGHTLY UPSLOPE, ON TOP OF THE EXISTING ONE. THIS PROCESS IS NOT CONSIDERED A SOIL DISTURBING ACTIVITY.
5. STORM DEBRIS ACCUMULATION BEHIND CHECK DAMS, LEVEL SPREADER, SEDIMENT CONTROL UNIT, ETC. SHOULD NEVER BE HIGHER THAN THE SIDES OF THE CHECK DAM/UNIT. STORM RUNOFF OVERFLOW SHALL MAINTAIN THE UNITS IN A FUNCTIONAL CONDITION AT ALL TIMES AND IT SHALL BE ROUTINELY INSPECTED.
6. IF A UNIT HAS BEEN DAMAGED, IT SHALL BE REPAIRED, OR REPLACED IF BEYOND REPAIR.
7. THE CONTRACTOR SHALL REMOVE SEDIMENT AT THE BASE OF THE UPSLOPE SIDE OF UNITS WHEN ACCUMULATION HAS REACHED 1/2 OF THE EFFECTIVE HEIGHT OF THE SOXX, OR AS DIRECTED BY THE ENGINEER.
8. AS AN ALTERNATIVE, ANOTHER SOXX UNIT MAY BE INSTALLED ADJACENT AND PARALLEL TO THE UPSLOPE SIDE OF THE ORIGINAL TO INCREASE SEDIMENT STORAGE CAPACITY. SOXX SEDIMENT BACKUP IN CENTER OF THE DITCH/CHANNEL SHALL REMAIN LOWER THAN THE SIDES.
9. IF SOXX UNIT BECOMES CLOGGED WITH DEBRIS AND SEDIMENT, IMMEDIATE REMOVAL OF DEBRIS AND SEDIMENT SHOULD BE CONDUCTED TO ASSURE PROPER DRAINAGE AND WATER FLOW THROUGH THE DITCH OR CHANNEL. STORM RUNOFF OVERFLOW OF THE SOXX UNIT IS ACCEPTABLE.
10. SOXX UNITS SHALL BE MAINTAINED UNTIL DISTURBED AREA AROUND THE DEVICE HAS BEEN PERMANENTLY STABILIZED AND CONSTRUCTION ACTIVITY HAS CEASED.
11. THE FILTERMEDIATM MAY BE DISPERSED ON SITE ONCE DISTURBED AREA HAS PERMANENTLY STABILIZED, CONSTRUCTION ACTIVITY CEASED, OR DETERMINED BY THE ENGINEER.
12. PERMANENT VEGETATED FILTER STRIPS WILL BE LEFT INTACT.

SECTION I- GENERAL (POROUS ASPHALT PAVEMENTS)

1.01 SUBMITTALS

- A. THE CONTRACTOR SHALL SUBMIT TO THE SUPERVISORY ENGINEER THE PROPOSED SOURCE AND QUALIFICATIONS OF THE PROPOSED SOURCE(S) OF THE HOT MIX ASPHALT AT LEAST 14 DAYS IN ADVANCE OF ANTICIPATED PAVING DATE.
- B. THE CONTRACTOR SHALL SUBMIT TO THE SUPERVISORY ENGINEER THE PROPOSED INSTALLER QUALIFICATIONS AT LEAST 14 DAYS IN ADVANCE OF ANTICIPATED PAVING DATE.
- C. THE CONTRACTOR SHALL SUBMIT TO THE SUPERVISORY ENGINEER THE CONTRACTOR'S PROPOSED CONSTRUCTION PHASING PLAN AT LEAST 14 DAYS IN ADVANCE OF MOBILIZING TO THE SITE FOR CONSTRUCTION. UPDATES TO THE CONSTRUCTION PHASING PLAN SHALL BE PROVIDED TO THE SUPERVISORY ENGINEER AT LEAST 48 HOURS IN ADVANCE OF THE PROPOSED. THE CONSTRUCTION PHASING PLAN SHALL CONTAIN THE ELEMENTS AS DETAILED WITHIN THIS SECTION AND DRAWINGS.
- D. THE CONTRACTOR SHALL SUBMIT TO THE SUPERVISORY ENGINEER THE PROPOSED THIRD PARTY QUALITY CONTROL FIRM TO CONDUCT THIRD PARTY QUALITY CONTROL OF THE ASPHALT HOT MIX PLANT PRODUCTION AT LEAST 14 DAYS IN ADVANCE OF ANTICIPATED PAVING DATE.
- E. THE CONTRACTOR SHALL SUBMIT TO THE SUPERVISORY ENGINEER THE QUALITY CONTROL RESULTS AND JOB MIX FORMULA FOR THE POROUS ASPHALT MATERIAL AT LEAST 14 DAYS IN ADVANCE OF THE ANTICIPATED PAVING DATE.

1.02 QUALIFICATIONS

- A. THE POROUS ASPHALT SHALL BE SUPPLIED FROM A HOT MIX MATERIAL PROVIDER THAT HAS THE FOLLOWING MINIMUM QUALIFICATIONS:
    1. SHALL HAVE SUCCESSFULLY PRODUCED A MINIMUM OF THREE (3) POROUS ASPHALT PAVING JOBS IN THE PAST FIVE (5) YEARS.
    2. CAPABLE OF PRODUCING POROUS ASPHALT WITH A PG76-28 BINDER; UNDER NO CIRCUMSTANCES IS A PGAB 64-28 ACCEPTABLE IN REPLACE OF PG 76-28.
    3. CAPABLE OF CONDUCTING THE MATERIALS TESTING FOR QUALITY CONTROL AS DOCUMENTED IN SECTION IV PART 4, TABLE 3, TABLE 4, TABLE 5;
    4. CAPABLE OF PROVIDING MATERIAL CERTIFICATES SIGNED BY THE PLANTS' AUTHORIZED REPRESENTATIVE; AND
    5. CAPABLE OF PROVIDING THE MOST RECENT ANNUAL PLANT SCALE TESTING DOCUMENTATION.
- B. THE POROUS ASPHALT INSTALLER SHALL HAVE THE FOLLOWING MINIMUM QUALIFICATIONS:
    1. SHALL HAVE SUCCESSFULLY COMPLETED A MINIMUM OF THREE (3) POROUS ASPHALT PAVING JOBS IN THE PAST FIVE (5) YEARS.
    2. PROVIDE A SITE SUPERINTENDENT THAT WILL BE ON-SITE DURING THE PROJECT THAT HAS SUCCESSFULLY COMPLETED A MINIMUM OF THREE (3) POROUS ASPHALT PAVING JOBS IN THE PAST FIVE (5) YEARS.

1.03 TRANSPORTATION AND SHIPPING

- A. POROUS ASPHALT MATERIALS SHALL BE TRANSPORTED TO THE SITE SUCH THAT THE TEMPERATURE OF THE ASPHALT AT THE TIME OF DISCHARGE FROM THE HAUL VEHICLE SHALL BE AS PER SECTION IV - 3.05 E TEMPERATURE REQUIREMENTS, UNLESS OTHERWISE SPECIFIED BY THE HOT MIX PLANT AND APPROVED BY THE SUPERVISORY ENGINEER.

1.04 ENVIRONMENTAL CONDITIONS

- A. THE ASPHALT PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY EROSION AND SEDIMENT CONTROLS THAT ARE DAMAGED FROM PAVING ACTIVITIES.
- B. WASTE GENERATED DURING ASPHALT PAVING SHALL BE PROPERLY DISPOSED OF ACCORDING TO THE PROJECT SPECIFICATIONS AND LOCAL, STATE, AND FEDERAL REGULATIONS.
- C. ASPHALT HAUL TRUCKS SHALL EXIT THE SITE THROUGH THE DESIGNATED STABILIZED CONSTRUCTION ENTRANCE TO PREVENT TRACK OUT.

1.05 SCHEDULE FOR CONSTRUCTION DATES

- A. AFTER MAY 15 OR THE DATE OF ASPHALT PLANT OPENING UNTIL DECEMBER 1 OR THE DATE OF ASPHALT PLANT CLOSURE OR PER APPROVAL OF SUPERVISING ENGINEER.

1.06 REQUIREMENTS FOR CONSTRUCTION PHASING

- A. CONSTRUCTION PHASING, SEQUENCING AND ENGINEERING OVERSIGHT IS REQUIRED TO ENSURE THE SUCCESSFUL PRODUCTION, INSTALLATION, AND LONG-TERM PERFORMANCE OF POROUS PAVEMENT SYSTEMS. PROPER COORDINATION OF THESE PROCEDURES WITH THE CONTRACTOR AND INSPECTION OF THE PAVEMENT SUBGRADE DURING CONSTRUCTION IS CRITICAL TO PROVIDE ACCESS AND PREVENT DAMAGE TO POROUS PAVEMENT SYSTEM COMPONENTS. TEMPORARY CONSTRUCTION METHODS AND PHASING CONSIDERATIONS ACCOUNT FOR THE NECESSARY USE OF LARGE CONSTRUCTION EQUIPMENT OVER THE POROUS PAVEMENT LAYERS WHILE MAINTAINING ITS STRUCTURAL INTEGRITY AND INFILTRATIVE CAPACITY. THE CONTRACTOR'S CONSTRUCTION PHASING SEQUENCE PLAN SHALL INCLUDE PROTECTIVE AND CORRECTIVE ACTIONS DETAILED BELOW FOR EXPECTED IMPACTS FROM CONSTRUCTION ACTIVITIES.
- B. THE FOLLOWING CONSTRUCTION PHASING IS INTENDED AS A GUIDE. PHASING MUST BE PLANNED SUCH THAT NO CONSTRUCTION TRAFFIC IS PERMITTED ON A COMPLETED POROUS ASPHALT WEARING COURSE SURFACE AREA. CONSTRUCTION TRAFFIC IS PERMITTED ON THE TEMPORARY CONSTRUCTION ROAD, SUBGRADE AND ON THE SUBBASE DURING PREPARATION. THE USE OF A TEMPORARY POROUS ASPHALT CONSTRUCTION ROAD SHOULD ENABLE CONSTRUCTION TRAFFIC TO PROCEED WITH PHASED COMPLETION AND CLOSURE OF AREAS. INFILTRATION BEDS WILL NEED TO BE PROTECTED FROM EROSION AND SEDIMENTATION RUN-ON. IT IS RECOMMENDED THAT AREAS ARE COMPLETED INCREMENTALLY UNTIL PAVING IS COMPLETED. THE PHASING PLAN WILL BE ADAPTED BASED ON FEEDBACK WITH THE CLIENT, THE SUPERVISORY ENGINEER, AND THE CONTRACTOR.
- C. THE CONTRACTOR SHALL INCLUDE THE ELEMENTS OF THIS PHASING IN THE CONTRACTOR'S CONSTRUCTION PHASING PLAN.
    1. CONTRACTOR SUBMITTALS AND APPROVALS
    2. HOST A PRE-CONSTRUCTION MEETING AT THE SITE
    3. EROSION AND SEDIMENTATION CONTROL BMPS ESTABLISHED INCLUDING SEDIMENTATION POND AT DOWNHILL END OF SITE. POROUS PAVEMENT RESERVOIRS MAY BE USED FOR TEMPORARY SEDIMENTATION PONDS. ACCUMULATED FINES SHALL BE REMOVED PRIOR TO PLACEMENT OF AGGREGATE AND APPROVED BY THE SUPERVISING ENGINEER.
    4. ROUGH GRADE SITE (CUT/FILL)
    5. FINE GRADE SUBGRADE
    6. PERFORM TOPOGRAPHICAL SURVEY OF SUBGRADE
    7. SUPERVISORY ENGINEER TO INSPECT SUBGRADE AND PERFORM INFILTRATION TESTS TO VERIFY SUITABILITY OF SUBGRADE FROM COMPACTION DURING CONSTRUCTION OR WHERE EROSION HAS CAUSED ACCUMULATION OF FINE MATERIALS. REWORK MATERIALS THAT DO NOT MEET INFILTRATION REQUIREMENTS PER THE DRAWINGS AND SPECIFICATIONS. THESE MATERIALS SHALL BE REMOVED AND/OR SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES, AND RETESTED FOR COMPACTION AND INFILTRATION AS PER SPECIFICATIONS.
    8. INSTALL GEOTEXTILE VERTICAL BARRIERS PLACED ALONG PERIMETER OF POROUS PAVEMENT PARKING AREA PER THE DRAWINGS.
    9. INSTALL CAPILLARY BARRIER AND GEOTEXTILE INTERNAL GRADE CONTROLS
    10. PLACE UTILITIES LINES OVER THE GRADED CAPILLARY BARRIER LAYER
    11. PLACE AND COMPACT FILTER COURSE PER THIS SECTION
    12. SUPERVISORY ENGINEER TO INSPECT FILTER COURSE AND PERFORM INFILTRATION TESTS TO VERIFY SUITABILITY OF COMPACTION AND INFILTRATION PER THIS SECTION.
    13. PLACE AND GRADE CHOKER COARSE
    14. PLACE AND COMPACT POROUS ASPHALT BINDER COURSE.

1.07 PLACEMENT OF TEMPORARY ROAD OF POROUS ASPHALT BINDER COURSE (OPTIONAL)

- A. INSTALL AT THICKNESS INDICATED ON DRAWINGS (IN PLACE) LAYER OF BINDER COURSE PER THIS SECTION.
- B. INSTALL FRAME, GRATES, AND LANDSCAPING. SPECIAL CARE IS TO BE TAKEN TO PROTECT FRESH BINDER COURSE.
- C. ALL TRUCKS (INCLUDING CONCRETE TRUCKS) WILL BE STOPPED PRIOR TO ENTERING THE SITE AND INSTRUCTED AS TO SPECIAL CONCERNS FOR PAVEMENT DURABILITY.
- D. A WASHOUT AREA FOR ALL CONCRETE TRUCKS SHALL BE DESIGNATED OUTSIDE OF POROUS PAVEMENT AREA ON THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN.
- E. POROUS PAVEMENT SURFACE SHALL BE PROTECTED ON HOT DAYS DURING THE PAVEMENT CURE PERIOD (2-3 DAYS). SURFACE TEMPERATURES CAN QUICKLY REACH OVER 145°F IN DIRECT SUN.
- F. A TEMPERATURE GUN SHALL BE AVAILABLE ONSITE TO ASSESS PAVEMENT SURFACE TEMPERATURES. PAVEMENT TEMPERATURES GREATER THAN 100°F SHOULD BE OBSERVED CAREFULLY FOR PAVEMENT DURABILITY. AS NEEDED, COOLING OF PAVEMENT SURFACE BY APPLICATION OF WATER FROM A WATER TRUCK SHOULD OCCUR WHEN HEAVY VEHICULAR TRAFFIC IS EXPECTED SUCH AS CONCRETE TRUCKS FOR DRY WELL FRAME AND GRATE INSTALLATION. IN THE EVENT THIS IS INEFFECTIVE FOR COOLING AND PAVEMENT DEFORMATION IS STILL OBSERVED, THE USE OF 3/4" PLYWOOD UNDER LARGE VEHICLE WHEELS MAY BE REQUIRED.
- G. TRUCKS AND OTHER CONSTRUCTION TRAFFIC WILL NOT BE ALLOWED TO ACCESS THE SITE WHILE THE PAVEMENT IS EXCESSIVELY HOT >130°F OR IF UNACCEPTABLE DAMAGE IS OBSERVED. COSMETIC DAMAGE TO BINDER COURSE IS ACCEPTABLE NOT INCLUDING LOSS OF INFILTRATION CAPACITY.
- H. NO STOCKPILING OF MATERIALS (E.G. SOIL, STONE, LANDSCAPING MATERIALS) WILL BE ALLOWED ON POROUS PAVEMENTS.
- I. MATERIALS EXCAVATED FOR FINISH WORKS SHALL BE PLACED OUTSIDE OF POROUS PAVEMENT AREAS.
- J. VACUUMING THROUGHOUT CONSTRUCTION MAY BE NECESSARY FOR SURROUNDING PAVED AREAS TO PREVENT RUN-ON OR TRACKING ONTO POROUS PAVEMENTS. FREQUENCY SHALL BE ADJUSTED AS NEEDED.
- K. REPEAT PHASE 1 AND 2 INCREMENTALLY UNTIL FULL PAVING IS COMPLETED.

SECTION II-PAVEMENT SUBGRADE (POROUS ASPHALT PAVEMENTS)

PART 1 EXECUTION

1.01 EXAMINATION

- A. EXAMINE SPACES TO BE FILLED BEFOREHAND AND REMOVE ALL UNSUITABLE MATERIALS AND DEBRIS INCLUDING SHEETING, FORMS, TRASH, STUMPS, PLANT LIFE, ETC.
- B. INSPECT BACKFILL AND FILL MATERIALS BEFOREHAND AND REMOVE ALL ROOTS, VEGETATION, ORGANIC MATTER, OR OTHER FOREIGN DEBRIS. STONES LARGER THAN 12 INCHES IN ANY DIMENSION SHALL ALSO BE REMOVED OR BROKEN INTO SMALLER PIECES.
- C. NO BACKFILL OR FILL MATERIAL SHALL BE PLACED ON FROZEN GROUND NOR SHALL THE MATERIAL ITSELF BE FROZEN OR CONTAIN FROZEN SOIL FRAGMENTS.
- D. SPACES TO BE FILLED SHALL BE FREE FROM STANDING WATER SO THAT PLACEMENT AND COMPACTION OF THE FILL MATERIALS CAN BE ACCOMPLISHED IN "DRY" CONDITIONS.
- E. ALL UNDERGROUND UTILITY INSTALLATIONS, INCLUDING CULVERTS, SHALL BE COMPLETED, BACKFILLED AND COMPACTED PRIOR TO COMPLETION OF SUBGRADE.
- F. VERIFY THAT TRAFFIC CONTROLS AND EROSION AND SEDIMENT CONTROLS ARE IN PLACE.

1.02 PREPARATION

- A. TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION OF SUBGRADE.
- B. TAKE ANY OTHER NECESSARY STEPS TO PREVENT SEDIMENT FROM WASHING INTO INFILTRATION BEDS DURING CONSTRUCTION. WHEN THE SITE IS FULLY STABILIZED, TEMPORARY SEDIMENT CONTROL DEVICES SHALL BE REMOVED.
- C. TEMPORARY DRAINS AND DITCHES SHALL BE CONSTRUCTED AS NECESSARY TO REMOVE WATER FROM THE SUBGRADE AREA.
    1. TEMPORARY DRAINAGE OPENINGS IN EXISTING CATCH BASINS MAY BE MADE IN A MANNER ACCEPTABLE TO THE ENGINEER. SUCH OPENINGS TO BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.
    2. CONTRACTOR TO PREVENT THE ENTRANCE OF DEBRIS, STONES AND SILT FROM ENTERING DRAINAGE SYSTEMS, INCLUDING THE USE OF BALES OF HAY, SCREENS AND OTHER DESILTING METHODS.
- D. BACKFILLED AREAS SHALL BE RETESTED AT THE DISCRETION OF THE ENGINEER.
- E. MINIMIZE TRAFFIC AND COMPACTION UPON SUBGRADE.
- F. IN MOST INSTANCES TRAVEL UPON SUBGRADE IS UNAVOIDABLE, AND A CAREFUL ASSESSMENT OF DEGREE OF SUBGRADE COMPACTION IS NEEDED. TILLING AND OR REMOVAL OF COMPACTED SUBGRADE MAY BE NEEDED.
- G. SUBGRADE COMPACTED DURING EXCAVATION OR WHERE EROSION HAS CAUSED ACCUMULATION OF FINE MATERIALS, THIS MATERIAL SHALL BE REMOVED AND/OR SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES.
- H. PRIOR TO PLACEMENT OF THE AGGREGATE RESERVOIR (AGGREGATE BASE COURSE), THE INFILTRATION RATE OF THE SUBGRADE SHALL BE DETERMINED BY ASTM D3385 OR APPROVED ALTERNATE AT THE DISCRETION OF THE ENGINEER. THE INFILTRATION RATE SHALL BE NO LESS 5-30 FT/DAY OR 50% OF THE HYDRAULIC CONDUCTIVITY (D2434) AT 95% STANDARD PROCTOR COMPACTION.
- I. SEE TABLE 2 FOR COMPACTION AND INFILTRATION REQUIREMENTS.
- J. THE DENSITY OF SUBGRADE COURSES SHALL BE DETERMINED BY AASHTO T 191 (SAND-CONE METHOD), AASHTO T 204 (DRIVE CYLINDER METHOD), OR AASHTO T 238 (NUCLEAR METHODS), OR OTHER APPROVED METHODS AT THE DISCRETION OF THE ENGINEER.
- K. UNSUITABLE MATERIALS SHALL BE REMOVED AND REWORKED TO THE SATISFACTION OF THE ONSITE ENGINEER.
- L. UPON COMPLETION OF SUBGRADE WORK, THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT AT HIS/HER DISCRETION BEFORE PROCEEDING WITH THE POROUS MEDIA BED INSTALLATION.

1.03 FIELD QUALITY CONTROL

- A. FOR COMPACTION REQUIREMENTS SEE TABLE 2.
- B. TOLERANCES - THE FINAL SUBGRADE SURFACE SHALL NOT VARY MORE THAN ±1/2 INCH FROM THE DESIGN GRADE ELEVATION AT ANY LOCATION, PARALLEL TO THE FINAL ROAD SURFACE AS DEFINED BY THE TOTAL ROADWAY THICKNESS.
- C. PROOF ROLLED - PRIOR TO THE PLACEMENT OF THE NEXT PAVEMENT COURSE, THE SUBGRADE SURFACE SHALL BE PROOF ROLLED TO LOCATE AREAS OF INADEQUATE COMPACTION OR DEFECTIONS OR SOFT OR RUTTING AREAS REQUIRING UNDERCUTTING, WITH 8- TO 10-TON PNEUMATIC TIRE COMPACTORS.
    1. AREAS OF INADEQUATE COMPACTION TO BE RECOMPACTED.
    2. IF ADDITIONAL ROLLING DOES NOT CORRECT AN AREA OF UNSTABLE CONDITION, THEN THIS AREA AND SOFT OR RUTTED AREAS SHALL BE REMOVED AND REPLACED WITH SELECT ON-SITE MATERIAL AND COMPACTED.
    3. WHERE NO SUITABLE ON-SITE MATERIAL IS AVAILABLE, GRANULAR MATERIALS SHALL BE INSTALLED AND COMPACTED; AREAS INACCESSIBLE TO ROLLERS TO BE COMPACTED BY MECHANICAL METHODS.

SECTION III: AGGREGATE BASE COURSE (POROUS ASPHALT PAVEMENTS)

PART 1 EXECUTION

1.01 EXAMINATION

- A. VERIFY PAVEMENT SUBGRADE HAS BEEN ACCEPTED FOR PLACEMENT OF AGGREGATE BASE COURSE.
    1. GRADIENTS, CROWNS AND ELEVATIONS ARE CORRECT.
    2. SUBGRADE IS DRY.
    3. PRIOR TO PLACEMENT OF THE AGGREGATE, THE INFILTRATION RATE OF THE SUBGRADE SHALL BE DETERMINED BY ASTM D3385 OR APPROVED ALTERNATE AT THE DISCRETION OF THE ENGINEER. THE INFILTRATION RATE SHALL BE NO LESS 5-30 FT/DAY OR 50% OF THE HYDRAULIC CONDUCTIVITY (D2434) AT 95% STANDARD PROCTOR COMPACTION.
- B. VERIFY THAT TRAFFIC CONTROLS ARE IN PLACE.

1.02 EDGE LINER INSTALLATION

- A. EDGE GEOTEXTILE OR PVC LINER SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION.
- B. THE EDGE LINER IS TO BE PLACED ALONG THE ENTIRE PERIMETER OF THE VERTICAL WALLS OF BOTH SIDES OF THE EXCAVATION AND LOCATED BEHIND THE CURB, SIDEWALK, OR TRANSITION ELEMENT TO THE DIMENSIONS AND LOCATIONS AS SHOWN WITHIN THE CONTRACT DRAWINGS.
- C. THE LINER IS TO BE PLACED BEHIND THE CURB OR TRANSITION WITHIN CONCRETE FOOTING.
- D. THE EDGE LINER SHOULD TEMPORARILY BE STAKED VERTICALLY AT 12-18" ABOVE THE SUBGRADE, PRIOR TO PLACEMENT BEHIND CURB, TO FUNCTION AS EROSION CONTROL MEASURE TO PREVENT FINES FROM WASHING INTO RESERVOIR BASE.
- E. PENETRATIONS TO THE PVC LINER SHALL BE WRAPPED WITH A STAINLESS STEEL PIPE CLAMP, SEALED BY HEAT-SHRINK, OR SIMILAR METHOD TO ACHIEVE LOW PRESSURE WATER TIGHT SEAL OR APPROVED EQUAL TO PREVENT THE MIGRATION OF SEDIMENT ACROSS THE PENETRATION.
- F. INTERNAL GRADE PVC LINER GRADE CONTROL TO BE PLACED EVERY 12" OF GRADE LOSS AT EQUAL ELEVATION ALONG THE CONTOUR. THE INTERNAL GRADE CONTROL ARE TO CONTAIN THE FLOW ON SLOPE WITHIN THE PAVEMENT RESERVOIR AND MUST BE KEYED INTO EDGE PVC LINER AND CONTAIN THE RESERVOIR BED AND SUBGRADE.
- B. THE INTERNAL GRADE CONTROL PVC LINER IS TO BE PLACED ALONG AN EQUAL ELEVATION CONTOUR AS PER THE DIMENSIONS AND LOCATIONS AS SHOWN WITHIN THE CONTRACT DRAWINGS.
- C. PENETRATIONS FROM UTILITIES TO THE PVC LINER ARE TO BE MINIMIZED AND LOCATED BENEATH THE PVC LINER IF POSSIBLE.
- D. UTILITY PIPING WITHIN THE ROADBED SHALL BE WATERTIGHT AND SEALED WITH FOAM, CAULKING, OR OTHER SUITABLE METHOD.
- E. ALL UTILITY TRENCHES THAT INTERSECT OR TRAVEL BELOW THE PAVEMENT SUBBASE SHALL HAVE CONSIDERATIONS TO PREVENT SOIL PIPING AND INFILTRATION AND INFLOW. THIS MAY INCLUDE SEEPAGE COLLAR, COVER WITH LINER, OR OTHER METHOD APPROVED BY ENGINEER.
- F. IN AREAS WHERE THE LINER IS NOT CONTINUOUS, A 12-INCH OVERLAP IS REQUIRED.

1.03 FILTER COURSE PREPARATION

- A. RESERVOIR COURSE AND CAPILLARY BARRIER AGGREGATE SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION AND INSTALLATION OF EDGE GEOTEXTILE. ANY ACCUMULATION OF DEBRIS OR SEDIMENT WHICH HAS TAKEN PLACE AFTER APPROVAL OF SUBGRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF GEOTEXTILE AT NO EXTRA COST TO THE OWNER.
- B. SEE TABLE 1 FOR SPECIFICATIONS FOR FILTER COURSE AND RESERVOIR COURSE / CAPILLARY BARRIER.
- C. SEE TABLE 2 FOR COMPACTION AND INFILTRATION REQUIREMENTS OF SUBBASE.
- D. INSTALL FILTER COURSE AGGREGATE IN 12-INCH MAXIMUM LIFTS TO 95 TO 98% STANDARD PROCTOR COMPACTION (ASTM D698 / AASHTO T99). INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
- E. THE INFILTRATION RATE OF THE FILTER COURSE SHALL BE DETERMINED BY ASTM D3385 OR APPROVED ALTERNATE AT THE DISCRETION OF THE SUPERVISING ENGINEER. THE INFILTRATION RATE SHALL BE NO LESS 5-30 FT/DAY OR 50% OF THE HYDRAULIC CONDUCTIVITY (D2434) AT 95% STANDARD PROCTOR COMPACTION.
- F. THE DENSITY OF FILTER COURSE SHALL BE DETERMINED BY AASHTO T 191 (SAND-CONE METHOD), AASHTO T 204 (DRIVE CYLINDER METHOD), OR AASHTO T 238 (NUCLEAR METHODS), OR OTHER APPROVED METHODS AT THE DISCRETION OF THE SUPERVISING ENGINEER.
- G. VIBRATORY COMPACTION SHALL BE PERFORMED USING TWO-AXLE TANDEM ROLLERS WITH A GROSS MASS (WEIGHT) OF NOT LESS THAN 5 METRIC TONS (5.5 TONS) AND NOT MORE THAN 10 METRIC TONS (12 TONS) AND SHALL BE CAPABLE OF PROVIDING A MINIMUM COMPACTIVE EFFORT OF 44 KN/M (250 POUNDS PER INCH) OF WIDTH OF THE DRIVE ROLL. ALL ROLLS SHALL BE AT LEAST 1 M (42 INCHES) IN DIAMETER.
- H. COMPACTION OF SUBGRADE COURSE MATERIAL SHALL BE DONE WITH A METHOD AND ADEQUATE WATER TO MEET THE REQUIREMENTS. ROLLING AND SHAPING SHALL CONTINUE UNTIL THE REQUIRED DENSITY IS ATTAINED. WATER SHALL BE UNIFORMLY APPLIED OVER THE SUBBASE COURSE MATERIALS DURING COMPACTION IN THE AMOUNT NECESSARY FOR PROPER CONSOLIDATION.

1.04 POROUS AGGREGATE SUBBASE INSTALLATION

- A. RESERVOIR BED AGGREGATE SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION AND INSTALLATION OF EDGE PVC LINER. ANY ACCUMULATION OF DEBRIS OR SEDIMENT WHICH HAS TAKEN PLACE AFTER APPROVAL OF SUBGRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF PVC LINER AT NO EXTRA COST TO THE OWNER.
- B. SEE TABLE 2 FOR COMPACTION AND INFILTRATION REQUIREMENTS.
- C. INSTALL RESERVOIR BED AGGREGATE IN 12-INCH MAXIMUM LIFTS TO 95 TO 98% STANDARD PROCTOR COMPACTION (ASTM D698 / AASHTO T99). INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
- D. VIBRATORY COMPACTION SHALL BE PERFORMED USING TWO-AXLE TANDEM ROLLERS WITH A GROSS MASS (WEIGHT) OF NOT LESS THAN 5 METRIC TONS (5.5 TONS) AND NOT MORE THAN 10 METRIC TONS (12 TONS) AND SHALL BE CAPABLE OF PROVIDING A MINIMUM COMPACTIVE EFFORT OF 44 KN/M (250 POUNDS PER INCH) OF WIDTH OF THE DRIVE ROLL. ALL ROLLS SHALL BE AT LEAST 1 M (42 INCHES) IN DIAMETER.
- E. COMPACTION OF SUBGRADE COURSE MATERIAL SHALL BE DONE WITH A METHOD AND ADEQUATE WATER TO MEET THE REQUIREMENTS. ROLLING AND SHAPING SHALL CONTINUE UNTIL THE REQUIRED DENSITY IS ATTAINED. WATER SHALL BE UNIFORMLY APPLIED OVER THE SUBBASE COURSE MATERIALS DURING COMPACTION IN THE AMOUNT NECESSARY FOR PROPER CONSOLIDATION.
- F. ADD SMALL QUANTITIES OF FINE AGGREGATE TO COARSE AGGREGATE AS APPROPRIATE TO ASSIST COMPACTION.
- G. IF EXCESS WATER IS APPARENT, REMOVE AGGREGATE AND AERATE TO REDUCE MOISTURE CONTENT.
- H. USE MECHANICAL VIBRATING TAMPING IN AREAS INACCESSIBLE TO COMPACTION EQUIPMENT.
- I. THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT THE LINER AND SUBBASE INFILTRATION CAPACITY AT HIS/HER DISCRETION BEFORE PROCEEDING WITH THE PLACEMENT OF SELECT ROAD BASE MATERIALS.
- J. INSPECTION OF INFILTRATION CAPACITY WILL VERIFY SUITABILITY OF SUBBASE FROM COMPACTION DURING CONSTRUCTION OR WHERE EROSION HAS CAUSED ACCUMULATION OF FINE MATERIALS. IF NEEDED, COMPACTED/ACCUMULATED MATERIALS SHALL BE REMOVED AND/OR SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES AND RETESTED FOR COMPACTION AND INFILTRATION AS PER SPECIFICATIONS.
- K. INSTALL INFILTRATION TRENCH PER CONSTRUCTION DETAIL. INFILTRATION TRENCH MAY BE ELIMINATED IN THE EVENT OF SHALLOW UTILITIES THAT WILL INTERSECT THE EXCAVATION.

1.05 PROTECTION

- A. IN THE EVENT THE SUBBASE IS USED FOR MAINTENANCE OF TRAFFIC OR IS DISTURBED OR LOOSENED BY ANY CAUSE, THEN PRIOR TO PLACING OF THE NEXT PAVING COURSE, THE SUBBASE SHALL BE REGRADED AND RECOMPACTED TO ITS FINISHED GRADE AND SPECIFIED DENSITY.

SEAL

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED
PROFESSIONAL ENGINEER
6/9/26

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TITLE:

NOTES
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	AS SHOWN	D1

SECTION IV- POROUS ASPHALT PAVING (POROUS ASPHALT PAVEMENTS)

DR. ROBERT ROSEEN OF WATERSTONE ENGINEERING, INC. (OR EQUAL) SHALL REVIEW ALL ASPECTS OF PREPARATION, INSTALLATION, AND TESTING FOR THE POROUS PAVEMENT SECTIONS. PHONE: (603) 686-2488

PART 1

1.01 SCHEDULING

A. SCHEDULE THE PAVING OPERATIONS SUCH THAT ALL PAVING NECESSARY TO PROVIDE SAFE AND ADEQUATE MAINTENANCE AND PROTECTION OF TRAFFIC OR FOR PROTECTION OF PREVIOUSLY LAID COURSES IS COMPLETED WITHIN THE WEATHER AND SEASONAL LIMITATIONS.

1. SUCH SCHEDULING SHALL INCLUDE EXPEDITING CONSTRUCTION OPERATIONS TO PERMIT PAVING BEFORE THE SEASONAL LIMITATIONS OR BY LIMITING THE LENGTH OF WORK TO THAT WHICH CAN BE COMPLETED BEFORE THE SEASONAL SHUTDOWN.

2. THE COST OF SCHEDULING AND SEQUENCING OF WORK TO CONFORM TO THE SEASONAL LIMITATIONS SHALL BE REFLECTED IN THE BID PRICES FOR THE RELATED CONTRACT ITEMS.

PART 2 PRODUCTS

2.01 ASPHALT CONCRETE

A. BINDER COURSE - THE PAVEMENT BINDER COURSE SHALL BE CONSTRUCTED OF THE FOLLOWING TYPE AND TO THE WIDTHS AND DEPTHS AS SHOWN ON THE DRAWINGS.

1. THIS BINDER COURSE SHALL BE IN ACCORDANCE WITH NHDOT SPECIFICATION FOR BITUMINOUS CONCRETE.

B. PAVEMENT WEARING COURSE (SURFACE COURSE) - PAVEMENT WEARING COURSE SHALL BE CONSTRUCTED OF THE FOLLOWING TYPE AND TO THE WIDTH AND DEPTH AS SHOWN ON THE DRAWINGS.

1. THIS WEARING COURSE SHALL BE IN ACCORDANCE WITH NHDOT SPECIFICATION FOR BITUMINOUS CONCRETE.

C. PAINTED TRAFFIC MARKINGS - CONTRACTOR SHALL REPLACE ALL MARKINGS IN ACCORDANCE WITH LOCAL, COUNTY, OR STATE SPECIFICATIONS (DEPENDING ON JURISDICTION).

2.02 POROUS ASPHALT

A. THIS IS A PERFORMANCE SPECIFICATION; ALTERNATIVES CAN BE SUBSTITUTED IF THE MIX DESIGN MEETS THE MINIMUM QC PERFORMANCE CRITERIA FOR GRADATION, ASPHALT CONCRETE (AC) CONTENT, PERCENT (%) VOID SPACE, % DRAIN DOWN, RETAINED TENSILE STRENGTH (TSR), AND CANTABRO WEAR TEST AND ACCEPTED IN WRITING BY THE ENGINEER.

B. POLYMER MODIFIED PERFORMANCE GRADED ASPHALT BINDER AND MIX DESIGNS

1. POROUS ASPHALT WEARING COURSE: GRADATION, AC CONTENT, % VOID SPACE, % DRAIN DOWN, TSR, CANTABRO AS INDICATED IN TABLE 3. THE ASPHALT BINDER SHALL BE A TERMINAL BLENDED PG76-28 MODIFIED WITH A STYRENE BUTADIENE STYRENE.

2. POROUS ASPHALT BINDER COURSE: GRADATION, AC CONTENT, % VOID SPACE, % DRAIN DOWN, TSR, CANTABRO AS INDICATED IN TABLE 3. THE ASPHALT BINDER SHALL BE A TERMINAL BLENDED PG76-28 MODIFIED WITH A STYRENE BUTADIENE STYRENE.

3. POROUS ASPHALT MIX DESIGNS: THE CONTRACTOR SHALL SIZE, UNIFORMLY GRADE, AND COMBINE THE AGGREGATE FRACTIONS IN PROPORTIONS THAT PROVIDE A MIXTURE MEETING THE REQUIREMENTS SPECIFIED.

PART 3 EXECUTION

3.01 PREPARATION - RESET MANHOLE FRAMES

A. PRIOR TO PLACING WEARING (TOP) COURSE, MAKE FINAL ADJUSTMENTS OF MANHOLE FRAMES, CATCH BASIN FRAMES, VALVE BOXES AND ANY OTHER UTILITY STRUCTURES LOCATED IN THE PAVEMENT IN RELATION TO FINISHED GRADE.

1. MANHOLE FRAMES, VALVE BOXES, ETC. TO SET 1/2 INCH BELOW FINISHED GRADE AND PARALLEL TO FINISHED CROWN.

2. CATCH BASIN FRAMES TO SET 1 INCH BELOW FINISHED GRADE AND PARALLEL TO FINISHED CROWN.

a. BEVEL SLOPE OF WEARING COURSE (FOR 6-INCH WIDTH) AROUND CATCH BASIN FRAME.

3.02 POROUS ASPHALT BINDER COURSE INSTALLATION

A. TEST STRIP (OPTIONAL)

1. AN OPTIONAL TEST STRIP SHALL BE CONDUCTED TO DETERMINE OPTIMAL COMPACTION PROCEDURES FOR THE BINDER COURSE AT A THICKNESS AS INDICATED IN THE DRAWINGS. THE TEST STRIP WILL BE CONSTRUCTED IN A PORTION OF THE SITE TO ESTABLISH AND ENSURE THE PROPER MIX DESIGN, PRODUCTION AND PLACEMENT.

2. THE TEST STRIP SHALL BE OVERSEEN BY THE ENGINEER.

3. TWO MIX SAMPLES SHALL BE COLLECTED AT THE ASPHALT PLANT BY A 3RD PARTY QC TECHNICIAN DURING BINDER COURSE PRODUCTION FROM EACH TEST STRIP FOR ASPHALT CONTENT, AND GRADATION.

4. FIELD TESTING OF INFILTRATION CAPACITY SHALL BE PERFORMED ON THE TEST STRIP FOR INFILTRATION BY THE ENGINEER.

5. TWO CORES SHALL BE COLLECTED FROM EACH TEST STRIP AND EVALUATED FOR COMPACTION, DENSITY, AND POROSITY.

6. THESE CRITERIA ONCE ESTABLISHED WILL BE APPLIED TO ALL POROUS ASPHALT INSTALLATIONS.

B. CONDITIONING OF EXISTING SURFACE

1. THE CONTRACTOR SHALL THOROUGHLY CLEAN THE SURFACE UPON WHICH THE BINDER COURSE IS TO BE PLACED OF ALL OBJECTIONABLE MATERIAL.

C. PREPARATION OF AGGREGATES

1. THE CONTRACTOR SHALL DRY AND HEAT THE AGGREGATES FOR THE BINDER COURSE TO THE REQUIRED TEMPERATURE.

D. MIXING

1. THE CONTRACTOR SHALL COMBINE THE DRIED AGGREGATE IN THE MIXER IN THE AMOUNT OF EACH FRACTION OF AGGREGATE REQUIRED TO MEET THE SPECIFICATIONS. ONCE MIXED THE BINDER COURSE SHALL BE PLACED AS SOON AS POSSIBLE.

E. SPREADING AND FINISHING

1. ON AREAS WHERE IRREGULARITIES OR UNAVOIDABLE OBSTACLES MAKE THE USE OF MECHANICAL SPREADING AND FINISHING IMPRACTICABLE, THE CONTRACTOR SHALL SPREAD AND RAKE THE BINDER COURSE WITH HAND TOOLS TO PROVIDE THE REQUIRED COMPACTED THICKNESS.

2. SOLVENT BASED AGENTS DEVELOPED TO STRIP ASPHALTS FROM AGGREGATES WILL NOT BE ALLOWED AS A RELEASE AGENT.

3. JOINTS SHALL BE FULLY COATED WITH PGAB 76-28 JUST PRIOR TO THE PLACEMENT OF THE ADJOINING COURSE. AREAS THAT BECOME CONTAMINATED OR STRIPPED OF ASPHALT COATING WILL BE RETREATED WITH ASPHALT PRIOR TO PLACING THE ADJOINING COARSE.

F. COMPACTION

1. THE ACTUAL METHODS AND EQUIPMENT USED TO COMPACT THE BINDER COURSE WILL BE DETERMINED DURING THE PLACEMENT AND COMPACTION OF THE TEST STRIP AND AS TABLE 2.

2. IMMEDIATELY AFTER THE ASPHALT TREATED PERMEABLE BASE HAS BEEN SPREAD, STRUCK OFF, AND ANY SURFACE IRREGULARITIES ADJUSTED, THE CONTRACTOR SHALL THOROUGHLY AND UNIFORMLY COMPACT THE BINDER COURSE BY ROLLING.

3. THE BINDER COURSE SHALL BE COMPACTED BY A MAXIMUM OF THREE COMPLETE PASSES OF A STEEL ROLLER HAVING A MINIMUM WEIGHT OF 12 TONS OPERATED IN STATIC MODE, OR 10 TONS IF EQUIPPED WITH OSCILLATORY COMPACTION AND OPERATED IN LOW FREQUENCY, LOW AMPLITUDE MODE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. PNEUMATIC ROLLERS WILL NOT BE USED TO COMPACT THE BINDER COURSE.

4. THE CONTRACTOR SHALL ROLL THE SURFACE WHEN THE MIXTURE IS IN THE PROPER CONDITION AND WHEN THE ROLLING DOES NOT CAUSE UNDUE DISPLACEMENT, CRACKING, OR SHOVING. THE CONTRACTOR SHALL PREVENT ADHESION OF THE BINDER COURSE TO THE ROLLERS OR VIBRATING COMPACTORS WITHOUT THE USE OF FUEL OIL OR OTHER PETROLEUM, OR SOLVENT BASED RELEASE AGENTS. SOLVENTS DESIGNED TO STRIP ASPHALT BINDERS FROM AGGREGATES WILL NOT BE PERMITTED AS RELEASE AGENTS ON EQUIPMENT, TOOLS OR BINDER COURSE SURFACES.

5. THE CONTRACTOR SHALL IMMEDIATELY CORRECT ANY DISPLACEMENT OCCURRING AS A RESULT OF THE REVERSING OF THE DIRECTION OF A ROLLER OR FROM OTHER CAUSES TO THE SATISFACTION OF THE ENGINEER.

6. ANY OPERATION THAT RESULTS IN BREAKDOWN OF THE AGGREGATE SHALL BE DISCONTINUED.

G. TRAFFIC

1. AFTER A 24 HOUR CURING PERIOD OF THE BINDER COURSE, LIMITED TRAFFIC MAY BE ROUTED OVER THE BINDER COURSE SURFACE. UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER, CONSTRUCTION EQUIPMENT, AND TRAFFIC SHALL BE PROHIBITED FROM TRAVELING OVER THE BINDER COURSE SURFACE UNTIL THE ENTIRE PAVEMENT STRUCTURE IS IN PLACE.

2. DAMAGE TO THE BINDER COURSE LAYER CAUSED BY CONSTRUCTION EQUIPMENT OR TRAFFIC SHALL BE REMEDIED BY COMPLETE REMOVAL REPLACEMENT OF THE DAMAGED AREA TO THE LIMITS DETERMINED BY THE ENGINEER. THERE WILL BE NO ADDITIONAL PAYMENT FOR REPAIRS, OR ASSOCIATED WORK.

3.03 PLACEMENT OF POROUS ASPHALT BINDER COURSE

A. INSTALL THE BINDER COURSE COURSE AT A THICKNESS AS INDICATED IN DRAWINGS.

B. INSTALL FRAME, GRATES, AND LANDSCAPING. SPECIAL CARE IS TO BE TAKEN TO PROTECT FRESH BINDER COURSE.

C. ALL TRUCKS (INCLUDING CONCRETE TRUCKS) WILL BE STOPPED PRIOR TO ENTERING THE SITE AND INSTRUCTED AS TO SPECIAL CONCERNS FOR PAVEMENT DURABILITY.

D. A WASHOUT AREA FOR ALL CONCRETE TRUCKS SHALL BE DESIGNATED OUTSIDE OF POROUS PAVEMENT AREA ON THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN OR ON DETAIL SHEET.

E. POROUS PAVEMENT SURFACE SHALL BE PROTECTED ON HOT DAYS DURING THE PAVEMENT CURE PERIOD (2-3 DAYS). SURFACE TEMPERATURES CAN QUICKLY REACH OVER 145°F IN DIRECT SUN.

F. A TEMPERATURE GUN SHALL BE AVAILABLE ONSITE TO ASSESS PAVEMENT SURFACE TEMPERATURES. PAVEMENT TEMPERATURES GREATER THAN 100°F SHOULD BE OBSERVED CAREFULLY FOR PAVEMENT DURABILITY. AS NEEDED, COOLING OF PAVEMENT SURFACE BY APPLICATION OF WATER FROM A WATER TRUCK SHOULD OCCUR WHEN HEAVY VEHICULAR TRAFFIC IS EXPECTED SUCH AS CONCRETE TRUCKS FOR DRY WELL FRAME AND GRATE INSTALLATION. IN THE EVENT THIS IS INEFFECTIVE FOR COOLING AND PAVEMENT DEFORMATION IS STILL OBSERVED, THE USE OF 3/4" PLYWOOD UNDER LARGE VEHICLE WHEELS MAY BE REQUIRED.

G. TRUCKS AND OTHER CONSTRUCTION TRAFFIC WILL NOT BE ALLOWED TO ACCESS THE SITE WHILE THE PAVEMENT IS EXCESSIVELY HOT >130°F.

H. NO STOCKPILING OF MATERIALS (E.G. SOIL, STONE, LANDSCAPING MATERIALS) WILL BE ALLOWED ON POROUS PAVEMENTS.

I. MATERIALS EXCAVATED FOR FINISH WORKS SHALL BE PLACED OUTSIDE OF POROUS PAVEMENT AREAS.

J. VACUUMING THROUGHOUT CONSTRUCTION MAY BE NECESSARY FOR SURROUNDING PAVED AREAS TO PREVENT RUN-ON OR TRACKING ONTO POROUS PAVEMENTS. FREQUENCY SHALL BE ADJUSTED AS NEEDED.

3.04 INSPECTION, CORRECTIVE ACTION, REMOVAL AND REPLACEMENT OF BINDER COURSE

A. PRIOR TO INSTALLATION OF THE POROUS ASPHALT WEARING COURSE, THE BINDER COURSE WILL BE INSPECTED FOR DAMAGE AND REDUCED INFILTRATION CAPACITY.

B. BINDER COURSE CLOGGING WILL BE CORRECTED BY VACUUM AND PRESSURE WASHING TO THE SATISFACTION OF THE ENGINEER.

C. BINDER COURSE AREAS WILL BE REMOVED AND REPLACED IN AREAS WHERE STRUCTURAL DAMAGE OR INFILTRATION CAPACITY IS SUBSTANTIALLY COMPROMISED AT THE DISCRETION OF THE ENGINEER.

D. THE CHOKER COURSE SHALL BE INSPECTED FOR VOIDS AND FINES PRIOR TO REPLACEMENT OF THE BINDER COURSE. IF VOID SPACE IS COMPROMISED, STONE WILL BE ADDED AND/OR REPLACED FOR CORRECTIVE ACTION.

E. THERE WILL BE NO ADDITIONAL PAYMENT FOR BINDER COURSE REPAIRS, CLEANING, REPLACEMENT, OR ASSOCIATED WORK.

3.05 POROUS ASPHALT WEARING COURSE INSTALLATION

A. GENERAL

1. VERIFY BINDER COURSE CONDITION AND PREPARATION FOLLOWING CONSTRUCTION PRIOR TO PAVING THE POROUS ASPHALT WEARING COURSE AS DESCRIBED IN SECTION 3.07.

2. THE ENGINEER SHALL BE NOTIFIED AND INSPECT THE BINDER COURSE AT THEIR DISCRETION PRIOR TO PAVING THE POROUS ASPHALT WEARING COURSE.

3. TEMPORARY CONSTRUCTION FENCING WILL BE USED TO CLOSE POROUS PAVEMENT AREAS TO CONSTRUCTION TRAFFIC AFTER PAVING DURING PROJECT COMPLETION.

B. TEST STRIP

1. A TEST STRIP SHALL BE CONDUCTED TO DETERMINE OPTIMAL COMPACTION PROCEDURES OF THE POROUS ASPHALT AT A THICKNESS AS INDICATED IN THE DRAWINGS. THE TEST STRIP WILL BE CONSTRUCTED IN A PORTION OF THE SITE TO ESTABLISH AND ENSURE THE PROPER MIX DESIGN, PRODUCTION AND PLACEMENT.

2. THE TEST STRIP SHALL BE OVERSEEN BY THE ENGINEER.

3. TWO MIX SAMPLES SHALL BE COLLECTED AT THE ASPHALT PLANT BY A 3RD PARTY QC TECHNICIAN DURING PRODUCTION FROM EACH TEST STRIP FOR ASPHALT CONTENT, GRADATION, AND CANTABRO WEAR.

4. FIELD TESTING OF INFILTRATION CAPACITY SHALL BE PERFORMED ON THE TEST STRIP FOR INFILTRATION BY THE ENGINEER.

5. TWO CORES SHALL BE COLLECTED FROM EACH TEST STRIP AND EVALUATED FOR COMPACTION, DENSITY, AND POROSITY.

6. THESE CRITERIA ONCE ESTABLISHED WILL BE APPLIED TO ALL POROUS ASPHALT INSTALLATIONS.

C. ROLLERS

1. ROLLERS OR OSCILLATING VIBRATORY ROLLERS, RANGING FROM 8-12 TONS, SHALL BE USED FOR COMPACTION, AND 1-2 TONS ROLLER FOR FINISHING. THE NUMBER, MASS (WEIGHT), AND TYPE OF ROLLERS FURNISHED SHALL BE SUFFICIENT TO OBTAIN THE REQUIRED COMPACTION WHILE THE MIXTURE IS IN A WORKABLE CONDITION. GENERALLY, ONE BREAKDOWN ROLLER WILL BE NEEDED FOR EACH PAVER USED IN THE SPREADING OPERATION.

2. ADDITIONAL ROLLING MAY BE EXCESSIVE, CAUSING A BREAK IN THE BOND OF ASPHALT BETWEEN AGGREGATE PARTICLES, PARTICULARLY AFTER THE MIX HAS COOLED.

3. TO PREVENT ADHESION OF THE MIXTURE TO THE ROLLS, ROLLS SHALL BE KEPT MOIST WITH WATER OR WATER MIXED WITH VERY SMALL QUANTITIES OF DETERGENT OR OTHER APPROVED MATERIAL. EXCESS LIQUID WILL NOT BE PERMITTED.

4. OTHER COMBINATIONS OF ROLLERS AND/OR METHODS OF COMPACTING MAY BE USED IF APPROVED IN WRITING BY THE ENGINEER, PROVIDED THE COMPACTION REQUIREMENTS ARE MET. THE SPEED OF THE ROLLER SHALL BE SLOW AND UNIFORM TO AVOID DISPLACEMENT OF THE MIXTURE, AND THE ROLLER SHOULD BE KEPT IN AS CONTINUOUS OPERATION AS PRACTICAL. ROLLING SHALL CONTINUE UNTIL ALL ROLLER MARKS AND RIDGES HAVE BEEN ELIMINATED.

5. ROLLERS WILL NOT BE STOPPED OR PARKED ON THE FRESHLY PLACED MAT. THE SPEED OF THE ROLLER SHALL BE SLOW AND UNIFORM TO AVOID DISPLACEMENT OF THE MIXTURE, AND THE ROLLER SHOULD BE KEPT IN AS CONTINUOUS OPERATION AS PRACTICAL. ROLLING SHALL CONTINUE UNTIL ALL ROLLER MARKS AND RIDGES HAVE BEEN ELIMINATED.

6. ROLLERS WILL NOT BE STOPPED OR PARKED ON THE FRESHLY PLACED MAT.

D. CONDITIONING OF EXISTING SURFACE

1. CONTACT SURFACES SUCH AS CURBING, GUTTERS, AND MANHOLES SHALL BE PAINTED WITH A THIN, UNIFORM COAT OF TYPE RS-1 EMULSIFIED ASPHALT IMMEDIATELY BEFORE THE ASPHALT MIXTURE IS PLACED AGAINST THEM.

E. TEMPERATURE REQUIREMENTS

1. THE TEMPERATURE OF THE ASPHALT MIXTURE, AT THE TIME OF DISCHARGE FROM THE HAUL VEHICLE AND AT THE PAVER, SHALL BE BETWEEN 135-163°C (275 TO 325°F), WITHIN 6 °C (10 °F) OF THE COMPACTION TEMPERATURE FOR THE APPROVED MIX DESIGN.

2. THE TEMPERATURE OF THE ASPHALT MIXTURE, AT THE TIME OF DISCHARGE FROM THE HAUL VEHICLE AND AT THE PAVER, SHALL BE BETWEEN 135-163°C (275 TO 325°F), WITHIN 6 °C (10 °F) OF THE COMPACTION TEMPERATURE FOR THE APPROVED MIX DESIGN.

3. BREAKDOWN ROLLING SHALL OCCUR WHEN THE MIX TEMPERATURE IS BETWEEN 135-163°C (275 TO 325°F).

4. INTERMEDIATE ROLLING SHALL OCCUR WHEN THE MIX TEMPERATURE IS BETWEEN 93-135°C (200 TO 275°F).

5. FINISH ROLLING SHALL OCCUR WHEN THE MIX TEMPERATURE IS BETWEEN 66-93°C (150 TO 200°F)

F. SPREADING AND FINISHING

1. THE POROUS ASPHALT WEARING COURSE SHALL BE PLACED IN ONE APPLICATION TO A THICKNESS AS INDICATED ON THE DRAWINGS.

2. THE CONTRACTOR SHALL PROTECT ALL EXPOSED SURFACES THAT ARE NOT TO BE TREATED FROM DAMAGE DURING ALL PHASES OF THE PAVEMENT OPERATION.

3. NO TRAFFIC WILL BE PERMITTED ON MATERIAL PLACED UNTIL THE MATERIAL HAS BEEN THOROUGHLY COMPACTED AND HAS BEEN PERMITTED TO COOL TO BELOW 38 °C (100 °F). THE ENGINEER RESERVES THE RIGHT TO REQUIRE THAT ALL WORK ADJACENT TO THE PAVEMENT, SUCH AS GUARDRAIL, CLEANUP, AND TURF ESTABLISHMENT, IS COMPLETED PRIOR TO PLACING THE WEARING COURSE WHEN THIS WORK COULD CAUSE DAMAGE TO THE PAVEMENT.

G. COMPACTION

1. PLACING MIX IN AN APPROPRIATE AMBIENT TEMPERATURE AND ON A SURFACE SUFFICIENTLY WARM TO MINIMIZE THE RISK OF EXCESSIVE COOLING BEFORE COMPLETION OF ROLLING IS OF PARAMOUNT IMPORTANCE. HOLDING THE AGGREGATE PARTICLES IN PLACE IS SOLELY THE FUNCTION OF THE FILM OF ASPHALT. THE ASPHALT CANNOT PERFORM THIS FUNCTION PROPERLY IF THE MIX IS TOO COOL WHEN ROLLED.

2. IT IS IMPORTANT TO KEEP THE TIME BETWEEN THE POROUS ASPHALT AND WEARING COURSE AND BINDER COURSE PLACEMENTS SHALL BE MINIMAL AND KEEP THE FIRST LAYER CLEAR FROM DUST AND MOISTURE, AND MINIMIZE TRAFFIC ON THE FIRST LAYER.

3. A THIN COURSE COMPRESSES VERY LITTLE UNDER THE ROLLER AND, AS IT COOLS QUICKLY, IT MUST BE ROLLED AS SOON AS POSSIBLE.

4. A HIGH DEGREE OF DENSIFICATION IS NOT THE GOAL WITH THIS TYPE OF MIX; THE AIM IS FIRM SEATING AND CONTACT OF THE AGGREGATE PARTICLES.

5. WHEN OVERTAKEN BY SUDDEN STORMS, THE ENGINEER MAY PERMIT WORK TO CONTINUE UP TO THE AMOUNT WHICH MAY BE IN TRANSIT FROM THE PLANT AT THE TIME, PROVIDED THE MIXTURE IS WITHIN TEMPERATURE LIMITS SPECIFIED.

6. IMMEDIATELY AFTER THE ASPHALT MIXTURE HAS BEEN SPREAD, STRUCK OFF, AND SURFACE IRREGULARITIES ADJUSTED, IT SHALL BE THOROUGHLY AND UNIFORMLY COMPACTED BY ROLLING. THE COMPACTION OBJECTIVE IS 18% - 22% IN PLACE VOID CONTENT (CORELOCK). GREAT CARE SHALL BE TAKEN TO AVOID OVER-COMPACTION.

7. IF THE ENGINEER DETERMINES THAT UNSATISFACTORY COMPACTION OR SURFACE DISTORTION IS BEING OBTAINED OR DAMAGE TO HIGHWAY COMPONENTS AND/OR ADJACENT PROPERTY IS OCCURRING USING VIBRATORY COMPACTION EQUIPMENT, THE CONTRACTOR SHALL IMMEDIATELY CEASE USING THIS EQUIPMENT AND PROCEED WITH THE WORK IN ACCORDANCE WITH THE FIFTH PARAGRAPH OF THIS SUBSECTION.

8. ALONG FORMS, CURBS, HEADERS, WALLS, AND OTHER PLACES NOT ACCESSIBLE TO THE ROLLERS, THE MIXTURE SHALL BE THOROUGHLY COMPACTED WITH HOT OR LIGHTLY OILED HAND TAMPERS, SMOOTHING IRONS OR WITH MECHANICAL TAMPERS. ON DEPRESSED AREAS, EITHER A TRENCH ROLLER OR CLEATED COMPRESSION STRIPS MAY BE USED UNDER THE ROLLER TO TRANSMIT COMPRESSION TO THE DEPRESSED AREA.

H. JOINTS

1. UNLESS OTHERWISE SPECIFIED, THE LONGITUDINAL JOINTS SHALL BE ROLLED FIRST. NEXT, THE CONTRACTOR SHALL BEGIN ROLLING AT THE LOW SIDE OF THE PAVEMENT AND SHALL PROCEED TOWARDS THE CENTER OR HIGH SIDE WITH LAPPED ROLLINGS PARALLEL TO THE CENTERLINE.

2. PLACEMENT OF THE SURFACE COURSE SHALL BE CAREFULLY PLANNED TO ASSURE THAT THE LONGITUDINAL JOINTS IN THE SURFACE COURSE WILL CORRESPOND WITH THE EDGES OF THE PROPOSED TRAFFIC LANES. THEY SHALL NOT BE LOCATED WITHIN THE NORMAL WHEELPATH OF VEHICULAR TRAFFIC.

3. WHEN PAVING ADJOINING LANES, THE ASPHALT CONCRETE SHALL BE LAID SUCH THAT IT UNIFORMLY OVERLAPS THE ADJACENT LANE 2 INCHES TO 3 INCHES. THE THICKNESS OF THE OVERLAP MATERIAL SHALL BE APPROXIMATELY 1/4 THE COMPACTED THICKNESS OF THE COURSE, SO AS TO RESULT IN A SMOOTH AND WELL COMPACTED JOINT AFTER ROLLING. THE OVERLAPPED MATERIAL SHALL BE BROOMED OR RAKED BACK ONTO THE ADJACENT HOT LANE SO THAT THE ROLLER OPERATOR CAN CROWD THE SMALL EXCESS INTO THE HOT SIDE OF THE JOINT. IF THE OVERLAP IS EXCESSIVE, THE EXCESS MATERIAL SHALL BE TRIMMED OFF SO THAT THE MATERIAL ALONG THE JOINT IS UNIFORM.

4. THE COARSE PARTICLES OF AGGREGATE IN THE OVERLAP MATERIAL SHALL BE REMOVED AND WASTED IF DEEMED NECESSARY BY THE ENGINEER.

5. TRANSVERSE JOINTS SHALL BE STAGGERED A MINIMUM OF 10 FEET FROM ADJACENT LANES.

I. TRAFFIC

1. ALL TRUCKS (INCLUDING CONCRETE TRUCKS) WILL BE STOPPED PRIOR TO ENTERING THE SITE AND INSTRUCTED AS TO SPECIAL CONCERNS FOR PAVEMENT DURABILITY.

2. TRUCKS AND OTHER CONSTRUCTION TRAFFIC WILL NOT BE ALLOWED TO ACCESS THE SITE WHILE THE PAVEMENT IS EXCESSIVELY HOT.

3. POROUS PAVEMENT SURFACE SHALL BE PROTECTED ON HOT DAYS DURING THE PAVEMENT CURE PERIOD (1-2 WEEKS).

4. A TEMPERATURE GUN SHALL BE AVAILABLE ONSITE TO ASSESS PAVEMENT SURFACE TEMPERATURES. PAVEMENT TEMPERATURES IN EXCESS OF 100OF SHOULD BE OBSERVED CAREFULLY FOR PAVEMENT DURABILITY.

5. COOLING OF PAVEMENT SURFACE BY APPLICATION OF WATER FROM A WATER TRUCK SHOULD OCCUR WHEN HEAVY VEHICULAR TRAFFIC IS EXPECTED, SUCH AS CONCRETE TRUCKS FOR CURB INSTALLATION. IN THE EVENT THIS IS INEFFECTIVE FOR COOLING AND PAVEMENT DEFORMATION IS STILL OBSERVED, 3/4" PLYWOOD SHALL BE PLACED ON TOP OF THE PAVEMENT.

6. AFTER A 24 HOUR CURING PERIOD OF THE POROUS ASPHALT WEARING COURSE, LIMITED TRAFFIC MAY BE ROUTED OVER THE FINISHED SURFACE.

7. TRAVEL OF CONSTRUCTION EQUIPMENT, AND TRAFFIC IS ALLOWED OVER THE BINDER COURSE ROAD.

8. TRACKING OF DEBRIS SHALL BE MINIMIZED TO A FEASIBLE EXTENT DURING CONSTRUCTION THROUGH THE USE OF STONE ENTRANCES, AND ROUTINE PAVEMENT VACUUMING.

9. UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER, CONSTRUCTION EQUIPMENT, AND TRAFFIC SHALL BE PROHIBITED FROM TRAVELING OVER THE COMPLETED POROUS ASPHALT SURFACE UNTIL THE ENTIRE PAVEMENT STRUCTURE IS IN PLACE.

10. DAMAGE TO THE BINDER COURSE LAYER CAUSED BY CONSTRUCTION EQUIPMENT OR TRAFFIC SHALL BE REMEDIED BY COMPLETE REMOVAL AND REPLACEMENT OF THE DAMAGED AREA TO THE LIMITS DETERMINED BY THE ENGINEER.

J. OTHER

1. OTHER COMBINATIONS OF ROLLERS AND/OR METHODS OF COMPACTING MAY BE USED IF APPROVED IN WRITING BY THE ENGINEER, PROVIDED THE COMPACTION REQUIREMENTS ARE MET.

2. A WASHOUT AREA FOR ALL CONCRETE TRUCKS SHALL BE DESIGNATED OUTSIDE OF POROUS PAVEMENT AREA ON EROSION CONTROL PLAN.

3. NO STOCKPILING OF MATERIALS (SOIL, STONE, LANDSCAPING MATERIALS, ETC.) WILL BE ALLOWED ON POROUS PAVEMENTS.

4. MATERIALS EXCAVATED FOR CURB INSTALLATION AND LANDSCAPING STOCKPILES SHALL BE PLACED OUTSIDE OF POROUS PAVEMENT AREA.

5. WEEKLY VACUUMING OF THE POROUS PAVEMENT AND SURROUNDING AREAS (20-FEET BEYOND LIMITS OF POROUS PAVEMENT) SHALL BE PERFORMED BY THE CONTRACTOR AS NECESSARY. FREQUENCY SHALL BE INCREASED IF REQUIRED BY CONSTRUCTION ACTIVITIES.

3.06 DRIVEWAYS AND PARKING AREAS

A. PAVING MATERIALS, TYPE OF PAVING, DEPTH OF VARIOUS COURSES, ETC., SHALL BE AS SHOWN ON THE DRAWINGS.

1. THE DRIVEWAYS AND PARKING AREAS SHALL BE CUT BACK 12 INCHES FROM OUTSIDE DISTURBED OR DAMAGED AREAS AS DESCRIBED ABOVE.

2. THE MINIMUM DEPTH OF SUBBASE SHALL BE AS INDICATED ON THE DRAWINGS AND NHDOT AGGREGATE SPECIFICATIONS.

3. THE WORK SHALL INCLUDE PROPER COMPACTION OF ANY NECESSARY SUBBASE, BASE COURSE AND PAVING COURSES.

B. BITUMINOUS SURFACES SHALL BE RESTORED WITH ASPHALT CONCRETE MATCHING EXISTING, BUT IN NO CASE SHALL BE LESS THAN 2 INCHES OF BINDER AND 1 INCH OF TOP COURSE AS SPECIFIED IN THE APPLICABLE ARTICLES OF THIS SECTION.

C. NON-BITUMINOUS SURFACES - WHERE SHOWN ON THE DRAWINGS, CONSTRUCT NEW DRIVEWAYS AND PARKING AREAS OR RESTORE EXISTING DRIVEWAYS AND PARKING AREAS AS FOLLOWS:

1. GRAVEL SURFACES SHALL BE RESTORED USING SCREENED GRAVEL, MATCHING EXISTING, BUT IN NO CASE SHALL BE LESS THAN 6 INCHES THICK. THE GRAVEL SHALL BE GRADED, SHAPED AND COMPACTED. LOOSE STONES SHALL BE REMOVED.

2. CRUSHED STONE SURFACES SHALL BE RESTORED MATCHING EXISTING STONE, BUT IN NO CASE SHALL BE LESS THAN 1 INCH THICKNESS OF STONE. STONE SHALL BE COMPACTED WITH A ROLLER.

3.07 SEAL AND TACK COAT

A. APPLY SEAL COAT TO DENSE MIX ASPHALT AND ASPHALT CURBS ONLY AND IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS.

B. SEAL COAT APPLICATION TO POROUS PAVEMENTS IS PROHIBITED.

C. BITUMINOUS MATERIAL FOR THE TACK COAT SHALL BE EMULSIFIED ASPHALT, GRADE RS-1 CONFORMING TO NHDOT SPECIFICATION.

3.08 TOLERANCES

A. SURFACE TOLERANCE - THE PAVEMENT SURFACE SHALL BE CONSTRUCTED TO A 1/4-INCH TOLERANCE. IF, IN THE OPINION OF THE ENGINEER, THE PAVEMENT SURFACE IS NOT BEING CONSTRUCTED OR HAS NOT BEEN CONSTRUCTED TO THIS TOLERANCE BASED UPON VISUAL OBSERVATION OR UPON RIDING QUALITY, HE MAY TEST THE SURFACE WITH A 16-FOOT STRAIGHT EDGE (FURNISHED BY THE CONTRACTOR) OR STRING LINE PLACED PARALLEL TO THE CENTERLINE OF THE PAVEMENT AND WITH A 10-FOOT STRAIGHT EDGE OR STRING LINE PLACED TRANSVERSELY TO THE CENTERLINE OF THE PAVEMENT ON ANY PORTION OF THE PAVEMENT.

1. VARIATIONS EXCEEDING 1/4-INCH SHALL BE SATISFACTORILY CORRECTED OR THE PAVEMENT RELAYED AT NO ADDITIONAL COST AS ORDERED BY THE ENGINEER.

B. THICKNESS TOLERANCE - THE THICKNESS INDICATED FOR EACH OF THE VARIOUS COURSES OF BITUMINOUS PAVEMENT IS THE NOMINAL THICKNESS. THE PAVEMENT SHALL BE SO CONSTRUCTED THAT THE FINAL COMPACTED THICKNESS IS AS NEAR TO THE NOMINAL THICKNESS AS IS PRACTICAL, AND WITHIN THE TOLERANCES SPECIFIED BELOW.

1. MATERIAL WHICH IS PART OF A TRUING OR LEVELING COURSE OR SHIM COURSE WILL NOT BE CONSIDERED IN PAVEMENT THICKNESS DETERMINATIONS.

2. A TOLERANCE NOT TO EXCEED 1/4-INCH FROM THE NOMINAL THICKNESS REQUIRED FOR THE COURSE SPECIFIED UNDER ONE PAY ITEM WILL BE ACCEPTABLE WHERE THE REQUIRED NOMINAL THICKNESS IS 4 INCHES OR LESS. A TOLERANCE NOT TO EXCEED 1/2-INCH FROM THE NOMINAL THICKNESS REQUIRED FOR THE COURSE OR COURSES SPECIFIED UNDER ONE PAY ITEM WILL BE ACCEPTABLE WHERE THE REQUIRED NOMINAL THICKNESS IS OVER 4 INCHES. IN ADDITION, THE SUM TOTAL THICKNESS OF ALL BITUMINOUS MIXTURE COURSES SHALL NOT VARY FROM THE TOTAL OF THE NOMINAL THICKNESS INDICATED ON THE PLANS BY MORE THAN 1/4-INCH WHERE THE TOTAL NOMINAL THICKNESS IS 4 INCHES OR LESS; OR MORE THAN 1/2-INCH WHERE THE TOTAL NOMINAL THICKNESS IS OVER 4 INCHES BUT NOT MORE THAN 8 INCHES; AND BY NOT MORE THAN 5/8-INCH WHERE THE TOTAL NOMINAL THICKNESS IS MORE THAN 8 INCHES.

3.09 PROTECTION

A. ANY PAVEMENT, CONSTRUCTED OR RECONSTRUCTED, WHICH IS SUBSEQUENTLY DAMAGED DUE TO ACTIVITY OF WORK UNDER THIS CONTRACT, SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

B. PROTECT PAVEMENT FROM VEHICULAR TRAFFIC UNTIL COMPACTION IS COMPLETED.

3.10 PAVEMENT MARKING

A. PAVEMENT MARKING SHALL BE IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATION.

B. STRIPING PAINT FOR POROUS ASPHALT SHALL BE LATEX, WATER-BASE EMULSION, READY-MIXED, AND COMPLYING WITH PAVEMENT MARKING SPECIFICATIONS PS TT-P-1952 AND IN ACCORDANCE WITH UNHSC DESIGN SPECIFICATIONS FOR POROUS ASPHALT PAVEMENT AND INFILTRATION BEDS, REV. OCTOBER 2009 OR MOST RECENT UPDATE LOCATED AT HTTP://WWW.UNH.EDU/UNHSC/SPECS-AND-FACT-SHEETS-0

PART 4: QUALITY ASSURANCE AND QUALITY CONTROL

4.01 GENERAL

A. PERFORM WORK IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, AS AMENDED TO DATE AND AS THEY APPLY TO THE FOLLOWING AND UNHSC DESIGN SPECIFICATIONS FOR POROUS ASPHALT PAVEMENT AND INFILTRATION BEDS OR MOST RECENT UPDATE LOCATED AT HTTP://WWW.UNH.EDU/UNHSC/SPECS-AND-FACT-SHEETS-0.:

3. MATERIALS AND BATCH PLANT REQUIREMENTS.

4. CONSTRUCTION PROCEDURES EXCEPT AS MODIFIED HEREIN.

5. WEATHER AND SEASONAL LIMITATIONS EXCEPT AS MODIFIED HEREIN.

A. PAVING WORK SHALL BE PERFORMED BY A QUALIFIED PAVING CONTRACTOR OR SUBCONTRACTOR ACCEPTABLE TO THE OWNER AND ENGINEER.

B. OBTAIN ASPHALT CONCRETE MATERIALS FROM SAME SOURCE THROUGHOUT PROJECT.

4.02 QUALITY ASSURANCE/CONTROL DURING SUBBASE AND SUBGRADE PREPARATION

4.03 THIRD PARTY QUALITY CONTROL OF HOT MIX PLANT PRODUCTION

A. THE CONTRACTOR SHALL PROVIDE AT CONTRACTOR'S EXPENSE AND THE ENGINEER'S APPROVAL A THIRD PARTY QUALITY CONTROL INSPECTOR TO OVERSEE AND DOCUMENT BOTH 1) MIX PRODUCTION OF THE POROUS ASPHALT WEARING COURSE AND BINDER COURSE MATERIALS USED FOR THE PROJECT, AND 2) FIELD TESTING FOR IN PLACE MATERIALS, AS PER TABLE 5.

B. ALL MIX TESTING RESULTS DURING PRODUCTION SHOULD BE SUBMITTED TO THE ENGINEER ON A DAILY BASIS.

C. QUALITY ASSURANCE FIELD TESTING SHALL BE CONDUCTED FOR IN-PLACE MATERIALS FOR THE POROUS ASPHALT SYSTEM BY A THIRD PARTY AT THE CONTRACTOR'S EXPENSE IN COORDINATION WITH THE ENGINEER.

D. THE CONTRACTOR SHALL COORDINATE WITH THE THIRD PARTY QUALITY CONTROL FIRM TO SUBMIT RESULTS TO THE ENGINEER DAILY AND ON AN ON-GOING BASIS.

4.04 REVIEW SUBMITTALS OF QUALITY ASSURANCE/CONTROL OF PRODUCTION

A. PROVIDE CERTIFICATION OF APPROVED JOB MIX FORMULAS FOR TYPES TO BE USED ON THIS PROJECT.

B. THE MIXING PLANT SHALL EMPLOY A QUALITY CONTROL INSPECTOR. THE INSPECTOR WILL PERFORM QA/QC TESTING AND WILL BE CERTIFIED IN THE DISCIPLINE OF HMA PLANT TECHNICIAN BY THE RELEVANT CERTIFYING AGENCY (E.G. NETTCP IN NEW ENGLAND). THE CONTRACTOR SHALL SAMPLE, TEST AND EVALUATE THE MIX IN ACCORDANCE WITH THE METHODS AND MINIMUM FREQUENCIES SUMMARIZED IN TABLE 5.

C. IF AN ANALYZED SAMPLE IS OUTSIDE THE TESTING TOLERANCES IMMEDIATE CORRECTIVE ACTION WILL BE TAKEN. AFTER THE CORRECTIVE ACTION HAD BEEN TAKEN THE RESULTING MIX WILL BE SAMPLED AND TESTED. IF THE RE-SAMPLED MIX TEST VALUES ARE OUTSIDE THE TOLERANCES THE ENGINEER WILL BE IMMEDIATELY INFORMED. THE ENGINEER MAY DETERMINE THAT IT IS IN THE BEST INTEREST OF THE PROJECT THAT PRODUCTION IS CEASED. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL MIX PRODUCED FOR THE PROJECT.

D. TESTING TOLERANCES DURING CONSTRUCTION. THE PAVING MIXTURE PRODUCED SHOULD NOT VARY FROM THE DESIGN CRITERIA FOR AGGREGATE GRADATION AND BINDER CONTENT BY MORE THAN +/- 5 PERCENT (%) OR APPROVAL BY ENGINEER.

E. SHOULD THE PAVING MIXTURE PRODUCED VARY FROM THE DESIGNATED GRADING AND ASPHALT CONTENT SPECIFIED BY MORE THAN THE ABOVE TOLERANCES, THE APPROPRIATE PRODUCTION MODIFICATIONS ARE TO BE MADE UNTIL THE POROUS ASPHALT MIX IS WITHIN THESE TOLERANCES.

4.05 QUALITY ASSURANCE/CONTROL DURING PAVING

A. QA/QC REQUIREMENTS DURING PAVING ARE SUMMARIZED IN TABLE 4 AND TABLE 5

B. MONITOR QUALITY CONTROL OVER SUPPLIERS, MANUFACTURERS, PRODUCTS, SERVICES, SITE CONDITIONS, AND WORKMANSHIP, TO PRODUCE WORK OF SPECIFIED QUALITY.

PART 5: SIGNAGE FOR OPERATIONS AND MAINTENANCE

RECOMMENDED SIGNAGE SHOULD READ AS FOLLOWS:

POROUS PAVEMENT PARKING FACILITY FOR STORMWATER MANAGEMENT

POROUS ASPHALT ROADWAY-ENVIRONMENTALLY FRIENDLY STREET

- REDUCES POLLUTION AND FLOODING FROM STORMWATER
- PROTECTS AND CONSERVES WATER RESOURCES
- REDUCES EXCESS URBAN HEAT
- REDUCES WINTER SALT FOR DEICING

ROUTINE MAINTENANCE

- SANDING, SEALCOATING, AND CRACKSEALING PROHIBITED.
- DO NOT STORE STOCKPILES ON POROUS SURFACE SUCH AS SAND, SALT, MULCH, LOAM, OR GRASS CLIPPINGS.
- VACUUM 3X PER YEAR (SPRING, SUMMER, FALL) OR AS NEEDED.
- POWER-WASH AT A 45° ANGLE FOR CHRONICALLY CLOGGED AREAS.
- ALL SWEEPINGS MUST BE DISPOSED OF IN A LEGAL MANNER.
- PREVENT RUN-ON OF SEDIMENT AND DEBRIS THROUGH EROSION CONTROL OF NEARBY AREAS.

WINTER MAINTENANCE

- MECHANICAL REMOVAL OF SNOW AND ICE BY SNOW PLOW.
- APPLY DEICING TREATMENTS DURING, AND AFTER STORMS AS NECESSARY TO CONTROL COMPACT SNOW AND ICE NOT REMOVED BY PLOWING.
- LITTLE OR NO ROAD SALT MAY BE NECESSARY BETWEEN STORMS. UP TO 75% REDUCED USE OF ROAD SALT MAY BE FEASIBLE AND MINIMIZE POTENTIAL IMPACT TO GROUNDWATER AND WETLAND RESOURCES.
- NO DEICING MATERIALS SHALL BE STORED ON SITE.

TABLE 1: SUB-BASE MATERIAL GRADATION REQUIREMENTS

MATERIAL TYPE	CHOKER COURSE	RESERVOIR COURSE PEA GRAVEL ASTM NO. 67	FILTER COURSE (NHDOT 304.1 MODIFIED)
SIEVE DESIGNATION (INCH/MM)	PERCENT PASSING (%), CRITERIA	PERCENT PASSING (%), CRITERIA	PERCENT PASSING (%), CRITERIA
6/150			100
2/50			
1½/37.5	100		
1/25	75 – 100	100	
¾/19	45 - 65	90-100	
½/12.5	20 - 35		
³/₈/9.5	0- 25	20-55	
#4/4.75		0-10	70-100
#8/2.36		0-5	
#200/0.075			0-6**
VOIDS (ASTM C29)	>40%	>40%	

* ALL RANGE +/-5% OR APPROVAL BY REVIEW ENGINEER

**PREFERABLY LESS THAN 4% FINES

TABLE 2: TESTING REQUIREMENTS FOR COMPACTION AND INFILTRATION FOR SUBGRADE AND SUBBASE

CONSTRUCTION ELEMENT	LAYER THICKNESS (IN)	FIELD TESTING REQ.	COMPACTION LEVEL STANDARD PROCTOR (D698)	INFILTRATION RATE (FT/DAY)	FREQUENCY 1X PER SF
I. EMBANKMENTS AND FILLS					
A. NON-POROUS AREAS FILL AND SUBGRADE UNDER STREETS, PARKING AREAS, AND OTHER PAVED AREAS	12	T138	95%	N/A	
B. POROUS AREAS FILL AND SUBGRADE	12	T138 D3385	95-99%	>5-30*	10,000
C. POROUS AREAS SUBBASE (FILTER COURSE)	12	T138 D3385	95-99%	>5-30*	40,000
D. ROUGH SITE GRADING	24	T138	85%	N/A	
II. TRENCHES					
A. PIPE SIDEFILLS AND TOP 4 FEET OF PIPE BACKFILL UNDER PAVEMENTS"	12	T138	93%	N/A	
B. BACKFILL BELOW 4 FEET UNDER PAVEMENT	18	T138	90%	N/A	

*THE INFILTRATION RATE SHALL BE NO LESS 5-30 FT/DAY OR 50% OF THE HYDRAULIC CONDUCTIVITY (D2434) AT 95% STANDARD PROCTOR COMPACTION; SUBGRADE REFERS TO EVERYTHING 2' BELOW FINISHED GRADE OF PAVEMENT; SUBBASE REFERS TO CONSTRUCTED PAVEMENT MATERIALS ABOVE SUBGRADE AND BELOW PAVEMENT SURFACE.

TABLE 3: POROUS ASPHALT MIX DESIGN CRITERIA.

SIEVE DESIGNATION (INCH/MM)	PERCENT PASSING (%), CRITERIA
0.75/19	100
0.50/12.5	85-100
0.375/9.5	55-75
NO.4/4.75	10-25
NO.8/2.36	5-10
NO.200/0.075 (#200)	2-4
PGAB CONTENT (AASHTO T164)	5.7-6.2%
MIXING TEMPERATURE RANGE	290°F-350°F OR AS PER PGAB SUPPLIER
PGAB GRADE	PG 76-28
STYRENE BUTADIENE STYRENE (SBS)	3% OR TBD
AIR VOID CONTENT (ASTM D6752/AASHTO T275)	18.0-22.0%
DRAINDOWN (ASTM D6390)	< 0.3 %
RETAINED TENSILE STRENGTH (TSR) (AASHTO 283)	> 80 %
CANTABRO ABRASION TEST ON UNAGED SAMPLES (ASTM D7064-04)	< 12%

*TESTING TOLERANCES SHOULD BE WITHIN THE SPECIFIED RANGE, OR FOR SINGLE CRITERIA SHOULD NOT VARY BY MORE THAN +/- 5 PERCENT (%) OR BY APPROVAL OF ENGINEER.

**CELLULOSE OR MINERAL FIBERS MAY BE USED TO REDUCE DRAINDOWN.

***IF THE TSR (RETAINED TENSILE STRENGTH) VALUES FALL BELOW 80% WHEN TESTED PER NAPA IS 131 (WITH A SINGLE FREEZE THAW CYCLE RATHER THAN 5), THEN IN STEP 4, THE CONTRACTOR SHALL EMPLOY AN ANTISTRIP ADDITIVE, SUCH AS HYDRATED LIME (ASTM C977) OR A FATTY AMINE, TO RAISE THE TSR VALUE ABOVE 80%.

****UNDER NO CIRCUMSTANCES IS A PGAB 64-28 ACCEPTABLE IN REPLACE OF PG 76-28.

TABLE 4: QA/QC REQUIREMENTS DURING PAVING

ACTIVITY	SCHEDULE/ FREQUENCY	TOLERANCE
INSPECT TRUCK BEDS FOR POOLING (DRAIN DOWN)	EVERY TRUCK	N/A
TAKE SURFACE TEMP. BEHIND JOINT HEATER	EACH PULL	6°C (10°F) OF COMPACTION TEMP.
CONSULT WITH ENGINEER TO DETERMINE LOCATIONS OF BUTT JOINTS	AS NEEDED	N/A
TEST SURFACE SMOOTHNESS & POSITIVE DRAINAGE WITH 10 FT STRAIGHTEDGE	AFTER COMPACTION	4.5 MM (3/16")
CONSULT WITH ENGINEER TO MARK CORE LOCATIONS FOR QA TESTING	AFTER COMPACTION	N/A

TABLE 5: QA/QC TESTING REQUIREMENTS BY SAMPLES AT ASPHALT PLANT AND FIELD SAMPLES BY CORE

TEST	POROUS ASPHALT WEARING COURSE RANGE/SAMPLE LOCATION	ASPHALT TREATED PERMEABLE BASE RANGE/SAMPLE LOCATION	FREQUENCY MINIMUM X PER DAY, CRITERIA
BINDER CONTENT (AASHTO T164)	5.7 – 6.25%, ASPHALT PLANT	2.7%, ASPHALT PLANT	2X, PER 500 TONS
AIR VOID CONTENT (ASTM D6752/AASHTO T275)	16 – 22%, FIELD CORE	>27%, FIELD CORES	2X, PER 500 TONS
DRAINDOWN (ASTM D6390)	≤0.3%, ASPHALT PLANT	N/A	2X, PER 500 TONS
CANTABRO ABRASION TEST ON UNAGED SAMPLES (ASTM D7064-04)	≤12%, ASPHALT PLANT	N/A	2X, PER 500 TONS
INFILTRATION RATE (HOSE TEST)*	>1000 IN/HR	>3000 IN/HR	2X, PER 500 TONS

*INFILTRATION WILL BE REDUCED FOR TESTS PERFORMED ON SLOPE; HOSE TESTS WILL BE PERFORMED BY USE OF A WATER TRUCK WITH HOSE AND MEASURED FLOW, AND DETERMINED BY DIAMETER OF PUDDLE.

**INFILTRATION TESTS WILL BE COLLOCATED WITH CORE SAMPLES.

***TESTING TOLERANCES SHOULD NOT VARY FROM THE DESIGN CRITERIA BY MORE THAN +/- 5 PERCENT (%) OR APPROVAL BY ENGINEER

SEAL

BRUCE D. SCAMMAN No. 11236

6/9/26

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2	JUN 5, 2026	FOR APPROVAL	
1	MAY 22, 2024	FOR APPROVAL	

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EEI
CIVIL & STRUCTURAL CONSULTANTS, LAND PLANNERS
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603-772-4400 | EMANUELENGINEERING.COM ©2025

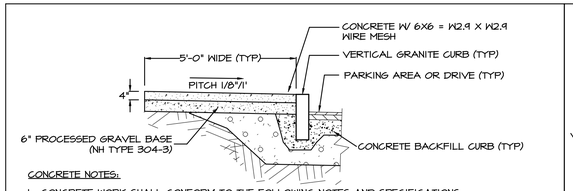
CLIENT:

COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

TITLE:

POROUS PAVEMENT
NOTES
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

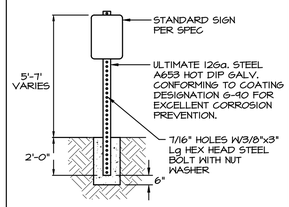
PROJECT: 23-1109
SCALE: AS SHOWN
SHEET: D2



CONCRETE NOTES:

1. CONCRETE WORK SHALL CONFORM TO THE FOLLOWING NOTES AND SPECIFICATIONS.
   - "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" - ACI 301-05.
   - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" - ACI 318-08.
2. COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 4000 PSI AFTER 28 DAYS WITH 5 - 7% AIR ENTRAINMENT, W.R. GRACE "ECLIPSE PLUS" SHRINKAGE ADMIXTURE, AND W.R. GRACE "DCI-S" CORROSION INHIBITOR, AND A MIDRANGE WATER REDUCER.
3. FINISH CONCRETE W/ BROOM FINISH, TOOLED CONTROL JOINTS @ 5'-0" MAX SPACING, AND TOOLED JOINT ALONG ALL EDGES OF SIDEWALK.
4. SLAB SHALL BE WATER CURED FOR A MINIMUM OF 5 DAYS USING WET BURLAP.
5. ALL SIDEWALKS ARE TO BE CONCRETE AS SHOWN ON THIS DETAIL.

TYPICAL CONCRETE SIDEWALK DETAIL
N.T.S.



STANDARD SIGN MOUNTING DETAIL
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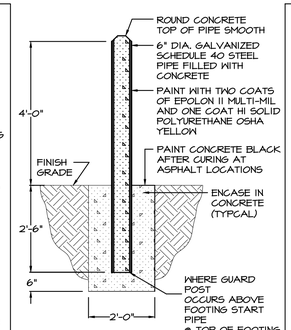

BOLLARD DETAIL
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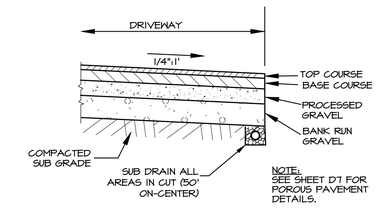
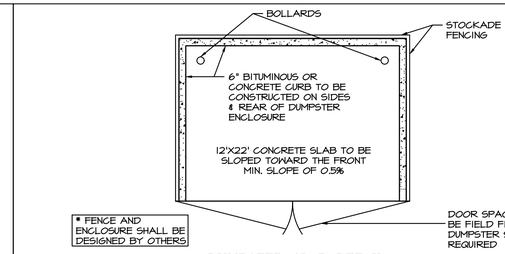


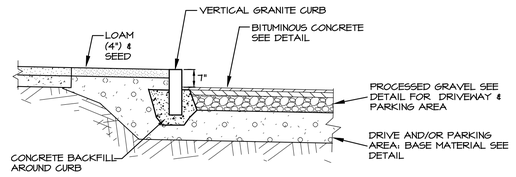
PAVEMENT COMPONENTS:
MATERIALS AND PLACEMENT METHODS SHOULD MEET CURRENT NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) REQUIREMENTS.

DRIVEWAY & PARKING AREA:
1-1/2" ASPHALT WEARING SURFACE, NHDOT ½" NOMINAL MAXIMUM AGGREGATE SIZE
2-1/2" ASPHALT BASE, NHDOT ¾" NOMINAL MAXIMUM AGGREGATE SIZE
6" CRUSHED GRAVEL BASE, NHDOT TYPE 304.3
12" GRAVEL SUB BASE, NHDOT TYPE 304.2

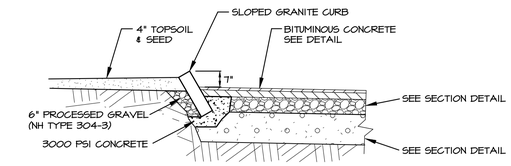
PAVED DRIVEWAY SECTION
N.T.S.



DUMPSTER SLAB DETAIL

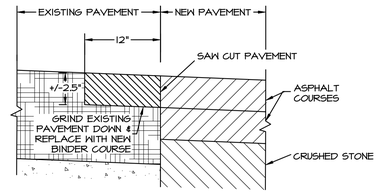


VERTICAL CURB DETAIL
N.T.S.

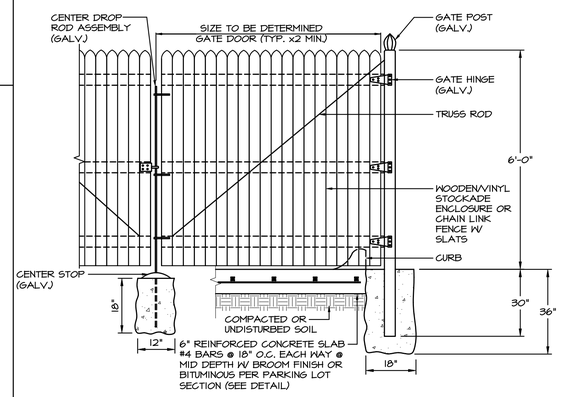


SLOPED CURB DETAIL
N.T.S.

NOTES:
1. ALL GRAVEL AND SUBGRADE TO BE COMPACTED TO 95% MAXIMUM DRY DENSITY PER ASTM D1557 WITHIN 3% OF OPTIMUM MOISTURE CONTENT.
2. MATERIALS MAY VARY UNDERNEATH EXISTING SECTION.

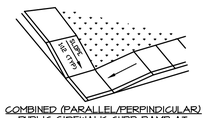


SAW CUT & GRIND DOWN DETAIL
NOT TO SCALE

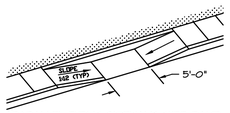


STOCKADE DUMPSTER ENCLOSURE DETAIL
N.T.S.

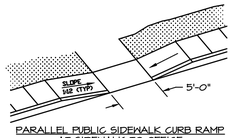
NOTE: CONSTRUCTION TO COMPLY WITH CURRENT ADA STANDARDS.



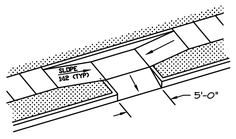
COMBINED (PARALLEL/PERPINDICULAR) PUBLIC SIDEWALK CURB RAMP AT SIDEWALK CORNER
N.T.S.



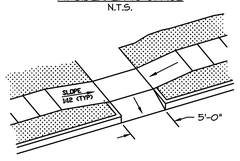
PARALLEL PUBLIC SIDEWALK CURB RAMP
N.T.S.



PARALLEL PUBLIC SIDEWALK CURB RAMP AT SIDEWALK TO OFFICE
N.T.S.



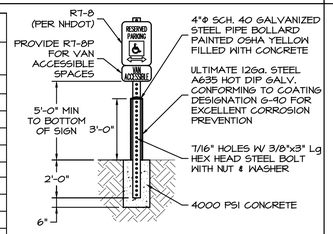
COMBINED (PARALLEL/PERPENDICULAR) PUBLIC SIDEWALK CURB RAMP
N.T.S.



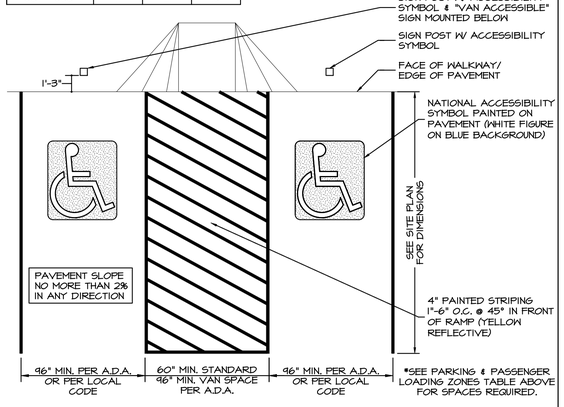
COMBINED (PARALLEL/PERPENDICULAR) PUBLIC SIDEWALK CURB RAMP AT SIDEWALK TO OFFICE
N.T.S.

ACCESSIBILITY RAMP DETAILS
N.T.S.

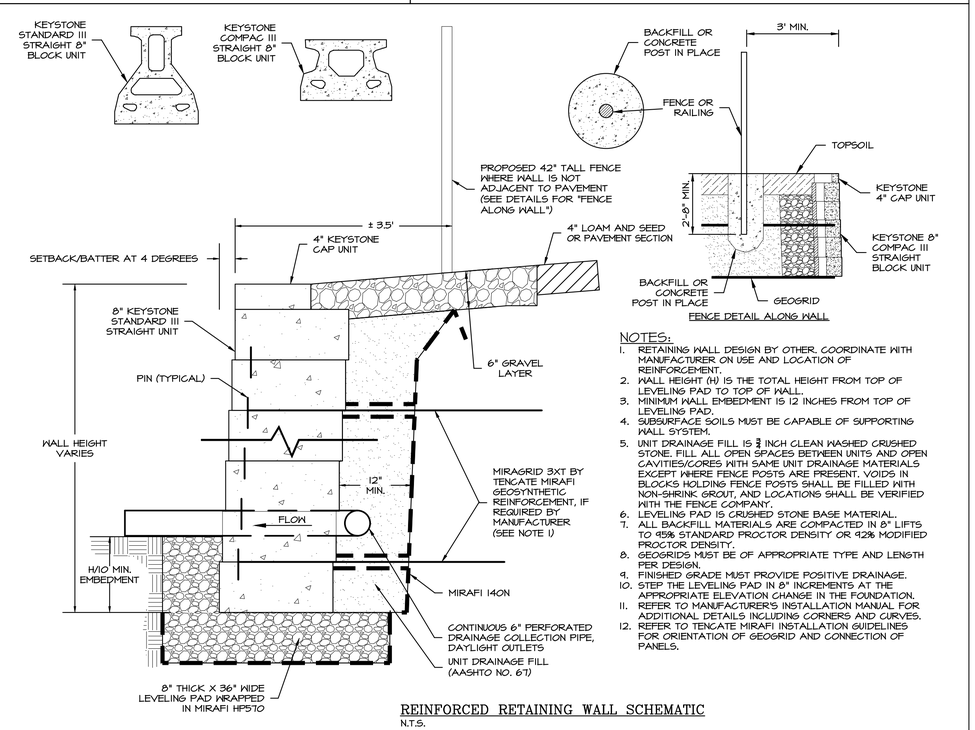
PARKING & PASSENGER LOADING ZONES			
TOTAL # PARKING SPACES	MINIMUM ACCESSIBLE SPACES		
	STAND.	VAN	TOTAL
1 - 25	0	1	1
26 - 50	1	1	2
51 -75	2	1	3
76 - 100	3	1	4
101 - 150	4	1	5
151 - 200	5	1	6
201 - 300	6	1	7
301 - 400	7	1	8
401 - 500	8	2	10
501 - 550	9	2	11
551 - 600	10	2	12
601 - 650	11	2	13



ACCESSIBILITY SIGN MOUNTING DETAIL



PARKING STALL FOR THE PHYSICALLY CHALLENGED
N.T.S.



NOTES:
1. RETAINING WALL DESIGN BY OTHER. COORDINATE WITH MANUFACTURER ON USE AND LOCATION OF REINFORCEMENT.
2. WALL HEIGHT (H) IS THE TOTAL HEIGHT FROM TOP OF LEVELING PAD TO TOP OF WALL.
3. MINIMUM WALL EMBEDMENT IS 12 INCHES FROM TOP OF LEVELING PAD.
4. SUBSURFACE SOILS MUST BE CAPABLE OF SUPPORTING WALL SYSTEM.
5. UNIT DRAINAGE FILL IS ¾ INCH CLEAN WASHED CRUSHED STONE. FILL ALL OPEN SPACES BETWEEN UNITS AND OPEN CAVITIES/CORES WITH SAME UNIT DRAINAGE MATERIALS EXCEPT WHERE FENCE POSTS ARE PRESENT. VOIDS IN BLOCKS HOLDING FENCE POSTS SHALL BE FILLED WITH NON-SHRINK GROUT, AND LOCATIONS SHALL BE VERIFIED WITH THE FENCE COMPANY.
6. LEVELING PAD IS CRUSHED STONE BASE MATERIAL.
7. ALL BACKFILL MATERIALS ARE COMPACTED IN 8" LIFTS TO 95% STANDARD PROCTOR DENSITY OR 92% MODIFIED PROCTOR DENSITY.
8. GEOGRIDS MUST BE OF APPROPRIATE TYPE AND LENGTH PER DESIGN.
9. FINISHED GRADE MUST PROVIDE POSITIVE DRAINAGE.
10. STEP THE LEVELING PAD IN 8" INCREMENTS AT THE APPROPRIATE ELEVATION CHANGE IN THE FOUNDATION.
11. REFER TO MANUFACTURER'S INSTALLATION MANUAL FOR ADDITIONAL DETAILS INCLUDING CORNERS AND CURVES.
12. REFER TO TENCATE MIRAFI INSTALLATION GUIDELINES FOR ORIENTATION OF GEOGRID AND CONNECTION OF PANELS.

REINFORCED RETAINING WALL SCHEMATIC
N.T.S.

SEAL

STATE OF NEW HAMPSHIRE · BRUCE D. SCAMMAN No. 11236 · LICENSED PROFESSIONAL ENGINEER
6/9/26

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
3	JUN 5, 2026	FOR APPROVAL	
2	JUN 19, 2024	FOR APPROVAL	
1	MAY 22, 2024	FOR APPROVAL	

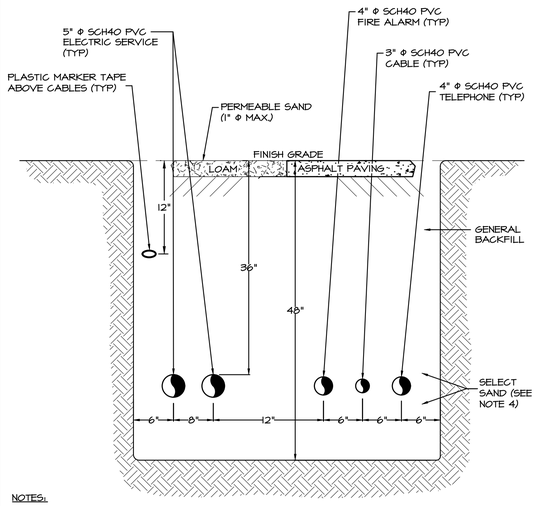
DRAWN: NCB | DESIGN: NCB
CHECKED: BDS | CHECKED: BDS

CIVIL & STRUCTURAL CONSULTANTS, LAND PLANNERS
100 GRIFFIN ROAD, UNIT C, PORTSMOUTH, NH 03801
603-772-4400 | EMANUELENGINEERING.COM ©2025

CLIENT:
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

TITLE:
SITE DETAILS
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	AS SHOWN	D3

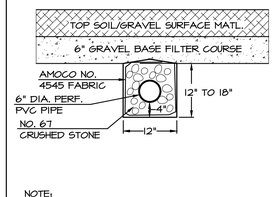


NOTES:

VERIFY NUMBER OF CONDUIT RUNS AND TYPES OF CONDUITS REQUIRED WITH ELECTRICAL AND MECHANICAL DESIGNERS BEFORE INSTALLATION

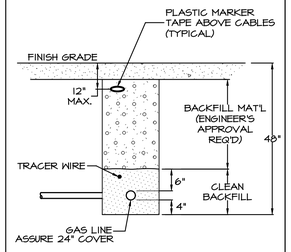
1. ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.
2. SERVICE BOX CONNECTIONS SHALL BE "FLUSH MOUNT" TO GREATEST EXTENT POSSIBLE AND LOCATED AT PROPERTY LINE CORNERS.
3. PIPE SIZES ARE MINIMUM SIZES TO BE INSTALLED.
4. BACKFILL: SHALL BE SELECTED SAND, 100% SHALL PASS THROUGH 1/4" SCREEN, UP TO 1% MAY BE ROUNDED PEBBLES UP TO 3/8" IN SIZE.
5. TRENCH WIDTH IS TO BE 12" MINIMUM, DEPENDING ON NUMBER OF UTILITIES IN TRENCH, UNLESS CABLE IS PLOWED IN.
6. UTILITIES ARE TO BE LOCATED IN ROAD SHOULDERS AND ROW'S AS DETERMINED BY PLANS. ALL WORK TO BE COORDINATED WITH UTILITY COMPANIES.
7. THERE MAY BE MORE OR LESS SERVICES TO BE INSTALLED IN TRENCH VERIFY WITH UTILITIES PLAN.
8. VERIFY & REFER TO PROJECT ELECTRICAL DRAWINGS AND DETAILS FOR SPECIFICS.

TYPICAL UTILITY TRENCH DETAIL
N.T.S.

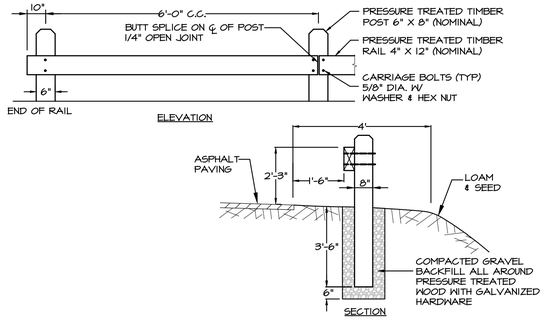


NOTE:
1. SUB DRAINS SHALL DRAIN TO DRAINAGE STRUCTURE OR TO DAYLIGHT PER SHEET C3.

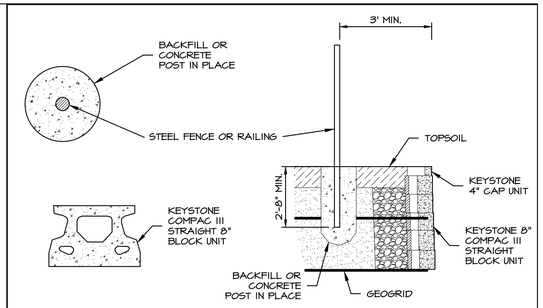
SUBSOIL DRAIN DETAIL
N.T.S.



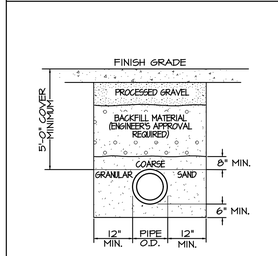
GAS LINE INSTALLATION
N.T.S.



TIMBER GUARD RAIL DETAIL
N.T.S.

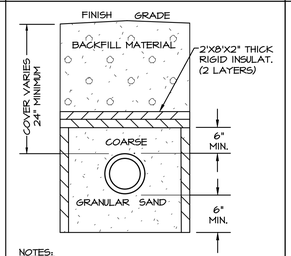


TYPICAL FENCE POST OFFSET
N.T.S.



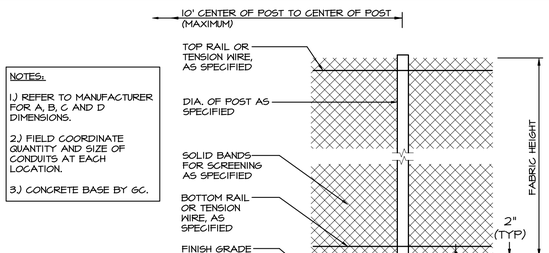
NOTE:
1. SEE SITE PLAN FOR PIPE SIZES AND SERVICES.

WATERLINE INSTALLATION
N.T.S.



NOTES:
1. INSULATE SEWER OR FORCE MAIN WHERE PIPE WILL BE LESS THAN 6' BELOW PLOWED AREAS OR LESS THAN 4'-6" BELOW AREAS RUNNING CROSS COUNTRY.
2. GAPS BETWEEN SECTIONS OF INSULATION TO BE COVERED WITH 2'x2'x2" PIECE OF INSULATION CENTERED OVER GAP.

SEWER PIPE INSTALLATION DETAIL
N.T.S.



NOTES:

1) REFER TO MANUFACTURER FOR A, B, C AND D DIMENSIONS.

2) FIELD COORDINATE QUANTITY AND SIZE OF CONDUITS AT EACH LOCATION.

3) CONCRETE BASE BY GC.

GATE POST

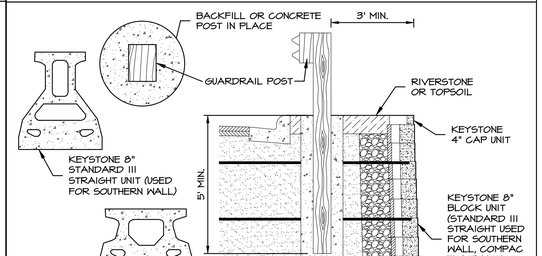
GATE LEAF WIDTH	GATE POST (OD)	FABRIC HEIGHT	"A" DIA.	"B" DEPTH	"C" POST EMBED.
3' TO 6'	2.875"	3' TO 5'	12"	38"	36"
		6' TO 9'	14"	42"	40"
		10' TO 12'	16"	46"	44"
7' TO 12'	4.000"	3' TO 5'	14"	38"	36"
		6' TO 9'	16"	42"	40"
		10' TO 12'	18"	46"	44"
13'	6.625"	8'-0"	16"	42"	40"

LINE AND TERMINAL POSTS

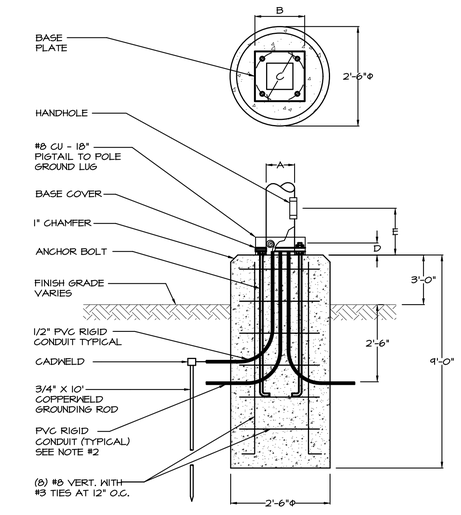
FABRIC HEIGHT	TYPE POST	"A" DIAM	"B" DEPTH	"C" POST EMBEDMENT
3'-0" TO 4'-0"	LINE	6"	26"	24"
	TERMINAL	10"	32"	30"
5'-0"	LINE	8"	32"	30"
	TERMINAL	10"	32"	30"
6'-0" TO 9'-0"	LINE	12"	38"	36"
	TERMINAL	12"	38"	36"
10'-0" TO 12'-0"	LINE	18"	38"	36"
	TERMINAL	18"	38"	36"
13'-0" TO 18'-0"	LINE	24"	42"	40"
	TERMINAL	24"	42"	40"

NOTE: TERMINAL POSTS INCLUDE END, CORNER, AND PULL POSTS

CHAIN LINK FENCE FOUNDATION
N.T.S.

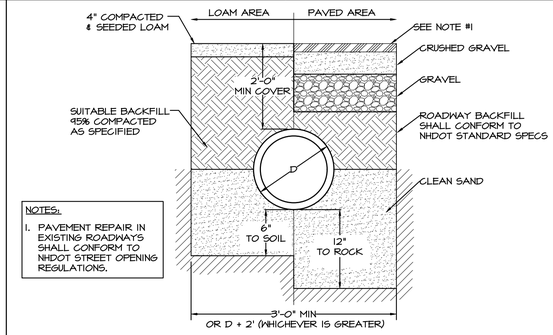


TYPICAL GUARDRAIL CROSS SECTION
N.T.S.



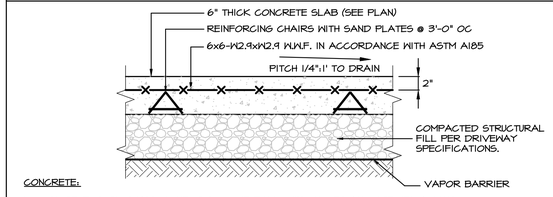
NOTES:
1. REFER TO MANUFACTURER FOR A, B, C, D AND E DIMENSIONS.
2. FIELD COORDINATE QUANTITY AND SIZE OF CONDUITS AT EACH LOCATION.
3. CONCRETE BASE BY THE GENERAL CONTRACTOR.

LIGHT POLE CONCRETE BASE DETAIL
N.T.S.



NOTES:
1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO NHDOT STREET OPENING REGULATIONS.

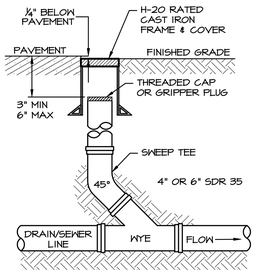
DRIVEWAY & PARKING LOT TYPICAL PIPE-RUN SECTION
N.T.S.



CONCRETE:

1. CONCRETE WORK SHALL CONFORM TO THE FOLLOWING NOTES AND SPECIFICATIONS.
   - "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" - ACI 301-05.
   - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" - ACI 318-08.
2. COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 4000 PSI AFTER 28 DAYS WITH 5 TO 7% AIR ENTRAINMENT FOR EXTERIOR SLABS, W.R. GRACE "ECLIPSE PLUS" SHRINKAGE ADMIXTURE, AND W.R. GRACE "DCI-S" CORROSION INHIBITOR, AND A MIDRANGE WATER REDUCER.
3. FINISH SLAB W/ BROOM FINISH AND TOOLED JOINT ALONG ALL EDGES OF SLAB.
4. SLAB SHALL BE WATER CURED FOR A MINIMUM OF 5 DAYS USING WET BURLAP.
5. W.W.F. SHALL BE SHEETS ONLY, LAP TWO SQUARES AT ALL JOINTS AND TIE @ 3'-0" ON CENTER.

TYPICAL EXTERIOR CONCRETE PAD FOR TRANSFORMER DETAIL
N.T.S.



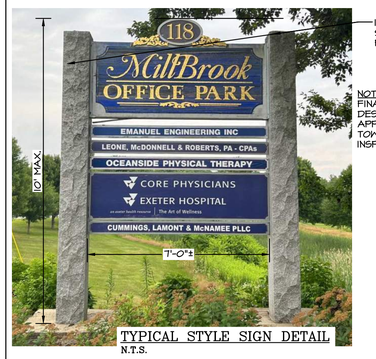
SERVICE CLEANOUT DETAIL
N.T.S.

TRAFFIC CONTROL SIGN SCHEDULE

MANUFACTURE	SIGN NUMBER	SIGN (N.T.S.)	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	DESCRIP.	MOUNT TYPE	MOUNT HEIGHT	REMARKS
WORKSAFE T.C.I. INC. OR EQUAL	R1-1	STOP	30"	30"	RED ON WHITE	ULTI-MATE OR EQUAL	7'-0"	REFLECTORIZED
WORKSAFE T.C.I. INC. OR EQUAL	R07-008	RESERVED PARKING	18"	24"	GREEN ON WHITE	ULTI-MATE OR EQUAL	7'-0"	REFLECTORIZED

NOTE:

ALL PROPOSED SIGNAGE TO COMPLY WITH THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS 11TH EDITION."



NOTE:
FINAL SIGN DESIGN TO BE APPROVED BY TOWN BUILDING INSPECTOR.

TYPICAL STYLE SIGN DETAIL
N.T.S.

SEAL

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
6/9/26

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
5	JUN 5, 2026	FOR APPROVAL	
4	AUG 2, 2024	FOR APPROVAL	
1	MAY 22, 2024	FOR APPROVAL	

DRAWN: NCB | DESIGN: NCB
CHECKED: BDS | CHECKED: BDS

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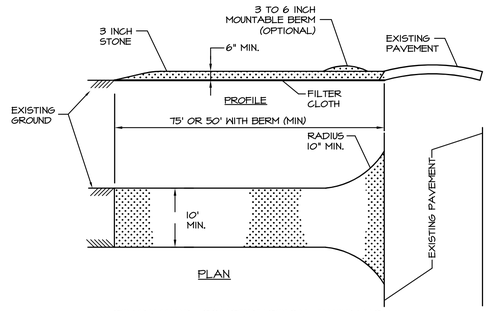
CLIENT:

COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

TITLE:

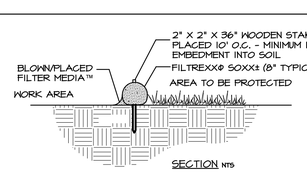
UTILITY & SITE DETAILS
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	AS SHOWN	D4

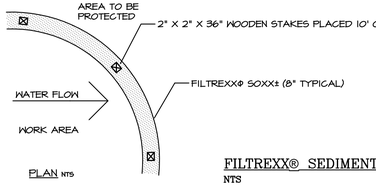


STABILIZED CONSTRUCTION ENTRANCE
N.T.S

NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
4. ADDITIONAL INFO AVAILABLE AT HTTP://WWW.FILTREXX.COM



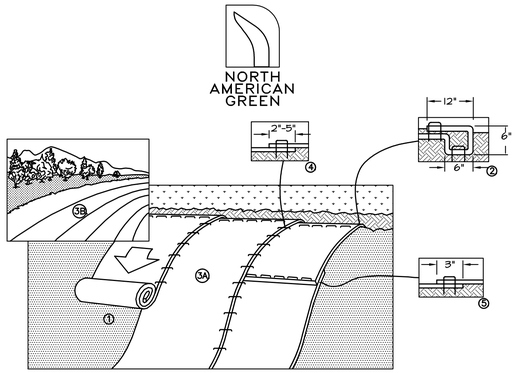
SECTION NTS



PLAN NTS

FILTREXX® SEDIMENT CONTROL
NTS

NORTH AMERICAN GREEN



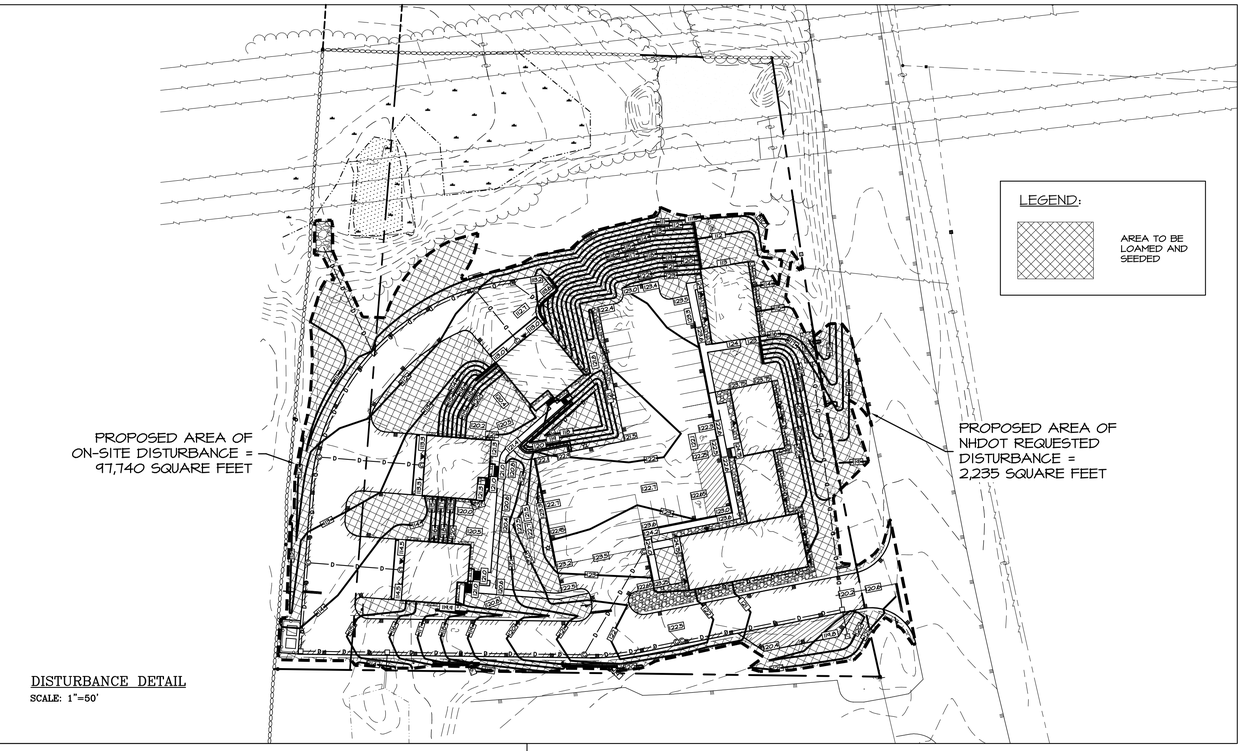
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (15cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

CRITICAL POINTS
A. OVERLAPS, AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

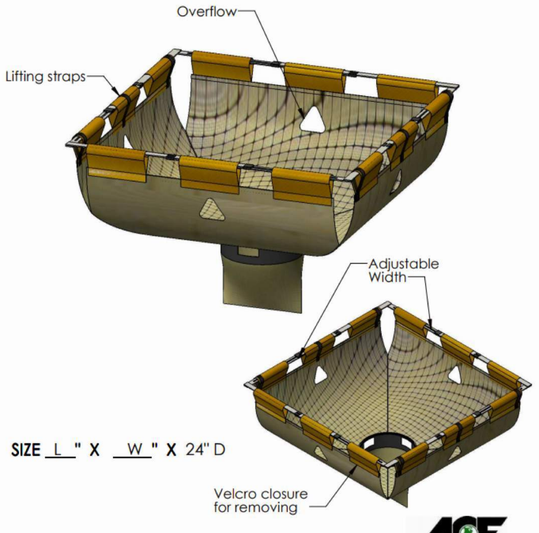
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENTHS IN EXCESS OF 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

14648 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47725
USA 1-800-772-2040 CANADA 1-800-448-2040
www.nagreen.com



DISTURBANCE DETAIL
SCALE: 1"=50'

Silt Sack - Type C



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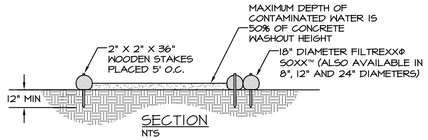
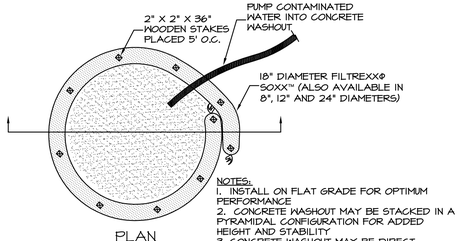


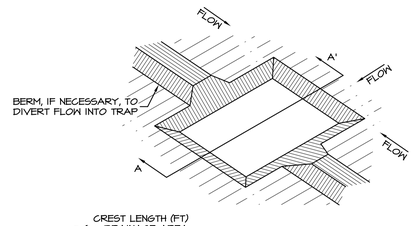
SECTION
NTS



PLAN
NTS

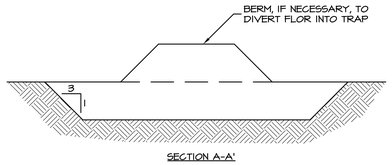
NOTES:
1. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE
2. CONCRETE WASHOUT MAY BE STACKED IN A PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT AND STABILITY
3. CONCRETE WASHOUT MAY BE DIRECT SEEDED AT THE TIME OF INSTALLATION

FILTREXX® CONCRETE WASHOUT DETAIL
N.T.S.



CREST LENGTH (FT) = 6 x DRAINAGE AREA

ISOMETRIC VIEW



SECTION A-A'

NOTES:
1. SEDIMENT TRAPS SHOULD BE LOCATED SO THAT THEY CAN BE INSTALLED PRIOR TO DISTURBING THE AREA THEY ARE TO PROTECT.
2. THE TRAP SHOULD BE INSTALLED AS CLOSE TO THE DISTURBED AREA OR SOURCE OF SEDIMENT AS POSSIBLE.
3. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE TRAP SHOULD BE LESS THAN 5 ACRES.
4. THE MINIMUM VOLUME OF THE TRAP SHOULD BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
5. THE SIDE SLOPES OF THE TRAP SHOULD BE 3:1 OR FLATTER, AND SHOULD BE STABILIZED IMMEDIATELY AFTER THEIR CONSTRUCTION.
6. AN EARTH OUTLET SEDIMENT TRAP HAS A DISCHARGE POINT THAT IS EITHER OVER NATURAL GROUND OR CUT INTO NATURAL GROUND.
7. THE OUTLET WIDTH SHOULD BE EQUAL TO 6 TIMES THE DRAINAGE AREA IN ACRES.
8. THE EMBANKMENT AND OUTLET SHOULD BE VEGETATED WITHIN 3 DAYS OF CONSTRUCTION.

EARTH OUTLET
SEDIMENT TRAP DETAIL
NOT TO SCALE

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
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2	MAY 7, 2025	FOR APPROVAL	
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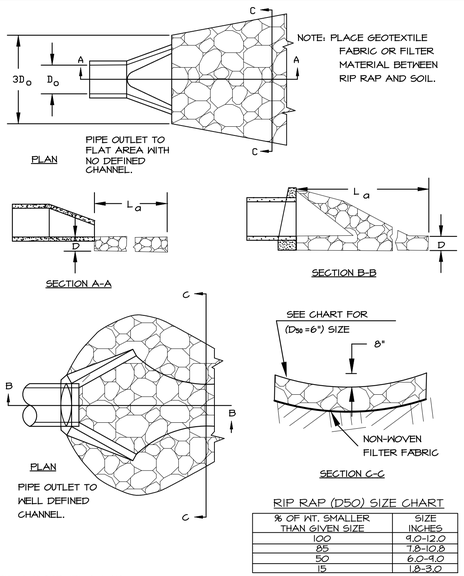
CLIENT:
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

SEAL

TITLE:
EROSION CONTROL DETAILS
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	AS SHOWN	D5



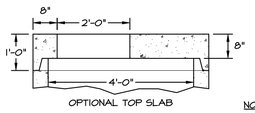
NOTE: PLACE GEOTEXTILE FABRIC OR FILTER MATERIAL BETWEEN RIP RAP AND SOIL.

RIP RAP (D50) SIZE CHART

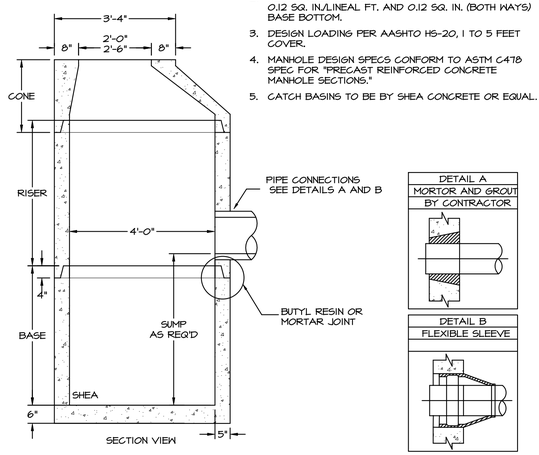
% OF WT. SMALLER THAN GIVEN SIZE	SIZE INCHES
100	9.0-12.0
85	7.8-10.8
50	6.0-9.0
15	1.0-3.0

CONSTRUCTION SPECIFICATIONS:
1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIPRAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OF GRAVEL USED FOR FILTER OR RIPRAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIPRAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

PIPE OUTLET PROTECTION
N.T.S.

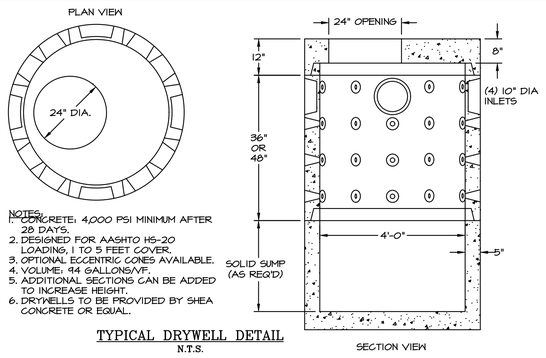


OPTIONAL TOP SLAB



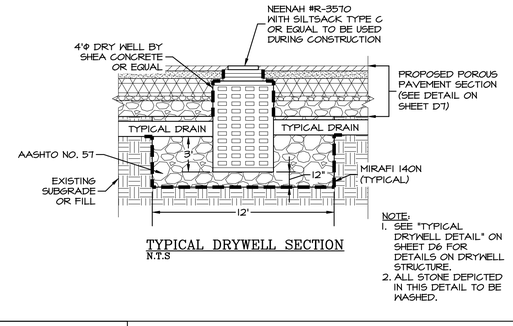
NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. REINFORCED STEEL CONFORMS TO ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
3. DESIGN LOADING PER AASHTO H5-20, 1 TO 5 FEET COVER.
4. MANHOLE DESIGN SPECS CONFORM TO ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
5. CATCH BASINS TO BE BY SHEA CONCRETE OR EQUAL.

TYPICAL CATCH BASIN/MANHOLE DETAIL
N.T.S.



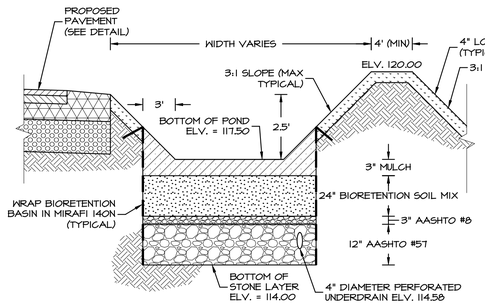
NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGNED FOR AASHTO H5-20 LOADING, 1 TO 5 FEET COVER.
3. OPTIONAL ECCENTRIC CONES AVAILABLE.
4. VOLUME: 94 GALLONS/VF.
5. ADDITIONAL SECTIONS CAN BE ADDED TO INCREASE HEIGHT.
6. DRYWELLS TO BE PROVIDED BY SHEA CONCRETE OR EQUAL.

TYPICAL DRYWELL DETAIL
N.T.S.



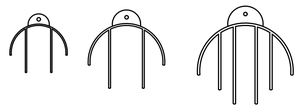
TYPICAL DRYWELL SECTION
N.T.S

NOTE:
1. SEE "TYPICAL DRYWELL DETAIL" ON SHEET D6 FOR DETAILS ON DRYWELL STRUCTURE.
2. ALL STONE DEPICTED IN THIS DETAIL TO BE WASHED.



TYPICAL BIORETENTION AREA DETAIL
N.T.S.

BIOSKALE NOTES:
1. BIORETENTION SOIL MIX DESIGN.
   A. 60% SAND (NHDOT 304.1 SAND)
   B. 20% WOOD CHIPS
   C. 20% TOPSOIL (* MINUS SCREENED LOAM)
2. VERIFY THAT THERE IS NO RESTRICTIVE SOIL LAYER AT BOTTOM OF EXCAVATION.
3. DO NOT COMPACT SUBGRADE AT BOTTOM OF EXCAVATION.
4. NO BIORETENTION SOIL MIX SHALL BE PLACED UNTIL ENGINEERING APPROVAL AND INSPECTION OF SUBGRADE HAS BEEN CONDUCTED.
5. ALL FINISH GRADES AND SURFACES TO BE STABILIZED BY VEGETATION UPON COMPLETION UNLESS NOTED OTHERWISE.
6. SEE LAYOUT PLAN FOR STRUCTURE ELEVATION AND INVERTS, PIPE TYPE, LENGTH, AND SLOPE, AND BIORETENTION AREA DIMENSIONS
7. 4" PERFORATED PIPE IS TO BE SDR-35 WITH ½" DIAMETER PERFORATIONS, 3 HOLES MINIMUM PER FOOT OF LENGTH
8. ALL STONE TO BE WASHED.



ANIMAL GUARD GRATE
(FINGER STYLE)

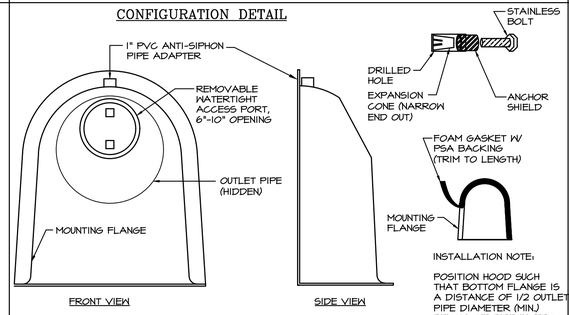
STANDARD SIZES:
4", 6", 8", 10", 12", 15", 18", 24", 30", 36" & 42"

NOTES:

1.) PRODUCTS SHOWN MANUFACTURED BY ADVANCE DRAINAGE SYSTEM INC. WWW.ADS-PIPE.COM

2.) USE ADVANCE DRAINAGE SYSTEM INC. OR EQUAL

3.) FOLLOW MANUFACTURER INSTALLATION INSTRUCTIONS

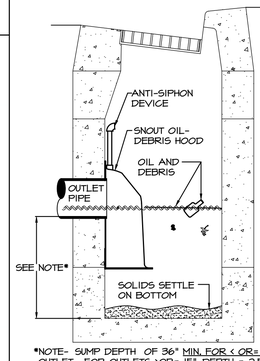


INSTALLATION NOTE:

POSITION HOOD SUCH THAT BOTTOM FLANGE IS A DISTANCE OF 1/2 OUTLET PIPE DIAMETER (MIN.) BELOW THE PIPE INVERT. MINIMUM DISTANCE FOR PIPES < 12" I.D. IS 6".

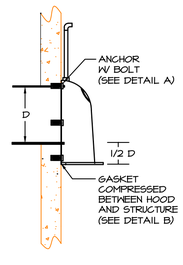
CONFIGURATION DETAIL

SNOUT OIL-WATER-DEBRIS SEPARATOR



*NOTE- SUMP DEPTH OF 36" MIN. FOR < OR= 12" DIAM. OUTLET. FOR OUTLETS >OR= 15", DEPTH = 2.5-3X DIAM.

SNOUT INSTALLATION DETAIL
N.T.S.

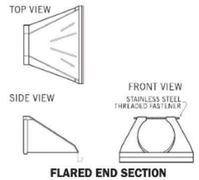


DETAIL B

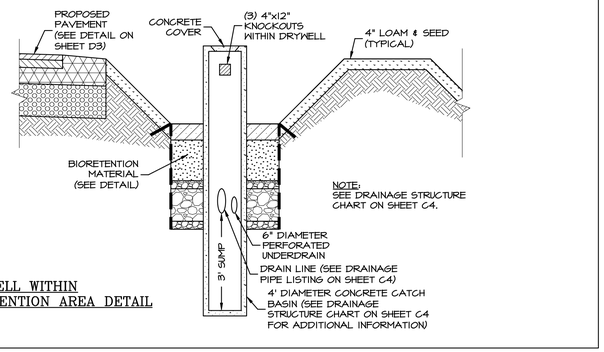
DETAIL A

FLARED END SECTIONS

SIZE	PRODUCT CODE
10" (250mm)	1015NP
12" (300mm) / 15" (375mm)	1215NP
18" (450mm)	1810NP
24" (600mm)	2410NP
30" (750mm)	3015NP
36" (900mm)	3615NP



FLARED END SECTION



DRY WELL WITHIN BIORETENTION AREA DETAIL
N.T.S.

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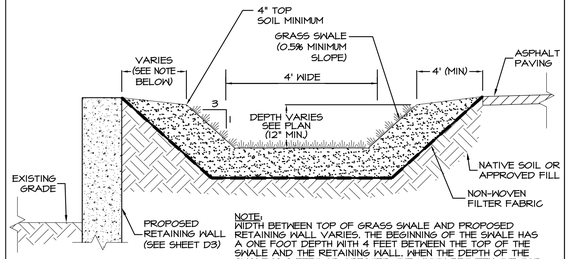
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

SEAL

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN No. 11236 LICENSED PROFESSIONAL ENGINEER
6/9/26

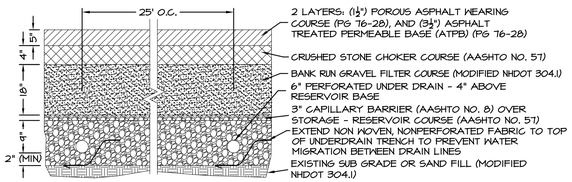
TITLE:
DRAINAGE DETAILS
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	AS SHOWN	D6



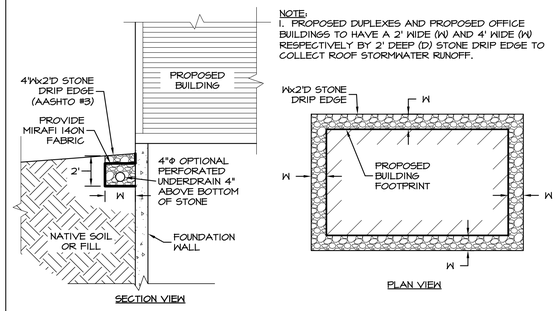
NOTE:
WIDTH BETWEEN TOP OF GRASS SWALE AND PROPOSED RETAINING WALL VARIES. THE BEGINNING OF THE SWALE HAS A ONE FOOT DEPTH WITH 4 FEET BETWEEN THE TOP OF THE SWALE AND THE RETAINING WALL. WHEN THE DEPTH OF THE SWALE IS 2 FEET OR GREATER, THE WIDTH BETWEEN THE TOP OF THE SWALE THE RETAINING WALL SHALL BE 8 FEET. THE WIDTH BETWEEN THE TOP OF SWALE AND RETAINING WALL SHALL BE INTERPOLATED BETWEEN THIS CRITERIA BETWEEN THE DEPTHS SPECIFIED.

GRASS SWALE DETAIL
N.T.S.

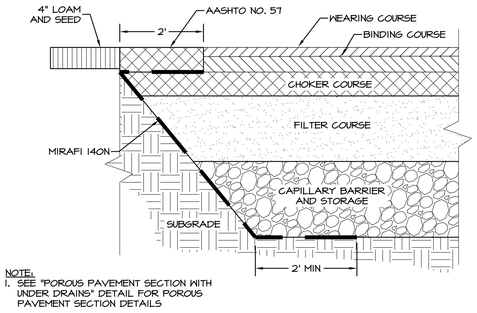


NOTE:
1. SEE SHEETS D1 & D2 FOR ADDITIONAL NOTES ON POROUS PAVEMENT, AND TABLE 1 SEPCIFICALLY FOR MODIFIED NHDOT 304.1 GRADATION.

POROUS PAVEMENT SECTION WITH UNDER DRAINS
N.T.S.

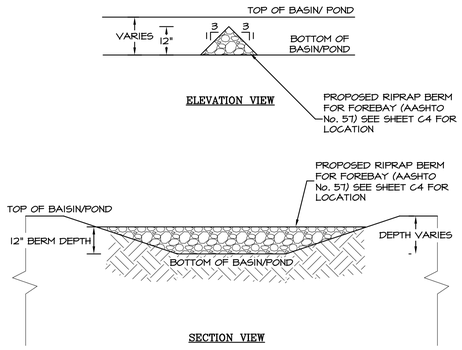


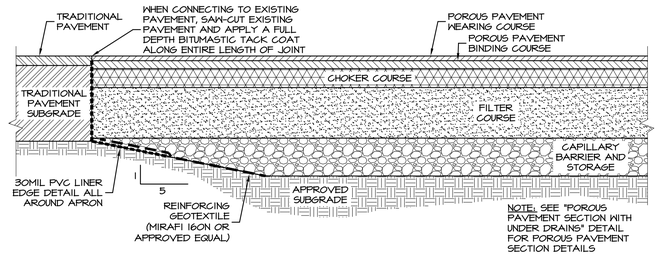
DRIP EDGE DETAIL
NOT TO SCALE



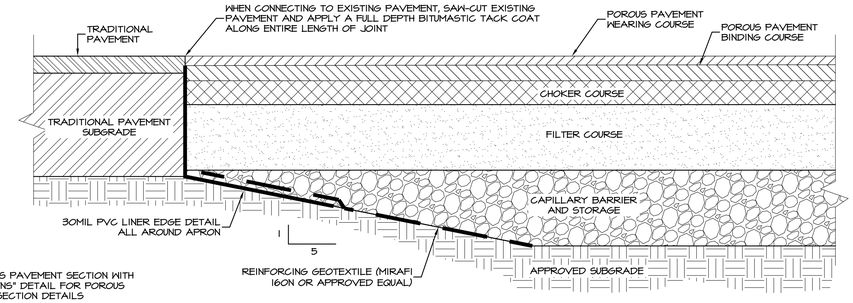
NOTE:
1. SEE "POROUS PAVEMENT SECTION WITH UNDER DRAINS" DETAIL FOR POROUS PAVEMENT SECTION DETAILS

POROUS PAVEMENT EDGE DETAIL
N.T.S.

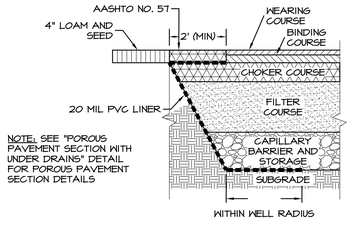




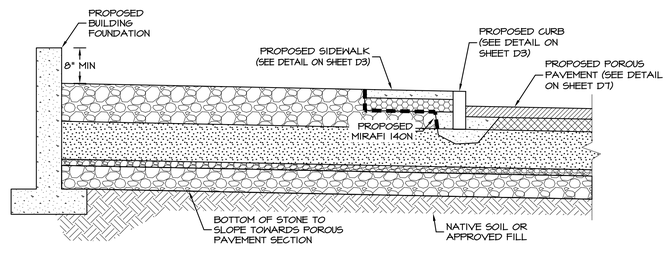
POROUS PAVEMENT TRANSITION TO TRADITIONAL PAVEMENT OR CONCRETE DETAIL
N.T.S.



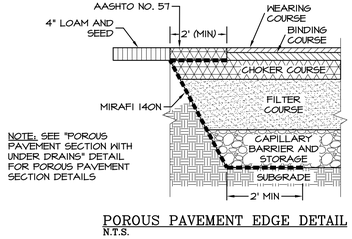
POROUS PAVEMENT TRANSITION TO TRADITIONAL PAVEMENT OR CONCRETE DETAIL
N.T.S.



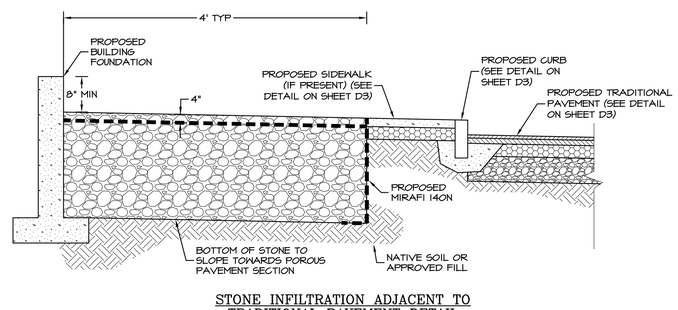
POROUS PAVEMENT EDGE DETAIL WITHIN WELL RADIUS
N.T.S.



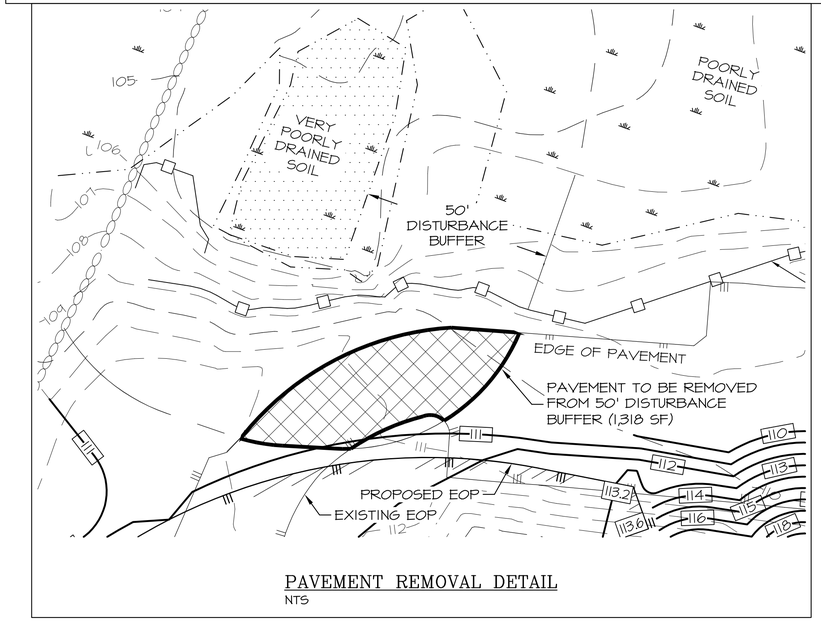
STONE INFILTRATION ADJACENT TO POROUS PAVEMENT DETAIL
NOT TO SCALE



POROUS PAVEMENT EDGE DETAIL
N.T.S.



STONE INFILTRATION ADJACENT TO TRADITIONAL PAVEMENT DETAIL
NOT TO SCALE



PAVEMENT REMOVAL DETAIL
NTS

SEAL

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
6/9/26

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COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

TITLE:
DRAINAGE DETAILS
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	AS SHOWN	D7

WELL ABANDONMENT & DECOMMISSIONING NOTES:

WD-DWSB-1-7, 2007
WATER SUPPLY ENGINEERING, ENVIRONMENTAL FACT SHEET, NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES 29 HAZEN DRIVE, CONCORD NH 03301

WELL ABANDONMENT AND DECOMMISSIONING:

WHEN A WELL IS NO LONGER USED AND NEEDS TO BE DECOMMISSIONED, NEW HAMPSHIRE LAW REQUIRES THAT IT BE SEALED IN AN APPROPRIATE MANNER TO PREVENT THE ENTRY OF CONTAMINANTS INTO THE GROUNDWATER. THE RESPONSIBILITY FOR SEALING (OR DECOMMISSIONING AN ABANDONED WELL LIES WITH THE WELL OWNER. THE DEPARTMENT OF ENVIRONMENTAL SERVICES REQUIRES THAT THE DECOMMISSIONING OF WATER WELLS IS PERFORMED BY A LICENSED NEW HAMPSHIRE WATER WELL CONTRACTOR. LICENSED WATER WELL CONTRACTORS HAVE THE NECESSARY EQUIPMENT AND EXPERIENCE TO COMPLETE THE JOB SAFELY AND PROPERLY.

DECIDING WHETHER OR NOT TO DECOMMISSION A WELL:

WELLS ARE EXPENSIVE COMMODITIES AND ARE GENERALLY AN ASSET TO THE PROPERTY EVEN IF THEY ARE NOT CURRENTLY IN USE AS LONG AS THEY ARE PROPERLY MAINTAINED. PROPER MAINTENANCE MAY BE AS SIMPLE AS MAKING SURE THAT THE WELL HEAD REMAINS ABOVE THE LAND SURFACE WHERE IT IS PROTECTED FROM FLOODING. THE WELL MUST ALSO BE FITTED WITH A SEALED WELL COVER, OR CONCRETE COVER DEPENDING ON THE TYPE OF WELL, SO THAT CONTAMINANTS CANNOT ENTER THE WELL ACCIDENTALLY.

IF IT IS DECIDED THAT A WELL HAS NO USEFUL PURPOSE, HAS NO POTENTIAL FUTURE USE OR HAS NO REAL VALUE AND MAY CONSTITUTE A LIABILITY, THEN THE WELL SHOULD BE CONSIDERED ABANDONED AND MUST BE PROPERLY DECOMMISSIONED.

THE DECISION TO ABANDON A WELL IS GENERALLY THE HOME OWNER'S, HOWEVER, THE NEW HAMPSHIRE WATER WELL BOARD MAY MAKE THE DETERMINATION IN RESPONSE TO REASONABLE SUPPORTING EVIDENCE.

RISKS POSED BY IMPROPER WELL ABANDONMENT:

THERE ARE VERY GOOD REASONS FOR WELL OWNERS TO MAKE SURE ABANDONED WELLS ON THEIR PROPERTY ARE PROPERLY DECOMMISSIONED.

- IMPROPERLY ABANDONED WELLS THREATEN DRINKING WATER SUPPLIES BY PROVIDING OPEN CONDUITS INTO AQUIFERS.
- ANY CONTAMINANTS ENTERING AN ABANDONED WELL FROM THE SURFACE CAN TRAVEL EASILY INTO DIFFERENT WATER-BEARING FORMATIONS (WHETHER IN COARSE SAND AND GRAVEL AQUIFERS OR IN BEDROCK FRACTURE ZONES) AND CAN CROSS-CONTAMINATE A NUMBER OF WATER-BEARING FORMATIONS WITHIN ONE WELL.
- IF A DRINKING WATER WELL IS BEING REPLACED BECAUSE OF WATER QUALITY PROBLEMS IN THE ORIGINAL WELL, THE ABANDONED WELL IS A DIRECT THREAT TO THE NEW WATER SUPPLY IF IT IS NOT PROPERLY SEALED.
- IMPROPERLY ABANDONED WELLS CAN CREATE A LIABILITY PROBLEM AT THE TIME OF PROPERTY RESALE OR IF THE WELL CAUSES CONTAMINATION IN NEIGHBORING WELLS.
- SHALLOW DUG WELLS CREATE A PHYSICAL HAZARD SIMPLY BECAUSE OF THEIR LARGE DIAMETER AND THE POTENTIAL FOR ANIMALS OR PEOPLE TO FALL INTO THEM. TYPICALLY, THE OLDER FIELDSTONE-LINED WELLS ARE THE MOST DANGEROUS BECAUSE MANY WERE FINISHED FLUSH TO THE GROUND SURFACE AND WERE COVERED WITH WOODEN COVERS, WHICH ARE NOW DECAYED OR NON-EXISTENT.

HOW TO DECOMMISSION AN ABANDONED WELL:

THE PROPER WELL SEALING METHOD DEPENDS ON THE TYPE OF WELL BEING DECOMMISSIONED. THE THREE BASIC WELL TYPES USED TO SUPPLY DRINKING WATER ARE DRILLED BEDROCK WELLS, DRILLED OR DRIVEN GRAVEL WELLS AND SHALLOW DUG WELLS.

GROUNDWATER MONITORING WELLS ARE ANOTHER TYPE SPECIFICALLY DESIGNED AND USED FOR AQUIFER ASSESSMENT PURPOSES INCLUDING GROUNDWATER FLOW AND WATER QUALITY OBSERVATIONS.

WELL DECOMMISSIONING PROCEDURES - PRIOR TO DECOMMISSIONING, ALL WELLS SHOULD BE INVESTIGATED TO DETERMINE THEIR CONDITION, THE DETAILS OF CONSTRUCTION AND WHETHER OR NOT ANY OBSTRUCTIONS EXIST THAT WILL INTERFERE WITH THE FILLING AND SEALING PROCESS. ANY OBSTRUCTIONS SHOULD BE REMOVED BY CLEANING OUT THE HOLE IF POSSIBLE.

IF THE WELL WAS CONSTRUCTED AFTER JANUARY 1, 1984, A REPORT DESCRIBING ITS RELEVANT CHARACTERISTICS SHOULD BE ON FILE AT THE OFFICE OF THE WATER WELL BOARD. COPIES MAY BE OBTAINED BY CALLING (603) 271-1473.

- ABANDONED DRILLED WELLS PENETRATING UNCONSOLIDATED MATERIALS OR FRACTURED BEDROCK SHOULD BE SEALED BY GROUTING THE ENTIRE LENGTH OF THE WELL.

WELL ABANDONMENT AND DECOMMISSIONING NOTES CONTINUED:

- DRILLED WELLS THAT HAVE BEEN CONTAMINATED DUE TO A CONSTRUCTION DEFICIENCY OR CONTINUE TO CAUSE AN ENVIRONMENTAL HAZARD SHOULD BE SEALED BY THE PRESSURE GROUT METHOD. THIS IS DONE WITH A CONDUCTOR PIPE, CALLED A TREMIE PIPE, STARTING AT THE BOTTOM OF THE WELL AND SLOWLY RAISING THE CONDUCTOR PIPE TOWARD THE TOP OF THE WELL AT A RATE NO FASTER THAN THE GROUT MATERIAL FILLS AND DISPLACES WATER FROM THE WELL AND UNTIL THE WELL IS COMPLETELY FILLED. THE GROUT MIXTURE USED SHOULD BE A PORTLAND CEMENT MIXED WITH 2 PERCENT TO 10 PERCENT HIGH SOLIDS BENTONITE CLAY ACCORDING TO THE CORRECT WATER-TO-CEMENT RATIO. COMMERCIALLY AVAILABLE PREMIXED BENTONITE GROUT DESIGNED FOR SEALING WELLS MAY ALSO BE USED.
- ABANDONED SHALLOW DUG WELLS SHOULD BE FILLED AND SEALED BY PLACING CLEAN FILL MATERIAL FREE OF ORGANIC MATTER INTO THE WELL. OFTEN, LOCALLY AVAILABLE FILL MATERIALS ARE ADEQUATE TO COMPLETE THE JOB. THE UPPER TWO FEET SHOULD BE FILLED WITH IMPERVIOUS MATERIAL SUCH AS CLAY OR HARDPAN AND SLIGHTLY MOUNDED TO PROHIBIT SURFACE WATER RUNOFF FROM ENTERING THE FILLED EXCAVATION.
- MONITORING WELLS SHALL BE DECOMMISSIONED BASED ON SITE SPECIFIC HYDROGEOLOGIC AND CONTAMINANT CONDITIONS AND SITE USE. SOME MONITORING WELLS CAN BE DECOMMISSIONED BY SIMPLY FILLING THE WELL SCREEN AND CASING WITH GROUT, CUTTING THE WELL CASING OFF BELOW GRADE AND COMPLETING SURFACE APPLICATION SUCH AS PAVEMENT OR LOAM AND SEED. IN SOME INSTANCES IT MAY BE APPROPRIATE TO OVER DRILL AND/OR TREMIE GROUT A WELL SUCH AS IN THE CASE OF WELLS THAT BRIDGE CONFINED UNITS OR BEDROCK WELLS, RESPECTIVELY. PLEASE CONTACT DES WASTE MANAGEMENT DIVISION STAFF AT (603) 271-3644, WITH PROPOSED DECOMMISSIONING PROCEDURES TO OBTAIN APPROVAL.

MATERIALS TO SAFELY SEAL A WELL:

THERE ARE A VARIETY OF ACCEPTABLE GROUT AND FILL MATERIALS USED FOR SEALING WELLS.

PORTLAND CEMENT, OTHERWISE KNOWN AS NEAT CEMENT, MIXED WITH FIVE TO SIX GALLONS OF CLEAN WATER PER 94-POUND BAG.

CEMENT-BENTONITE GROUT IS A MIXTURE OF PORTLAND CEMENT WITH 2 PERCENT TO 10 PERCENT BENTONITE CLAY MIXED ACCORDING TO THE PROPER WATER-TO-CEMENT RATIO DEPENDING ON THE PERCENT BY WEIGHT OF BENTONITE ADDED. THIS SEALANT IS THE RECOMMENDED MATERIAL TO USE WHEN DECOMMISSIONING A CONTAMINATED WELL BECAUSE, UNLIKE NEAT CEMENT THAT SHRINKS AND CAN CRACK UPON CURING, CEMENT-BENTONITE GROUT SWELLS AND REMAINS PLASTIC WHEN CURED CREATING A SUPERIOR SEAL.

BENTONITE CHIPS CAN BE USED FOR FILLING AND SEALING WELLS OR PORTIONS OF WELLS BY APPLYING DIRECTLY INTO THE WELL THROUGH THE TOP AT A RATE NO GREATER THAN THREE MINUTES PER BAG. WHEN HYDRATED, BENTONITE CHIPS WILL SWELL UP TO 12 TO 13 TIMES THEIR DRY VOLUME AND EFFECTIVELY SEAL THE WELL. IF THE CHIPS ARE APPLIED AT A RATE GREATER THAN THREE MINUTES PER BAG, BRIDGING CAN OCCUR WITHIN THE WELL AND THE WELL WILL NOT BE FILLED.

FOR ADDITIONAL INFORMATION:

PLEASE CONTACT THE DRINKING WATER AND GROUNDWATER BUREAU AT (603) 271-2513 OR DWGBINFO@DES.STATE.NH.US OR VISIT OUR WEBSITE AT WWW.DES.NH.GOV/DWGB. ALL OF THE BUREAU'S FACT SHEETS ARE ON-LINE AT WWW.DES.NH.GOV/DWG.HTM.

NOTE: THIS FACT SHEET IS ACCURATE AS OF JANUARY 2007. STATUTORY OR REGULATORY CHANGES, OR THE AVAILABILITY OF ADDITIONAL INFORMATION AFTER THIS DATE MAY RENDER THIS INFORMATION INACCURATE OR INCOMPLETE.

MAINTENANCE AND DECOMMISSIONING REQUIREMENTS FOR MONITORING WELLS ASSOCIATED WITH HYDROGEOLOGIC INVESTIGATIONS CONTINUED:

DATA OBTAINED FROM IMPROPERLY MAINTAINED MONITORING WELLS CAN BE INCORRECT AND/OR MISLEADING, RESULTING IN ERRONEOUS INTERPRETATIONS AND CONCLUSIONS CONCERNING POTENTIOMETRIC HEAD CONDITIONS, THE EXTENT OF CONTAMINATION, CONTAMINANT CONCENTRATIONS, AND THE POTENTIAL SOURCE(S) OR RECEPTOR(S) OF CONTAMINATION.

PROPER MAINTENANCE AND ABANDONMENT OF MONITORING WELLS PREVENTS THE TRANSPORTATION OF CONTAMINANTS TO WATER-BEARING GEOLOGIC FORMATIONS AND THE INTRODUCTION OF POLLUTANTS INTO THE GROUNDWATER.

RECOGNIZING THE IMPORTANCE OF PROPER WELL MAINTENANCE, STATE LAW (RSA 482-B:15) STATES THAT "ALL WELLS SHALL BE MAINTAINED IN A PROPER CONDITION TO CONSERVE AND PROTECT GROUNDWATER RESOURCES AND SHALL NOT BE A SOURCE OR CAUSE OF CONTAMINATION OR POLLUTION OF THE WATER SUPPLY OF ANY AQUIFER."

THE DEPARTMENT OF ENVIRONMENTAL SERVICES (DES) HAS AUTHORITY TO ENFORCE THE LAW UNDER RSA 482-B:16 AND MAY SEEK LEGAL ACTION WHERE IT IS DETERMINED THAT MONITORING WELLS ARE NOT MAINTAINED AND POSE A THREAT TO GROUNDWATER QUALITY. DEPARTMENT PERSONNEL WILL INVESTIGATE COMPLAINTS OF IMPROPERLY MAINTAINED WELLS, AND INSPECT THE CONDITION OF MONITORING WELLS ENCOUNTERED DURING ROUTINE SITE VISITS TO ENSURE THAT WELLS ARE PROPERLY MAINTAINED AND NOT POTENTIALLY IMPACTING GROUNDWATER QUALITY.

MONITORING WELL MAINTENANCE REQUIREMENTS:

MONITORING WELLS MUST BE MAINTAINED IN THE FOLLOWING MANNER:

- THE STRUCTURAL INTEGRITY OF THE MONITORING WELL CASING, SEALS, AND WELL CAP MUST BE MAINTAINED IN SUCH A WAY AS TO PREVENT SURFACE WATER AND CONTAMINANTS FROM THE SURFACE FROM ENTERING THE WELL. TO AVOID PROBLEMS WITH SURFACE RUNOFF OR CONTAMINANTS FROM THE SURFACE ENTERING THE SUBSURFACE THROUGH THE TOP OF THE WELL CASING AND UNAUTHORIZED ACCESS OR ENTRY INTO THE WELL, EXTERIOR MAINTENANCE CHECKS ARE NECESSARY. A VISUAL INSPECTION OF THE EXTERIOR OF THE WELL SHOULD IDENTIFY SUCH PROBLEMS AS: 1) CRACKED OR CORRODED WELL CASING; 2) BROKEN OR MISSING WELL CAP OR LOCK; 3) DAMAGE TO PROTECTIVE CASING; AND 4) SETTLING AND CRACKING OF SURFACE SEALS. IF ANY OF THESE PROBLEMS IS FOUND, THE WELL SHOULD IMMEDIATELY BE REPAIRED OR ABANDONED IN ACCORDANCE WITH THE REGULATIONS OF THE NEW HAMPSHIRE WATER WELL BOARD (WE 602.13) AND DES (ENV-OR 610.04). IF REPAIRS TO A MONITORING WELL REQUIRE MORE THAN JUST THE REPLACEMENT OF A WELL CAP OR LOCK, THEN A WELL DRILLER LICENSED BY THE NEW HAMPSHIRE WATER WELL BOARD MUST COMPLETE THE REPAIR WORK.
- ALL MONITORING WELLS MUST BE FITTED WITH A LOCKING WELL CAP TO PREVENT TAMPERING AND INTRODUCTION OF FOREIGN OBJECTS AND SUBSTANCES INTO THE WELL.

MONITORING WELLS THAT ARE NO LONGER IN USE AND ARE NOT OR WILL NOT BE MAINTAINED, MUST BE DECOMMISSIONED IN ACCORDANCE WITH REGULATIONS OF DES AND THE NEW HAMPSHIRE WATER WELL BOARD CITED ABOVE.

HOW TO DECOMMISSION A WELL:

STATE REGULATION, ENV-OR 610.04 REQUIRES THAT MONITORING WELLS BE DECOMMISSIONED IN ACCORDANCE WITH THE PRACTICES DESCRIBED IN:

(1) "STANDARDS RELATING TO ENVIRONMENTAL SITE CHARACTERIZATION" SECOND EDITION, DOCUMENT IDENTIFICATION NUMBER ASTM ENVSIT-06, DATED 2006; AND

(2) ASTM ENVSAM-06.

STATE REGULATIONS (ENV-OR 610.04(B)) ALSO REQUIRE THAT MONITORING WELLS BE DECOMMISSIONED ONLY BY A LICENSED NEW HAMPSHIRE WATER WELL CONTRACTOR HOLDING A VALID TECHNICAL DRILLERS LICENSE UNDER RSA 482-B. THE GENERAL PROCEDURE FOR ABANDONING MONITORING WELLS IS OUTLINED BELOW, BUT THE PROCEDURES REFERENCED IN THE REGULATIONS SHOULD BE FULLY EXAMINED AND FOLLOWED WHEN ABANDONING A MONITORING WELL.

OVERVIEW OF MONITORING WELL ABANDONMENT PROCEDURE:

PRIOR TO DECOMMISSIONING, ALL WELLS SHOULD BE INVESTIGATED TO DETERMINE THEIR CONDITION, THE DETAILS OF CONSTRUCTION, AND WHETHER OR NOT ANY OBSTRUCTIONS EXIST THAT WILL INTERFERE WITH THE FILLING AND SEALING PROCESS. ANY OBSTRUCTIONS SHOULD BE REMOVED BY CLEANING OUT THE HOLE, IF POSSIBLE.

MAINTENANCE AND DECOMMISSIONING REQUIREMENTS FOR MONITORING WELLS ASSOCIATED WITH HYDROGEOLOGIC INVESTIGATIONS CONTINUED:

ABANDONED MONITORING WELLS SHOULD BE SEALED FROM THE BOTTOM TO THE TOP BY PRESSURE GROUTING THE WELL THROUGH A TREMIE LINE. IF POSSIBLE, THE CASING SHOULD BE REMOVED PRIOR TO SEALING. SOME MONITORING WELLS ARE CONSTRUCTED WITH A FILTER PACK WHICH IS AN ARTIFICIAL GRAVEL PACK PLACED IN THE ANNULAR SPACE BETWEEN THE BORE HOLE AND THE WELL SCREEN AND USED TO CREATE A BETTER HYDRAULIC CONNECTION WITH THE AQUIFER. IN ORDER TO PROPERLY SEAL THIS TYPE OF WELL, THE CASING SHOULD FIRST BE REMOVED AND THE FILTER PACK SHOULD BE DRILLED OUT. THE WELL SHOULD THEN BE FILLED BY THE PRESSURE GROUT METHOD FROM THE BOTTOM OF THE WELL TO THE TOP USING A TREMIE PIPE.

THERE ARE A VARIETY OF ACCEPTABLE GROUT AND FILL MATERIALS USED FOR SEALING WELLS. THESE INCLUDE:

1. PORTLAND CEMENT, OTHERWISE KNOWN AS NEAT CEMENT.

2. CEMENT-BENTONITE GROUT, WHICH IS A MIXTURE OF PORTLAND CEMENT WITH 2 TO 10 PERCENT BENTONITE CLAY. THIS SEALANT IS THE RECOMMENDED MATERIAL TO USE WHEN DECOMMISSIONING A CONTAMINATED WELL, BECAUSE UNLIKE NEAT CEMENT THAT SHRINKS AND CAN CRACK UPON CURING, CEMENT-BENTONITE GROUT SWELLS AND REMAINS PLASTIC WHEN CURED, WHICH IN TURN CREATES A SUPERIOR SEAL.

3. BENTONITE CHIPS: WHEN HYDRATED, BENTONITE CHIPS WILL SWELL UP TO 12-13 TIMES THEIR DRY VOLUME AND EFFECTIVELY SEAL THE WELL. IF THE CHIPS ARE APPLIED AT A RATE GREATER THAN THREE MINUTES PER BAG, BRIDGING CAN OCCUR WITHIN THE WELL AND THE WELL WILL NOT BE FILLED.

THE DEPARTMENT OF ENVIRONMENTAL SERVICES REQUIRES THAT THE DECOMMISSIONING OF WELLS BE PERFORMED BY A LICENSED NEW HAMPSHIRE WATER WELL CONTRACTOR. LICENSED WATER WELL CONTRACTORS HAVE THE NECESSARY EQUIPMENT AND EXPERIENCE TO COMPLETE THE JOB SAFELY AND PROPERLY. CONTACT THE WATER WELL BOARD AT (603) 271-1974 FOR MORE INFORMATION REGARDING WELL ABANDONMENT REQUIREMENTS AND TECHNIQUES.

REPORTS OF IMPROPERLY MAINTAINED MONITORING WELLS ASSOCIATED WITH PETROLEUM (I.E., GAS STATIONS, FUEL STORAGE AREAS) SHOULD BE REPORTED TO GARY LYNN, DES OIL REMEDIATION AND COMPLIANCE BUREAU, AT (603) 271-8873 OR GLYNN@DES.STATE.NH.US. REPORTS OF IMPROPERLY MAINTAINED WELLS AT ALL OTHER SITES MAY BE SUBMITTED TO DIANA MORGAN AT (603) 271-2474 OR DMORGAN@DES.STATE.NH.US.

FOR ADDITIONAL INFORMATION:

PLEASE CONTACT THE DRINKING WATER AND GROUNDWATER BUREAU AT (603) 271-2513 OR DWGBINFO@DES.STATE.NH.US OR VISIT OUR WEBSITE AT WWW.DES.NH.GOV/DWGB. ALL OF THE BUREAU'S FACT SHEETS ARE ON-LINE AT WWW.DES.NH.GOV/DWG.HTM.

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SEAL

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN No. 11236 LICENSED PROFESSIONAL ENGINEER
6/9/06

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
2	JUN 5, 2026	FOR APPROVAL	
1	AUG 2, 2024	FOR APPROVAL	

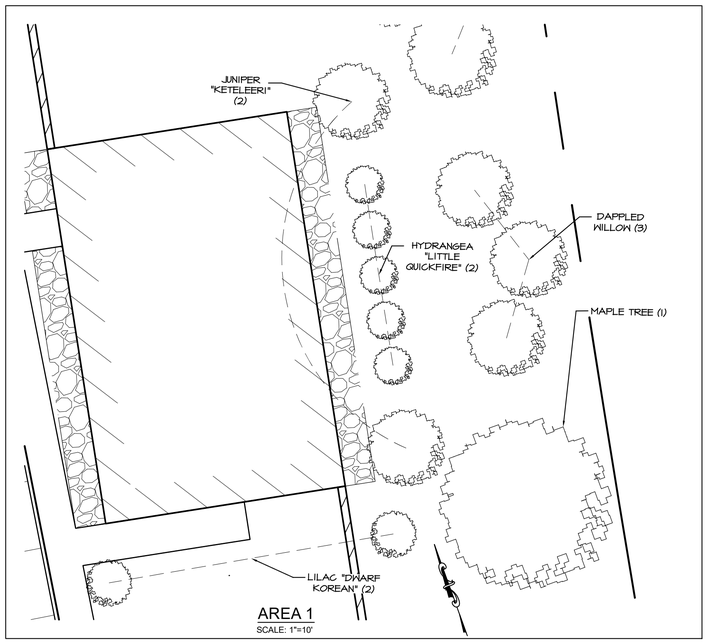
DRAWN: NCB	DESIGN: NCB
CHECKED: BDS	CHECKED: BDS

CIVIL & STRUCTURAL CONSULTANTS, LAND PLANNERS
100 GRIFFIN ROAD, UNIT C, PORTSMOUTH, NH 03801
603-772-4400 | EMANUELENGINEERING.COM ©2025

CLIENT:
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

TITLE:
WELL DECOMMISSIONING NOTES
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	AS SHOWN	D8



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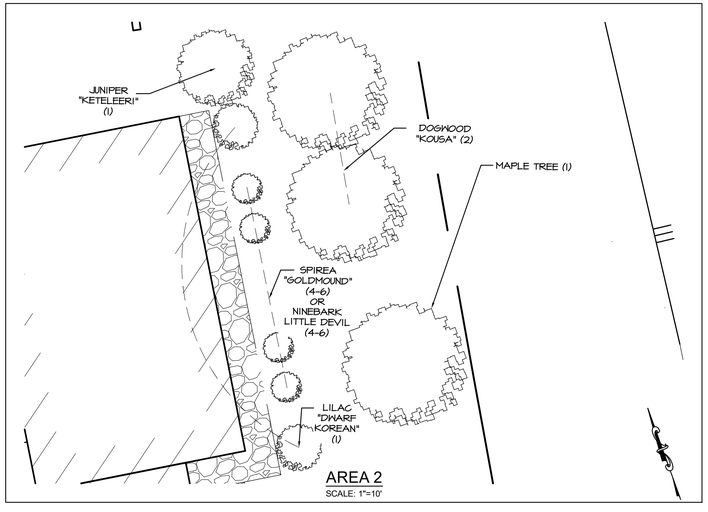

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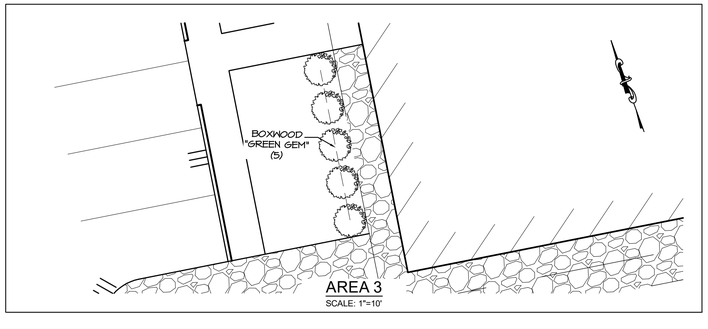

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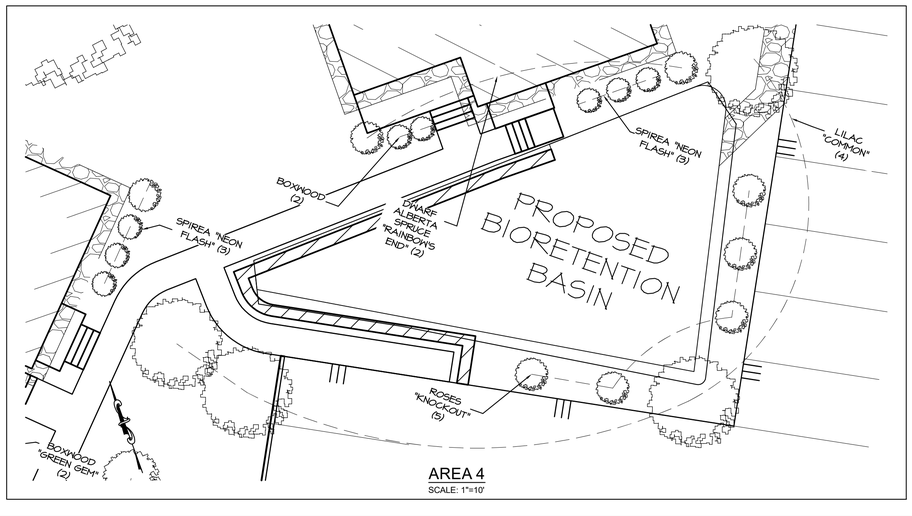

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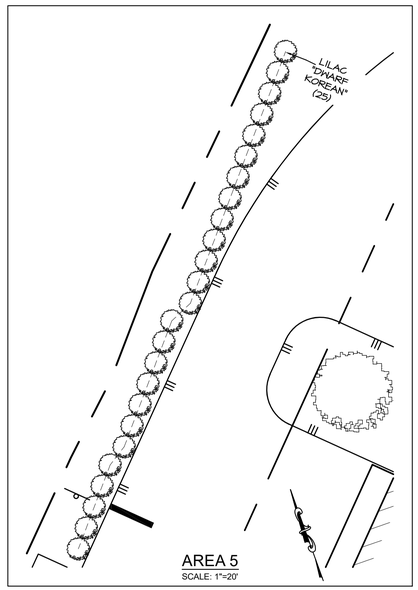

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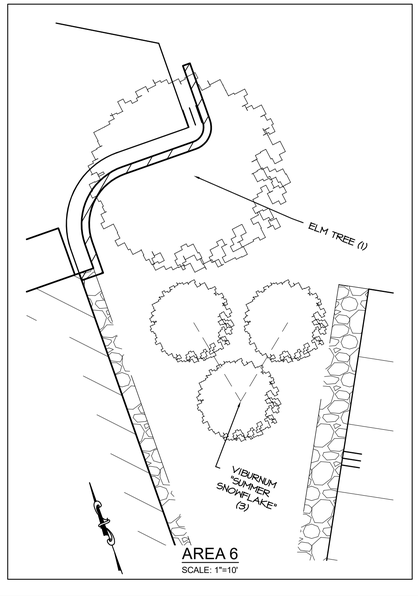

AREA 6
SCALE: 1"=10'

NOTES:

1. OWNER OF RECORD:
   TAX MAP 13, LOT 22
   JOEMES, LLC
   94 PORTSMOUTH AVENUE
   STRATHAM, NH 03885
   RCRD BK6580 P61163
   RCRD BK6616 P60044
   RCRD BK6620 P62057 (LOT MERGER)
2. THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED LANDSCAPING ON SITE ASSOCIATED WITH THE PROPOSED SITE IMPROVEMENTS.
3. PARCELS ARE ZONED PROFESSIONAL / RESIDENTIAL PER THE TOWN OF STRATHAM OFFICIAL ZONING MAP 2022.
4. PARCELS ARE NOT IN A FLOOD HAZARD ZONE; REFERENCE FLOOD INSURANCE RATE MAP 33015C0245F, DATED JANUARY 29, 2021.
5. PROPERTY TO BE SERVICED BY ON-SITE WELL AND SEPTIC.
6. ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
7. THIS PLAN WAS PREPARED WITH FIELDWORK CONDUCTED BY JAMES VERRA AND ASSOCIATES, INC. IN OCTOBER OF 2023.
8. WETLANDS WERE DELINEATED BY JOSEPH NOEL ON SEPTEMBER 20, 2023.
9. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
10. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
11. EMANUEL ENGINEERING, INC. DID NOT DESIGN THE LANDSCAPING. THE LANDSCAPING DESIGN WAS PROVIDED BY COPLEY PROPERTIES, LLC.

PLANT LIST:

2	DOGWOOD "KOUSA"
25	BOXWOOD "GREEN GEM"
10	DWARF ALBERTA SPRUCE "RAINBOW'S END"
15	SPIREA "NEON FLASH"
11-12	ELM TREE
3	JUNIPER "KETELEERI"
7	HYDRANGEA "LITTLE QUICK FIRE"
3	DAPPLED WILLOW
29	LILAC "DWARF KOREAN"
3	MAPLE (TREE)
4-6	DOGWOOD "ARCTIC FIRE"
2	SMOKEBUSH "ROYAL PURPLE"
5	JUNIPER "HILLSPIRE"
7	LILAC "COMMON"
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4-6	SPIREA "GOLDMOUND"
5	ROSES "KNOCKOUT"
3	VIBURNUM "BLUE MUFFIN"
6	NINEBARK "CENTER GLOW"
3	GREEN GIANT ARBORVITAE

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7	JUN 5, 2026	FOR APPROVAL	
6	MAY 20, 2025	FOR APPROVAL	
1	JUL 10, 2024	FOR APPROVAL	

DRAWN: NCB	DESIGN: -
CHECKED: BDS	CHECKED: -

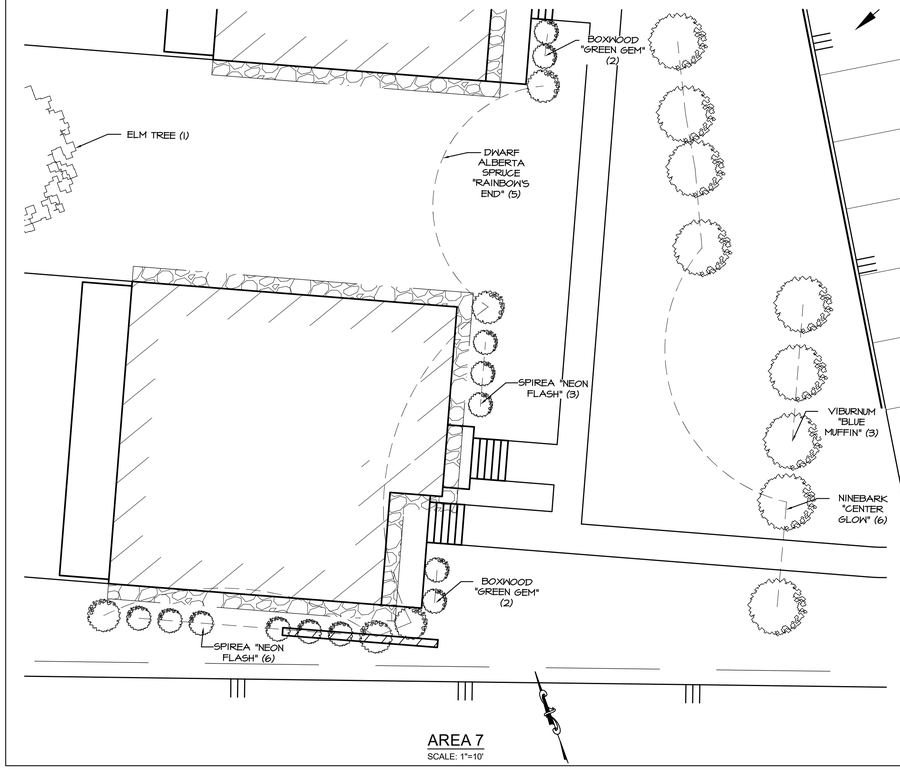
CLIENT:

COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

TITLE:

LANDSCAPING PLAN
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	AS NOTED	L1



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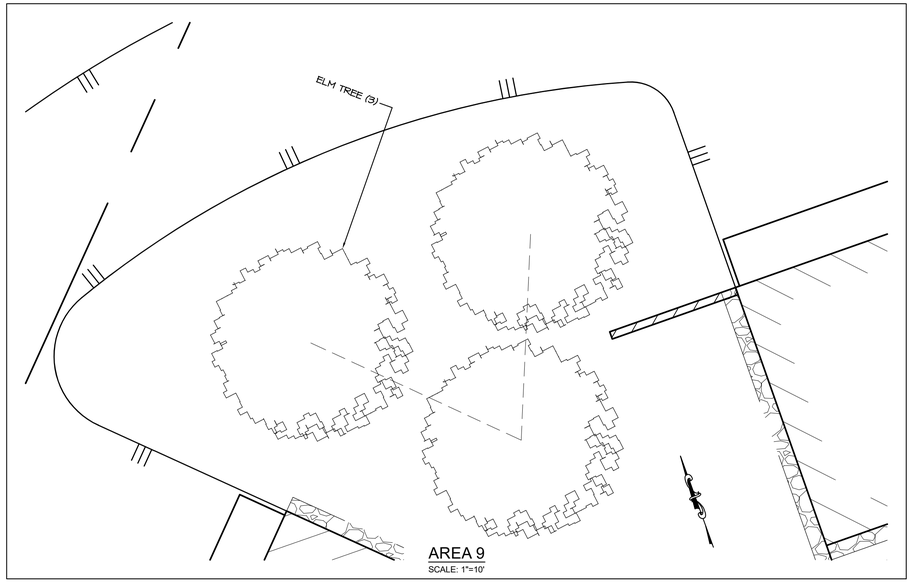

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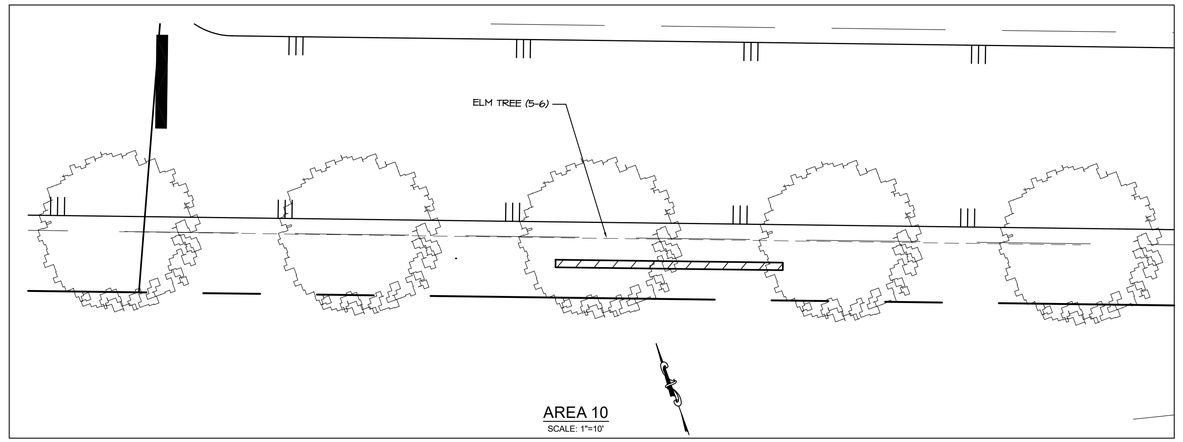

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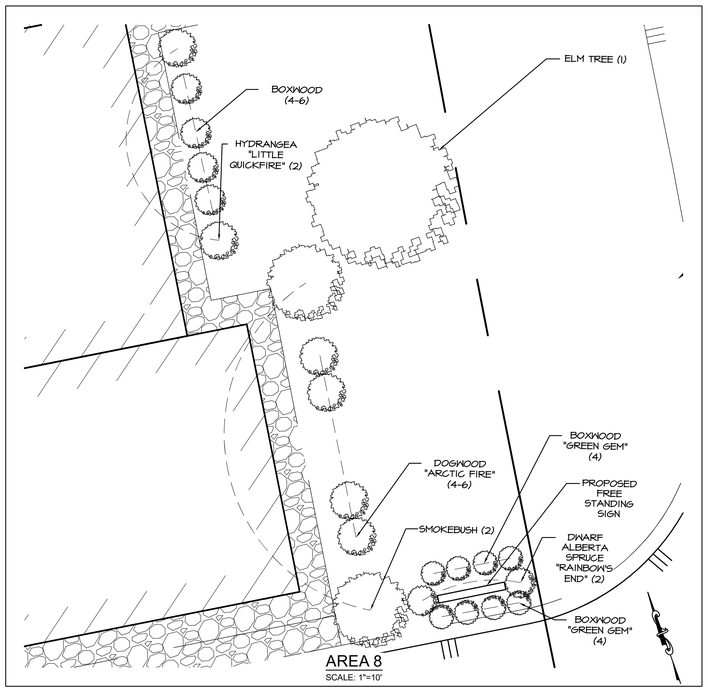

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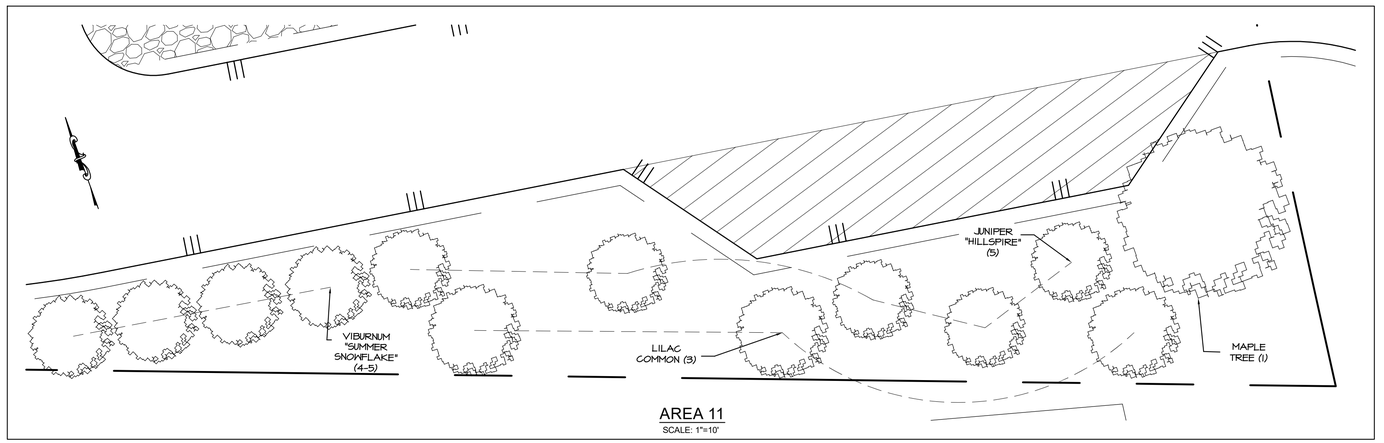

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SCALE: 1"=10'

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   94 PORTSMOUTH AVENUE
   STRATHAM, NH 03885
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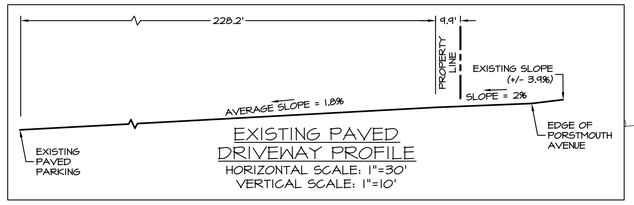
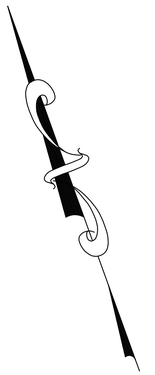
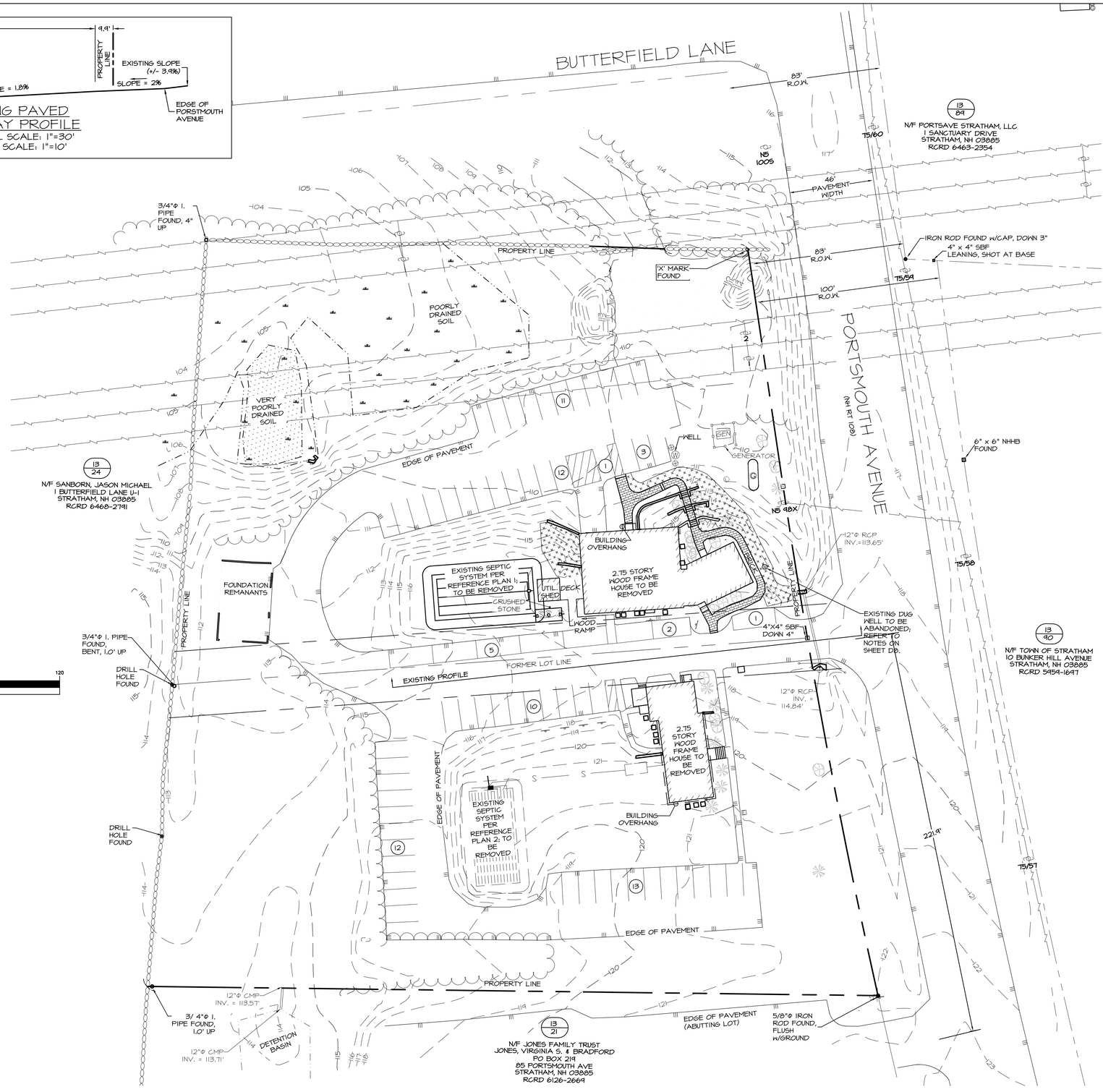
PROJECT:	SCALE:	SHEET:
23-1109	AS NOTED	L2



EXISTING PAVED DRIVEWAY PROFILE

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=10'





GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

NOTES:

1. OWNER OF RECORD:
   TAX MAP 13, LOT 22
   JOEMES, LLC
   94 PORTSMOUTH AVENUE
   STRATHAM, NH 03885
   RCRD BK6580 P611163
   RCRD BK6616 P60044
   RCRD BK6620 P62057 (LOT MERGER)
2. THE INTENT OF THIS PLAN IS TO SHOW THE INFORMATION NECESSARY TO OBTAIN AN NHDOT DRIVEWAY PERMIT. THE EXISTING 24 FOOT WIDE TRADITIONAL PAVEMENT DRIVEWAY IS BEING REPLACED WITH A 24 FOOT WIDE TRADITIONAL AND POROUS PAVEMENT DRIVEWAY WITH ASSOCIATED PARKING.
3. THIS PLAN WAS PREPARED WITH FIELDWORK CONDUCTED BY JAMES VERRA AND ASSOCIATES, INC. IN OCTOBER OF 2023.

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
4	JUN 5, 2026	FOR APPROVAL	
3	MAY 20, 2025	FOR APPROVAL	
1	JUL 10, 2024	FOR APPROVAL	

DRAWN:	NCB	DESIGN:	NCB
CHECKED:	BDS	CHECKED:	BDS

CIVIL & STRUCTURAL CONSULTANTS, LAND PLANNERS
100 GRIFFIN ROAD, UNIT C, PORTSMOUTH, NH 03801
603-772-4400 | EMANUELENGINEERING.COM ©2025

CLIENT:

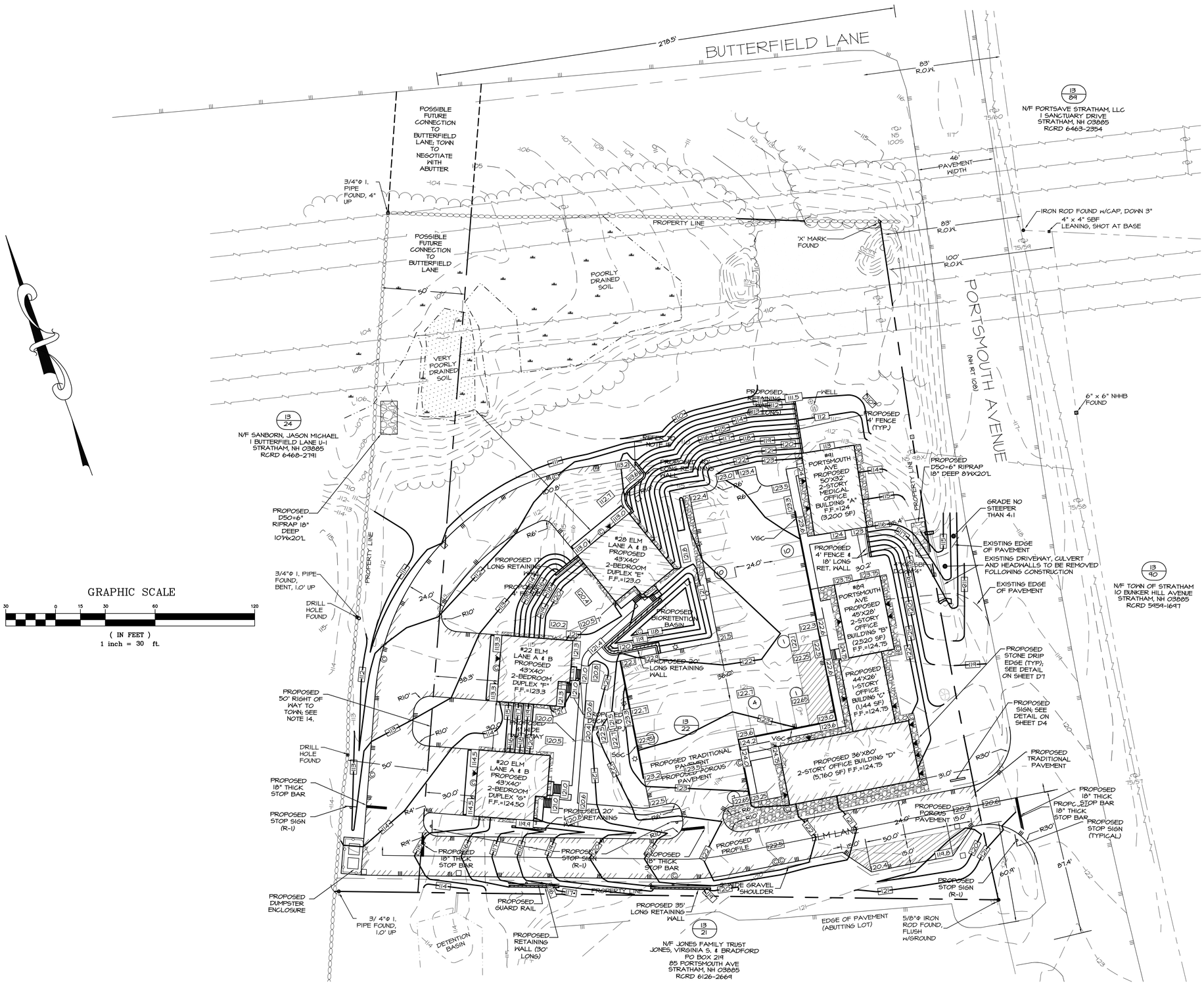
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

SEAL:

TITLE:

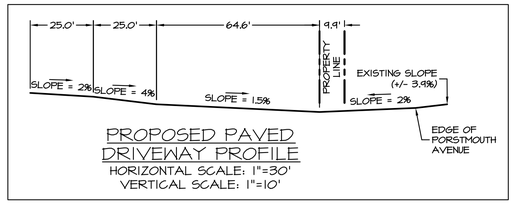
NHDOT EXISTING SKETCH
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	1"=30'	SK1



NOTES:

1. OWNER OF RECORD:
   TAX MAP 13, LOT 22
   JOEMES, LLC
   94 PORTSMOUTH AVENUE
   STRATHAM, NH 03885
   RCRD BK6580 P61163
   RCRD BK6616 P60044
   RCRD BK6620 P62057 (LOT MERGER)
2. THE INTENT OF THIS PLAN IS TO SHOW THE INFORMATION NECESSARY TO OBTAIN AN NHDOT DRIVEWAY PERMIT. THE EXISTING 24 FOOT WIDE TRADITIONAL PAVEMENT DRIVEWAY IS BEING REPLACED WITH A 24 FOOT WIDE TRADITIONAL AND POROUS PAVEMENT DRIVEWAY WITH ASSOCIATED PARKING.
3. THIS PLAN WAS PREPARED WITH FIELDWORK CONDUCTED BY JAMES VERRA AND ASSOCIATES, INC. IN OCTOBER OF 2023.
4. DISTURBED AREA WITHIN PORTSMOUTH AVENUE RIGHT-OF-WAY TO BE LOAMED AND SEEDED POST-CONSTRUCTION.



PROPOSED PAVED DRIVEWAY PROFILE
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=10'

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

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
5	JUN 5, 2026	FOR APPROVAL	
4	MAY 20, 2025	FOR APPROVAL	
1	JUL 10, 2024	FOR APPROVAL	

DRAWN: NCB | DESIGN: NCB
CHECKED: BDS | CHECKED: BDS

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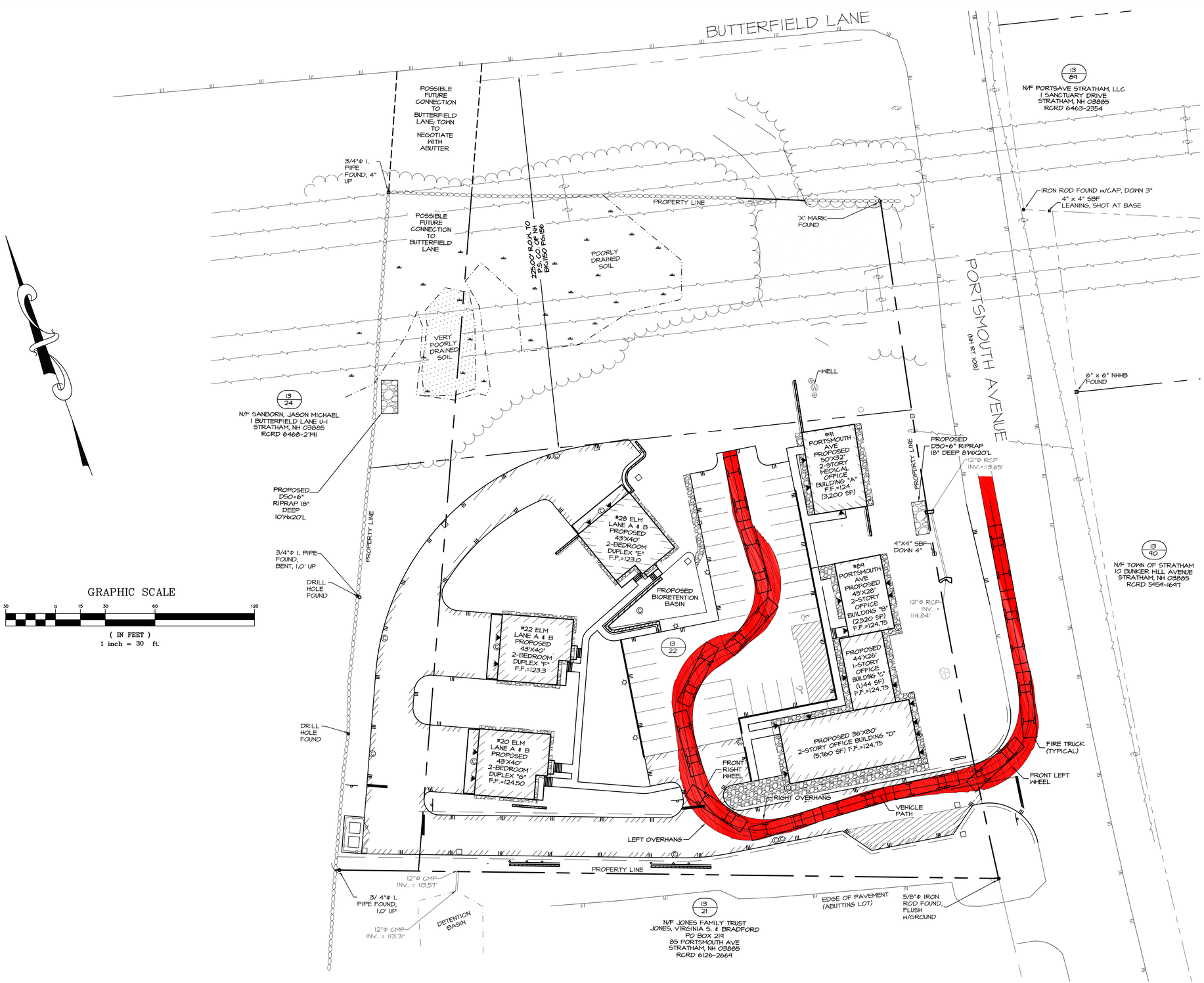
CLIENT:
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

SEAL:
BRUCE D. SCAMMAN No. 11236 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
6/9/26

TITLE:
NHDOT PROPOSED SKETCH
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	1"=30'	SK2



GRAPHIC SCALE

30 0 15 30 60 120

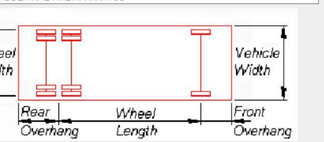
(IN FEET)
1 inch = 30 ft.

NOTES:

1. OWNER OF RECORD:
   TAX MAP 13, LOT 22
   JOEMES, LLC
   94 PORTSMOUTH AVENUE
   STRATHAM, NH 03885
   RCRD BK6580 PG1163
   RCRD BK6616 PG0044
   RCRD BK6620 PG2051 (LOT MERGER)
2. THE INTENT OF THIS PLAN IS TO SHOW THAT A FIRE TRUCK CAN ENTER THE SITE AND ENTER THE COMMERCIAL PARKING LOT.
3. THE VEHICLE PATH TRACKING FEATURE FROM CARLSON CIVIL 2025 WAS USED TO DEMONSTRATE THE APPROXIMATE VEHICLE PATH. PARAMETERS OF THE FIRE TRUCK INCLUDE A 39-FOOT CENTER TURN RADIUS, AND A 8.33-FOOT-WIDE BY 39.75-FOOT-LONG VEHICLE PER INFORMATION PROVIDED BY THE EXETER FIRE DEPARTMENT.
4. THIS PLAN WAS PREPARED WITH FIELDWORK CONDUCTED BY JAMES VERRA AND ASSOCIATES, INC. IN OCTOBER OF 2023.

Vehicle | Trailer | Path |

Description	109' REAR MOUNT LADDER KME FIRE APPARATUS
Wheel Width	8.333
Wheel Length	19.750
Vehicle Width	8.333
Front Overhang	10.000
Rear Overhang	10.000
Tire Diameter	3.600
Rear Axle Count	2
Rear Axle Offset	4.500



109' REAR MOUNTED LADDER APPARATUS - FIRE TRUCK DIMENSIONS
NOT TO SCALE

NOTE:
FIRE TRUCK DIMENSIONS FOR A 109' REAR MOUNTED LADDER APPARATUS AND TURNING RADIUS WAS PROVIDED BY THE EXETER FIRE DEPARTMENT.

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
4	JUN 5, 2026	FOR APPROVAL	
3	APR 30, 2026	FOR APPROVAL	
1	MAY 7, 2025	FOR APPROVAL	

DRAWN: NCB/JJM | DESIGN: NCB/JJM
CHECKED: BDS | CHECKED: BDS

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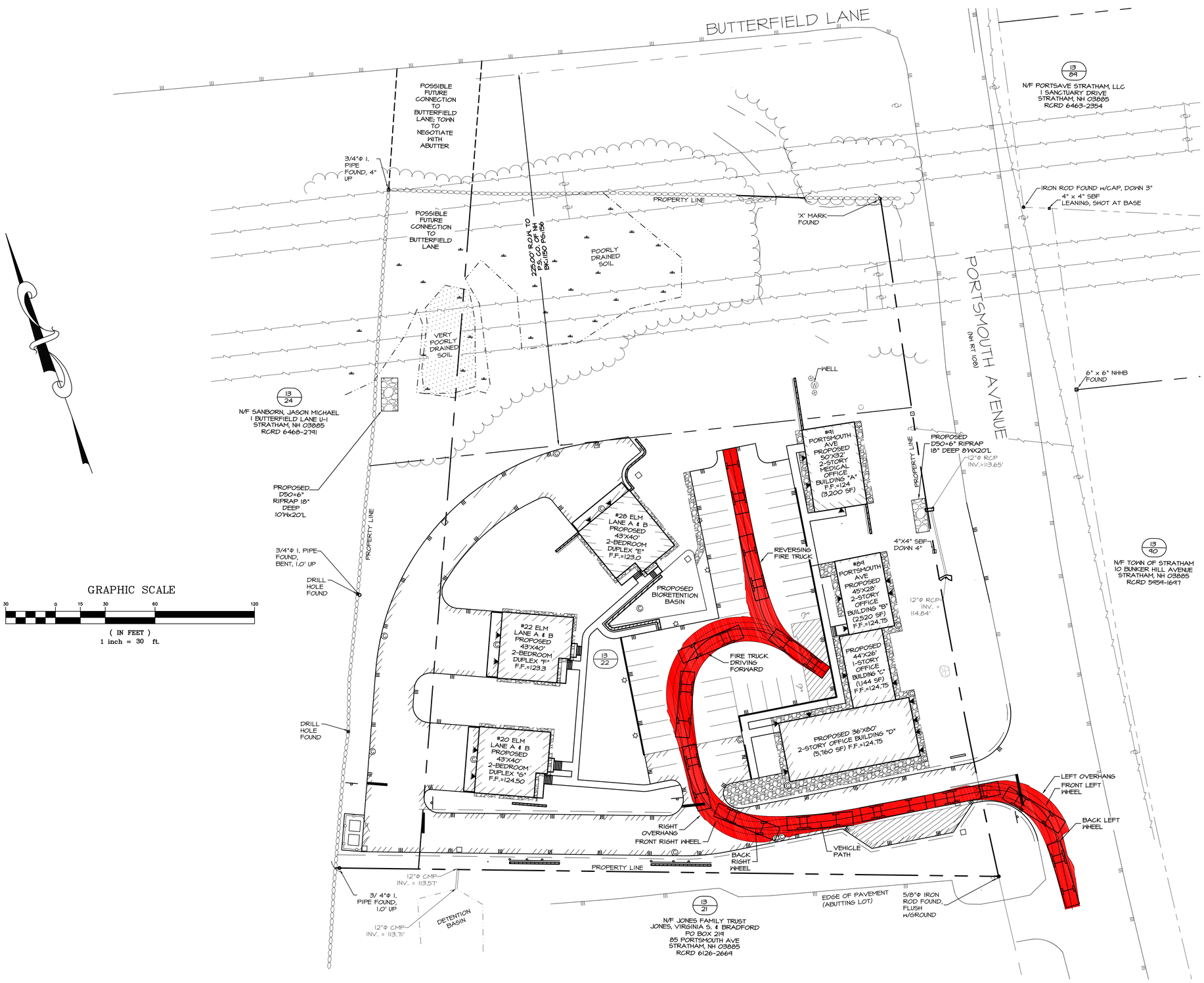
100 GRIFFIN ROAD, UNIT C, PORTSMOUTH, NH 03801
603-772-4400 | EMANUELENGINEERING.COM ©2025

CLIENT:
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

SEAL:
STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN No. 11236 LICENSED PROFESSIONAL ENGINEER
6/9/26

TITLE:
FIRE TRUCK TURNING TEMPLATE (ENTERING SITE)
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	1"=30'	SK3



GRAPHIC SCALE

30 0 15 30 60 120

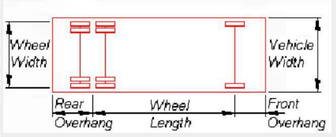
(IN FEET)
1 inch = 30 ft.

NOTES:

1. OWNER OF RECORD:
   TAX MAP 13, LOT 22
   JOEMES, LLC
   94 PORTSMOUTH AVENUE
   STRATHAM, NH 03885
   RCRD BK6580 P61163
   RCRD BK6616 P60044
   RCRD BK6620 P62057 (LOT MERGER)
2. THE INTENT OF THIS PLAN IS TO SHOW THAT A FIRE TRUCK CAN TURN AROUND WITHIN THE COMMERCIAL PARKING LOT AND EXIT THE SITE.
3. THE VEHICLE PATH TRACKING FEATURE FROM CARLSON CIVIL 2025 WAS USED TO DEMONSTRATE THE APPROXIMATE VEHICLE PATH. PARAMETERS OF THE FIRE TRUCK INCLUDE A 39-FOOT CENTER TURN RADIUS, AND A 8.33-FOOT-WIDE BY 39.75-FOOT-LONG VEHICLE PER INFORMATION PROVIDED BY THE EXETER FIRE DEPARTMENT.
4. THIS PLAN WAS PREPARED WITH FIELDWORK CONDUCTED BY JAMES VERRA AND ASSOCIATES, INC. IN OCTOBER OF 2023.

Vehicle | Trailer | Path

Description	109' REAR MOUNT LADDER KME FIRE APPARATUS
Wheel Width	8.333
Wheel Length	19.750
Vehicle Width	8.333
Front Overhang	10.000
Rear Overhang	10.000
Tire Diameter	3.600
Rear Axle Count	2
Rear Axle Offset	4.500



109' REAR MOUNTED LADDER APPARATUS - FIRE TRUCK DIMENSIONS
NOT TO SCALE

NOTE:
FIRE TRUCK DIMENSIONS FOR A 109' REAR MOUNTED LADDER APPARATUS AND TURNING RADIUS WAS PROVIDED BY THE EXETER FIRE DEPARTMENT.

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
4	JUN 5, 2026	FOR APPROVAL	
3	APR 30, 2026	FOR APPROVAL	
1	MAY 7, 2025	FOR APPROVAL	

DRAWN:	NCB/JJM	DESIGN:	NCB/JJM
CHECKED:	BDS	CHECKED:	BDS

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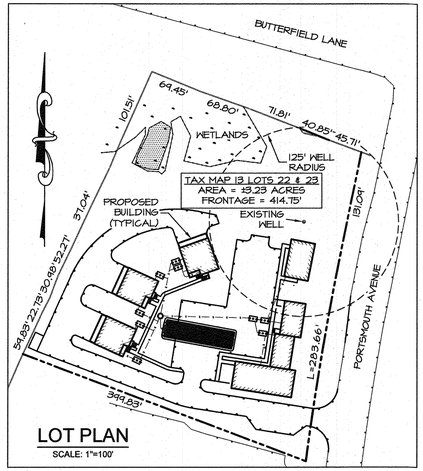
CLIENT:
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

SEAL:

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
6/9/26

TITLE:
FIRE TRUCK TURNING TEMPLATE (EXITING SITE)
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	1"=30'	SK4



LOT PLAN

SCALE: 1"=100'

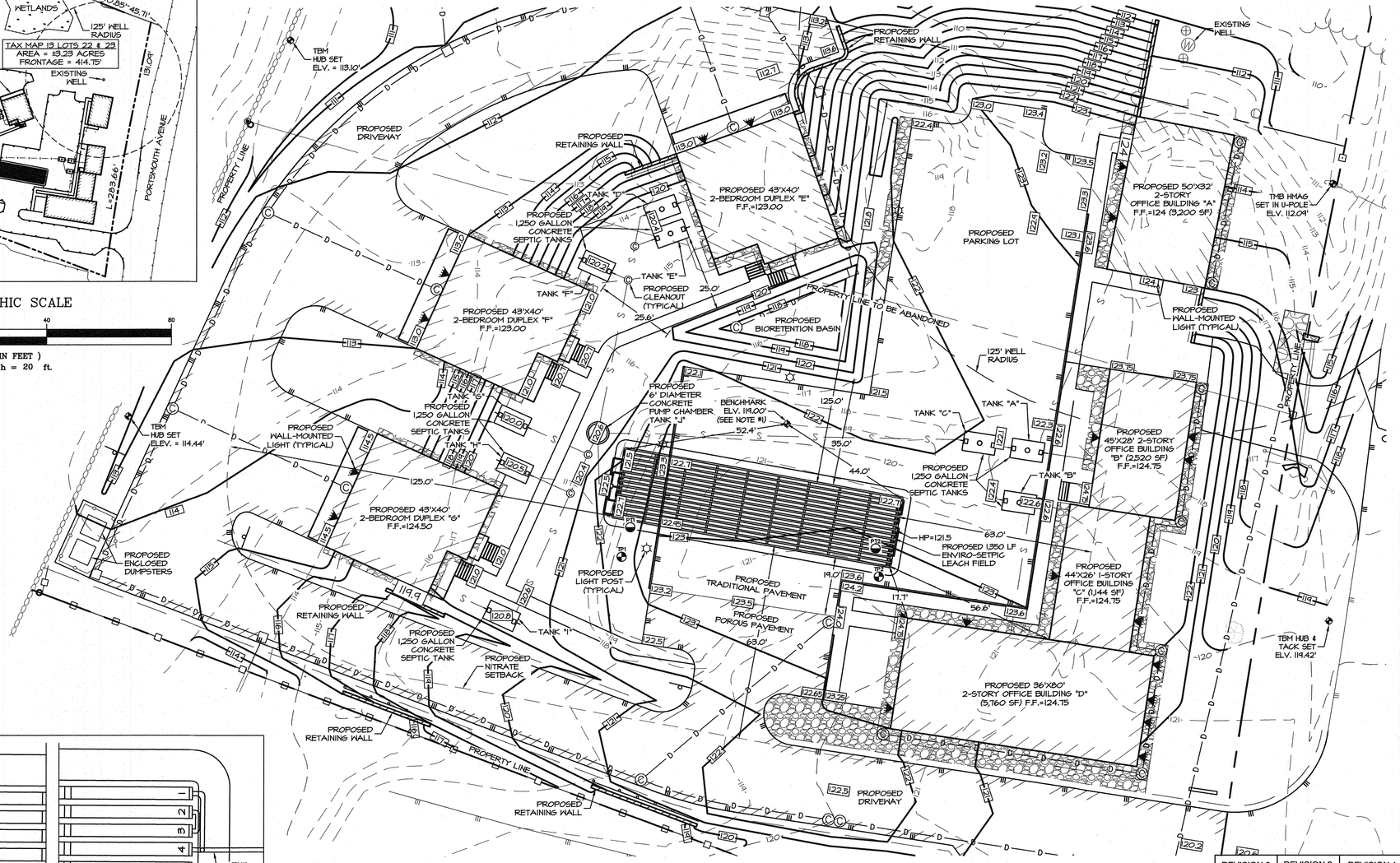
GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NOTES:

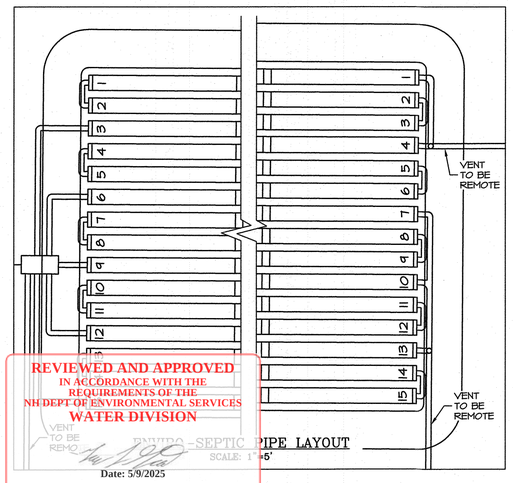
1. BENCHMARK TO BE RE-ESTABLISHED PRIOR TO CONSTRUCTION OF THE SYSTEM, IF DISTURBED.
2. WELL RADIUS PARTIALLY OFF LOT BUT PRECLUDED FROM DEVELOPMENT DUE TO IT BEING WITHIN THE POWER LINE EASEMENT ON THE TAX MAP 13 LOT 24 AND PORTSMOUTH AVENUE RIGHT-OF-WAY.
3. THE TOTAL ESTIMATED DISTURBANCE AREA FOR THE SITE IS 49,045 SQUARE FEET. THIS INCLUDES ALL SITE ACTIVITIES RELATED TO CONSTRUCTION.



PLOT PLAN

SCALE: 1" = 20'

ELEVATION OF BENCHMARK IS ASSUMED



REVIEWED AND APPROVED
IN ACCORDANCE WITH THE REQUIREMENTS OF THE NH DEPT OF ENVIRONMENTAL SERVICES
WATER DIVISION
Date: 5/9/2025
#eCA2025050921

THIS PLAN IS NOT TO BE CONSTRUTED AS A BOUNDARY SURVEY. FOR NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES SUBSURFACE BUREAU PURPOSES ONLY. INFORMATION SHOWN ON THIS PLAN IS FROM THE TOWN ASSESSORS TAX MAP, BOUNDARY PLANS, AND DEEDS.

WETLANDS WERE DELINEATED BY: JOSEPH NOEL ON SEPTEMBER 20, 2023

MAINTENANCE REQUIRED: RECOMMEND CLEANING SEPTIC TANK AT LEAST ONCE EVERY 2 YEARS

LOCATION:

COUNTY: ROCKINGHAM TOWN: STRATHAM
SUBDIVISION TITLE: HOUSEHOLD REALTY TRUST
NH SUBDIVISION APPROVAL NO. : 8744

OWNER:

TAX MAP 13 LOT 22 & 23
NAME: LOENES, LLC
ADDRESS: 94 PORTSMOUTH AVENUE
TOWN: STRATHAM, NH 03885
PHONE: (781)-706-1531
DEED: RCRD BK6580 P61163

SYSTEM DESIGN DATA:

BUILDING TYPE:
- PROPOSED 50'X32' 2-STORY OFFICE BUILDING (BUILDING "A" - 3,200 SF)
- + PROPOSED 45'X28' 2-STORY OFFICE BUILDING (BUILDING "B" - 2,520 SF)
- + PROPOSED 44'X26' 1-STORY OFFICE BUILDING (BUILDING "C" - 1,144 SF)
- + PROPOSED 36'X80' 2-STORY OFFICE BUILDING (BUILDING "D" - 5,760 SF)
- + THREE (3) 2-BEDROOM DUPLEXES (BUILDINGS "E", "F", AND "G")

SEWAGE LOAD:
- BLDG. A (3,200 SF) X (5 GPD/100 SF) = 160 GPD
- + BLDG. B (2,520 SF) X (5 GPD/100 SF) = 126 GPD
- + BLDG. C (1,144 SF) X (5 GPD/100 SF) = 57.2 GPD
- + BLDG. D (5,760 SF) X (5 GPD/100 SF) = 288 GPD
- + BLDG E, F, AND G (3 X 600 GPD) = 1,800 GPD
- = TOTAL = 2431.2 GPD

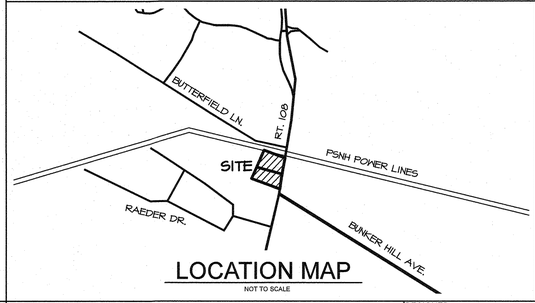
GARBAGE DISPOSAL: NONE
TYPE OF CELLAR: FULL (BUILDING "D" SHALL NOT INCLUDE A CELLAR)
FOUNDATION DRAINS: YES
SEPTIC TANK SIZE: 1,250 GAL. CONCRETE TANK SEALED PER ENV-WQ 1008.04 (EACH UNIT - SEE PLAN)
PUMP CHAMBER: 6' DIAMETER CONCRETE CHAMBER SEALED PER ENV-WQ 1008.04
DISTRIBUTION BOX: 6 OUTLET
LEACH BED REQUIREMENTS:
ENVIRO-SEPTIC PIPE REQUIRED: 2431.2 GPD X 55/100= 1,338 LINEAR FEET
ENVIRO-SEPTIC PIPE PROVIDED: 15 ROWS X 90' LONG = 1,350 LINEAR FEET
SEWAGE PUMP: YES
DRINKING WATER: EXISTING WELL
WELL INSTALLED PRIOR TO 1984: YES
NEAREST ABUTTING WELL: >> 125 FT AWAY
WETLAND SOILS: >> 50 FT AWAY TO POORLY DRAINED SOIL
WETLAND SOILS: >> 75 FT AWAY TO VERY POORLY DRAINED SOIL
NEAREST SURFACE WATER: >> 75 FT AWAY
NEAREST LEDGE OUTCROP: >> 100 FT AWAY

DESIGN INTENT:

ENVIRO-SEPTIC PIPE BOTTOM TO BE INSTALLED NO GREATER THAN 20 INCHES BELOW ORIGINAL GRADE, ON THE UPSLOPE SIDE, TO MAINTAIN 30 INCHES ABOVE THE SEASONAL HIGH WATER TABLE AND 30 INCHES ABOVE LEDGE, HARDPAN OR IMPERMEABLE MATERIAL.

5 May 2025

APPROVED for Town of Stratham
Septic System Examiner.
Notice: Stratham requires a basal area inspection (scarification and fill slope footprint).
Call CEO 48 hours in advance at 772-7391 x 180



LOCATION MAP
NOT TO SCALE

REVISION 3	REVISION 2	REVISION 1
BLDG. "A" USE CHANGE, ADD BENCHMARK, AND ADD DISTURBANCE 5/2/25 JJM	UPDATE DESIGN INTENT 4/22/25 JJM	CHANGE LEACH FIELD TO ENVIRO 4/18/25 JJM

NEW HAMPSHIRE
Designer of Subsurface Disposal Systems
Bruce D. Scamman No. 1426
Water Supply & Pollution Control
5/2/25

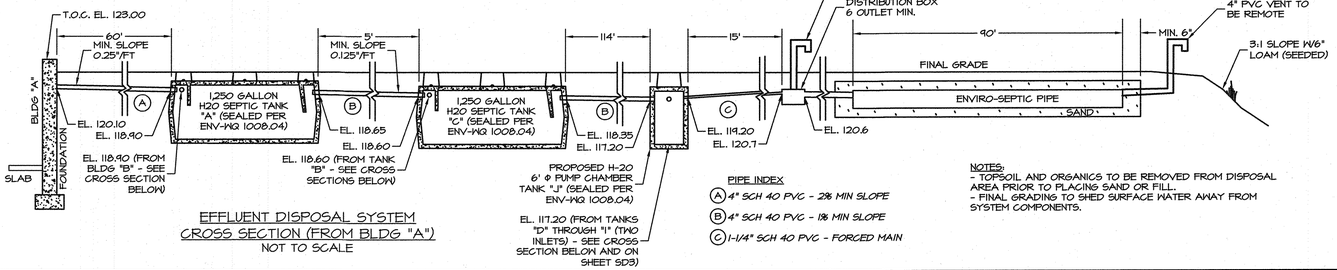
EMANUEL ENGINEERING
118 Portsmouth Avenue, A202
Stratham, NH 03885
P: 603-772-4400 F: 603-772-4487
www.emanuelengineering.com

DESIGNED: JJM - 4/8/25
DRAWN: JJM - 4/8/25
CHECKED: BDS - 4/8/25
SCALE: 1" = 20'
DWG: SD1
JOB: 23-1109

SUBSURFACE DISPOSAL SYSTEM

COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVENUE (SITE)
STRATHAM, NH 03885

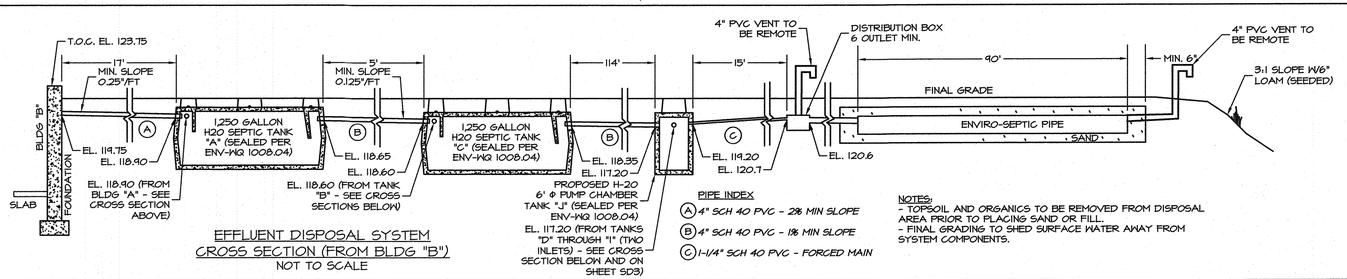
ENVIRO-SEPTIC PIPE ELEVATIONS															
LINE NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
TOP OF ENVIRO PIPE	120.85	120.85	120.85	120.85	120.85	120.85	120.85	120.85	120.85	120.85	120.85	120.85	120.85	120.85	120.85
4" PVC PIPE INVERT	120.43	120.43	120.43	120.43	120.43	120.43	120.43	120.43	120.43	120.43	120.43	120.43	120.43	120.43	120.43
BOTTOM OF ENVIRO PIPE	119.85	119.85	119.85	119.85	119.85	119.85	119.85	119.85	119.85	119.85	119.85	119.85	119.85	119.85	119.85



EFFLUENT DISPOSAL SYSTEM
CROSS SECTION (FROM BLDG "A")
NOT TO SCALE

PIPE INDEX
- (A) 4" SCH 40 PVC - 2% MIN SLOPE
- (B) 4" SCH 40 PVC - 1% MIN SLOPE
- (C) 1-1/4" SCH 40 PVC - FORCED MAIN

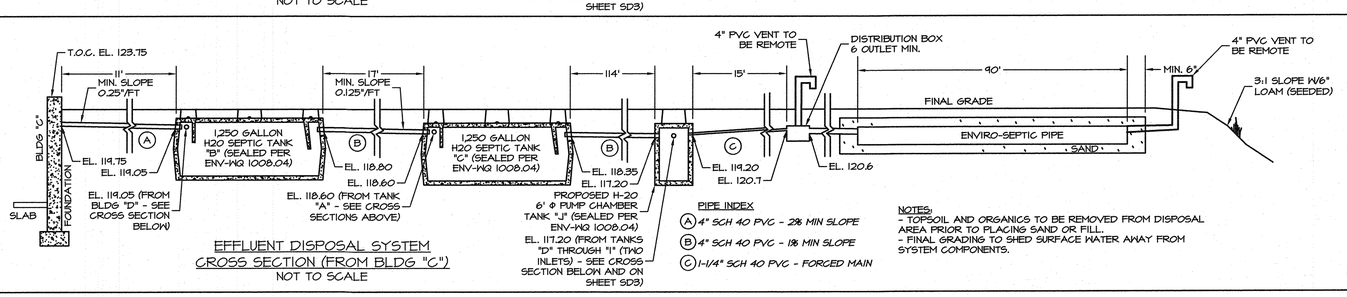
NOTES:
- TOPSOIL AND ORGANICS TO BE REMOVED FROM DISPOSAL AREA PRIOR TO PLACING SAND OR FILL.
- FINAL GRADING TO SHED SURFACE WATER AWAY FROM SYSTEM COMPONENTS.



EFFLUENT DISPOSAL SYSTEM
CROSS SECTION (FROM BLDG "B")
NOT TO SCALE

PIPE INDEX
- (A) 4" SCH 40 PVC - 2% MIN SLOPE
- (B) 4" SCH 40 PVC - 1% MIN SLOPE
- (C) 1-1/4" SCH 40 PVC - FORCED MAIN

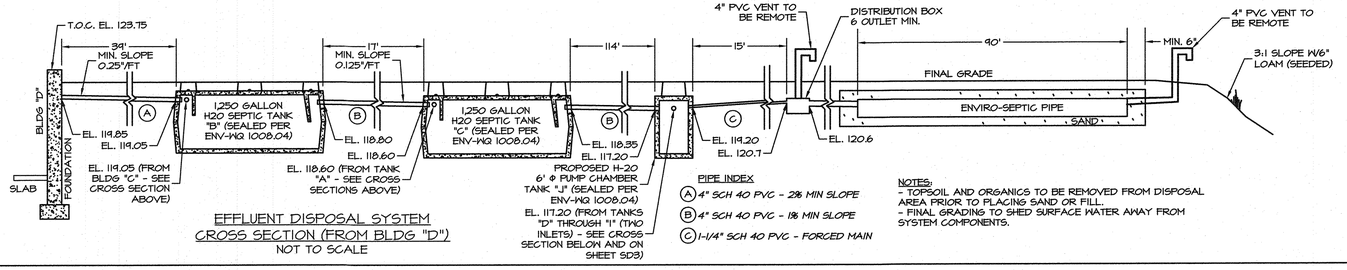
NOTES:
- TOPSOIL AND ORGANICS TO BE REMOVED FROM DISPOSAL AREA PRIOR TO PLACING SAND OR FILL.
- FINAL GRADING TO SHED SURFACE WATER AWAY FROM SYSTEM COMPONENTS.



EFFLUENT DISPOSAL SYSTEM
CROSS SECTION (FROM BLDG "C")
NOT TO SCALE

PIPE INDEX
- (A) 4" SCH 40 PVC - 2% MIN SLOPE
- (B) 4" SCH 40 PVC - 1% MIN SLOPE
- (C) 1-1/4" SCH 40 PVC - FORCED MAIN

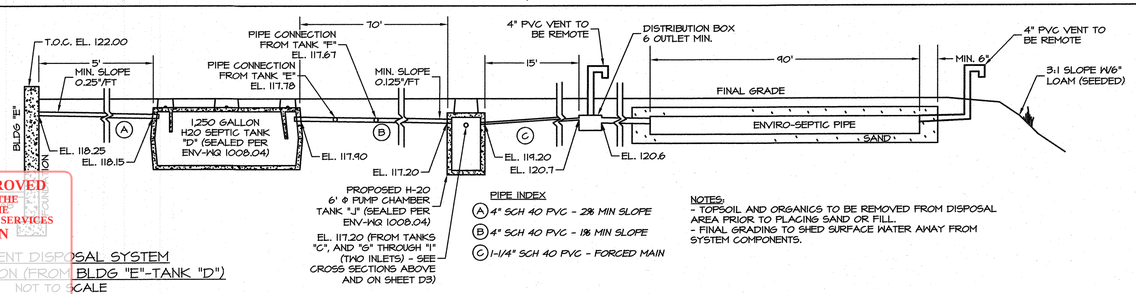
NOTES:
- TOPSOIL AND ORGANICS TO BE REMOVED FROM DISPOSAL AREA PRIOR TO PLACING SAND OR FILL.
- FINAL GRADING TO SHED SURFACE WATER AWAY FROM SYSTEM COMPONENTS.



EFFLUENT DISPOSAL SYSTEM
CROSS SECTION (FROM BLDG "D")
NOT TO SCALE

PIPE INDEX
- (A) 4" SCH 40 PVC - 2% MIN SLOPE
- (B) 4" SCH 40 PVC - 1% MIN SLOPE
- (C) 1-1/4" SCH 40 PVC - FORCED MAIN

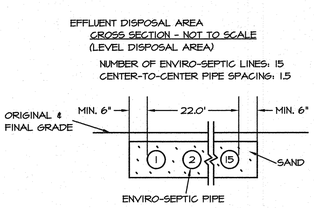
NOTES:
- TOPSOIL AND ORGANICS TO BE REMOVED FROM DISPOSAL AREA PRIOR TO PLACING SAND OR FILL.
- FINAL GRADING TO SHED SURFACE WATER AWAY FROM SYSTEM COMPONENTS.



EFFLUENT DISPOSAL SYSTEM
CROSS SECTION (FROM BLDG "E"-TANK "D")
NOT TO SCALE

PIPE INDEX
- (A) 4" SCH 40 PVC - 2% MIN SLOPE
- (B) 4" SCH 40 PVC - 1% MIN SLOPE
- (C) 1-1/4" SCH 40 PVC - FORCED MAIN

NOTES:
- TOPSOIL AND ORGANICS TO BE REMOVED FROM DISPOSAL AREA PRIOR TO PLACING SAND OR FILL.
- FINAL GRADING TO SHED SURFACE WATER AWAY FROM SYSTEM COMPONENTS.



SOIL DATA:

PERFORMED BY: JOSEPH P. NICHOLS DESIGNER #1451
WITNESSED BY: MIKE CUOMO
VERIFIED BY: BRUCE SCAMMAN
SOIL CLASSIFICATION: WOODBRIDGE

TEST PIT #1:

DATE: JANUARY 31, 2024
*OBSERVED GROUND WATER @ NONE
*SEASONAL HIGH GROUND WATER (MOTTLING) @ 78"
*LEDGE, HARDPAN, CLAY/IMPERMEABLE SUBSTRATUM @ NONE

0-8"	10YR 3/3 BROWN (FILL), FINE SANDY LOAM, GRAN., FRI.
8-26"	10YR 5/4 YELLOWISH BROWN (FILL), FINE SANDY LOAM, MASSIVE, FRI.
26-40"	2.5Y 5/3, LIGHT OLIVE BROWN (FILL), MED. TO COARSE SAND, MASSIVE, FRI.
40-51"	10YR 3/3 BROWN (TOP SOIL), *LAYER TBR, FINE SANDY LOAM, GRAN, FRI.
51-65"	10YR 4/3 BROWN, FINE SANDY LOAM, BLOCKY, FRIABLE
65-78"	10YR 5/4 YELLOWISH BROWN, GRAVELLY, SANDY LOAM, GRAN, FRI.
78-86"	2.5Y 5/2 GRAYISH BROWN, VERY FINE SILT LOAM, BLOCKY, FIRM W/ REDOX

PERC TEST # 1 & 2:

DATE: JANUARY 31, 2024
PERFORMED BY: JOSEPH P. NICHOLS
DEPTH: 20" RATE: 8 MIN/INCH

TEST PIT #2:

DATE: JANUARY 31, 2024
*OBSERVED GROUND WATER @ NONE
*SEASONAL HIGH GROUND WATER (MOTTLING) @ 50"
*LEDGE, HARDPAN, CLAY/IMPERMEABLE SUBSTRATUM @ NONE

0-7"	10YR 3/3 BROWN (FILL), FINE SANDY LOAM, GRAN., FRI.
7-20"	2.5Y 5/4 LIGHT OLIVE BROWN (FILL) FINE LOAMY SAND, MASSIVE, FRI.
20-25"	10YR 5/8 BROWN (FILL), GRAVELLY, LOAMY SAND, MASSIVE, FRI.
25-34"	10YR 3/3 BROWN (TOP SOIL), *LAYER TBR, FINE SANDY LOAM, GRAN., FRI.
34-50"	10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, BLOCKY FRI.
50-63"	7.5YR 5/8 STRONG BROWN, VERY FINE SILT LOAM, BLOCKY, FRIABLE W/ REDOX

GENERAL NOTES:

1. SYSTEM TO BE INSTALLED IN ACCORDANCE WITH PRODUCT DESIGN AND INSTALLATION MANUAL, STATE AND LOCAL REGULATIONS. FOR PRODUCT INFORMATION OR THE NEAREST DEALER CONTACT PRESBY ENVIRONMENTAL, INC. 143 AIRPORT ROAD WHITEFIELD, NH 03598 - PHONE:1-800-473-5298 - WWW.PRESBYENCO.COM SEE PLAN FOR ARRANGEMENT OF ENVIRO-SEPTIC PIPES.
2. PIPES SHALL BE DESIGNED FOR H-10 LIVE LOADING. NO VEHICULAR OR LIVESTOCK TRAVEL NOR SNOW REMOVAL ALLOWED IN AREA OF SYSTEM.
3. ALL 4 INCH PVC PIPE SHALL BE SCHEDULE 40. PIPE OUTSIDE LEACHING AREA SHALL BE WATERTIGHT. ALL PRECAST JOINTS, INLETS, OUTLETS, ETC. TO BE SEALED WITH A NON-SHRINK GROUT, BUTYL SEAL, "WATER-PLUG" OR EQUAL. ADDITIONALLY, THE EXTERIOR OF THE PRECAST SHOULD BE COATED WITH SEALANT OR COVERED WITH A MEMBRANE.
4. IN EVENT OF FUTURE SYSTEM FAILURE, REPLACEMENT SYSTEM SHALL BE BUILT IN THE SAME LOCATION AS THE ORIGINAL SYSTEM AFTER CONTAMINATED MATERIALS HAVE BEEN REMOVED.
5. ALL PRE CAST UNITS, (TANKS, D-BOXES) SHALL BE MANUFACTURED BY A.J. FOSS OR EQUAL.
6. THIS PLAN DOES NOT REPRESENT A BOUNDARY SURVEY.
7. THE DESIGN AND INSTALLATION GUIDELINES FOR THE ENVIRO-SEPTIC LEACHING SYSTEMS (FOR USE IN THE STATE OF NEW HAMPSHIRE SHALL BECOME A PART OF THIS DESIGN.
8. EQUALIZER FLOW INSERTS SHALL BE INSTALLED IN DISTRIBUTION BOX OUTLETS.
10. DO NOT INSTALL SYSTEM ON FROZEN GROUND OR LEAVE SYSTEM UNCOVERED FOR EXTENDED PERIODS OF TIME.
11. THIS DOCUMENT IS FOR THE CONSTRUCTION OF THE EFFLUENT DISPOSAL SYSTEM SHOWN. ANYONE USING INFORMATION FROM THIS DOCUMENT FOR ANY OTHER PURPOSE DOES SO AT THEIR OWN RISK.
12. SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH ENV-WS 1000. "APPROVAL FOR CONSTRUCTION" IS VALID FOR 4 YEARS FROM DATE OF ISSUE.

SITE PREPARATION:

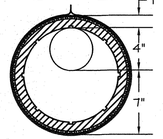
1. CHECK DESIGN INTENT AND VERIFY THE ELEVATION OF EXISTING GROUND-UPSLOPE SIDE BEFORE DISTURBING SITE. CONTACT THE DESIGNER SHOULD ANY DISCREPANCY OCCUR.
2. REMOVE ALL TREES, BRUSH, BOULDERS, AND DEBRIS FROM THE LEACH FIELD SITE.
3. REMOVE TOPSOIL. LEAVE SUBSOIL IN PLACE. DO NOT COMPACT SUBSOIL WITH MACHINERY; SCARIFY AS NEEDED BEFORE FILLING.
4. FILL 6" UNDER LEACHING AREA, AROUND THE CIRCUMFERENCE OF ENVIRO-SEPTIC PIPES, AND FILL EXTENSION WITH MEDIUM TO COARSE TEXTURED SAND (LESS THAN 2% PASSING A #200 SIEVE).
5. SAND FILL TO BE PUSHED ONTO PREPARED SURFACE FROM THE SIDE.
6. FILL FOR BACKFILING SHALL BE CLEAN, PERMEABLE FILL, FREE OF STONES LARGER THAN 6 INCHES.
7. SIDE SLOPE OF FILL 3:1, (3' HORIZONTAL FOR EVERY 1' VERTICAL).
8. PLACE 6 INCHES OF LOAM AS A BLANKET ON SIDE SLOPES WHERE REQUIRED.
9. ENTIRE DISTURBED AREA SHALL BE LOAMED AND SEEDED AS SOON AS POSSIBLE AFTER BACKFILLING TO PREVENT EROSION.
10. BACKFILL DEPTH OVER SYSTEM TO BE 6 TO 12 INCHES.
11. FINAL GRADING SHALL PROVIDE FOR DRAINAGE OF SURFACE RUNOFF AWAY FROM LEACHING AREA.

OPERATION AND MAINTENANCE:

1. SYSTEM IS NOT DESIGNED TO HANDLE A GARBAGE DISPOSAL UNIT OR DISCHARGE FROM A HOT TUB OR SIMILAR LARGE VOLUME WATER USES.
2. EVERY SYSTEM'S DESIGN CAPACITY IS LIMITED. CAREFUL AND REASONABLE WATER USE IS REQUIRED TO MAXIMIZE THE SYSTEM'S LIFE.
3. DO NOT DISPOSE OF GREASE, CHEMICALS, SOLVENTS, ETC. VIA THIS SYSTEM.
4. SEPTIC TANK MUST BE PUMPED BY A LICENSED HAULER AT LEAST EVERY TWO YEARS. KEEP PUMPING RECEIPTS AS PROOF OF MAINTENANCE. CHECK TANK YEARLY. IF SLUDGE AND SURFACE SCUM EXCEED 1/3 OF LIQUID DEPTH, HAVE THE TANK PUMPED.
5. DO NOT ALLOW VEHICULAR TRAFFIC OVER ANY COMPONENT OF THE SYSTEM UNLESS THAT STRUCTURE IS DESIGNED TO WITHSTAND AN H-20 WHEEL LOAD.

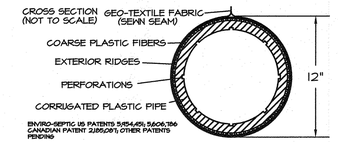
MAINTENANCE REQUIRED:
RECOMMEND CLEANING SEPTIC TANK AT LEAST ONCE EVERY 2 YEARS

OFFSET ADAPTER

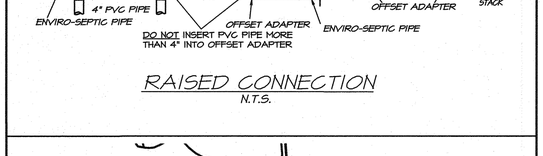


ENVIRO - SEPTIC LEACHING SYSTEM

N.T.S.

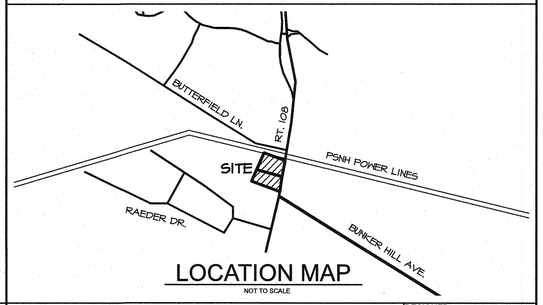


ENVIRO-SEPTIC IS PATENTS 5,454,951; 5,606,736 CANADIAN PATENT 2,180,091; OTHER PATENTS PENDING



RAISED CONNECTION

N.T.S.



LOCATION MAP

NOT TO SCALE

REVISION 3	REVISION 2	REVISION 1
		CHANGE LEACH FIELD TO ENVIRO 4/18/25 JJM

BRUCE D. SCAMMAN No. 11236 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
4/18/25

NEW HAMPSHIRE Designer of Subsurface Disposal Systems
Bruce D. Scamman No. 1426
Water Supply & Pollution Control
4/18/25

REVIEWED AND APPROVED
IN ACCORDANCE WITH THE REQUIREMENTS OF THE NH DEPT OF ENVIRONMENTAL SERVICES
WATER DIVISION
EFFLUENT DISPOSAL SYSTEM
BLDG "E"-TANK "D"
NOT TO SCALE
Date: 5/9/2025
#eCA2025050921

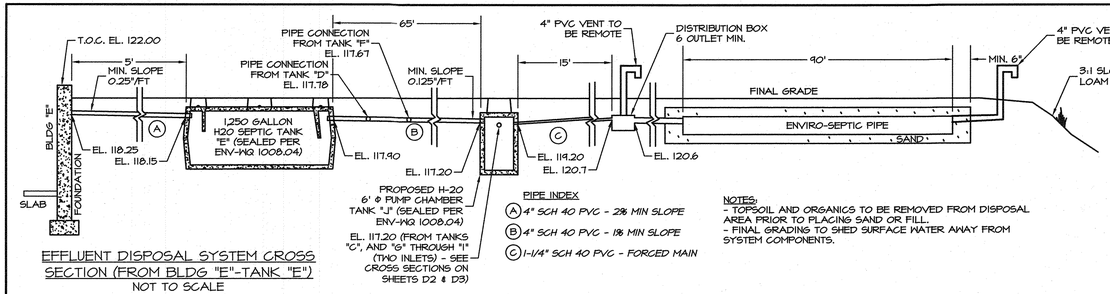
EMANUEL ENGINEERING
118 PORTSMOUTH AVENUE, A202
STRATHAM, NH 03885
P: 603-772-4400 F: 603-772-4487
WWW.EMANUELENGINEERING.COM

DESIGNED:	JJM - 4/8/25
DRAWN:	JJM - 4/8/25
CHECKED:	BDS - 4/8/25
SCALE:	1" = 20'
DWG:	SD2
JOB:	23-1109

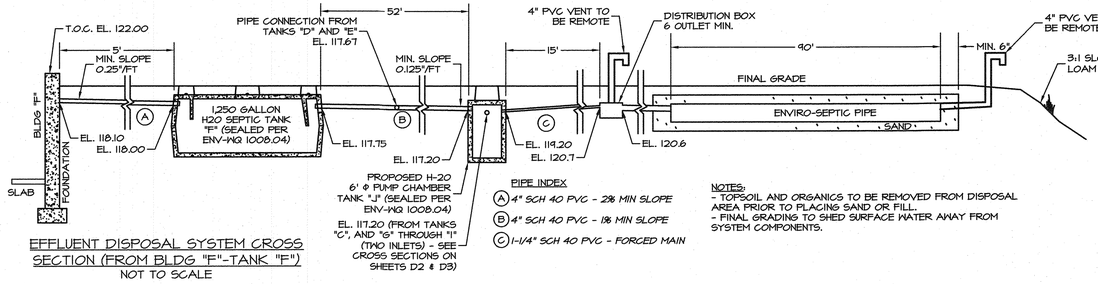
SUBSURFACE DISPOSAL SYSTEM

COPLEY PROPERTIES, LLC

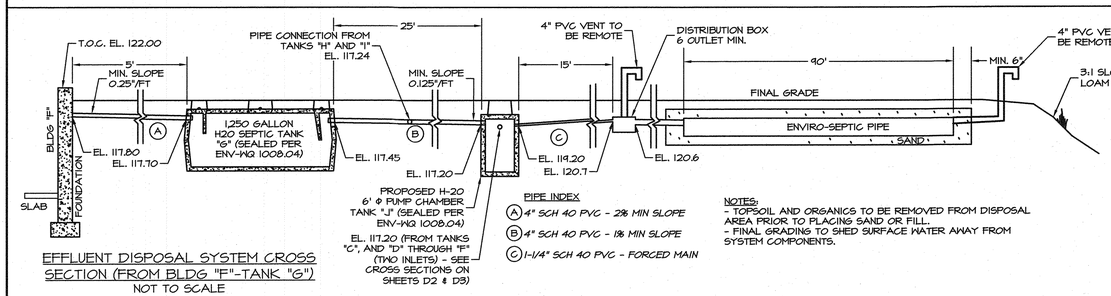
89 & 91 PORTSMOUTH AVENUE (SITE)
STRATHAM, NH 03885



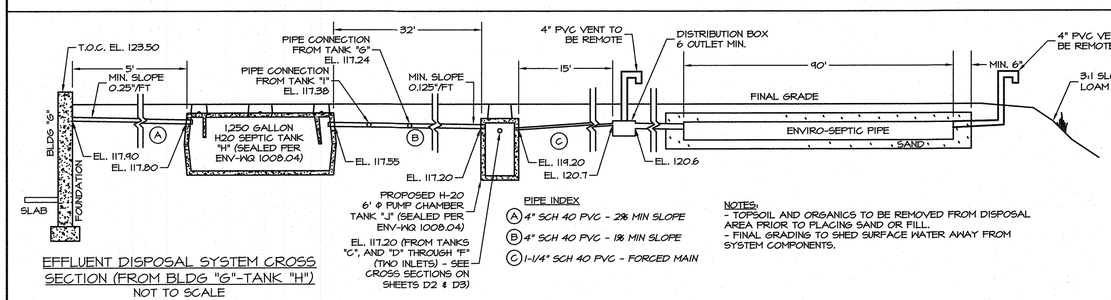
EFFLUENT DISPOSAL SYSTEM CROSS SECTION (FROM BLDG "E"-TANK "E")
NOT TO SCALE



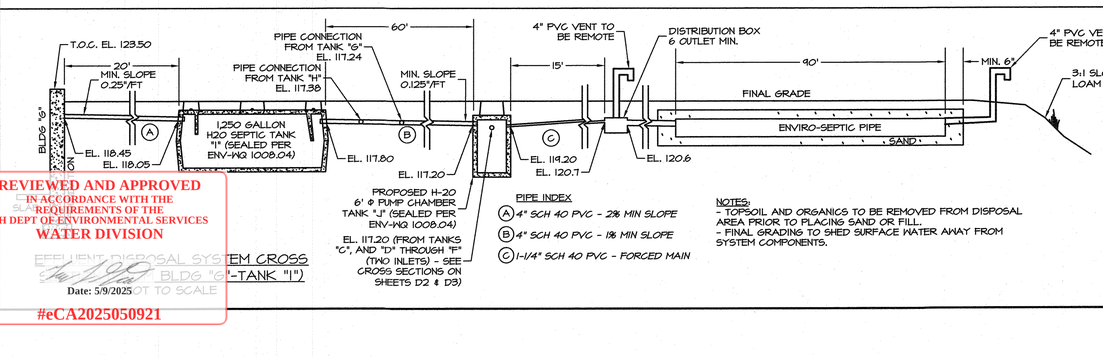
EFFLUENT DISPOSAL SYSTEM CROSS SECTION (FROM BLDG "F"-TANK "F")
NOT TO SCALE



EFFLUENT DISPOSAL SYSTEM CROSS SECTION (FROM BLDG "F"-TANK "G")
NOT TO SCALE

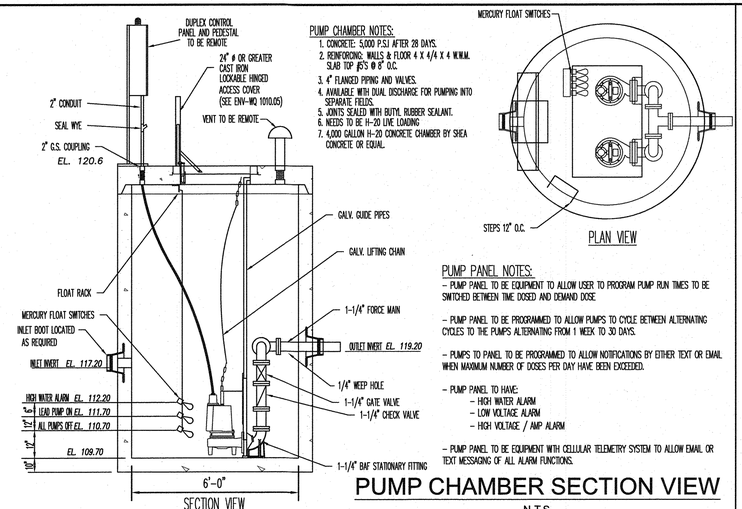


EFFLUENT DISPOSAL SYSTEM CROSS SECTION (FROM BLDG "G"-TANK "H")
NOT TO SCALE



EFFLUENT DISPOSAL SYSTEM CROSS SECTION (FROM BLDG "G"-TANK "I")
NOT TO SCALE

REVIEWED AND APPROVED
IN ACCORDANCE WITH THE REQUIREMENTS OF THE NH DEPT OF ENVIRONMENTAL SERVICES
WATER DIVISION
Date: 5/9/2025
#eCA2025050921

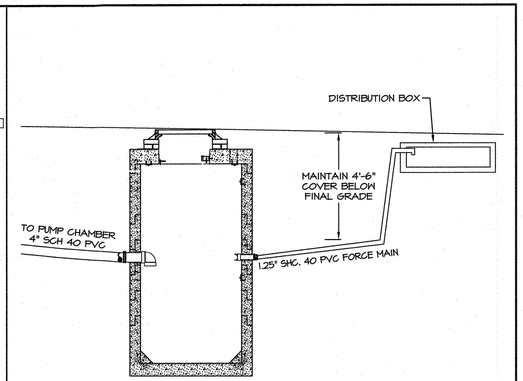


PUMP CHAMBER SECTION VIEW
N.T.S.

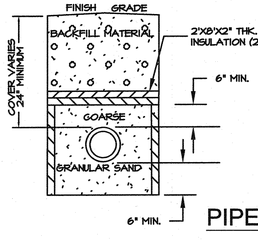
PUMP CHAMBER NOTES:
1. CONCRETE: 5,000 P.S.I AFTER 28 DAYS.
2. REINFORCING: WALLS & FLOOR 4 X 4/4 X 4 MINIMAL SLAB TOP #5 @ 8" O.C.
3. 4" FLANGED PIPING AND VALVES.
4. AVAILABLE WITH DUAL DISCHARGE FOR PUMPING INTO SEPARATE FIELDS.
5. JOINTS SEALED WITH BUTYL RUBBER SEALANT.
6. NEEDS TO BE H-20 LIVE LOADING
7. 4,000 GALLON H-20 CONCRETE CHAMBER BY SHEA CONCRETE OR EQUAL

PLAN VIEW

PUMP PANEL NOTES:
- PUMP PANEL TO BE EQUIPMENT TO ALLOW USER TO PROGRAM PUMP RUN TIMES TO BE SWITCHED BETWEEN TIME DOSED AND DEMAND DOSE.
- PUMP PANEL TO BE PROGRAMMED TO ALLOW PUMPS TO CYCLE BETWEEN ALTERNATING CYCLES TO THE PUMPS ALTERNATING FROM 1 WEEK TO 30 DAYS.
- PUMPS TO PANEL TO BE PROGRAMMED TO ALLOW NOTIFICATIONS BY EITHER TEXT OR EMAIL WHEN MAXIMUM NUMBER OF DOSES PER DAY HAVE BEEN EXCEEDED.
- PUMP PANEL TO HAVE:
  - HIGH WATER ALARM
  - LOW VOLTAGE ALARM
  - HIGH VOLTAGE / AMP ALARM
- PUMP PANEL TO BE EQUIPMENT WITH CELLULAR TELEMETRY SYSTEM TO ALLOW EMAIL OR TEXT MESSAGING OF ALL ALARM FUNCTIONS.

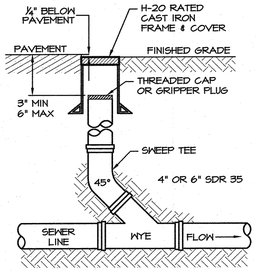


PUMP CHAMBER
N.T.S.

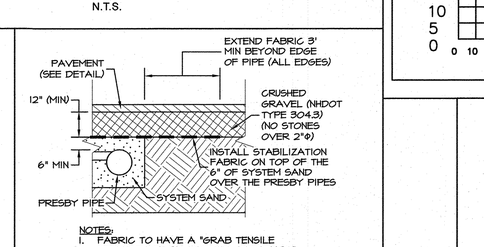


PIPE INSTALLATION DETAIL
N.T.S.

NOTES:
INSULATE SEWER OR FORCE MAIN WHERE:
1. PIPE WILL BE LESS THAN 6' BELOW PLOWED AREAS OR LESS THAN 4' BELOW AREAS RUNNING CROSS COUNTRY.
2. GAPS BETWEEN SECTIONS OF INSULATION TO BE COVERED WITH 2'X2'X2' PIECE OF INSULATION CENTERED OVER GAP.

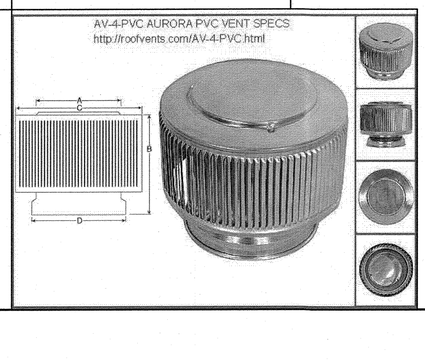


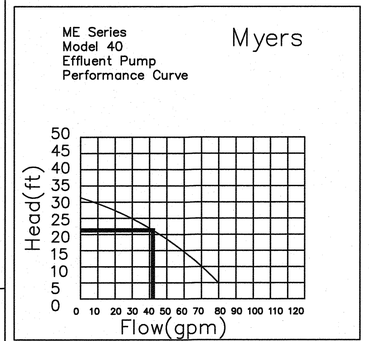
SERVICE CLEANOUT DETAIL
N.T.S.



NOTES:
1. FABRIC TO HAVE A "GRAB TENSILE STRENGTH OF 315 LBS PER ASTM 4632".
2. SYSTEM SAND 6" MIN ABOVE AND BELOW PRESBY PIPES. NO SAND VOIDS ALLOWED. WALK BETWEEN ROWS TO ENSURE SAND FILLS ALL VOIDS AROUND PRESBY PIPES (REPEAT IF NECESSARY).
3. VENTING REQUIRED FOR ALL H-20 SYSTEMS.

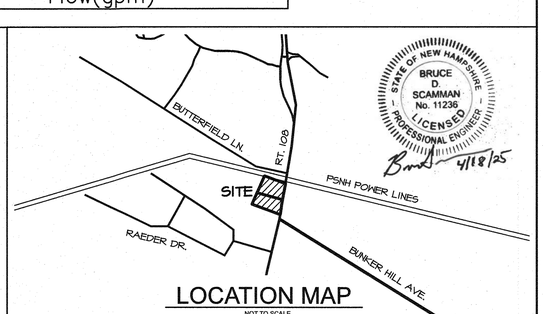
H-20 WHEEL LOADING OVER LEACH FIELD
NOT TO SCALE





PUMP CALCULATIONS:
MEYERS ME 40 EFFLUENT PUMP @ 42 GPM
TOTAL HEAD LOSS= STATIC+ FRICTION
STATIC = 120.7-109.7 = 11.00 FT
FRICTION = (15+25)*(25.96/100) =10.38 FT
TOTAL HEAD LOSS = 11.00+10.38 = 21.38 FT
SEE PERFORMANCE CURVE @ 42 GPM

DOSING CALCULATIONS:
[3.14*(6/2)^2]*7.48 GAL/CF PUMP CHAMBER = 211.44 GAL/FT
DAILY FLOW = 2,431.2 GPD
1 FT * 211.44 GAL/FT = 211.44 GAL
2431.2 GPD/ 211.44 GAL = 11.50 DOSES/DAY
211.44 GAL/ 42 GPM PUMP = 5.04 MIN/DOSE



LOCATION MAP
NOT TO SCALE

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN No. 11236 LICENSED PROFESSIONAL ENGINEER
4/18/25

REVISION 3	REVISION 2	REVISION 1
		CHANGE LEACH FIELD TO ENVIRO 4/18/25 JJM

NEW HAMPSHIRE
Designer of Subsurface Disposal Systems
Bruce D. Scamman No. 1426
Water Supply & Pollution Control
4/18/25

EMANUEL ENGINEERING
118 PORTSMOUTH AVENUE, A202
STRATHAM, NH 03885
P: 603-772-4400 F: 603-772-4487
WWW.EMANUELENGINEERING.COM

DESIGNED:	JJM - 4/8/25
DRAWN:	JJM - 4/8/25
CHECKED:	BDS - 4/8/25
SCALE:	1" = 20'
DWG:	SD3
JOB:	23-1109

SUBSURFACE DISPOSAL SYSTEM

COPLEY PROPERTIES, LLC

89 & 91 PORTSMOUTH AVENUE (SITE)
STRATHAM, NH 03885

2/7/2024

Office Building - 89-91 Portsmouth Ave

Art Form Architecture, LLC

Copley Properties (2/7/2024)

NOTE: To scale as noted only if printed on
11x17 paper with "no scaling" (do not "Fit").

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Farmhouse - Office Building

2/7/2024

Office Building - 89-91 Portsmouth Ave

Copley Properties (2/7/2024)

NOTE: To scale as noted only if printed on
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Art Form Architecture, LLC

Office Building - 89-91 Portsmouth Ave

Copley Properties (2/7/2024)

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Art Form Architecture, LLC

Prelim / Work in Progress 603-431-9559

Office Building - 89-91 Portsmouth Ave

Copley Properties (2/7/2024)

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Art Form Architecture, LLC

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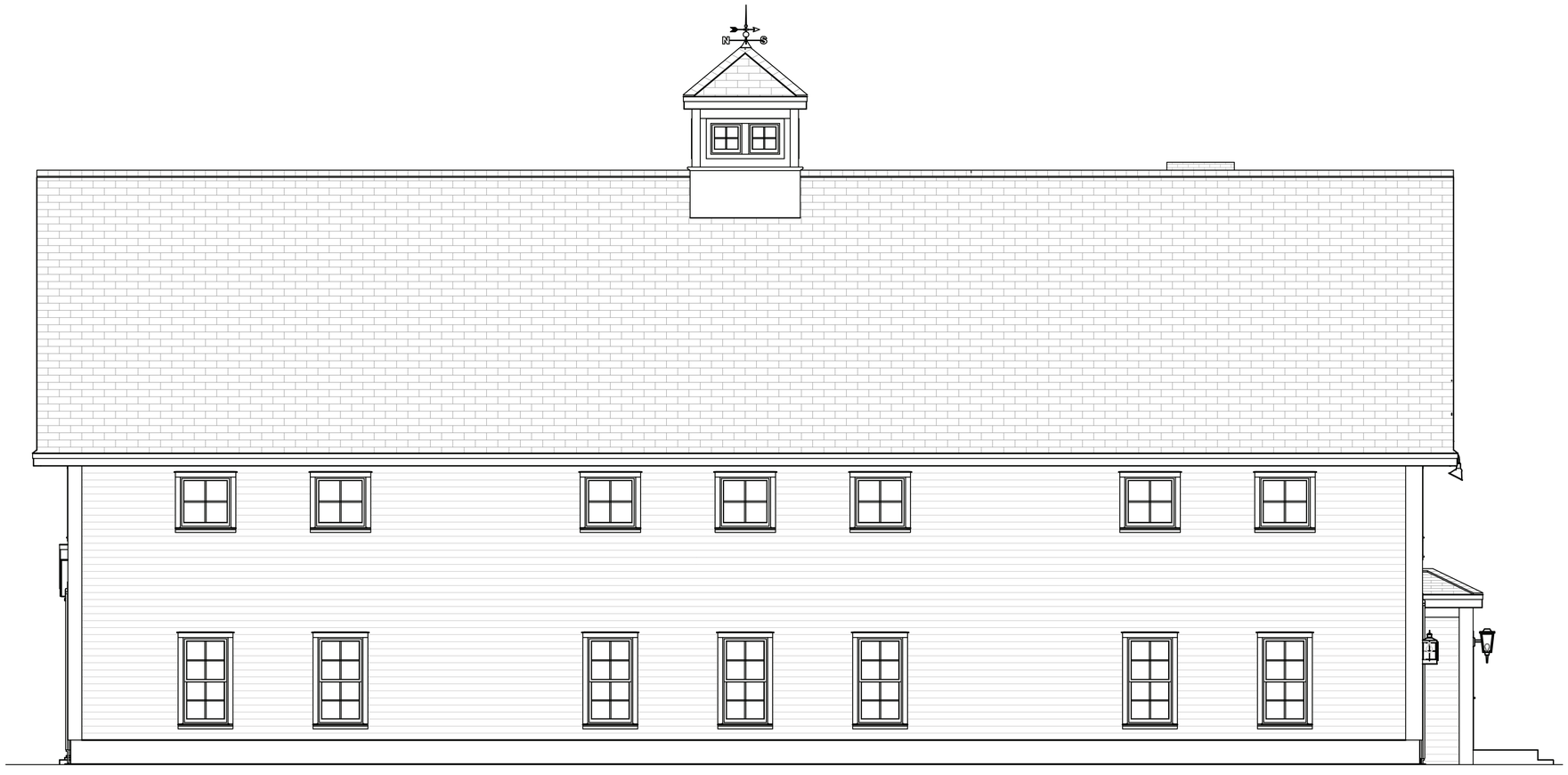

Left Elevation

Scale: 1/8" = 1'-0"

Office Building - 89-91 Portsmouth Ave

Copley Properties (2/7/2024)

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Right Elevation

Scale: 1/8" = 1'-0"

5/8/2024

Office Building - 89-91 Portsmouth Ave

Art Form Architecture, LLC

Copley Properties (5/8/2024)

NOTE: To scale as noted only if printed on
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5/8/2024

Office Building - 89-91 Portsmouth Ave

Art Form Architecture, LLC

Copley Properties (5/8/2024)

NOTE: To scale as noted only if printed on
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5/8/2024

Office Building - 89-91 Portsmouth Ave

Copley Properties (5/8/2024)

NOTE: To scale as noted only if printed on
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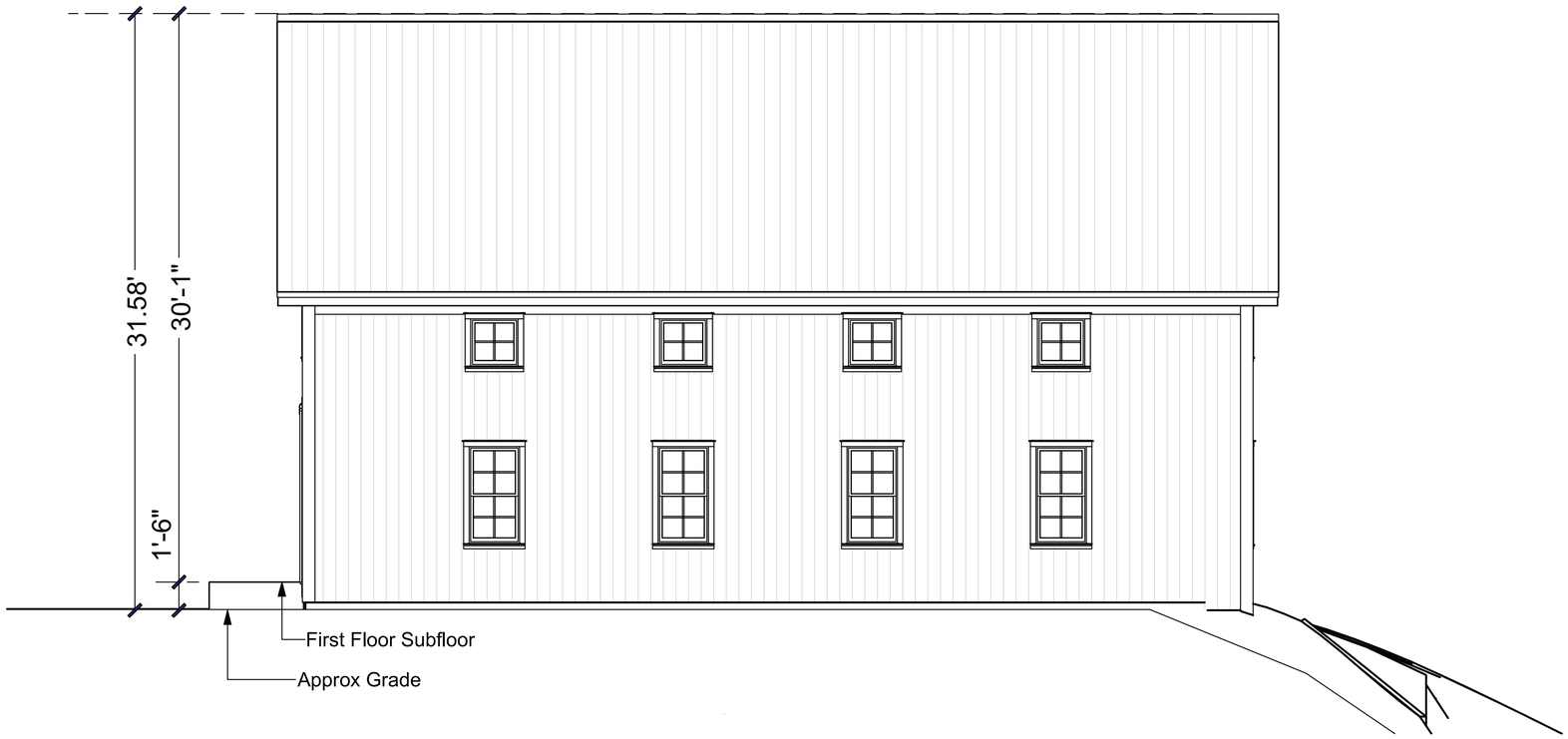

Front Elevation

Scale: 3/32" = 1'-0"

Office Building - 89-91 Portsmouth Ave

Copley Properties (5/8/2024)

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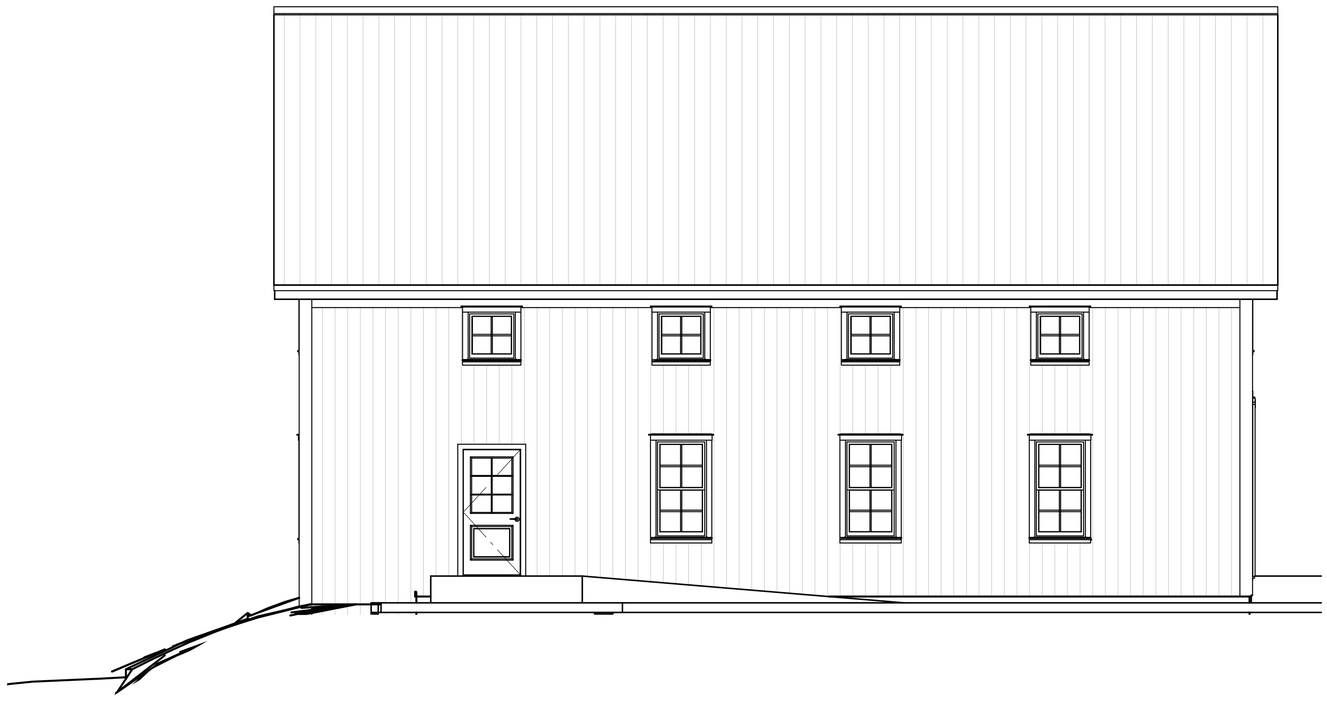
Prelim / Work in Progress 603-431-9559



5/8/2024

Office Building - 89-91 Portsmouth Ave

Copley Properties (5/8/2024)

NOTE: To scale as noted only if printed on
11x17 paper with "no scaling" (do not "Fit").

Art Form Architecture, LLC

Left Elevation
Scale: 1/8" = 1'-0"

Right Elevation
Scale: 1/8" = 1'-0"

1/19/2024

Gable & Wing

724.220 (1/19/2024)

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Art Form Architecture, LLC

Prelim / Work in Progress 603-431-9559

Dear Builders and Home Buyers,

In addition to our Terms and Conditions (the "Terms"), please be aware of the following:

This design may not yet have Construction Drawings (as defined in the Terms), and is, therefore, only available as a Design Drawing (as defined in the Terms and together with Construction Drawings, "Drawings'). It is possible that during the conversion of a Design Drawing to a final Construction Drawing, changes may be necessary including, but not limited to, dimensional changes. Please see Plan Data Explained on www.artform.us to understand room sizes, dimensions and other data provided. We are not responsible for typographical errors.

Art Form Architecture ("Art Form") requires that our home designs be built substantially as designed. Art Form will not be obligated by or liable for use of this design with markups as part of any builder agreement. While we attempt to accommodate where possible and reasonable, and where the changes do not denigrate our design, any and all changes to Drawings must be approved in writing by Art Form. It is recommended that you have your Drawing updated by Art Form prior to attaching any Drawing to any builder agreement. Art Form shall not be responsible for the misuse of or unauthorized alterations to any of its Drawings.

Facade Changes:
• To maintain design integrity, we pay particular attention to features on the front facade, including but not limited to door surrounds, window casings, finished porch column sizes, and roof friezes. While we may allow builders to add their own flare to aesthetic elements, we don't allow our designs to be stripped of critical details. Any such alterations require the express written consent of Art Form.
• Increasing ceiling heights usually requires adjustments to window sizes and other exterior elements.
Floor plan layout and/or Structural Changes:
• Structural changes always require the express written consent of Art Form
• If you wish to move or remove walls or structural elements (such as removal of posts, increases in house size, ceiling height changes, addition of dormers, etc), please do not assume it can be done without other additional changes (even if the builder or lumber yard says you can).

1/19/2024

Gable & Wing

724.220 (1/19/2024)

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Art Form Architecture, LLC

Prelim / Work in Progress 603-431-9559

1/19/2024

Gable & Wing

724.220 (1/19/2024)

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Art Form Architecture, LLC

Prelim / Work in Progress 603-431-9559

Front Elevation

Scale: 1/8" = 1'-0"

1/19/2024

Gable & Wing

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Art Form Architecture, LLC

Prelim / Work in Progress 603-431-9559

Right Elevation

Scale: 1/8" = 1'-0"

1/19/2024

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Rear Elevation

Scale: 1/8" = 1'-0"

1/19/2024

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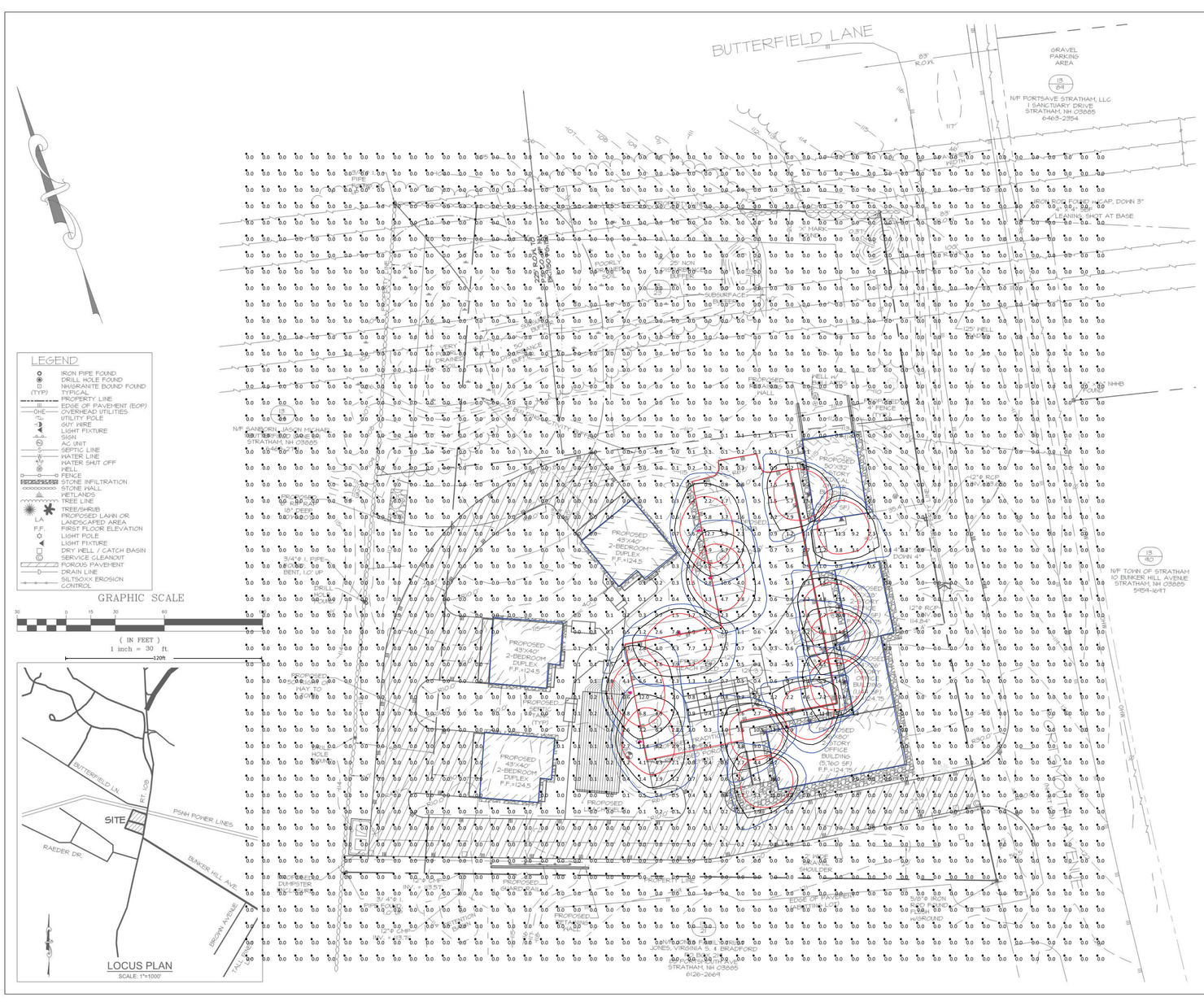
Art Form Architecture, LLC

Prelim / Work in Progress 603-431-9559

Left Elevation

Scale: 1/8" = 1'-0"



LEGEND

○	IRON PIPE FOUND
◉	DRILL HOLE FOUND
⊡	NH/GRANITE BOUND FOUND
(TYP)	TYPICAL
— - —	PROPERTY LINE
——III——	EDGE OF PAVEMENT (EOP)
——OHE——	OVERHEAD UTILITIES
	UTILITY POLE
	GUY WIRE
◀	LIGHT FIXTURE
	SIGN
Ⓐ	AC UNIT
——S——	SEPTIC LINE
——W——	WATER LINE
	WATER SHUT OFF
Ⓦ	WELL
□——□——□	FENCE
▨	STONE INFILTRATION
○○○○○○○○	STONE WALL
	WETLANDS
⌒⌒⌒⌒⌒	TREE LINE
✱	TREE/SHRUB
LA	PROPOSED LAWN OR LANDSCAPED AREA
F.F.	FIRST FLOOR ELEVATION
☼	LIGHT POLE
◀	LIGHT FIXTURE
□	DRY WELL / CATCH BASIN
©	SERVICE CLEANOUT
▨	POROUS PAVEMENT
——D——	DRAIN LINE
—□—□—□—	SILTSOXX EROSION CONTROL

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

120ft

NOTES:

1. OWNER OF RECORD:

   TAX MAP 13, LOT 22
   C.A.N. REALTY TRUST
   89 PORTSMOUTH AVENUE
   STRATHAM, NH 03885
   RCRD BK5377 PG1188

   TAX MAP 13, LOT 23
   G G F LIMITED LIABILITY CO
   93 LEDGE ROAD
   SEABROOK, NH 03874
   RCRD BK4078 PG2049

2. THE INTENT OF THIS PLAN IS TO SHOW A PROPOSED 2-STORY 36'X80' OFFICE BUILDING, 44'x26' 1-STORY OFFICE BUILDING, 45'X28' 2-STORY OFFICE BUILDING, 60'X40' 2-STORY OFFICE BUILDING, AND THREE 43'x40' 2-BEDROOM DUPLEXES ALONG WITH ASSOCIATED PARKING AND UTILITIES ON SITE.

3. PARCELS ARE ZONED PROFESSIONAL / RESIDENTIAL PER THE TOWN OF STRATHAM OFFICIAL ZONING MAP 2022.
   DIMENSIONAL REQUIREMENTS:
   - MINIMUM AREA= 1-ACRE
     - AREA PROVIDED = 3.23 ACRES
   - MINIMUM CONTIGUOUS FRONTAGE = 150 FT
     - FRONTAGE PROVIDED = 414.75 FT
   - LOT DEPTH MINIMUM = 150 FT
     - LOT DEPTH PROVIDED = ~297 FT
   - FRONT YARD MINIMUM = 30 FT
   - REAR YARD MINIMUM = 20 FT
   - SIDE YARD MINIMUM = 20 FT
   - BUILDING HEIGHT MAXIMUM = 35 FT
     - BUILDING HEIGHT PROVIDED = ?
   - MAXIMUM BUILDING COVER/LOT= 30%
     - BUILDING COVER/LOT PROVIDED
       - TOTAL LOT AREA = ~140,656 SF (3.23 ACRES)
         - EXISTING BUILDING AREA = +/- 1,696 SF + 3,277 SF = +/- 4,973 SF
         - PROPOSED BUILDING AREA = 2,880 SF + 1,144 SF + 1260 SF + 1,600 SF + 3*(1,720 SF) = +/- 12,044 SF
         - BUILDING COVER/LOT: (12,044 SF) / 140,656 SF = 8.6%
   - MAXIMUM BUILDING FOOTPRINT = 1,600 SF
   - MINIMUM OPEN SPACE/LOT = 50% OF LOT
     - TOTAL LOT AREA = ~140,656 SF (3.22 ACRES)
       - OPEN SPACE AREA = +/- 93,728 SF
       - OPEN SPACE/LOT: 93,728 SF / 140,656 SF = 66.6%
   - FRONT OPEN SPACE SETBACK = 30' MIN (50' AVG)
   - SIDE/REAR OPEN SPACE SETBACK = 20' MIN (30' AVG)

4. PARCELS ARE NOT IN A FLOOD HAZARD ZONE; REFERENCE FLOOD INSURANCE RATE MAP 33015C0245F, DATED JANUARY 29, 2021.

5. PROPERTY TO BE SERVICED BY ON-SITE WELL AND SEPTIC.

6. ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.

7. THIS PLAN WAS PREPARED WITH FIELDWORK CONDUCTED BY JAMES VERRA AND ASSOCIATES, INC. IN OCTOBER OF 2023.

8. WETLANDS WERE DELINEATED BY JOSEPH NOEL ON SEPTEMBER 20, 2023.

9. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.

10. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.

11. PARKING REQUIREMENTS PER THE 2022 SITE PLAN REVIEW REGULATIONS FOR THE TOWN OF STRATHAM, NH AS AMENDED JULY 2022:
    - PARKING SPACE DIMENSIONS = 9'(W)x18'(L)
    - TRAVEL LANE WIDTH = 24 FEET

    REQUIRED:
    - FOR OTHER BUSINESS OR OFFICE USES NOT OTHERWISE LISTED IN THE REGULATIONS = 3 SPACES PER 1,000 SF OF GROSS FLOOR AREA
    - MEDICAL OFFICES = 4.5 SPACES PER 1,000 SF OF GROSS FLOOR AREA
    - 9,424 SF x (3 SPACE / 1,000 SF) + 3,200 SF x (4.5 SPACE / 1,000 SF)= 43 SPACES

    PROVIDED:
    - PROPOSED PARKING SPACES PROVIDED = 46 SPACES

NOTES (CONTINUED):

12. EDGE OF POROUS PAVEMENT SHALL BE INSTALLED PER "POROUS PAVEMENT EDGE DETAIL" ON SHEET D4 WHERE POROUS PAVEMENT MEETS SOIL. EDGE OF POROUS PAVEMENT SHALL BE INSTALLED PER "POROUS PAVEMENT TRANSITION TO TRADITIONAL PAVEMENT OR CONCRETE DETAIL" ON SHEET D4 WHERE POROUS PAVEMENT MEETS TRADITIONAL PAVEMENT.

13. PROPOSED AREA OF DISTURBANCE = 98,925 SF

REFERENCE PLANS:

1. "REPLACEMENT SUBSURFACE DISPOSAL SYSTEM FOR RADIATION SAFETY & CONTROL SERVICES, INC, 91 PORTSMOUTH AVENUE, STRATHAM, NH 03885." BY EMANUEL ENGINEERING, INC.; DATED MAY 1, 2009; SCALE 1"=20'.

2. "COMMERCIAL SITE PLAN - EFFLUENT DISPOSAL SYSTEM DESIGN, 89 PORTSMOUTH AVENUE, STRATHAM, NH 03885." BY BEALS ASSOCIATES, PLCC; DATED AUGUST 25, 2004; SCALE 1"=20'.

3. "SITE PLAN FOR GGF LIMITED LIABILITY COMPANY, 91 PORTSMOUTH AVENUE, STRATHAM, NH 03885." BY EMANUEL ENGINEERING, INC.; DATED APRIL 2003; SCALE 1"=20', RCRD D-30767.

4. "EXISTING AND PROPOSED SITE PLAN IN STRATHAM NH FOR FARRELL, MARTIN, & PULITZER" BY WILLIAM G. COLLINS ASSOCIATES, DATED APRIL 1987, SCALE 1" = 40', RCRD D-16585.

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
1	MAY 22, 2024	FOR APPROVAL	

DRAWN:	NCB	DESIGN:	NCB
CHECKED:	BDS	CHECKED:	BDS

EMANUEL ENGINEERING
118 PORTSMOUTH AVENUE, A202
STRATHAM, NH 03885
P: 603-772-4400 F: 603-772-4487
WWW.EMANUELENGINEERING.COM

SEAL:

CLIENT:
COPLEY PROPERTIES, LLC
94 PORTSMOUTH AVENUE
STRATHAM, NH 03885

TITLE:

SITE PLAN
FOR
COPLEY PROPERTIES, LLC
89 & 91 PORTSMOUTH AVE (SITE)
STRATHAM, NH 03885

PROJECT:	SCALE:	SHEET:
23-1109	1"=30'	C2

Not to Scale

Prepared By:
Holbrook-Associated
35 Reservoir Park Drive
Rockland, MA 02370

Job Name:
Copley Plaza LLC
Startham, NH

Scale: as noted

Project ID: 233046

Date:6/12/2024

Rep: JD

Filename: CP LLC.AGI

Drawn By:JHainey

Filename: C:\Users\jholbrook\Documents\AGI32 - Designs\2024 Designs\John Dignard\Copley Properties LLC\CP LLC.AGI

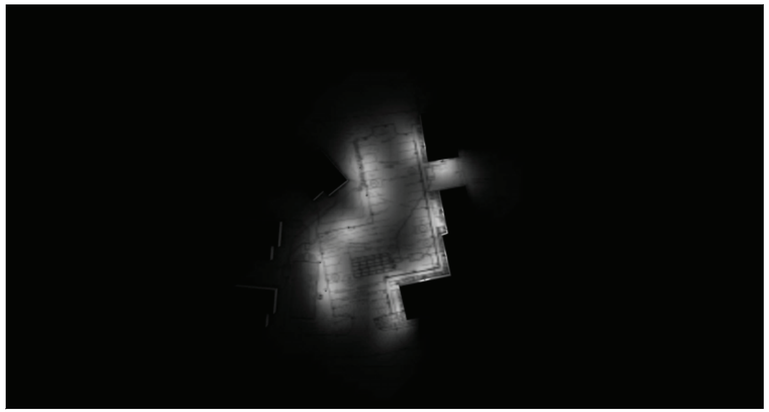
The Lighting Analysis, ezLayout, Energy Analysis and/or Visual Simulation ("Lighting Design") provided by Holbrook-Associated represent an anticipated prediction of lighting system performance based upon design parameters and information supplied by others. These design parameters and information provided by others have not been field verified by Holbrook-Associated and therefore actual measured r esults may vary from the actual field conditions. Holbrook-Associated recommends that design parameters and other information be field verified to reduce variation.

Holbrook-Associated neither warranties, either implied or stated with regard to actual measured light levels or energy consumption levels as compared to those illustrated by the Lighting Design. Holbrook-Associated neither warranties, either implied or stated, nor represents the appropriateness, completeness or suitability of the Lighting Design intent as compliant with any applicable regulatory code requirements with the exception of those specifically stated on drawings created and submitted by Holbrook-Associated. The Lighting design is issued, in whole or in part, as advisory documents for informational purposes and is not intended for construction nor as being part of a project's construction documentation package.

Calculation Summary											
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**	**Description**	**PtSpcLr**	**PtSpcTb**	**Meter Type**
Site	Illuminance	Fc	0.30	20.0	0.0	N.A.	N.A.	Readings Taken @ 0'-0" AFG	10	10	Horizontal
Parking Lot Expansion	Illuminance	Fc	2.46	12.7	0.3	8.20	42.33				

Luminaire Schedule			All quotes/orders generated from this layout must be forwarded to the Local Rep Agency				
Symbol	**Qty**	**Tag**	**Label**	**Arrangement**	**LLF**	**Description**	**BUG Rating**
	5	A1	A22-4T70	Single	1.000	A22 4T@50W5000K	B2-U0-G2
	8	S1	SLIM17FAFC60	Single	1.000	SLIM17FAFC60_5K at 0_ CCT Setting	B2-U0-G1

Expanded Luminaire Location Summary						
LumNo	**Tag**	**X**	**Y**	**MTG HT**	**Orient**	**Tilt**
1	S1	501	161	12	188.746	0
2	S1	495	190	12	188.746	0
3	S1	522	196	12	97.125	0
4	S1	544	221	12	190.784	0
5	S1	545	249	12	190.62	0
6	S1	541	267	12	190.305	0
7	S1	541	321	12	277.595	0
8	S1	522	336	12	185.711	0
9	A1	418.482	184.232	12	8.915	0
10	A1	412.488	214.186	12	7.125	0
11	A1	461.472	284.286	12	11	0
12	A1	454.472	313.286	12	11	0
13	A1	442.125	250.505	12	274.764	0
Total Quantity: 13						



Render Image - Top View

NOTES:
* The light loss factor (LLF) is a product of many variables, only lamp lumen depreciation (LLD) has been applied to the calculated results unless otherwise noted. The LLD is the result (quotient) of mean lumens / initial lumens per lamp manufacturers' specifications.

* Illumination values shown (in footcandles) are the predicted results for planes of calculation either horizontal, vertical or inclined as designated in the calculation summary. Meter orientation is normal to the plane of calculation.

* The calculated results of this lighting simulation represent an anticipated prediction of system performance. Actual measured results may vary from the anticipated performance and are subject to means and methods which are beyond the control of Holbrook-Associated.

* Mounting height determination is job site specific, our lighting simulations assume a mounting height (insertion point of the luminaire symbol) to be taken at the top of the symbol for ceiling mounted luminaires and at the bottom of the symbol for all other luminaire mounting configurations.

* It is the Owner's responsibility to confirm the suitability of the existing or proposed poles and bases to support the proposed fixtures, based on the weight and EPA of the proposed fixtures and the owner's site soil conditions and wind zone. It is recommended that a professional engineer licensed to practice in the state the site is located be engaged to assist in this determination.

* The landscape material shown hereon is conceptual, and is not intended to be an accurate representation of any particular plant, shrub, bush, or tree, as these materials are living objects, and subject to constant change. The conceptual objects shown are for illustrative purposes only. The actual illumination values measured in the field will vary.

* Photometric model elements such as buildings, rooms, plants, furnishings or any architectural details which impact the dispersion of light must be detailed by the customer documents for inclusion in the Holbrook-Associated lighting design model. Holbrook-Associated is not responsible for any inaccuracies caused by incomplete information on the part of the customer, and reserves the right to use best judgement when translating customer requests into photometric studies.

* RAB Lighting Inc. luminaire and product designs are protected under U.S. and International intellectual property laws. Patents issued or pending apply.

HOLBROOK-ASSOCIATED

Prepared By:
Holbrook-Associated
35 Reservoir Park Drive
Rockland, MA 02370

Job Name:
Copley Plaza LLC
Startham, NH

Scale: as noted	Project ID: 233046
Date:6/12/2024	Rep: JD
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Filename: C:\Users\jholbrook\Documents\AGI32 - Designs\2024 Designs\John Dignard\Copley Properties LLC\CP LLC.AGI

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