From:	Carla Nixon
To:	Whitney Miller
Subject:	FW: Cumberland Rusty Lantern C-Store & Bank Development - Section 7 Submittal
Date:	Tuesday, February 20, 2024 2:38:16 PM
Attachments:	image001.png image002.png Site-Stormwater PLans.pdf SW MaintMan.pdf I&M.pdf 22-RLM-004 SMP 2-5-24.pdf 22-004 Sidewalks.pdf Sidewalk Memorandum Signed.pdf AADT Calcs.pdf image003.png image004.png image005.png image006.png

Will you please upload this email and attachments to Agenda Item #6?

Carla Nixon
Director of Planning, Town of Cumberland
207-829-2206
www.cumberlandmaine.com
290 Tuttle Road, Cumberland, Maine 04021

From: Diane Morabito <mordi@sewall.com>
Sent: Tuesday, February 20, 2024 12:06 PM
To: Illian, Randy <Randy.Illian@maine.gov>; vanLuling, Robert <Robert.vanLuling@maine.gov>
Cc: Carla Nixon <cnixon@cumberlandmaine.com>; William Shane <wshane@cumberlandmaine.com>; Curt Neufeld <cneufeld@priorityrealestategroup.com>; Jim Howard <jhoward@priorityrealestategroup.com>; Randy Dunton <rdunton@gorrillpalmer.com>
Subject: RE: Cumberland Rusty Lantern C-Store & Bank Development - Section 7 Submittal

Hi Randy,

The additional information you requested below is attached:

1. Include drainage plans and drainage study – showing no net increase for the 50 year storm - Attached you will find the Stormwater Plans, Stormwater Maintenance Plan, Site Inspection

Form & Drainage Study

2. Concept plans must have approximate existing ROW and cut/fill lines – Attached you will find concept plans for the sidewalk showing existing ROW and cut/fill lines, as well as a signed agreement allowing regrading of an adjacent property.

3. Concept plans must show a sidewalk connection (and crosswalk) to the proposed sidewalk on Route 100 – towards Faraday Drive – The sidewalk plans show the requested crosswalk.

4. Based upon the HCL calculation for the intersection – include estimated increase in AADT, due to the development, for each direction and each approach (8 AADTs) – The AADT calculations are attached.

As always, let me know if you have any questions on these materials.

Thanks,
Diane

Diane W. Morabito, PE, PTOE
Vice President Traffic Engineering
T: +1. 207.817.5440 | **F:** +1. 207.827.3641 | **E:** diane.morabito@sewall.com
14 York Street | Portland, Maine 04101 | www.sewall.com

From: Illian, Randy <Randy.Illian@maine.gov>
Sent: Monday, December 4, 2023 2:32 PM
To: Diane Morabito <mordi@sewall.com>; vanLuling, Robert <Robert.vanLuling@maine.gov>
Cc: Carla Nixon <cnixon@cumberlandmaine.com>; wshane <wshane@cumberlandmaine.com>; cneufeld@priorityrealestategroup.com; Jim Howard <jhoward@priorityrealestategroup.com>; Randy Dunton <rdunton@gorrillpalmer.com>
Subject: RE: Cumberland Rusty Lantern C-Store & Bank Development - Section 7 Submittal

Diane,

I just got off the phone with our Safety Office. I misunderstood. They do not have a recent formal Safety Assessment. Please ignore that requirement.

Thank you,

Randy Illian, P.E.
Southern Region Traffic Engineer
Maine Department of Transportation
Scarborough, ME
Office: (207)885-7041
he / him

From: Diane Morabito <mordi@sewall.com>
Sent: Monday, December 4, 2023 2:04 PM
To: Illian, Randy <Randy.Illian@maine.gov>; vanLuling, Robert <Robert.vanLuling@maine.gov>
Cc: Carla Nixon <cnixon@cumberlandmaine.com>; wshane <wshane@cumberlandmaine.com>; cneufeld@priorityrealestategroup.com; Jim Howard <jhoward@priorityrealestategroup.com>; Randy Dunton <rdunton@gorrillpalmer.com>
Subject: RE: Cumberland Rusty Lantern C-Store & Bank Development - Section 7 Submittal

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.
Thanks Randy. We will pull these materials together and resubmit.

Can you provide the MaineDOT Safety Office Assessment so that I may review it? I did review the current Gorrill Palmer recommendations for intersection signage/safety improvements and included that in the study.

Diane

Diane W. Morabito, PE, PTOE
Vice President Traffic Engineering
T: +1. 207.817.5440 | **F:** +1. 207.827.3641 | **E:** diane.morabito@sewall.com
14 York Street | Portland, Maine 04101 | www.sewall.com

From: Illian, Randy <Randy.Illian@maine.gov>
Sent: Monday, December 4, 2023 1:35 PM
To: Diane Morabito <mordi@sewall.com>; vanLuling, Robert <Robert.vanLuling@maine.gov>
Cc: Carla Nixon <cnixon@cumberlandmaine.com>; wshane <wshane@cumberlandmaine.com>; cneufeld@priorityrealestategroup.com; Jim Howard <jhoward@priorityrealestategroup.com>; Randy Dunton <rdunton@gorrillpalmer.com>
Subject: RE: Cumberland Rusty Lantern C-Store & Bank Development - Section 7 Submittal

Diane,

I have reviewed the submittal. I have found it incomplete. Based upon Scoping Meeting discussions, please make the following revisions and resubmit.

1. Include a review of the MaineDOT Safety Office Roadway Safety Assessment and include and relevant third-party analysis and recommendations
2. Include drainage plans and drainage study – showing no net increase for the 50 year storm

Please note, we will also need the following addressed/submitted before issuing a Draft TMP:

1. Concept plans must have approximate existing ROW and cut/fill lines
2. Concept plans must show a sidewalk connection (and crosswalk) to the proposed sidewalk on Route 100 – towards Faraday Drive
3. Based upon the HCL calculation for the intersection – include estimated increase in AADT, due to the development, for each direction and each approach (8 AADTs)

Please feel free to call or write with any questions.

Sincerely,

Randy Illian, P.E.
Southern Region Traffic Engineer
Maine Department of Transportation
Scarborough, ME
Office: (207)885-7041
he / him

From: Diane Morabito <mordi@sewall.com>
Sent: Wednesday, November 22, 2023 12:17 PM
To: Illian, Randy <Randy.Illian@maine.gov>; vanLuling, Robert <Robert.vanLuling@maine.gov>
Cc: Carla Nixon <cnixon@cumberlandmaine.com>; wshane <wshane@cumberlandmaine.com>; cneufeld@priorityrealestategroup.com; Jim Howard <jhoward@priorityrealestategroup.com>; Randy Dunton <rdunton@gorrillpalmer.com>
Subject: Cumberland Rusty Lantern C-Store & Bank Development - Section 7 Submittal

Hi Randy,

Attached please find Section 7 for the proposed Rusty Lantern Convenience store and bank development in Cumberland.

A check was mailed to you at your office this morning for the remaining $ 1,500 application fee. Hopefully, you will have it the first of next week.

As always, do not hesitate to contact me if you have any questions or need any additional information regarding the study or our findings or recommendations.

Best Wishes for a Happy Thanksgiving!

Thanks,
Diane

Diane W. Morabito, PE, PTOE
Vice President Traffic Engineering
T: +1. 207.817.5440 | **F:** +1. 207.827.3641 | **E:** diane.morabito@sewall.com
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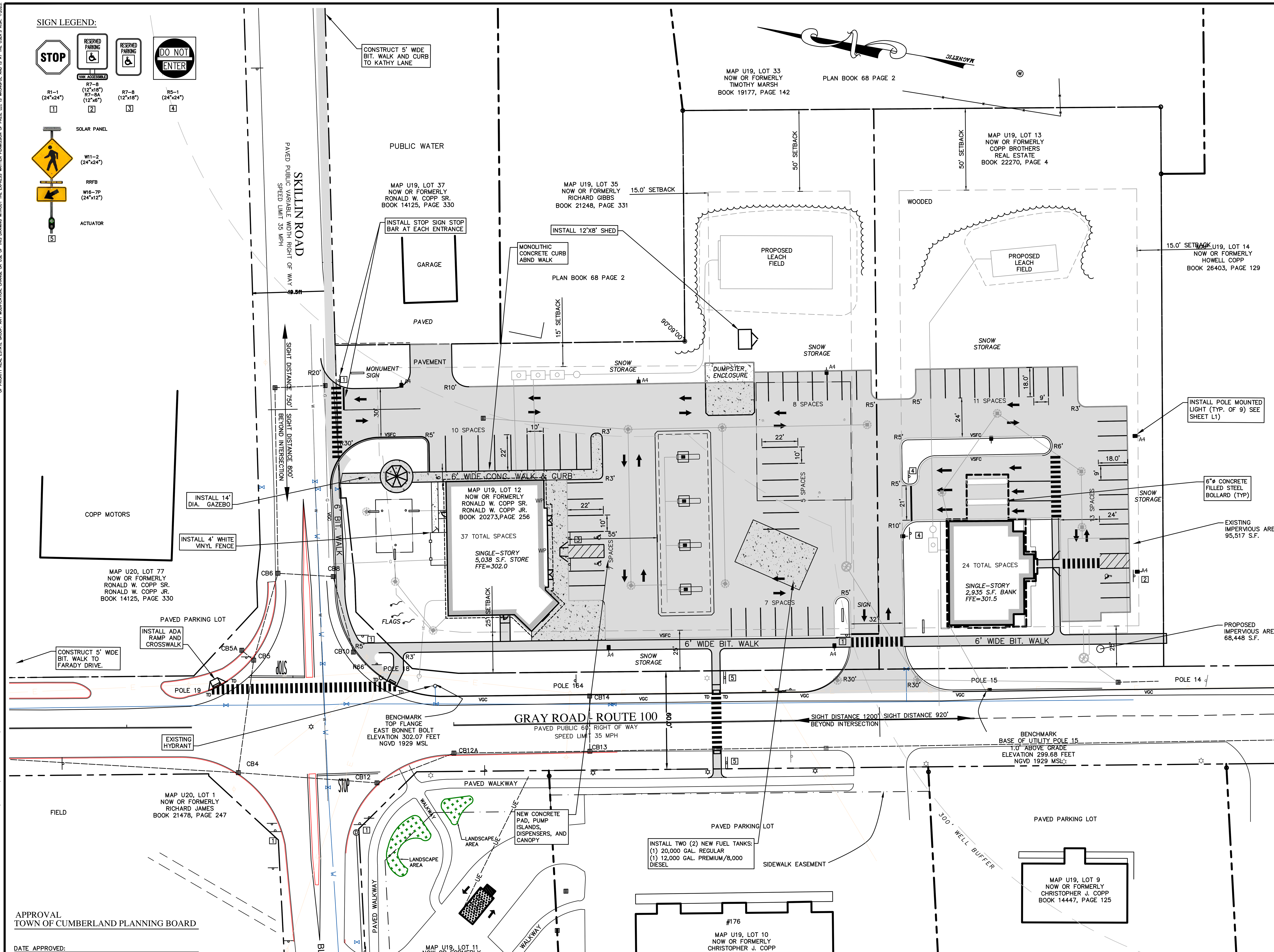
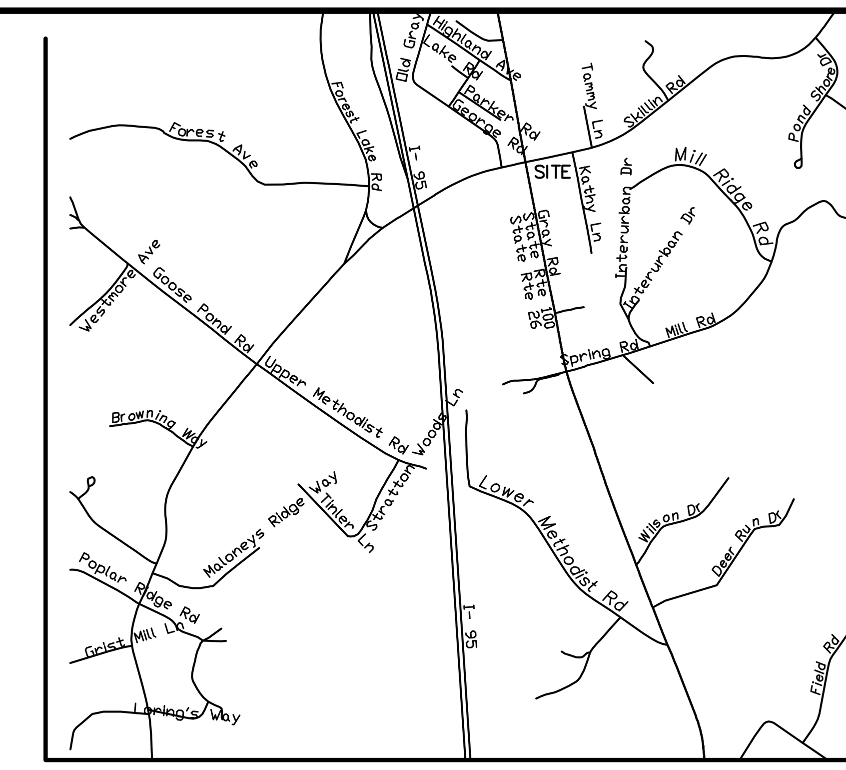




LOCATION MAP
NOT TO SCALE

APPROVAL
TOWN OF CUMBERLAND PLANNING BOARD

DATE APPROVED: ____________________

DATE SIGNED: ____________________

CHAIRMAN: ____________________

GENERAL NOTES:

1. TITLE REFERENCE FOR SURVEYED PARCEL:

   BK 20273, PG 256 (U19–12)
   BK 34640, PG 209 (U19–13)

2. PLAN REFERENCE(S):

   (1) EXISTING CONDITIONS SURVEY FOR PRIORITY REAL ESTATE GROUP OF 181 GRAY ROAD, CUMBERLAND, MAINE 04021, PREPARED BY BOUNDARY POINTS, NOT RECORDED.

3. AREA INFORMATION:

   LOT 12: 81,259 S.F. (1.87 ACRES)
   LOT 13: 59,857 S.F. (1.37 ACRES)
   TOTAL AREA: 141,116 S.F. (3.24 ACRES)

4. TAX MAP REFERENCE:

   TAX MAP U19, LOT 12 & 13.

5. BASIS OF BEARINGS:

   BEARINGS ARE MAINE STATE PLANE, WEST ZONE, NAD 83.

6. ELEVATION DATUM:

   NGVD 1929 MSL

7. FLOOD ZONE INFORMATION:

   PARCEL IS LOCATED WITHIN ZONE C (AREAS OF MINIMAL FLOODING) OF THE FLOOD INSURANCE RATE MAPS FOR CUMBERLAND COUNTY, MAINE. THE PROJECT IS LOCATED ON PANEL 15 OF 25 (COMMUNITY PANEL 230162 0015 B, EFF. DATE MAY 19, 1981)

8. IMPERVIOUS AREA:

   EXISTING IMPERVIOUS AREA: 95,517 S.F. (2.18 AC)
   PROPOSED IMPERVIOUS AREA: 68,117 S.F. (1.57 AC)
   NET CHANGE IN IMPERVIOUS AREA: –27,400 S.F. (0.63 AC)

UTILITY NOTES:

1. INFORMATION REGARDING THE LOCATION OF EXISTING UNDERGROUND UTILITIES IS A COMPILATION OF THAT FOUND IN THE FIELD AND THAT SHOWN ON A PREVIOUS PLANS, AND SHALL NOT BE CONSIDERED AN AS–BUILT PLAN. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING UTILITY LOCATIONS PRIOR TO COMMENCING WORK. NOTIFY ENGINEER OF ANY DISCREPANCY BETWEEN UTILITIES AS SHOWN AND AS FOUND. CONTRACTOR SHALL NOTIFY DIG–SAFE PRIOR TO EXCAVATION. 1–888–344–7233

LAYOUT NOTES:

1. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB OR FOUNDATION.
2. BOUNDARY INFORMATION ON LAYOUT PLAN IS FOR REFERENCE ONLY, REFER TO CERTIFIED BOUNDARY PLANS FOR BOUNDARY INFORMATION.
3. ALL HANDICAP ACCESSIBLE PARKING SPACES, RAMPS AND SIDEWALKS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).
4. ALL SITE SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. (MUTCD)
5. BUILDING FOUNDATION SHOWN IS NOT FOR FOUNDATION LAYOUT. COORDINATE SITE WORK WITH ARCHITECTURAL DRAWINGS INCLUDING BUILDING FEATURES AND FOUNDATION PLAN.
6. REFER TO SHEET C4 FOR GRADING AND DRAINAGE INFORMATION.
7. REFER TO SHEET L1 FOR LANDSCAPE INFORMATION.
8. REFER TO SHEET L2 FOR LIGHTING INFORMATION.

VILLAGE CENTER COMMERCIAL DISTRICT (VCC)		
m	REQUIRED	PROPOSED
MIN. LOT SIZE:	20,000 S.F.	3.24
MIN. LOT FRONTAGE:	75'	370'
MINIMUM SETBACKS:		
FRONT:	25'	25'
REAR:	50'	50'
SIDE:	15'	15'
MAX. HEIGHT:	40'	<40'
PARKING	BUS. SVC. – 1 PER 250 S.F. = 12 RETAIL – 1 PER 250 S.F. = 22 TOTAL = 34	37 24 61

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

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

SHEET: C3

SCALE: 1"=30'
JOB #: 22-RLM-004
MAP/LOT: U-19 12&13
FILE:

FIELD WK:
DRN BY: CYN
CH'D BY: CYN
DATE: 11-22-23

TITLE: **SITE PLAN**

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

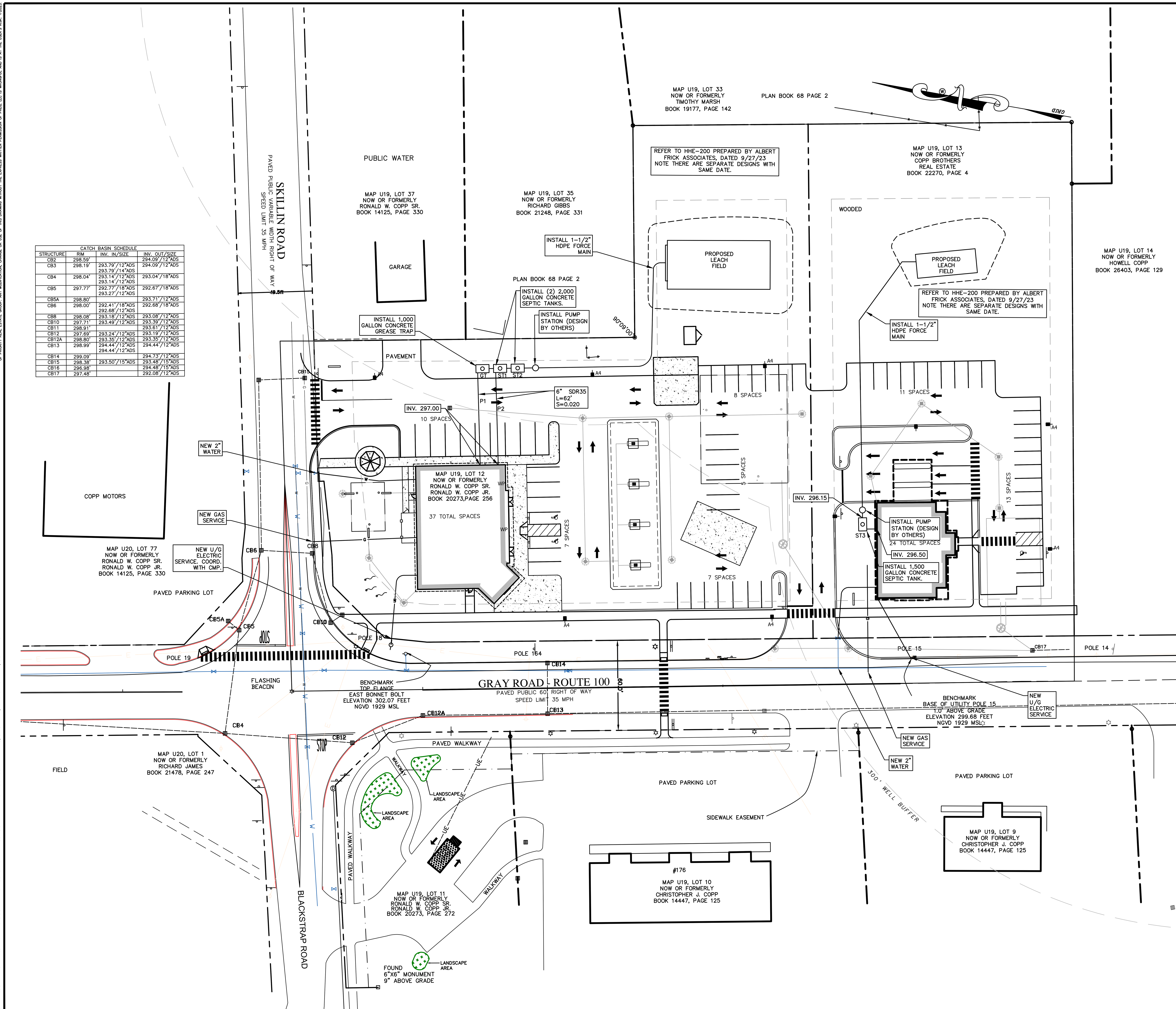
STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
11-22-23

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION
THIS PLAN IS ISSUED FOR REVIEW AND INFORMATION PURPOSES ONLY. THIS PLAN WILL CHANGE AND IS NOT INTENDED FOR PRICING OR CONSTRUCTION.

PRICING BASED ON THIS PLAN SHALL BE CONSIDERED PRELIMINARY AND MUST BE UPDATED PRIOR TO FINAL CONSTRUCTION DRAWINGS.

C:\USERS\CURT NEUFELD\ONEDRIVE\DOCUMENTS\PROJECTS\22-RLM-004 CUMBERLAND\DWG\22-004 SITE.DWG, C3 SITE, 2/12/2024 9:39 AM, CURT NEUFELD



CATCH BASIN SCHEDULE			
STRUCTURE	RIM	INV. IN/SIZE	INV. OUT/SIZE
CB2	298.59'		294.09'/12"ADS
CB3	298.19'	293.79'/12"ADS 293.79'/14"ADS	294.09'/12"ADS
CB4	298.04'	293.14'/12"ADS 293.14'/12"ADS	293.04'/18"ADS
CB5	297.77'	292.77'/18"ADS 293.27'/12"ADS	292.67'/18"ADS
CB5A	298.80'		293.71'/12"ADS
CB6	298.00'	292.41'/18"ADS 292.68'/12"ADS	292.68'/18"ADS
CB8	298.08'	293.18'/12"ADS	293.08'/12"ADS
CB10	297.71'	293.49'/12"ADS	293.39'/12"ADS
CB11	298.91'		293.61'/12"ADS
CB12	297.69'	293.24'/12"ADS	293.19'/12"ADS
CB12A	298.80'	293.35'/12"ADS	293.35'/12"ADS
CB13	298.99'	294.44'/12"ADS 294.44'/12"ADS	294.44'/12"ADS
CB14	299.09'		294.73'/12"ADS
CB15	298.38'	293.50'/15"ADS	293.48'/15"ADS
CB16	296.98'		294.48'/15"ADS
CB17	297.48'		292.08'/12"ADS

UTILITY NOTES:

1. ALL TERMINATIONS AND CONNECTIONS OF SERVICES SHALL BE IN COMPLIANCE WITH REQUIREMENTS OF THE RESPECTIVE UTILITY DISTRICT. ALL BACKFILLING AND COMPACTION OF WATER AND SEWER LINE TRENCHES SHALL BE AS APPROVED BY THE LOCAL UTILITY DISTRICT.

1. THE CONTRACTOR SHALL CONTACT DIGSAFE (888-344-7233) PRIOR TO COMMENCING EXCAVATION.

2. THE BASIS FOR PROJECT LAYOUT AND FOR CONSTRUCTION ELEVATIONS IS THE BASELINE AND BENCHMARK EXISTING ON THE SITE AND SHOWN ON THE DRAWINGS.

3. THE CONTRACTOR SHALL CONFIRM HORIZONTAL AND VERTICAL CONTROL BEFORE BEGINNING WORK.

4. SEE PLUMBING AND ELECTRICAL PLANS FOR LOCATION AND INVERTS OF SLEEVES IN FOUNDATIONS.

5. ELECTRIC SERVICE SHALL BE INSTALLED IN CONDUIT UNDER PAVEMENT AND CONCRETE.

6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL SEWER, WATER, ELECTRICAL, AND SANITARY CONDUIT, MANHOLES, TRANSFORMERS, AND FITTINGS FOR APPROVAL.

7. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.

8. DUCTILE IRON PIPE SHALL MEET THE REQUIREMENTS OF AWWA C150 AND C151, CLASS 52, AND HAVE PUSH ON OR FLANGED JOINTS AS REQUIRED. FITTINGS SHALL HAVE MECHANICAL JOINTS WITH RETAINER GLANDS.

9. SANITARY SEWER PIPE AND FITTINGS SHALL BE SDR-35 PVC.

10. INSTALL 2" RIGID STYROFOAM INSULATION OVER SANITARY SEWER IN AREAS WHERE THERE IS LESS THAN 4' OF COVER.

11. CONNECTIONS AT MANHOLES/CATCH BASINS SHALL HAVE A FLEXIBLE BOOT CAST ONTO THE BARREL AND SECURED WITH STAINLESS STEEL BANDS.

12. SEE SHEET C4 FOR GRADING, DRAINAGE, STORM DRAIN DATA & EROSION CONTROL MEASURES.

13. BUILDING FOOTPRINT SHOWN IS NOT FOR FOUNDATION LAYOUT. REFER TO STRUCTURAL/ARCHITECTURAL DRAWINGS.

14. ALL PIPING MATERIAL TO THE BALL VALVE SHALL BE 1" OR 2" TYPE K COPPER AND ALL CONTROL VALVES SHALL BE LOCATED WITHIN THE EASEMENT AREA.

15. ALL DOMESTIC WATER SERVICES ON THE BUILDING SIDE OF THE CONTROL VALVE SHALL BE EITHER 2" TYPE K COPPER OR 2" CTS PE RATED AT 200 PSI. IF THE PE IS USED, AN 8 GAUGE WIRE SHALL BE ATTACHED TO THE PIPE WITH ONE END BROUGHT ALONGSIDE THE CURB BOX FOR LOCATING PURPOSES.

16. ANY CURB BOXES LOCATED WITHIN PAVEMENT SHALL BE INSTALLED INSIDE A GATE BOX TOP.

17. ALL MATERIALS SHOWN SHALL BE NEW AND FURNISHED BY CONTRACTOR AS PART OF CONTRACT WORK. ONLY ITEMS SPECIFICALLY IDENTIFIED TO BE SALVAGED MAY BE RE-USED WITHOUT PRIOR WRITTEN PERMISSION.

18. SEE HHE-200 FOR EACH SITE FOR DETAILS OF SUBSURFACE DISPOSAL SYSTEMS.

SEWER STRUCTURE DATA:

GT
RIM: 300.25
INV.IN: 295.76 (FROM STORE)
INV.OUT: 295.51 (TO ST#1)

ST1
RIM: 300.25
INV.IN: 295.50 (FROM GT)
INV.IN: 295.50 (FROM STORE)
INV.OUT: 295.25 (TO ST#2)

ST2
RIM: 300.25
INV.IN: 295.10 (FROM ST#1)
INV.OUT: 294.85 (TO PUMP STATION)

ST3
RIM: 301.00
INV.IN: 296.40 (FROM BANK)
INV.OUT: 296.15 (TO PUMP STATION)

P1: 6" SDR35 L=62' S=0.020
P2: 6" SDR35 L=62' S=0.024

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

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP

SHEET: C4

SCALE: 1"=30'
JOB #: 22-RLM-004
MAP/LOT: U-19 12&13
FILE:
FIELD WK:
DRN BY: CYN
CHD BY: CYN
DATE: 11-22-23

TITLE: **UTILITY PLAN**

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME 04021

PREPARED FOR: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED PROFESSIONAL ENGINEER
01-29-24

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

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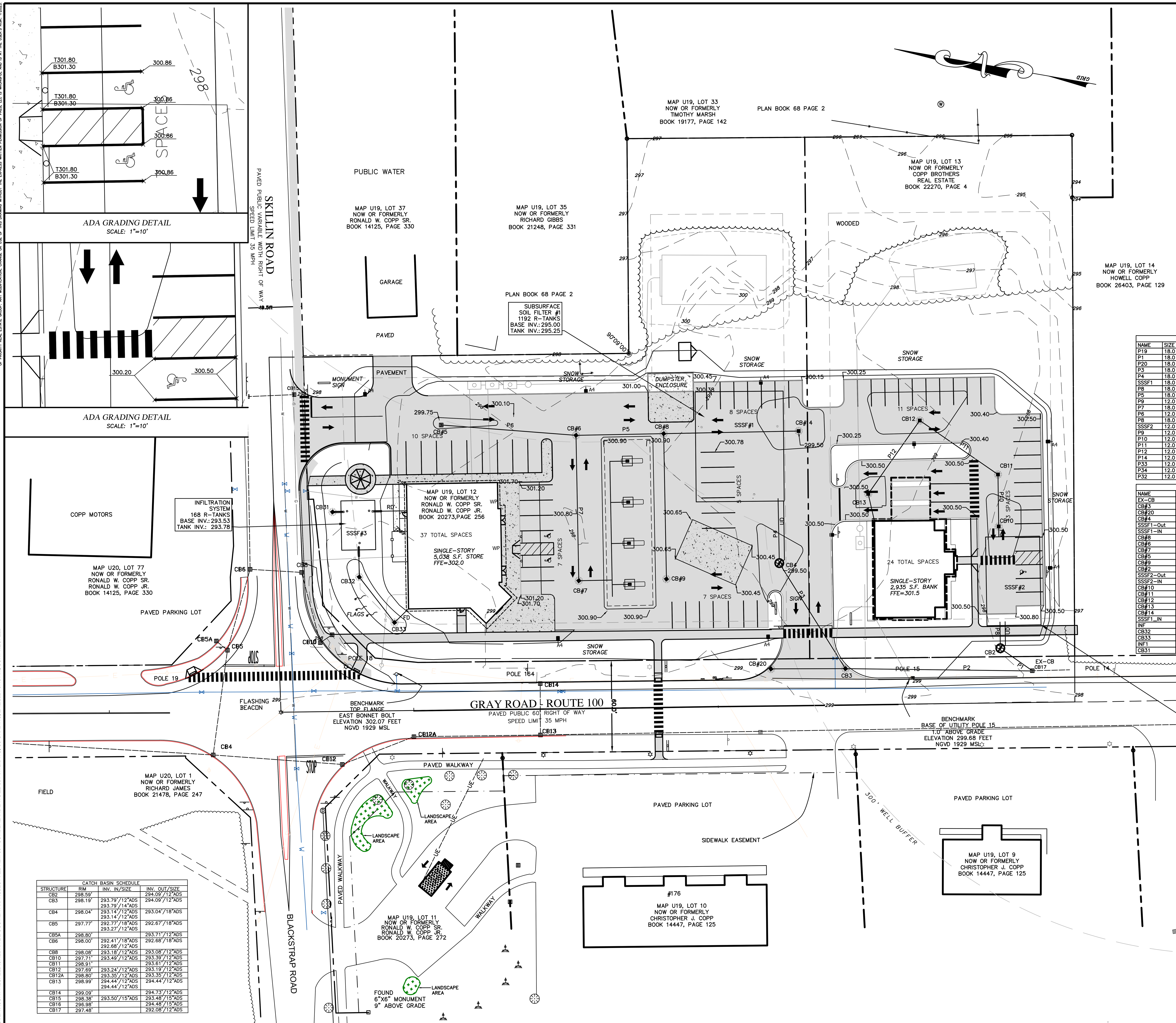

CATCH BASIN SCHEDULE			
STRUCTURE	RIM	INV. IN/SIZE	INV. OUT/SIZE
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CB16	296.98'		294.48'/15"ADS
CB17	297.48'		292.08'/12"ADS

GRADING AND DRAINAGE NOTES:

1. THE CONTRACTOR SHALL PHASE GRADING EFFORTS SUCH THAT TOTAL SITE DISTURBANCE IS MINIMIZED. TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO GRADING EFFORTS OR WITHOUT DELAY UPON THEIR COMPLETION, DEPENDENT UPON THE SITUATION.

2. ALL FILL SLOPES SHALL BE A MINIMUM OF 3:1 HORIZONTAL TO VERTICAL UNLESS OTHERWISE NOTED OR DIRECTED.

3. THE LIMITS OF DISTURBANCE SHALL GENERALLY BE THE MINIMAL EXTENT NECESSARY ONLY TO PERFORM THE GRADING EFFORTS SHOWN ON THE DRAWINGS. SPECIAL CARE SHALL BE TAKEN TO AVOID DISTURBANCE OF OBJECTS AND AREAS NOT SPECIFICALLY IDENTIFIED FOR MODIFICATION OR REMOVAL.

4. ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED IN ACCORDANCE WITH THE DRAWINGS, UNLESS INTENDED FOR OTHER SURFACE COVER.

5. STORM DRAINS SHALL BE CONSTRUCTED CONCURRENTLY WITH GRADING EFFORTS TO PROVIDE ADEQUATE CONVEYANCE FOR ANY SITE RUNOFF CONDITIONS.

6. WHERE FINAL GRADING HAS BEEN COMPLETED, SURFACE RESTORATION FOR DISTURBED AREAS WILL BE COMPLETED AS SOON AS PRACTICABLE. FOR VEGETATIVE AREAS, VEGETATION WILL BE PROGRESSIVELY ESTABLISHED.

7. UNLESS OTHERWISE NOTED, ALL STORM DRAIN PIPE SHALL BE IN ACCORDANCE WITH MDOT SPECIFICATIONS SECTION 603. PIPE CULVERTS AND STORM DRAINS, LATEST REVISION WITH ACCEPTABLE TYPES OF PIPE ARE AS FOLLOWS:
   SMOOTH BORE POLYETHYLENE PIPE – HDPE N-12 ADS

8. BENCHMARK INFORMATION: SEE PLAN

9. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL DRAINAGE STRUCTURES AND PIPING PRIOR TO ORDERING.

10. RIM ELEVATIONS OF PROPOSED DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH AND CONSISTENT WITH THE GRADING PLANS.

11. TRANSITIONS BETWEEN SLOPES ARE TO BE GENERALLY GRADUAL AND RESULT IN A SMOOTH, ROUNDED APPEARANCE.

STORM DRAIN PIPE TABLE								
NAME	SIZE (IN)	LENGTH	MATERIAL	SLOPE (%)	UP STR.	DN STR.	UP INV.	DOWN INV.
P19	18.0	122.25	HDPE	0.500	CB#3	EX-CB	293.71	293.09
P1	18.0	25.06	HDPE	0.500	CB#2	EX-CB	292.38	292.25
P20	18.0	49.10	HDPE	0.500	CB#20	CB#3	294.05	293.81
P3	18.0	81.90	HDPE	0.500	CB#4	CB#3	294.21	293.81
P4	18.0	39.19	HDPE	0.001	SSSF1-Out	CB#4	294.32	294.31
SSSF1	18.0	82.83	HDPE	0.001	SSSF1-IN	SSSF1-Out	294.42	294.42
P8	18.0	6.33	HDPE	0.500	CB#8	SSSF1-IN	294.55	294.52
P5	18.0	57.58	HDPE	0.500	CB#6	CB#8	294.94	294.65
P9	12.0	95.54	HDPE	0.286	CB#9	CB#8	294.92	294.65
P7	18.0	95.54	HDPE	0.294	CB#7	CB#6	295.32	295.04
P6	12.0	88.49	HDPE	0.500	CB#5	CB#6	295.48	295.04
P8	18.0	17.22	HDPE	0.500	SSSF2-Out	CB#2	292.56	292.48
SSSF2	12.0	56.00	HDPE	0.001	SSSF2-IN	SSSF2-Out	292.56	292.56
P9	12.0	6.82	HDPE	0.500	CB#10	SSSF2-IN	292.60	292.56
P10	12.0	34.15	HDPE	0.500	CB#11	CB#10	292.87	292.70
P11	12.0	62.43	HDPE	0.500	CB#12	CB#11	293.28	292.97
P12	12.0	58.90	HDPE	0.500	CB#13	CB#12	293.67	293.38
P14	12.0	9.94	HDPE	-4.831	SSSF1_IN	CB#14	294.42	294.90
P33	12.0	19.81	HDPE	0.500	CB32	INF	293.90	293.80
P34	12.0	37.83	Concrete	0.500	CB33	CB32	294.09	293.90
P32	12.0	8.06	HDPE	0.971	CB31	INF1	293.90	293.82

STORM DRAIN STRUCTURE TABLE				
NAME	RIM ELEV	INV.-IN (1)	INV.-IN (2)	INV.-OUT
EX-CB	298.00	293.09	292.25	N/A
CB#3	298.83	293.81	293.81	293.71
CB#20	298.98	N/A	N/A	294.05
CB#4	299.50	294.31	N/A	294.21
SSSF1-Out	300.46	294.42	N/A	294.32
SSSF1-IN	300.79	294.52	N/A	294.42
CB#8	300.84	294.65	294.65	294.55
CB#6	300.25	295.04	295.04	294.94
CB#7	300.25	N/A	N/A	295.32
CB#5	299.85	N/A	N/A	295.48
CB#9	300.77	N/A	N/A	294.92
CB#2	298.00	292.48	N/A	292.38
SSSF2-Out	300.42	292.56	N/A	292.56
SSSF2-IN	299.67	292.56	N/A	292.56
CB#10	299.50	292.70	N/A	292.60
CB#11	300.39	292.97	N/A	292.87
CB#12	299.50	293.38	N/A	293.28
CB#13	299.50	N/A	N/A	293.67
CB#14	299.31	294.90	N/A	N/A
SSSF1_IN	299.28	N/A	N/A	294.42
INF	299.38	293.80	N/A	N/A
CB32	299.52	293.90	N/A	293.90
CB33	299.50	N/A	N/A	294.09
INF1	298.89	293.82	N/A	N/A
CB31	298.88	N/A	N/A	293.90

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198
PRIORITY REAL ESTATE GROUP

SHEET: C5

SCALE: 1"=30'
JOB #: 22-RLM-004
MAP/LOT: U-19 12&13
FILE:
FIELD WK:
DRN BY: CYN
CHD BY: CYN
DATE: 11-22-23

TITLE: GRADING PLAN

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME 04021

PREPARED FOR: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

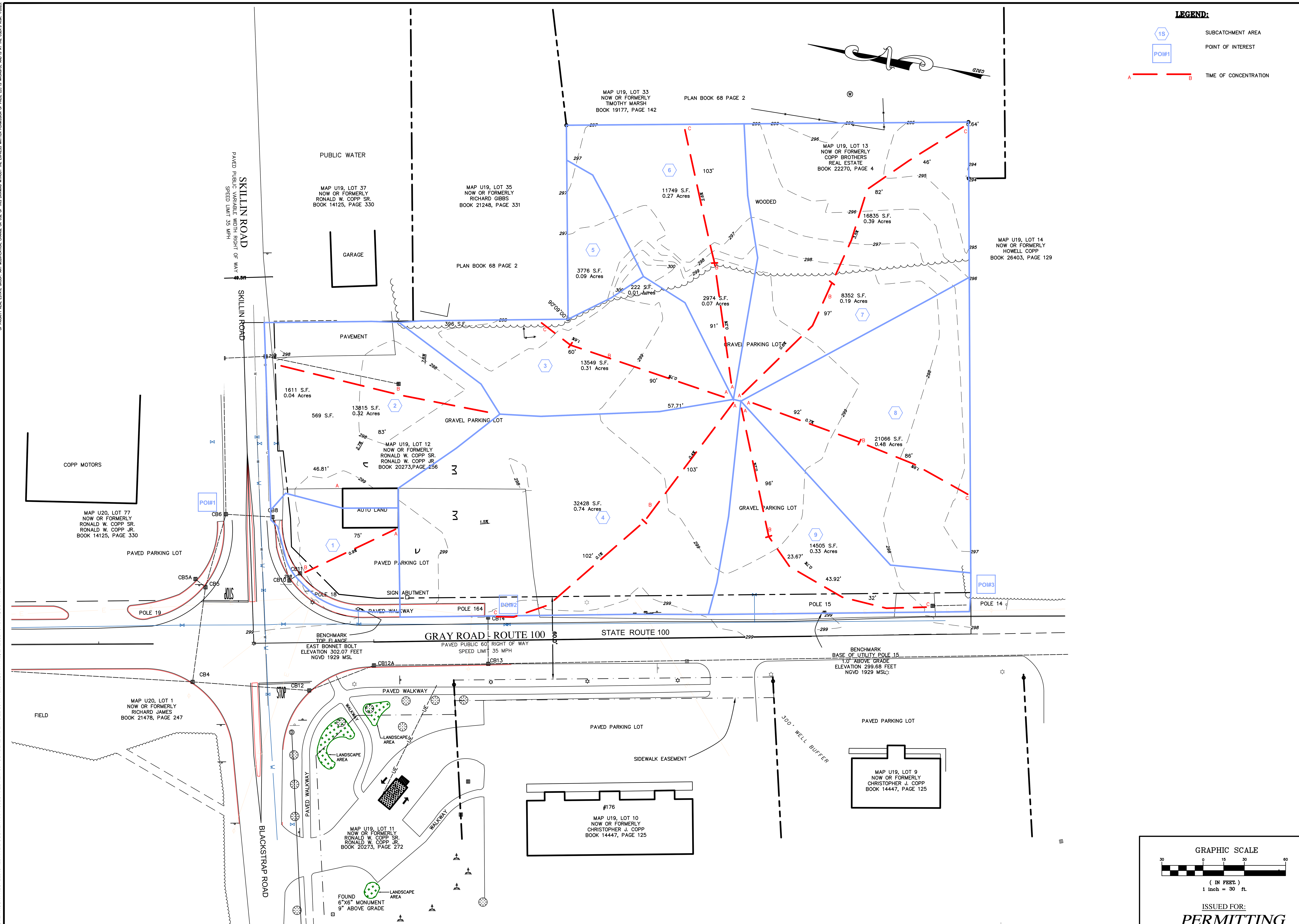
STATE OF MAINE — CURTIS Y. NEUFELD 9779 LICENSED PROFESSIONAL ENGINEER
01-29-24

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION

THIS PLAN IS ISSUED FOR REVIEW AND INFORMATION PURPOSES ONLY. THIS PLAN WILL CHANGE AND IS NOT INTENDED FOR PRICING OR CONSTRUCTION.

PRICING BASED ON THIS PLAN SHALL BE CONSIDERED PRELIMINARY AND MUST BE UPDATED PRIOR TO FINAL CONSTRUCTION DRAWINGS.



ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

SHEET: DR1

SCALE: 1"=30'
JOB #: 22-RLM-004
MAP/LOT: U-19 12&13
FILE:

FIELD WK:
DRN BY: CYN
CH'D BY: CYN
DATE: 11-22-23

TITLE:
PRE-DEVELOPMENT DRAINAGE PLAN

PROJECT:
RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
01-29-24

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION

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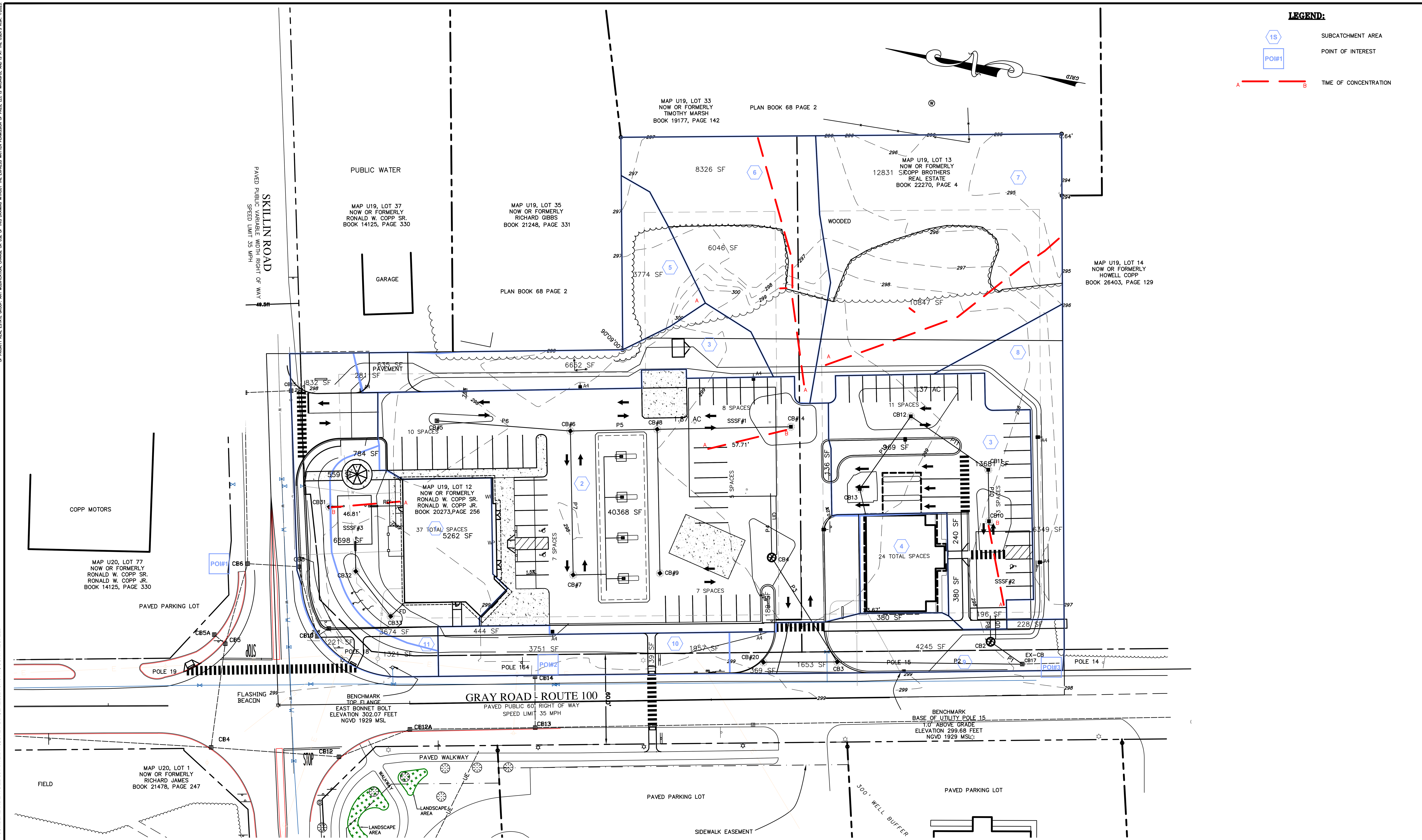

SUBCATCHMENT	(A) IMPERVIOUS AREA (S.F.) (FROM PLAN)	(B) REQUIRED STORAGE (C.F.) (A) X 0.083'	(C) LANDSCAPED AREA (S.F.) (FROM PLAN)	(D) REQUIRED STORAGE (C.F.) (C) X 0.033'	(E) TOTAL STORAGE REQUIRED/PROVIDED (C.F.) (B) + (D)		(F) FILTER AREA REQUIRED/PROVIDED (S.F.) [(A)X0.05] + [(C)X0.02]		(G) TREATMENT METHOD
2	40638	3387	325	11	3397	7417	2038	4180	SSSF#1
3,4	17592	1466	1785	60	1526	2424	915	2067	SSSF#2
1	5262	439	1447	48	487	1192	292	726	SSSF#3

STORMWATER TREATMENT METHOD SIZING - SUBSURFACE SAND FILTERS

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP

SHEET: DR2

SCALE: 1"=30'
JOB #: 22-RLM-004
MAP/LOT: U-19 12&13
FILE:
FIELD WK:
DRN BY: CYN
CHD BY: CYN
DATE: 11-22-23

TITLE: POST-DEVELOPMENT DRAINAGE PLAN

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME 04021

PREPARED FOR: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED PROFESSIONAL ENGINEER
01-29-24

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION
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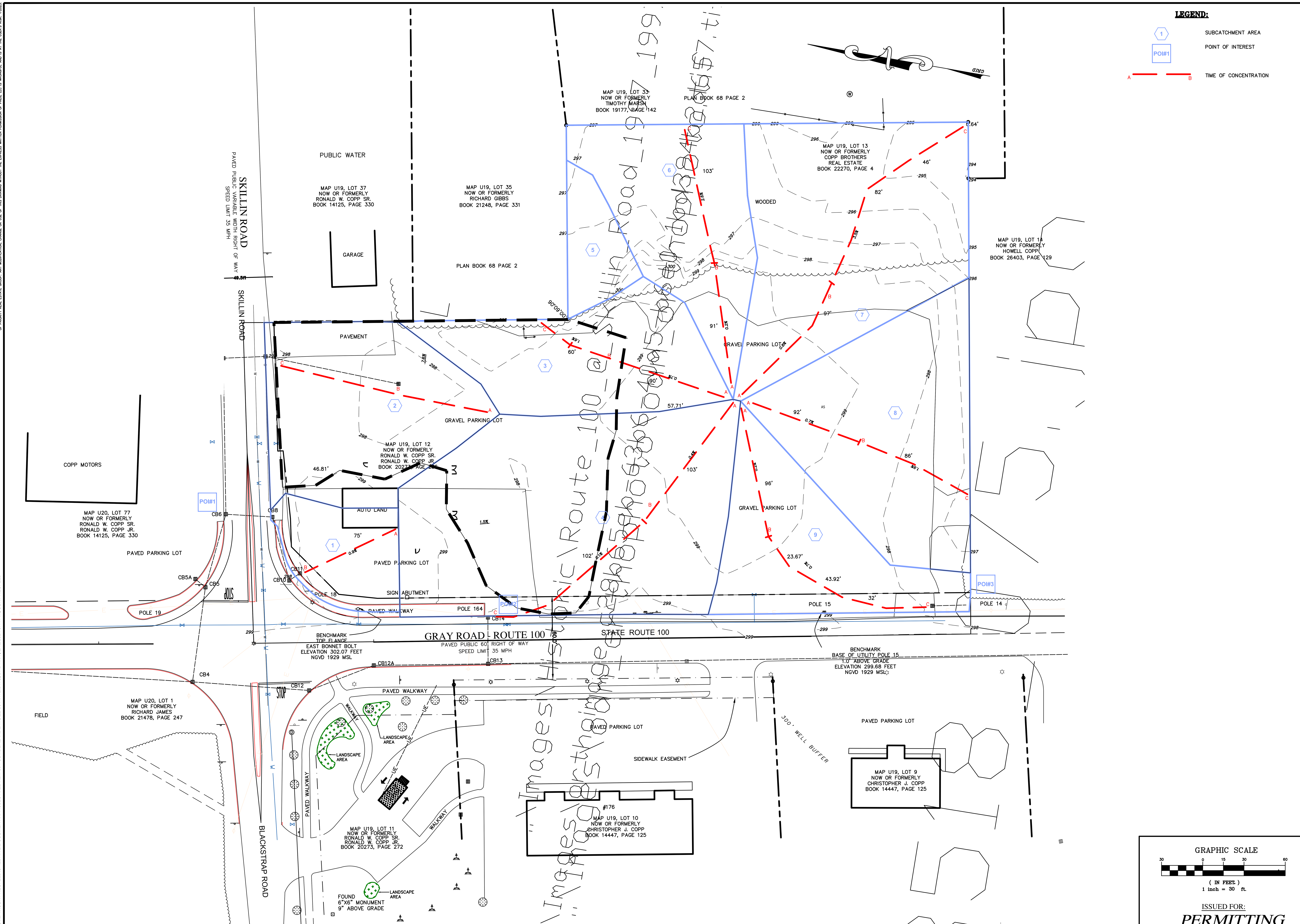
C:\USERS\CURT NEUFELD\ONEDRIVE\DOCUMENTS\PROJECTS\22-RLM-004 CUMBERLAND\DWG\22-004 SITE.DWG, DR2 POST, 2/12/2024 9:40 AM, CURT NEUFELD



PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

FIELD WK:	SCALE: 1"=30'
DRN BY: CYN	JOB #: 22-RLM-004
CH'D BY: CYN	MAP/LOT: U-19 12&13
DATE: 11-22-23	FILE:

SHEET: DR3

TITLE:
PRE-DEVELOPMENT DRAINAGE PLAN

PROJECT:
RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE ★ CURTIS Y. NEUFELD 9779 LICENSED ★ PROFESSIONAL ENGINEER
01-29-24

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION

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GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP

SHEET:	1A
SCALE:	1"=30'
JOB #:	22-RLM-004
MAP/LOT:	U-19 12&13
FILE:	
FIELD WK:	
DRN BY:	CYN
CHD BY:	CYN
DATE:	11-22-23

TITLE:
PRE/POST DEVELOPMENT IMPERVIOUS AREA COMPARISON

PROJECT:
RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
01-29-24

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

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Rusty Lantern Market
181 Gray Road, Cumberland, Maine

STORMWATER MANAGEMENT INSPECTION AND MAINTENANCE PLAN

1.0 GENERAL

This stormwater management maintenance plan has been prepared in support of the Maine Department of Environmental Protection Site Law Permit amendment for the Lakeside Concrete Cutting and Abatement Professional commercial building and offices in Cumberland, Maine. The requirements of this plan shall be incorporated into the efforts associated with the development including construction and ongoing operations.

This plan was prepared by:

Curt Neufeld, P.E. #9779
Sitelines, PA
119 Purinton Road, Suite A
Brunswick, Maine 04011
207-725-1200 x18

2.0 BEST MANAGEMENT PRACTICES

2.1 Best Management Practices

During Construction, a stabilized construction entrance, sediment barrier, and/or erosion control mix, seeding, and mulching practices will be used in accordance with the Maine Department of Environmental Protection Best Management Practices (BMP) manual during construction and until a stabilized condition exists.

After Construction, stormwater BMPs will include housekeeping and physical measures described herein, including the grassed underdrained soil filters, sweeping of paved surfaces, and maintenance of storm drain pipes and outfalls.

The stormwater maintenance management for this project will be performed consistent with the two references listed below and as amended in this manual. Where standards are not consistent, the more stringent requirement shall apply.

2.2 References

The primary references for the maintenance of the BMPs were as follows:

1 "Stormwater Management for Maine", Maine Department of Environmental Protection No. DEPLW0738, Volume 3, May 2016.
2 "Maine Erosion and Sedimentation Best Management Practices", Maine Department of Environmental Protection, current edition on-line.
3 "Maine Erosion and Sediment Control Field Guide for Contractors", Maine Department of Environmental Protection, 2014 Revision.

This information is provided as guidance if the Owner/would like to learn more about the BMPs. Also, maintenance for these BMPs may change over time. It is not expected the Owner will have the references readily available, however, they may be available through the DEP website.

3.0 MAINTENANCE OF STORMWATER FEATURES

3.1 General Responsibilities

The Contractor will be responsible for inspecting and maintaining the stormwater features until the construction phase of the project is complete. These efforts shall include maintenance of erosion and sedimentation control measures, temporary and permanent stormwater features, and addressing interim site conditions as necessary. After completion of construction, the Applicant will be responsible for inspecting and maintaining the permanent stormwater features as shown on the plan.

The Point of Contact for the Applicant is as follows:

Mr. James Howard
Cumberland Real Estate Holdings, LLC
2 Main Street
Topsham, Maine 04086
(207) 837-6198

3.2 General Requirements

The general requirements for this stormwater maintenance management manual will meet the standards of Reference No.1, specific to the water quality feature concerned. Additional maintenance requirements are identified in the following narratives.

3.3 Specific Maintenance Requirements

The following specific maintenance requirements apply to stormwater features as follows:

3.3.1 R-Tanks

- The maintenance of the R-Tanks shall be in accordance with the manufacturer's recommendations. A copy of the Operation and Maintenance Guidelines for the Separator Row and Stormwater Management System are attached.
- Maintenance shall be performed by an appropriate service company with equipment designed for the purpose.

3.3.2 Outlet Control Structures

- The maintenance of outlet control structures shall be performed bi-annually to ensure proper function.
- Debris and trash shall be removed from the structure sump when present.
- Sediment build-up in the sump should be removed when accumulation is within 1 foot of the invert of the outlet pipe and/or snout hood is observed.

3.3.3 Storm Drain Pipes & Drainage Manholes

- Piped drainage systems shall be inspected in spring and late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet. Sediment should be removed when its level exceeds 20% of the pipe diameter. Hydraulic flushing or any mechanical means may accomplish sediment removal. Care shall be taken to contain the sediment at the pipe outlet.

3.3.4 Paved Surfaces

- Accumulations of winter sand along impervious areas shall be cleared at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement vacuum sweeping, or mechanical sweeping (e.g. "street-sweeper"). Accumulations of sand along the edge of paved areas may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

3.3.5 Vegetative Surfaces

- For most vegetative surfaces, grass should be mowed on a regular basis so that grass height does not exceed 6 inches. Any erosion rills, gullies, or bare spots should be seeded or sodded to re-establish the turf cover.
- Buffer, screening, and decorative landscaping should be inspected for health on a regular basis. Pruning, weeding, feeding, and mulching.
- Fertilizers will only be applied once yearly, to occur in the spring, and at the lowest recommended concentration. Herbicides and pesticides will only be used in accordance with DEP recommendations.

3.3.6 Drainage Structures

- Inspect for sediment in traps/sump/bed of basin. Remove sediment if within 1 foot of outlet invert.
- Inspect frame and grate to verify grate is flush with finish grade.
- Inspect for damaged or missing pavement around frame and grate.
- Inspect structure for presence of trash or debris.
- Inspect for oil and oil adsorbent material if present.
- If applicable, inspect oil absorbent pad. Replace if necessary.

4.0 CONSTRUCTION INSPECTION AND MAINTENANCE

4.1 Maintenance Frequency

Inspections of the erosion and sedimentation control measures, and temporary and permanent stormwater features during the construction process shall be performed at least once per week and before and after each significant rainfall event. For the purposes of the inspection schedule, a significant rainfall event shall be any storm event that produces more than 0.5 inches of rainfall in a 24-hour period.

During winter construction, in the months from November to March, inspections shall be performed after each rainfall, snowstorm, or thawing, and at least once per week.

4.2 Inspection Scope

The scope of construction inspections shall include disturbed and impervious areas, material storage areas, and vehicle access points in addition to the erosion and sedimentation control measures, and temporary and permanent stormwater features.

4.3 Inspection and Maintenance Checklist

All inspection forms and documentation of corrective actions during construction shall be maintained for a minimum of three (3) years after permanent stabilization has been achieved.

4.4 Corrective Action Timeline

As part of the inspection and maintenance process, if any corrective action is warranted, it shall be started by the end of the next workday and completed within seven (7) days or before the next storm event, whichever comes first.

All required corrective actions shall be documented and maintained with the inspection forms.

4.5 Qualifications of Inspector

The person(s) responsible for inspection during construction and post-construction shall be conducted by someone with knowledge or erosion and stormwater control, including the standards and conditions of the approvals.

5.0 POST-CONSTRUCTION INSPECTION AND MAINTENANCE

5.1 Maintenance Frequency

Notwithstanding any other schedule noted, general inspections post-construction shall be conducted monthly during wet weather conditions from March to November. Inspections shall also be conducted following any significant storm events. For the purposes of the inspection schedule, a significant rainfall event shall be any storm event that produces more than 0.5 inches of rainfall in a 24-hour period. Specifically, inspections of the vegetated soil filters and pond shall be conducted following any significant storm event during the first year after construction to ensure that they drain dry within 24 to 48 hours.

5.2 Inspection and Maintenance Checklist

An inspection and maintenance log specific to this project is appended. All post-construction inspection forms and documentation of corrective actions shall be maintained for a minimum of five (5) years.

5.3 Corrective Action Timeline

As part of the inspection and maintenance process, if any corrective action is warranted, it shall be started by the end of the next workday and completed within seven (7) days or before the next storm event, whichever comes first.

All required corrective actions shall be documented and maintained with the inspection forms.

5.4 Qualifications of Inspector

The person(s) responsible for inspection during construction and post-construction shall be conducted by someone with knowledge or erosion and stormwater control, including the standards and conditions of the approvals.

6.0 RECERTIFICATION

6.1 Recertification requirement

Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the department.

1) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
2) All aspects of the stormwater control system are operating as approved, have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system, as necessary.
3) The stormwater maintenance plan for the site is being implemented as approved by the Department, and the maintenance log is being maintained.
4) All proprietary systems have been maintained according to the manufacturer's recommendations. Where required by the Department, the permittee shall execute a 5-year maintenance contract with a qualified professional for the coming 5-year interval. The maintenance contract must include provisions for routine inspections, cleaning and general maintenance.
5) The Department may waive some or all of these recertification requirements on a case-by-case basis for permittees subject to the Department's Multi-Sector General Permit ("MSGP") and/or Maine Pollutant Discharge Elimination System ("MEPDES") programs where it is demonstrated that these programs are providing stormwater control that is at least as effective as required pursuant to this Chapter.

SCHEMATIC SIDEWALK SECTION
GRAY ROAD

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

PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP

SHEET: SW

SCALE:	1"=30'
JOB #:	22-RLM-004
MAP/LOT:	U-19 12&13
FILE:	
FIELD WK:	
DRN BY:	CYN
CHD BY:	CYN
DATE:	11-22-23

TITLE: SIDEWALK CONCEPT PLAN

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME 04021

PREPARED FOR: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
8-11-23

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION
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C:\USERS\CURT NEUFELD\ONEDRIVE\DOCUMENTS\PROJECTS\22-RLM-004 CUMBERLAND\DWG\22-004 SITE.DWG, SIDEWALKS, 2/20/2024 10:21 AM, CURT NEUFELD

PRIORITY REAL ESTATE GROUP LLC

February 13, 2024

22-RLT-004

Mr. Ronald Copp, Sr.
187 Gray Road
Cumberland, Maine 04021

Re: Memorandum of Understanding
PROPOSED CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME
Tax Map U19, Lot 12 & 13

Dear Mr. Copp,

As per our recent discussions, this memorandum to formalize and confirm our mutual understandings regarding the construction of a sidewalk along the frontage of your property located at 5 Skillin Road (Tax Map U19, Lot 37).

Priority Real Estate Group, LLC, is currently in the process of securing local and state permits for the development of a new convenience store and gas station at the intersection of Gray Road and Skillin Road, which is situated on a parcel of land owned by you. A sidewalk is mandated as part of the permit requirements set forth by MaineDOT, extending from the project site to Kathy Lane. This sidewalk will be constructed behind and adjacent to the existing curb. Given that the public right-of-way (ROW) spans 49.5 feet (3 rods) in width and does not include sufficient width to install the sidewalk and associated grading within the ROW, grading work outside the ROW will be necessary, extending slightly beyond the ROW limits and onto your property. Notably, the construction activities may impact mature trees and other vegetation along the frontage.

We understand from our discussions that you do not object to removing the vegetation, including the large oak tree if it is necessary for the project.

It is our understanding that a physical barrier shall be installed on the back side of the new walk as consideration for granting a grading easement. The barrier could be a fence (preferred) or plantings with year-round vegetation (e.g., hydrangea).

It is our understanding that the maintenance of the walk will be the responsibility of the Town of Cumberland.

We understand that the amount of vegetation impacted by the work will be determined by a detailed design and shared with you before the work.

If these understandings align with your expectations, I kindly request that you signify your agreement by signing below and returning a copy of this letter to me. Your signed agreement will be included in our application to MaineDOT as documentation of our coordination.

Thank you for your attention to this matter. Please do not hesitate to contact me if you have any questions or require further clarification.

Agreement

I have read and concur with the understandings above and will grant a temporary grading easement for the exclusive purpose of the construction of a sidewalk along the entire frontage of our land at 5 Skillin Road.

Ronald W. Copp, Sr. Date 2/19/24

Very truly yours,

Curtis Y. Neufeld, P.E.
Vice-President

Enclosures

PRIORITY REAL ESTATE GROUP LLC

General Site Inspection Maintenance & Housekeeping Form			
General Information			
Project Name:	Rusty Lantern Market	Inspection Date	
Project Location:	181 Gray Road	Current Weather	
	Cumberland ME 04021	Date / Amount Last Percip.	
BMP Owner:	Cumberland Real Estate Holdings, LLC	Company Inspection:	
Owner Mailining Address:	2 Main Street	Company Mailing Address:	
	Topsham, ME 04086		
Owner Phone #:		Company Phone #:	
Owner Email:		Inspector Name	
		Inspector Email	

BMP Element	Suggested Maintenenace & Recommended	Observations	Inspection Notes/Recommended
Vegetated Areas	Inspect slopes/embankments for erosion (annually)		
	Replant bare areas or areas of sparse growth (annually)		
Paved Surfaces	Clear accumulated winter sand (annually)		
	Remove sediment along edges of parking and within low spots / pockets (annually)		
Ditches/Swales	Remove obstructions/debris/sediment (monthly)		
	Inspect for erosion/repair as needed (annually)		
	Mow vegetated ditches (annually)		
Catch Basins	Remove sediment/debris from sump (annually)		
Culverts	Remove sediment/debris from inlet/outlet aprons (annually)		
	Inspect inlet/outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Pipe Outlets	Remove sediment/debris from outlet aprons (annually)		
	Inspect outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for disloged/sparse coverage (annually)		

Additional Notes/Observations:

Subsurface Sand Filter Inspection Maintenance & Housekeeping Form

General Information

Project Name:	Rusty Lantern Market	Inspection Date	
Project Location:	181 Gray Road	Current Weather	
	Cumberland ME 04021	Date / Amount Last Percip.	
BMP Owner:	Cumberland Real Estate Holdings, LLC	Company Inspection:	
Owner Mailining Address:	2 Main Street	Company Mailing Address:	
	Topsham, ME 04086		
Owner Phone #:		Company Phone #:	
Owner Email:		Inspector Name	
		Inspector Email	

BMP Element	Suggested Maintenenace & Recommended Frequency	Observations	Inspection Notes/Recommended Action
Pre-Treatment Chamber Row	Inspect pre-treatment chamber row for presence of sediment via inspection port with a flashlight and stadia rod (annually)		
Subsurface Sand Filters	Inspect for evidence of excessive sediment deposits (annually)		
	Inspect overflow for presence of sediment and/or trash (annually)		
Catch Basins & Outlet Control Structures	Inspect for presence of sediemtn and/or trash (annually)		
	Inspect frame and grate to verify grate is flush with finish grade (annually)		
	Inspect for presence of trash and debris (annually)		
	Inspect oil adsorbent material (Smart Sponge). Replace per manufactures recommenations (annually)		

Additional Notes/Observations:

AADT INCREASES DUE TO PROPOSED CUMBERLAND CONVENIENCE STORE DEVELOPMENT

AADT INCREASE CALCULATIONS

Existing AADTS for the four legs of the intersection are as follows:

- Skillin Road – 2,850
- Blackstrap Road – 2,952
- Route 26 – Southern Leg – 5,560
- Route 26 – Northern Leg – 5,610

No Build peak hour volumes for each of the approach and departure lanes are as follows:

Skillin Road – approaching Gray Road – 100 AM, 141 PM
Skillin Road – departing Gray Road – 144 AM, 156 PM
Blackstrap Road – approaching Gray Road - 162 AM, 122 PM
Blackstrap Road – departing Gray Road – 95 AM, 178 PM
Gray Road NB – approaching intersection – 152 AM, 395 PM
Gray Road NB – departing intersection – 151 AM, 337 PM
Gray Road SB, approaching intersection – 271 AM, 194 PM
Gray Road SB, departing intersection 292 AM, 180 PM

Percent increases for each of the approaches & departing lanes, based upon the primary trip assignments, are as follows:

Skillin Road – approaching Gray Road – 8 % AM, 5 % PM – 6.5 % average
Skillin Road – departing Gray Road – 3 % AM, 3 % PM – 3 % average
Blackstrap Road – approaching Gray Road – 5 % AM, 8 % PM, 6.5 % average
Blackstrap Road – departing Gray Road – 1 % AM, 6 % PM, 3.5 % average
Gray Road NB – approaching intersection – 8 % AM, 5 % PM, 6.5 % average
Gray Road NB – departing intersection – 7 % AM, 4 % PM, 5.5 % average
Gray Road SB, approaching intersection – 4 % AM, 8 % PM, 6 % average
Gray Road SB, departing intersection – 1 % AM, 3 % PM, 2 % average

Applying the average peak hour increases to the AADT for each lane results in the following:

- Skillin Road – approaching Gray Road – 6.5 % = 93 vehicles
- Skillin Road – departing Gray Road – 3 % = 43 vehicles
- Blackstrap Road – approaching Gray Road – 6.5 % = 96 vehicles
- Blackstrap Road – departing Gray Road – 3.5 % = 52 vehicles
- Gray Road NB – approaching intersection – 6.5 % =181 vehicles
- Gray Road NB – departing intersection – 5.5 % =154 vehicles
- Gray Road SB, approaching intersection – 6 % = 168 vehicles
- Gray Road SB, departing intersection – 2 % = 56 vehicles

Total vehicle increases above = 843

As always, let me know if you have any questions or concerns regarding these calculations or results.

Sincerely,

Diane W. Morabito, P.E. PTOE
Vice President Traffic Engineering

Rusty Lantern Market
181 Gray Road, Cumberland, Maine

Introduction
Cumberland Real Estate Group, LLC (herein referred to as Applicant) is proposing the construction of a single-story, 5,038 s.f. convenience store building, gasoline pumps, canopy, associated parking, infrastructure, and landscaping situated on a site with frontage on Gray Road (U.S. Route 26) and Skillin Road in Cumberland, Maine. The proposed development will result in approximately 67,548 s.f. (1.55 acres) of impervious area. The increased runoff from the paved areas of site will be directed to one of two Subsurface Soil Filters for water quality treatment and water quantity mitigation. Currently the site has approximately 94,592 s.f. (2.17 acres) of impervious area, comprised of the existing building and pavement, and extensive gravel surfaced area compacted from years of use. The proposed project will result in a reduction of 27,044 s.f. (0.62 acres) of impervious area.

Available historical photographs were reviewed to determine when the existing parcels were previously developed. Most of the development had occurred by 1997, which is before the implementation of the Stormwater Law. The amount of undeveloped area was estimated from the aerial photograph to be approximately 34656 s.f. (0.80 acres). Per Maine Department of Environmental Protection (DEP) rules, only the area developed since 1997 would be required to meet the requirements of Chapter 500; however, since it is less than 1-acre, it does not meet the criteria for a Stormwater Law application. As the project results in less than an acre of new impervious area, it does not require a Stormwater Law permit from the DEP; however, a Stormwater Law Permit-by-Rule will be filed.

In accordance with the Town's ordinances, it is required to conform to Basic, General, and Flooding Standards in accordance with Chapter 500 of the DEP rules.

Study Methodology
Topographical data was obtained from an on-the-ground survey completed by Boundary Points, a division Main-Land. Hydrologic boundaries were generated using the topographic mapping, and the drainage patterns were verified by a site reconnaissance visit.

Surficial soils located in the vicinity of the site were obtained from the United States Department of Agriculture Natural Resources Conservation Service Soil Survey Geographic (SSURGO) Database. The Applicant's parcel includes the soil classifications listed below. Soil units found in the development area are primarily Hinkley Loamy Sand. Flycatcher, LLC, observed test pits to evaluate the seasonal high groundwater table at locations where stormwater best management practices (BMPs) are proposed. The Flycatcher report confirmed the soils were similar to Hinkley; with the observation that some imported fill was evident.

SOIL TYPES IN LOCAL STUDY AREA

Soils Series	Symbol(s)	Hydrologic Group (HSG) **
Hinckley Loamy Sand	HlB	A

**Hydrologic Soils Group taken from SCS TR-55 Manual

Test pits were completed at the site by Summit Geoengineering. A copy of the geotechnical investigation has been enclosed with this submission.

Basic Standards
Erosion control BMPs are shown on the project drawings, and notes and details on implementing them are included on separate drawings in the set. The Contractor will be responsible for maintaining the BMPs throughout construction. After the site is stabilized and accepted by the owner, the owner will be responsible for maintaining the permanent BMPs.

Disturbed area will be minimized by clearing only the amount of land required for the construction of each building, which will not be constructed concurrently.

Major site work activities and their sequence follow:

1. Install a stabilized construction entrance.
2. Cut and remove trees around area of work, as necessary, leaving the duff layer in place.
3. Set sediment barrier and erosion control measures around the perimeter of the limits of work. Stumps shall be ground onsite and used for sediment barrier and/or mulch.
4. Clear and grub the work site as needed to execute plans using caution not to overexpose the site. Topsoil salvaged shall be stockpiled and protected against erosion.
5. Install storm drainage and infrastructure, including access.
6. Construct buildings.
7. Construct pavement.
8. Loam, seed, and mulch disturbed areas.
9. Monitor the site for signs of erosion monthly and after major storm events.
10. Removal of temporary erosion control measures. Ninety (90) days post-construction or upon satisfactory establishment of vegetation has been obtained.
11. Inspect the site semi-annually for any sign of erosion or area requiring additional seeding.

The contractor shall monitor the disturbed area for signs of erosion or sediment transport off-site and take corrective action immediately. Inspections shall be logged using the form supplied in the stormwater facilities maintenance plan and kept on file. Completed logs shall be maintained by the Applicant after construction.

Flooding Standard
The project area is located in Zone C (Areas of Minimal Flooding) of the Flood Insurance Rate Maps (FIRMs) for Cumberland County, Maine. The project area is located on Panel 18 of 25 (Community Panel 230162-0015-B, Effective May 19, 1981). An excerpt of the applicable FIRM is enclosed with the supporting graphics. There is no impact from flooding anticipated for this project.

Off-Site Watersheds

There are no off-site watersheds that were reviewed as part of the stormwater analysis. The project area has little variation in elevation and adjacent roads an developed areas serve as hydrologic boundaries.

On-Site Subcatchments

Pre-Development Conditions

The pre-development hydrologic analysis is based on the existing site condition, which is mostly undeveloped and comprised of paved and unpaved areas. The development area is relatively flat and drains from a high point near the middle to the perimeter of the graveled area. Runoff from the front portion of the site is conveyed into the existing storm drain system in Gray Road.

Subcatchment 1 represents the area immediately adjacent to the intersection of Gray and Skillin Roads. The area drains to existing catch basins connected to the storm drains in the ROW.

Subcatchment 2 represents 0.32-acres that drains internally to a catch basin connected to the storm drain in the Skillin Road ROW.

Subcatchment 3 represents approximately 0.31-acres that drains to the abutting land to the east.

Subcatchment 4 represents approximately 0.74-acres that drains toward Gray Road, where it is collected at a catch basin.

Subcatchment 5 represents a small area that drains to the abutting property.

Subcatchment 6 represents an approximately 0.27-acre area of gravel and woods that drains to the east.

Subcatchment 7 represents an approximately 0.39-acre area of gravel and woods that drains to the southeast.

Subcatchment 8 represents an approximately 0.48-acre area of gravel surface that drains to the parcel to the south of the site.

Subcatchment 9 represents an approximately 0.33-acre area of gravel surface that drains to the Gray Road ROW.

Post-Development Conditions

Under post-development conditions, the commercial buildings will be constructed with associated paved access, landscaping, and infrastructure. Stormwater runoff from the new impervious area will be directed to one of two Subsurface Soil Filters, with the exception of the roofs, which will drain an infiltration basin or stone drip edge. A summary of the subcatchments is provided below:

Subcatchment 1 represents the convenience store and lawn areas between it and the intersection of the roads. These areas drain to an infiltration gallery.

Subcatchment 2 represents the parking area, fueling pumps, and entrance from Gray Road. This area is collected by catch basins and conveyed to Subsurface Soil Filter #1 (SSSF#1).

Subcatchment 3 represents the parking area and drive-thru lanes for the bank. This area is collected by catch basins and conveyed to SSSF#2.

Subcatchment 4 represents the bank building, which will drain to a drip edge filter BMP.

Subcatchment 6 represents an approximately 0.27-acre area of gravel surface and woods that drains to the east.

Subcatchment 7 represents an approximately 0.39-acre area of gravel surface and woods that drains to the southeast.

Subcatchment 8 represents an approximately 0.48-acre area of gravel surface that drains to the parcel to the south of the site.

Subcatchment 9 represents an approximately 0.15-acre area of lawn and walk that drains to the Gray Road ROW.

Subcatchment 10 represents an approximately 0.15-acre area of lawn and walk that drains to the Gray Road ROW.

Subcatchment 11 represents an approximately 0.14-acre area of lawn and walk that drains to the Gray Road ROW.

Results

A comparison of pre-development and post-development peak rates of stormwater runoff at the Analysis Points is presented in the following tables. Peak runoff rates were estimated for the 2-, 10-, 25, and 50-year 24-hour storm events.

Analysis Point 1 (POI#1)	Peak Runoff Rate (cfs)		
Design Storm	Pre-Development	Post-Development	Difference
2-Year	1.05	0.45	-0.60
10-Year	1.50	0.60	-0.90
25-Year	2.00	0.73	-1.27
50-Year	2.39	0.90	-1.49

Analysis Point 1 (POI#2)	Peak Runoff Rate (cfs)		
Design Storm	Pre-Development	Post-Development	Difference
2-Year	3.70	0.17	-3.53
10-Year	5.34	0.37	-4.97
25-Year	7.06	0.63	-6.43
50-Year	8.44	0.90	-7.54

As shown in the tables above, the total net peak rate of flow leaving the site is reduced for all storm events.

General Standard
An analysis of the pre-development and post-development areas shows that the runoff from 96% of the proposed impervious area and 81% of the proposed developed area on the parcel will be directed to the Subsurface Soil Filters for treatment and detention. The results are presented in the following table.

The proposed project will create approximately 67,548 (1.55 acres) of new impervious area. Runoff from approximately 63,190 s.f. (1.36 acres), or 94%, of the impervious area will be conveyed to the Subsurface Soil Filters for treatment and detention. In the post-development condition, the site will include approximately 30,829 s.f. (0.71 acres) of landscaped area, for a total of 85,825 s.f. (1.97 acres) of developed area. Runoff from approximately 18,355 s.f. (0.42 acres) of the landscaped area will be conveyed to the Filter, resulting in 70,678 s.f. (1.62 acres), or 82.4%, of the developed areas directed to the SSF for treatment and detention.

Water Quality
The project is required to provide stormwater treatment for 95% of the impervious area and 80% of the developed area. This goal for water quality treatment is achieved using two (2) Subsurface Soil Filters for the paved areas, and infiltration system for the convenience store building, and drip-edge treatment BMPs for the bank building.

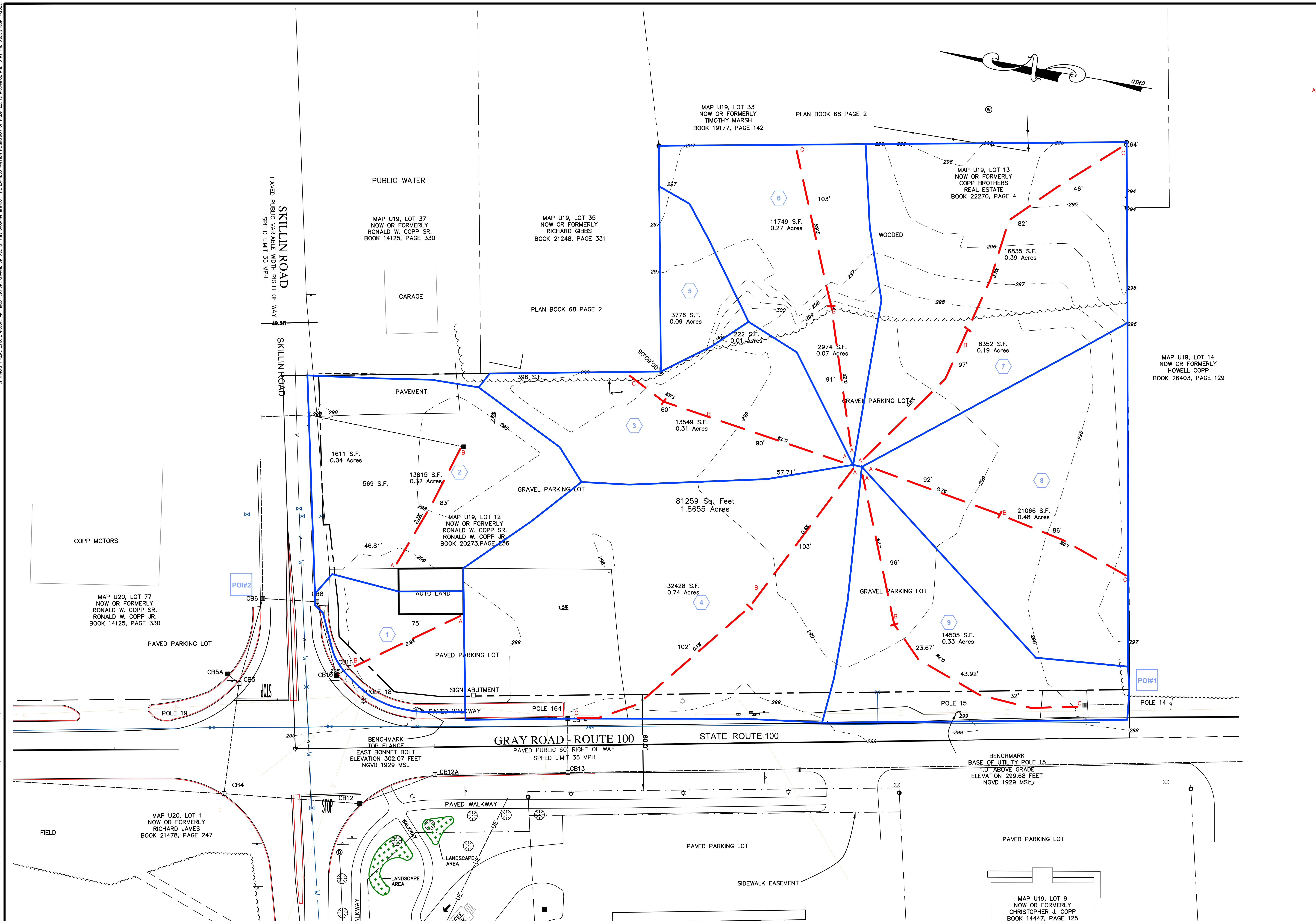
Subsurface Soil Filters
Two Subsurface Soil Filters with underdrains and liners are proposed for the treatment and detention of the runoff from the proposed paved areas, including the developed landscaped area, paved parking and access aisles. The filter has been sized so that the surface area of the filter is greater than 5% of the impervious tributary area plus 2% of the landscaped tributary area. The media is 18” thick and designed to store a treatment volume greater than 1.0 inch over the impervious area and 0.4 inches over the landscaped area, and filter at a rate of 2.41 inches per hour. Separation is provided between the bottom of the filter media and the high seasonal water table and liners are proposed for the bottoms of the systems. The maximum depth of stored runoff is less than 18 inches. Overflows have been included in the design to allow for detention within the subsurface soil filter footprint.

Conclusion
Through the implementation of erosion and sedimentation control measures and best management practices,

the project complies with the requirements of the Basic Standard.

By collecting and treating runoff from new impervious area, 96% of the new impervious area will be treated in accordance with Chapter 500. Similarly, 81% of the developed area will be treated prior to discharge from the site. The runoff from the development will not adversely impact the existing storm drains in Route 26 or the adjacent parcels. By capturing and treating runoff from the impervious surfaces and developed areas the project likewise meets the applicable portions of the General Standard. The General Standard is met and exceeded. By providing detention in the proposed stormwater management BMPs, the peak runoff rates of the post-development condition are reduced to below the pre-development peak runoff rates; the project is not subject to the requirements of the Flooding Standard, but the development has been designed so that the project complies with the requirements of the Flooding Standard.

Attachment 1 – Pre-Development HydroCAD Report
Attachment 2 – Pre-Development Watershed Map
Attachment 3 – Post-Development HydroCAD Report
Attachment 4 – Post-Development Watershed Map



CATCH BASIN SCHEDULE			
STRUCTURE	RIM	INV. IN/SIZE	INV. OUT/SIZE
CB2	298.59'		294.09'/12"ADS
CB3	298.19'	293.79'/12"ADS 293.79'/14"ADS	294.09'/12"ADS
CB4	298.04'	293.14'/12"ADS 293.14'/12"ADS	293.04'/18"ADS
CB5	297.77'	292.77'/18"ADS 293.27'/12"ADS	292.67'/18"ADS
CB5A	298.80'		293.71'/12"ADS
CB6	298.00'	292.41'/18"ADS 292.68'/12"ADS	292.68'/18"ADS
CB8	298.08'	293.18'/12"ADS	293.08'/12"ADS
CB10	297.71'	293.49'/12"ADS	293.39'/12"ADS
CB11	298.91'		293.61'/12"ADS
CB12	297.69'	293.24'/12"ADS	293.19'/12"ADS
CB12A	298.80'	293.35'/12"ADS	293.35'/12"ADS
CB13	298.99'	294.44'/12"ADS 294.44'/12"ADS	294.44'/12"ADS
CB14	299.09'		294.73'/12"ADS
CB15	298.38'	293.50'/15"ADS	293.48'/15"ADS
CB16	296.98'		294.48'/15"ADS
CB17	297.48'		292.08'/12"ADS

LEGEND:

1S SUBCATCHMENT AREA
POI#1 POINT OF INTEREST
A — B TIME OF CONCENTRATION

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

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

SHEET: DR1

SCALE: 1"=30'
JOB #: 22-RLM-004
MAP/LOT: U-19 12&13
FILE:

FIELD WK:
DRN BY: CYN
CH'D BY: CYN
DATE: 11-22-23

TITLE:
PRE-DEVELOPMENT DRAINAGE PLAN

PROJECT:
RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
01-29-24

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION

THIS PLAN IS ISSUED FOR REVIEW AND INFORMATION PURPOSES ONLY. THIS PLAN WILL CHANGE AND IS NOT INTENDED FOR PRICING OR CONSTRUCTION.

PRICING BASED ON THIS PLAN SHALL BE CONSIDERED PRELIMINARY AND MUST BE UPDATED PRIOR TO FINAL CONSTRUCTION DRAWINGS.

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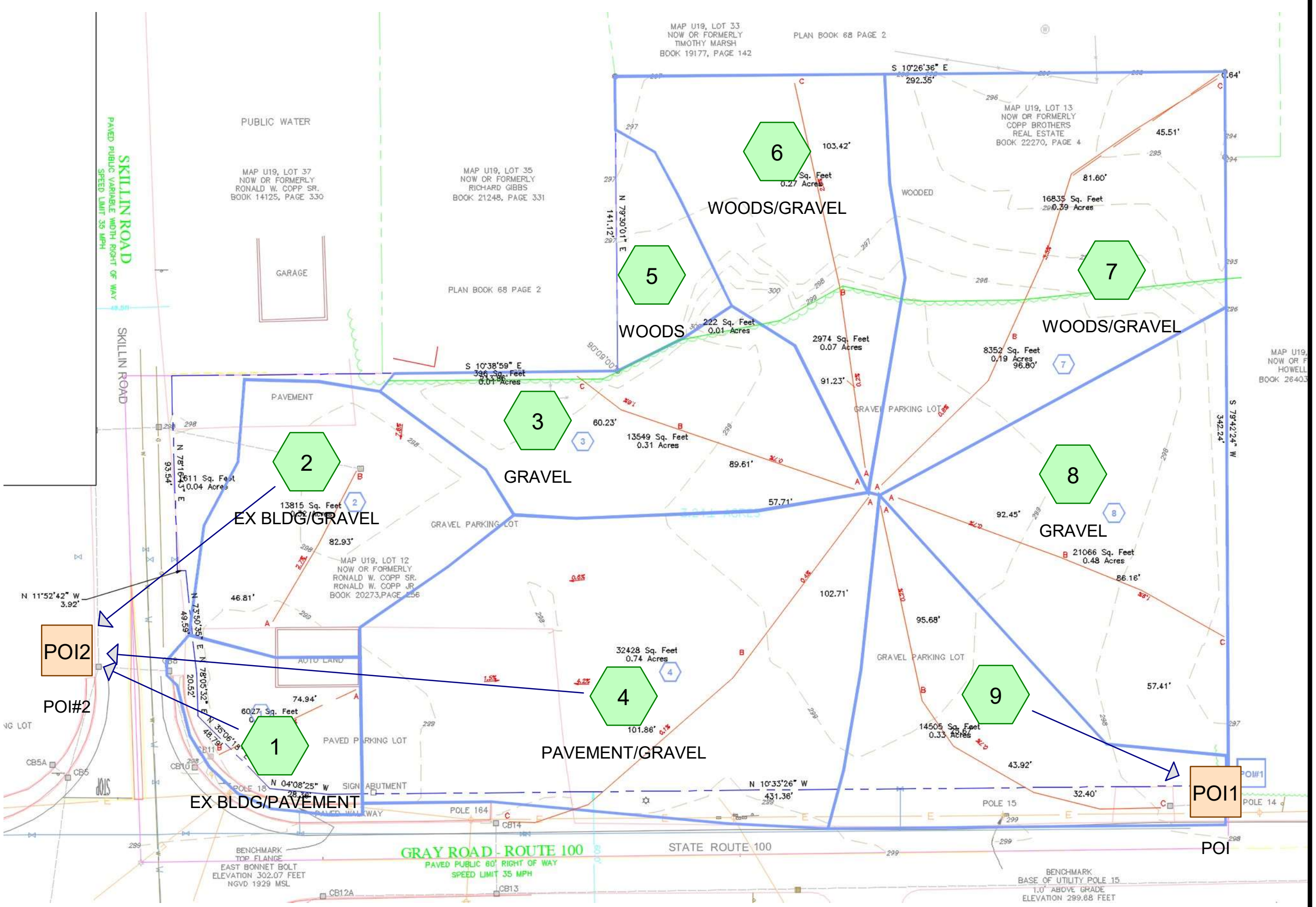
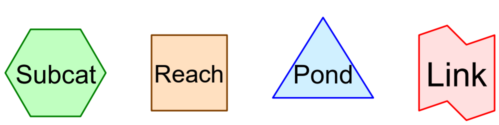




Routing Diagram for Cumberland PreDev
Prepared by Priority Real Estate Group LLC, Printed 2/5/2024
HydroCAD® 10.20-2g s/n 12568 © 2022 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Cumberland 24-hr S1	2-yr	Default	24.00	1	3.10	2
2	5-Year	Type III 24-hr		Default	24.00	1	3.66	2
3	10-Year	Type III 24-hr		Default	24.00	1	4.60	2
4	25-yr	Cumberland 24-hr S1	25-yr	Default	24.00	1	5.80	2
5	50-Year	Type III 24-hr		Default	24.00	1	6.27	2

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
2.449	0.000	0.000	0.000	0.000	2.449	Gravel surface	2, 3, 4, 6, 7, 8, 9
0.138	0.000	0.000	0.000	0.000	0.138	Paved parking	1
0.743	0.000	0.000	0.000	0.000	0.743	Woods, Good	5, 6, 7
3.330	**0.000**	**0.000**	**0.000**	**0.000**	**3.330**	**TOTAL AREA**	

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: EX BLDG/PAVEMENT Runoff Area=6,027 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=75' Slope=0.0090 '/' Tc=5.0 min CN=98 Runoff=0.45 cfs 0.033 af

Subcatchment 2: EX BLDG/GRAVEL Runoff Area=13,815 sf 0.00% Impervious Runoff Depth=2.65"
Flow Length=83' Slope=0.0270 '/' Tc=5.0 min CN=96 Runoff=1.00 cfs 0.070 af

Subcatchment 3: GRAVEL Runoff Area=13,549 sf 0.00% Impervious Runoff Depth=2.65"
Flow Length=150' Tc=5.0 min CN=96 Runoff=0.98 cfs 0.069 af

Subcatchment 4: PAVEMENT/GRAVEL Runoff Area=32,428 sf 0.00% Impervious Runoff Depth=2.65"
Flow Length=202' Tc=5.7 min CN=96 Runoff=2.26 cfs 0.164 af

Subcatchment 5: WOODS Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: WOODS/GRAVEL Runoff Area=14,723 sf 0.00% Impervious Runoff Depth=0.01"
Flow Length=194' Tc=5.3 min CN=43 Runoff=0.00 cfs 0.000 af

Subcatchment 7: WOODS/GRAVEL Runoff Area=25,187 sf 0.00% Impervious Runoff Depth=0.15"
Flow Length=100' Slope=0.0080 '/' Tc=5.0 min CN=52 Runoff=0.01 cfs 0.007 af

Subcatchment 8: GRAVEL Runoff Area=21,066 sf 0.00% Impervious Runoff Depth=2.65"
Flow Length=186' Tc=5.0 min CN=96 Runoff=1.52 cfs 0.107 af

Subcatchment 9: Runoff Area=14,505 sf 0.00% Impervious Runoff Depth=2.65"
Flow Length=100' Slope=0.0020 '/' Tc=5.0 min CN=96 Runoff=1.05 cfs 0.074 af

Reach POI1: POI Inflow=1.05 cfs 0.074 af
Outflow=1.05 cfs 0.074 af

Reach POI2: POI#2 Inflow=3.70 cfs 0.268 af
Outflow=3.70 cfs 0.268 af

Total Runoff Area = 3.330 ac Runoff Volume = 0.524 af Average Runoff Depth = 1.89"
95.85% Pervious = 3.192 ac 4.15% Impervious = 0.138 ac

Summary for Subcatchment 1: EX BLDG/PAVEMENT

Runoff = 0.45 cfs @ 12.02 hrs, Volume= 0.033 af, Depth= 2.87"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
6,027	98	Paved parking, HSG A
6,027		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	75	0.0090	0.91		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.4	75	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 2: EX BLDG/GRAVEL

Runoff = 1.00 cfs @ 12.02 hrs, Volume= 0.070 af, Depth= 2.65"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
13,815	96	Gravel surface, HSG A
13,815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	83	0.0270	1.45		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.0	83	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 3: GRAVEL

Runoff = 0.98 cfs @ 12.02 hrs, Volume= 0.069 af, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
13,549	96	Gravel surface, HSG A
13,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	90	0.0070	0.86		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	60	0.0160	2.04		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.3	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 4: PAVEMENT/GRAVEL

Runoff = 2.26 cfs @ 12.03 hrs, Volume= 0.164 af, Depth= 2.65"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
32,428	96	Gravel surface, HSG A
32,428		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	100	0.0040	0.70		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.3	102	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.7	202	Total			

Summary for Subcatchment 5: WOODS

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: WOODS/GRAVEL

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
11,749	30	Woods, Good, HSG A
2,974	96	Gravel surface, HSG A
14,723	43	Weighted Average
14,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: WOODS/GRAVEL

Runoff = 0.01 cfs @ 13.24 hrs, Volume= 0.007 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
16,835	30	Woods, Good, HSG A
8,352	96	Gravel surface, HSG A
25,187	52	Weighted Average
25,187		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.8	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 8: GRAVEL

Runoff = 1.52 cfs @ 12.02 hrs, Volume= 0.107 af, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
21,066	96	Gravel surface, HSG A
21,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C**
					Unpaved Kv= 16.1 fps
2.5	186	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 9:

Runoff = 1.05 cfs @ 12.02 hrs, Volume= 0.074 af, Depth= 2.65"
Routed to Reach POI1 : POI

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
14,505	96	Gravel surface, HSG A
14,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.1	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Reach POI1: POI

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

Inflow Area = 0.333 ac, 0.00% Impervious, Inflow Depth = 2.65" for 2-yr event
Inflow = 1.05 cfs @ 12.02 hrs, Volume= 0.074 af
Outflow = 1.05 cfs @ 12.02 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 1.200 ac, 11.53% Impervious, Inflow Depth = 2.68" for 2-yr event
Inflow = 3.70 cfs @ 12.03 hrs, Volume= 0.268 af
Outflow = 3.70 cfs @ 12.03 hrs, Volume= 0.268 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: EX BLDG/PAVEMENT Runoff Area=6,027 sf 100.00% Impervious Runoff Depth=3.43"
Flow Length=75' Slope=0.0090 '/' Tc=5.0 min CN=98 Runoff=0.50 cfs 0.040 af

Subcatchment 2: EX BLDG/GRAVEL Runoff Area=13,815 sf 0.00% Impervious Runoff Depth=3.20"
Flow Length=83' Slope=0.0270 '/' Tc=5.0 min CN=96 Runoff=1.12 cfs 0.085 af

Subcatchment 3: GRAVEL Runoff Area=13,549 sf 0.00% Impervious Runoff Depth=3.20"
Flow Length=150' Tc=5.0 min CN=96 Runoff=1.10 cfs 0.083 af

Subcatchment 4: PAVEMENT/GRAVEL Runoff Area=32,428 sf 0.00% Impervious Runoff Depth=3.20"
Flow Length=202' Tc=5.7 min CN=96 Runoff=2.58 cfs 0.199 af

Subcatchment 5: WOODS Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: WOODS/GRAVEL Runoff Area=14,723 sf 0.00% Impervious Runoff Depth=0.07"
Flow Length=194' Tc=5.3 min CN=43 Runoff=0.00 cfs 0.002 af

Subcatchment 7: WOODS/GRAVEL Runoff Area=25,187 sf 0.00% Impervious Runoff Depth=0.30"
Flow Length=100' Slope=0.0080 '/' Tc=5.0 min CN=52 Runoff=0.07 cfs 0.014 af

Subcatchment 8: GRAVEL Runoff Area=21,066 sf 0.00% Impervious Runoff Depth=3.20"
Flow Length=186' Tc=5.0 min CN=96 Runoff=1.71 cfs 0.129 af

Subcatchment 9: Runoff Area=14,505 sf 0.00% Impervious Runoff Depth=3.20"
Flow Length=100' Slope=0.0020 '/' Tc=5.0 min CN=96 Runoff=1.18 cfs 0.089 af

Reach POI1: POI Inflow=1.18 cfs 0.089 af
Outflow=1.18 cfs 0.089 af

Reach POI2: POI#2 Inflow=4.20 cfs 0.323 af
Outflow=4.20 cfs 0.323 af

Total Runoff Area = 3.330 ac Runoff Volume = 0.640 af Average Runoff Depth = 2.31"
95.85% Pervious = 3.192 ac 4.15% Impervious = 0.138 ac

Summary for Subcatchment 1: EX BLDG/PAVEMENT

Runoff = 0.50 cfs @ 12.07 hrs, Volume= 0.040 af, Depth= 3.43"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
6,027	98	Paved parking, HSG A
6,027		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	75	0.0090	0.91		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.4	75	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 2: EX BLDG/GRAVEL

Runoff = 1.12 cfs @ 12.07 hrs, Volume= 0.085 af, Depth= 3.20"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
13,815	96	Gravel surface, HSG A
13,815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	83	0.0270	1.45		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.0	83	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 3: GRAVEL

Runoff = 1.10 cfs @ 12.07 hrs, Volume= 0.083 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
13,549	96	Gravel surface, HSG A
13,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	90	0.0070	0.86		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	60	0.0160	2.04		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.3	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 4: PAVEMENT/GRAVEL

Runoff = 2.58 cfs @ 12.08 hrs, Volume= 0.199 af, Depth= 3.20"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
32,428	96	Gravel surface, HSG A
32,428		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	100	0.0040	0.70		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.3	102	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.7	202	Total			

Summary for Subcatchment 5: WOODS

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: WOODS/GRAVEL

Runoff = 0.00 cfs @ 14.96 hrs, Volume= 0.002 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
11,749	30	Woods, Good, HSG A
2,974	96	Gravel surface, HSG A
14,723	43	Weighted Average
14,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: WOODS/GRAVEL

Runoff = 0.07 cfs @ 12.31 hrs, Volume= 0.014 af, Depth= 0.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
16,835	30	Woods, Good, HSG A
8,352	96	Gravel surface, HSG A
25,187	52	Weighted Average
25,187		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.8	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 8: GRAVEL

Runoff = 1.71 cfs @ 12.07 hrs, Volume= 0.129 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
21,066	96	Gravel surface, HSG A
21,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 9:

Runoff = 1.18 cfs @ 12.07 hrs, Volume= 0.089 af, Depth= 3.20"
Routed to Reach POI1 : POI

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
14,505	96	Gravel surface, HSG A
14,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.1	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Reach POI1: POI

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

Inflow Area = 0.333 ac, 0.00% Impervious, Inflow Depth = 3.20" for 5-Year event
Inflow = 1.18 cfs @ 12.07 hrs, Volume= 0.089 af
Outflow = 1.18 cfs @ 12.07 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 1.200 ac, 11.53% Impervious, Inflow Depth = 3.23" for 5-Year event
Inflow = 4.20 cfs @ 12.08 hrs, Volume= 0.323 af
Outflow = 4.20 cfs @ 12.08 hrs, Volume= 0.323 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: EX BLDG/PAVEMENT Runoff Area=6,027 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=75' Slope=0.0090 '/' Tc=5.0 min CN=98 Runoff=0.63 cfs 0.050 af

Subcatchment 2: EX BLDG/GRAVEL Runoff Area=13,815 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=83' Slope=0.0270 '/' Tc=5.0 min CN=96 Runoff=1.43 cfs 0.109 af

Subcatchment 3: GRAVEL Runoff Area=13,549 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=150' Tc=5.0 min CN=96 Runoff=1.40 cfs 0.107 af

Subcatchment 4: PAVEMENT/GRAVEL Runoff Area=32,428 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=202' Tc=5.7 min CN=96 Runoff=3.29 cfs 0.257 af

Subcatchment 5: WOODS Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: WOODS/GRAVEL Runoff Area=14,723 sf 0.00% Impervious Runoff Depth=0.25"
Flow Length=194' Tc=5.3 min CN=43 Runoff=0.03 cfs 0.007 af

Subcatchment 7: WOODS/GRAVEL Runoff Area=25,187 sf 0.00% Impervious Runoff Depth=0.63"
Flow Length=100' Slope=0.0080 '/' Tc=5.0 min CN=52 Runoff=0.27 cfs 0.030 af

Subcatchment 8: GRAVEL Runoff Area=21,066 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=186' Tc=5.0 min CN=96 Runoff=2.18 cfs 0.167 af

Subcatchment 9: Runoff Area=14,505 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=100' Slope=0.0020 '/' Tc=5.0 min CN=96 Runoff=1.50 cfs 0.115 af

Reach POI1: POI Inflow=1.50 cfs 0.115 af
Outflow=1.50 cfs 0.115 af

Reach POI2: POI#2 Inflow=5.34 cfs 0.416 af
Outflow=5.34 cfs 0.416 af

Total Runoff Area = 3.330 ac Runoff Volume = 0.842 af Average Runoff Depth = 3.03"
95.85% Pervious = 3.192 ac 4.15% Impervious = 0.138 ac

Summary for Subcatchment 1: EX BLDG/PAVEMENT

Runoff = 0.63 cfs @ 12.07 hrs, Volume= 0.050 af, Depth= 4.36"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
6,027	98	Paved parking, HSG A
6,027		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	75	0.0090	0.91		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.4	75	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 2: EX BLDG/GRAVEL

Runoff = 1.43 cfs @ 12.07 hrs, Volume= 0.109 af, Depth= 4.14"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
13,815	96	Gravel surface, HSG A
13,815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	83	0.0270	1.45		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.0	83	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 3: GRAVEL

Runoff = 1.40 cfs @ 12.07 hrs, Volume= 0.107 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
13,549	96	Gravel surface, HSG A
13,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	90	0.0070	0.86		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	60	0.0160	2.04		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.3	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 4: PAVEMENT/GRAVEL

Runoff = 3.29 cfs @ 12.08 hrs, Volume= 0.257 af, Depth= 4.14"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
32,428	96	Gravel surface, HSG A
32,428		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	100	0.0040	0.70		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.3	102	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.7	202	Total			

Summary for Subcatchment 5: WOODS

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: WOODS/GRAVEL

Runoff = 0.03 cfs @ 12.40 hrs, Volume= 0.007 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
11,749	30	Woods, Good, HSG A
2,974	96	Gravel surface, HSG A
14,723	43	Weighted Average
14,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: WOODS/GRAVEL

Runoff = 0.27 cfs @ 12.11 hrs, Volume= 0.030 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
16,835	30	Woods, Good, HSG A
8,352	96	Gravel surface, HSG A
25,187	52	Weighted Average
25,187		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.8	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 8: GRAVEL

Runoff = 2.18 cfs @ 12.07 hrs, Volume= 0.167 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
21,066	96	Gravel surface, HSG A
21,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 9:

Runoff = 1.50 cfs @ 12.07 hrs, Volume= 0.115 af, Depth= 4.14"
Routed to Reach POI1 : POI

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
14,505	96	Gravel surface, HSG A
14,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.1	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Reach POI1: POI

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

Inflow Area =	0.333 ac,	0.00% Impervious, Inflow Depth = 4.14"	for 10-Year event
Inflow =	1.50 cfs @	12.07 hrs, Volume=	0.115 af
Outflow =	1.50 cfs @	12.07 hrs, Volume=	0.115 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 1.200 ac, 11.53% Impervious, Inflow Depth = 4.16" for 10-Year event
Inflow = 5.34 cfs @ 12.08 hrs, Volume= 0.416 af
Outflow = 5.34 cfs @ 12.08 hrs, Volume= 0.416 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: EX BLDG/PAVEMENT Runoff Area=6,027 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=75' Slope=0.0090 '/' Tc=5.0 min CN=98 Runoff=0.84 cfs 0.064 af

Subcatchment 2: EX BLDG/GRAVEL Runoff Area=13,815 sf 0.00% Impervious Runoff Depth=5.33"
Flow Length=83' Slope=0.0270 '/' Tc=5.0 min CN=96 Runoff=1.91 cfs 0.141 af

Subcatchment 3: GRAVEL Runoff Area=13,549 sf 0.00% Impervious Runoff Depth=5.33"
Flow Length=150' Tc=5.0 min CN=96 Runoff=1.87 cfs 0.138 af

Subcatchment 4: PAVEMENT/GRAVEL Runoff Area=32,428 sf 0.00% Impervious Runoff Depth=5.33"
Flow Length=202' Tc=5.7 min CN=96 Runoff=4.33 cfs 0.331 af

Subcatchment 5: WOODS Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.05"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: WOODS/GRAVEL Runoff Area=14,723 sf 0.00% Impervious Runoff Depth=0.60"
Flow Length=194' Tc=5.3 min CN=43 Runoff=0.08 cfs 0.017 af

Subcatchment 7: WOODS/GRAVEL Runoff Area=25,187 sf 0.00% Impervious Runoff Depth=1.19"
Flow Length=100' Slope=0.0080 '/' Tc=5.0 min CN=52 Runoff=0.68 cfs 0.057 af

Subcatchment 8: GRAVEL Runoff Area=21,066 sf 0.00% Impervious Runoff Depth=5.33"
Flow Length=186' Tc=5.0 min CN=96 Runoff=2.91 cfs 0.215 af

Subcatchment 9: Runoff Area=14,505 sf 0.00% Impervious Runoff Depth=5.33"
Flow Length=100' Slope=0.0020 '/' Tc=5.0 min CN=96 Runoff=2.00 cfs 0.148 af

Reach POI1: POI Inflow=2.00 cfs 0.148 af
Outflow=2.00 cfs 0.148 af

Reach POI2: POI#2 Inflow=7.06 cfs 0.536 af
Outflow=7.06 cfs 0.536 af

Total Runoff Area = 3.330 ac Runoff Volume = 1.111 af Average Runoff Depth = 4.00"
95.85% Pervious = 3.192 ac 4.15% Impervious = 0.138 ac

Summary for Subcatchment 1: EX BLDG/PAVEMENT

Runoff = 0.84 cfs @ 12.02 hrs, Volume= 0.064 af, Depth= 5.56"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
6,027	98	Paved parking, HSG A
6,027		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	75	0.0090	0.91		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.4	75	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 2: EX BLDG/GRAVEL

Runoff = 1.91 cfs @ 12.02 hrs, Volume= 0.141 af, Depth= 5.33"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
13,815	96	Gravel surface, HSG A
13,815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	83	0.0270	1.45		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.0	83	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 3: GRAVEL

Runoff = 1.87 cfs @ 12.02 hrs, Volume= 0.138 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
13,549	96	Gravel surface, HSG A
13,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	90	0.0070	0.86		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	60	0.0160	2.04		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.3	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 4: PAVEMENT/GRAVEL

Runoff = 4.33 cfs @ 12.03 hrs, Volume= 0.331 af, Depth= 5.33"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
32,428	96	Gravel surface, HSG A
32,428		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	100	0.0040	0.70		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.3	102	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.7	202	Total			

Summary for Subcatchment 5: WOODS

Runoff = 0.00 cfs @ 23.96 hrs, Volume= 0.000 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: WOODS/GRAVEL

Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.017 af, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
11,749	30	Woods, Good, HSG A
2,974	96	Gravel surface, HSG A
14,723	43	Weighted Average
14,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: WOODS/GRAVEL

Runoff = 0.68 cfs @ 12.04 hrs, Volume= 0.057 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
16,835	30	Woods, Good, HSG A
8,352	96	Gravel surface, HSG A
25,187	52	Weighted Average
25,187		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.8	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 8: GRAVEL

Runoff = 2.91 cfs @ 12.02 hrs, Volume= 0.215 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
21,066	96	Gravel surface, HSG A
21,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C**
					Unpaved Kv= 16.1 fps
2.5	186	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 9:

Runoff = 2.00 cfs @ 12.02 hrs, Volume= 0.148 af, Depth= 5.33"
Routed to Reach POI1 : POI

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
14,505	96	Gravel surface, HSG A
14,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.1	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Reach POI1: POI

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

Inflow Area = 0.333 ac, 0.00% Impervious, Inflow Depth = 5.33" for 25-yr event
Inflow = 2.00 cfs @ 12.02 hrs, Volume= 0.148 af
Outflow = 2.00 cfs @ 12.02 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area =	1.200 ac,	11.53% Impervious,	Inflow Depth =	5.36"	for 25-yr event
Inflow =	7.06 cfs @	12.03 hrs,	Volume=	0.536 af	
Outflow =	7.06 cfs @	12.03 hrs,	Volume=	0.536 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: EX BLDG/PAVEMENT Runoff Area=6,027 sf 100.00% Impervious Runoff Depth=6.03"
Flow Length=75' Slope=0.0090 '/' Tc=5.0 min CN=98 Runoff=0.87 cfs 0.070 af

Subcatchment 2: EX BLDG/GRAVEL Runoff Area=13,815 sf 0.00% Impervious Runoff Depth=5.80"
Flow Length=83' Slope=0.0270 '/' Tc=5.0 min CN=96 Runoff=1.97 cfs 0.153 af

Subcatchment 3: GRAVEL Runoff Area=13,549 sf 0.00% Impervious Runoff Depth=5.80"
Flow Length=150' Tc=5.0 min CN=96 Runoff=1.93 cfs 0.150 af

Subcatchment 4: PAVEMENT/GRAVEL Runoff Area=32,428 sf 0.00% Impervious Runoff Depth=5.80"
Flow Length=202' Tc=5.7 min CN=96 Runoff=4.53 cfs 0.360 af

Subcatchment 5: WOODS Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.10"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.001 af

Subcatchment 6: WOODS/GRAVEL Runoff Area=14,723 sf 0.00% Impervious Runoff Depth=0.78"
Flow Length=194' Tc=5.3 min CN=43 Runoff=0.17 cfs 0.022 af

Subcatchment 7: WOODS/GRAVEL Runoff Area=25,187 sf 0.00% Impervious Runoff Depth=1.43"
Flow Length=100' Slope=0.0080 '/' Tc=5.0 min CN=52 Runoff=0.86 cfs 0.069 af

Subcatchment 8: GRAVEL Runoff Area=21,066 sf 0.00% Impervious Runoff Depth=5.80"
Flow Length=186' Tc=5.0 min CN=96 Runoff=3.00 cfs 0.234 af

Subcatchment 9: Runoff Area=14,505 sf 0.00% Impervious Runoff Depth=5.80"
Flow Length=100' Slope=0.0020 '/' Tc=5.0 min CN=96 Runoff=2.07 cfs 0.161 af

Reach POI1: POI Inflow=2.07 cfs 0.161 af
Outflow=2.07 cfs 0.161 af

Reach POI2: POI#2 Inflow=7.36 cfs 0.582 af
Outflow=7.36 cfs 0.582 af

Total Runoff Area = 3.330 ac Runoff Volume = 1.219 af Average Runoff Depth = 4.39"
95.85% Pervious = 3.192 ac 4.15% Impervious = 0.138 ac

Summary for Subcatchment 1: EX BLDG/PAVEMENT

Runoff = 0.87 cfs @ 12.07 hrs, Volume= 0.070 af, Depth= 6.03"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-Year Rainfall=6.27"

Area (sf)	CN	Description
6,027	98	Paved parking, HSG A
6,027		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	75	0.0090	0.91		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.4	75	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 2: EX BLDG/GRAVEL

Runoff = 1.97 cfs @ 12.07 hrs, Volume= 0.153 af, Depth= 5.80"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-Year Rainfall=6.27"

Area (sf)	CN	Description
13,815	96	Gravel surface, HSG A
13,815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	83	0.0270	1.45		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.0	83	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 3: GRAVEL

Runoff = 1.93 cfs @ 12.07 hrs, Volume= 0.150 af, Depth= 5.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-Year Rainfall=6.27"

Area (sf)	CN	Description
13,549	96	Gravel surface, HSG A
13,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	90	0.0070	0.86		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
0.5	60	0.0160	2.04		**Shallow Concentrated Flow, B-C**
					Unpaved Kv= 16.1 fps
2.3	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 4: PAVEMENT/GRAVEL

Runoff = 4.53 cfs @ 12.08 hrs, Volume= 0.360 af, Depth= 5.80"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-Year Rainfall=6.27"

Area (sf)	CN	Description
32,428	96	Gravel surface, HSG A
32,428		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	100	0.0040	0.70		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.3	102	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.7	202	Total			

Summary for Subcatchment 5: WOODS

Runoff = 0.00 cfs @ 15.14 hrs, Volume= 0.001 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-Year Rainfall=6.27"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: WOODS/GRAVEL

Runoff = 0.17 cfs @ 12.13 hrs, Volume= 0.022 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-Year Rainfall=6.27"

Area (sf)	CN	Description
11,749	30	Woods, Good, HSG A
2,974	96	Gravel surface, HSG A
14,723	43	Weighted Average
14,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: WOODS/GRAVEL

Runoff = 0.86 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-Year Rainfall=6.27"

Area (sf)	CN	Description
16,835	30	Woods, Good, HSG A
8,352	96	Gravel surface, HSG A
25,187	52	Weighted Average
25,187		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.8	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 8: GRAVEL

Runoff = 3.00 cfs @ 12.07 hrs, Volume= 0.234 af, Depth= 5.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-Year Rainfall=6.27"

Area (sf)	CN	Description
21,066	96	Gravel surface, HSG A
21,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 9:

Runoff = 2.07 cfs @ 12.07 hrs, Volume= 0.161 af, Depth= 5.80"
Routed to Reach POI1 : POI

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-Year Rainfall=6.27"

Area (sf)	CN	Description
14,505	96	Gravel surface, HSG A
14,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.1	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Reach POI1: POI

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

Inflow Area = 0.333 ac, 0.00% Impervious, Inflow Depth = 5.80" for 50-Year event
Inflow = 2.07 cfs @ 12.07 hrs, Volume= 0.161 af
Outflow = 2.07 cfs @ 12.07 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min

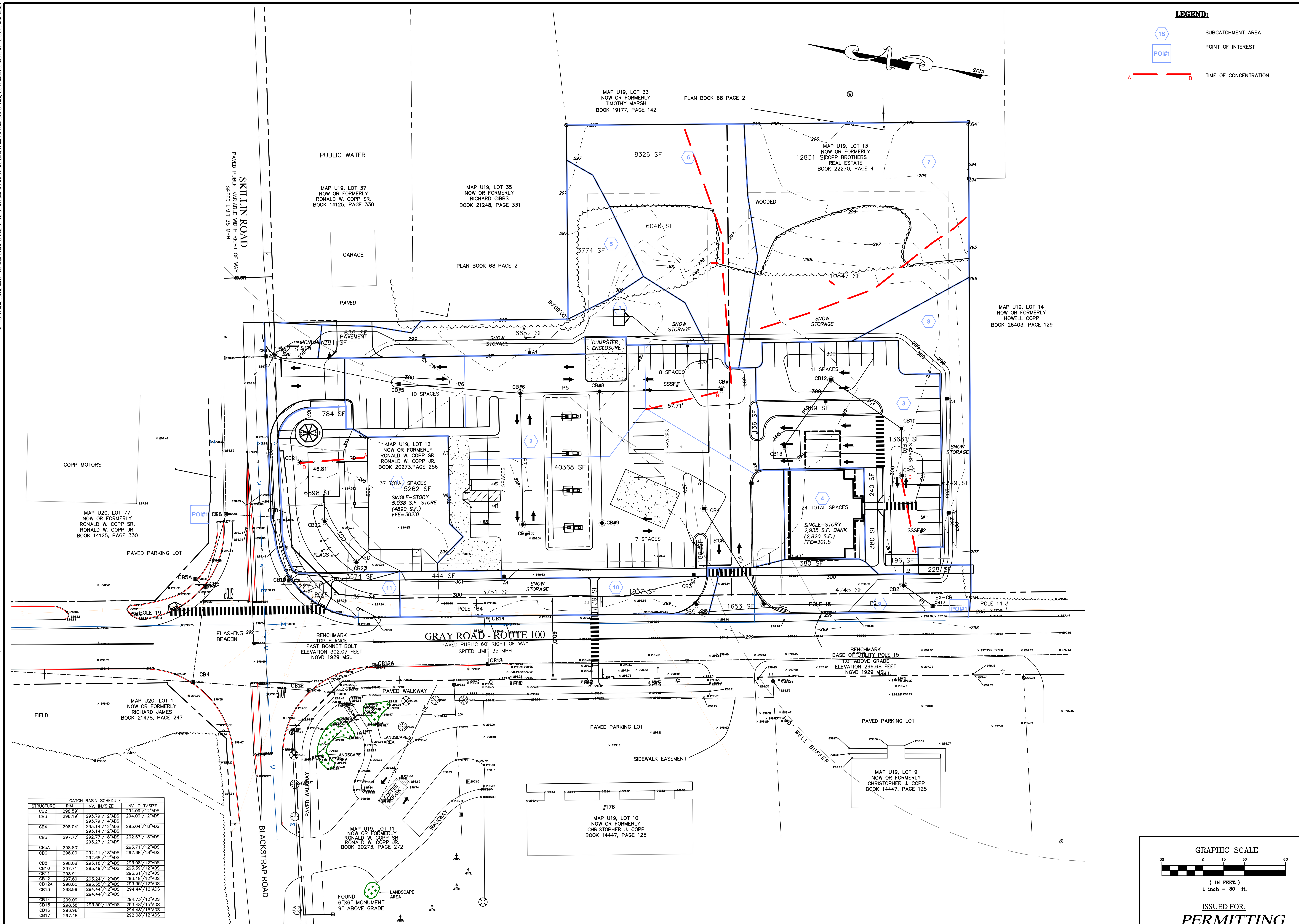
Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 1.200 ac, 11.53% Impervious, Inflow Depth = 5.82" for 50-Year event
Inflow = 7.36 cfs @ 12.08 hrs, Volume= 0.582 af
Outflow = 7.36 cfs @ 12.08 hrs, Volume= 0.582 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs



CATCH BASIN SCHEDULE			
STRUCTURE	RIM	INV. IN/SIZE	INV. OUT/SIZE
CB2	298.59'		294.09'/12"ADS
CB3	298.19'	293.79'/12"ADS 293.79'/14"ADS	294.09'/12"ADS
CB4	298.04'	293.14'/12"ADS 293.14'/12"ADS	293.04'/18"ADS
CB5	297.77'	292.77'/18"ADS 293.27'/12"ADS	292.67'/18"ADS
CB5A	298.80'		293.71'/12"ADS
CB6	298.00'	292.41'/18"ADS 292.68'/12"ADS	292.68'/18"ADS
CB8	298.08'	293.18'/12"ADS	293.08'/12"ADS
CB10	297.71'	293.49'/12"ADS	293.39'/12"ADS
CB11	298.91'		293.61'/12"ADS
CB12	297.69'	293.24'/12"ADS	293.19'/12"ADS
CB12A	298.80'	293.35'/12"ADS	293.35'/12"ADS
CB13	298.99'	294.44'/12"ADS 294.44'/12"ADS	294.44'/12"ADS
CB14	299.09'		294.73'/12"ADS
CB15	298.38'	293.50'/15"ADS	293.48'/15"ADS
CB16	296.98'		294.48'/15"ADS
CB17	297.48'		292.08'/12"ADS

ISSUED FOR:
PERMITTING

NOT FOR CONSTRUCTION

THIS PLAN IS ISSUED FOR REVIEW AND INFORMATION PURPOSES ONLY. THIS PLAN WILL CHANGE AND IS NOT INTENDED FOR PRICING OR CONSTRUCTION.

PRICING BASED ON THIS PLAN SHALL BE CONSIDERED PRELIMINARY AND MUST BE UPDATED PRIOR TO FINAL CONSTRUCTION DRAWINGS.

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

STATE OF MAINE CURTIS Y. NEUFELD 9779 LICENSED PROFESSIONAL ENGINEER
01-29-24

TITLE: POST-DEVELOPMENT DRAINAGE PLAN

PROJECT: RUSTY LANTERN CONVENIENCE STORE 181 GRAY ROAD, CUMBER;LAND, ME 04021

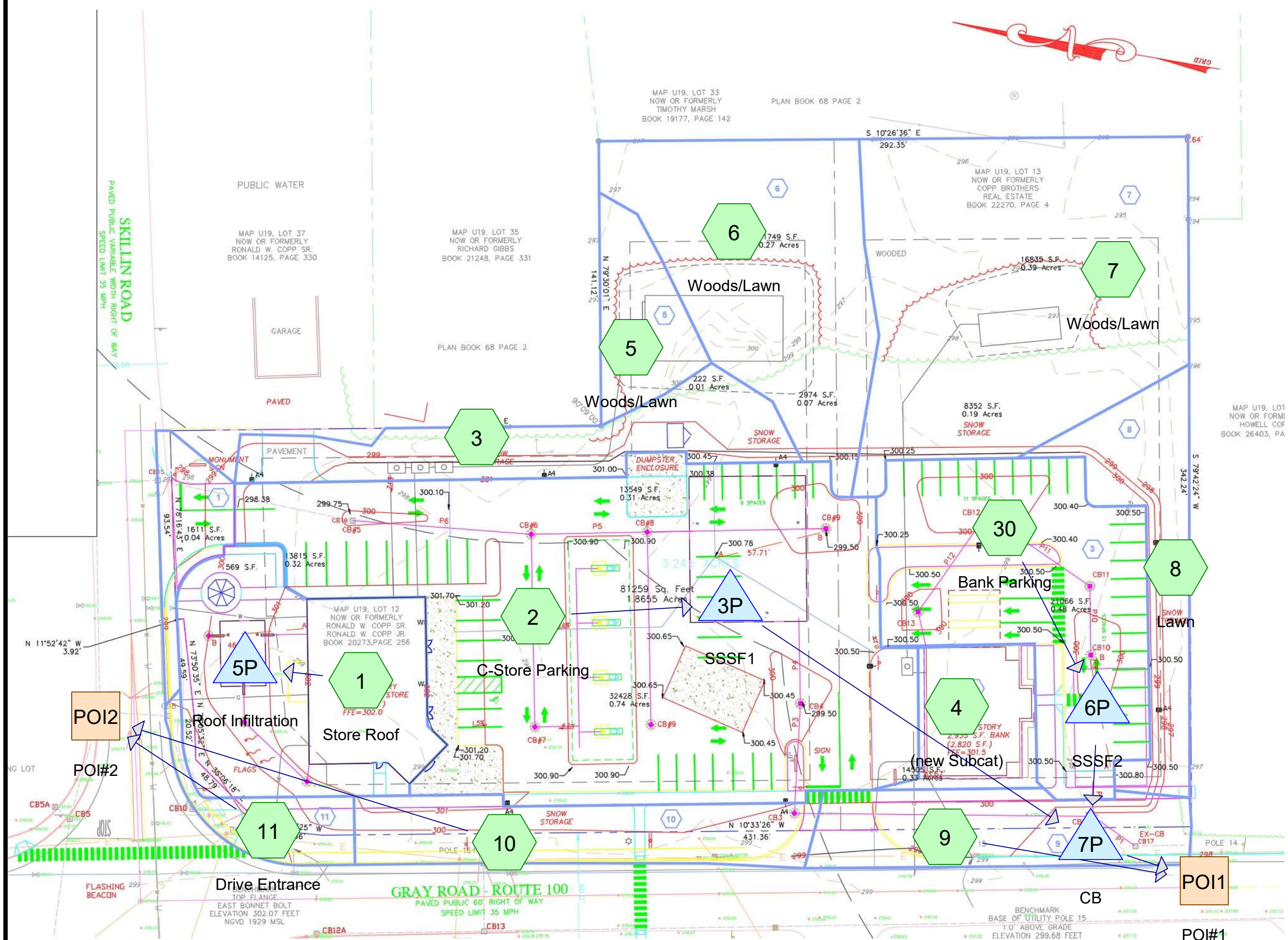
PREPARED FOR: CUMBERLAND REAL ESTATE GROUP, LLC 2 MAIN STREET, TOPSHAM, ME 04086

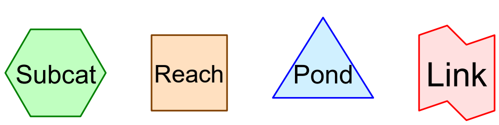
PRIORITY REAL ESTATE GROUP LLC

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

FIELD WK:	SCALE: 1"=30'
DRN BY: CYN	JOB #: 22-RLM-004
CH'D BY: CYN	MAP/LOT: U-19 12&13
DATE: 11-22-23	FILE:

SHEET: DR2





Routing Diagram for Cumberland Post
Prepared by Priority Real Estate Group LLC, Printed 2/5/2024
HydroCAD® 10.20-2g s/n 12568 © 2022 HydroCAD Software Solutions LLC

Project Notes

Copied 4 events from Cumberland 24-hr S1 storm
Rainfall events imported from "Atlas-14-Rain.txt" for 1365 ME Cumberland Nw

Summary for Subcatchment 1: Store Roof

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.014 af, Depth= 0.55"
Routed to Pond 5P : Roof Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
5,262	98	Roofs, HSG A
784	39	>75% Grass cover, Good, HSG A
6,698	39	>75% Grass cover, Good, HSG A
559	98	Paved parking, HSG A
13,303	65	Weighted Average
7,482		56.24% Pervious Area
5,821		43.76% Impervious Area

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

Summary for Subcatchment 2: C-Store Parking

Runoff = 3.11 cfs @ 12.02 hrs, Volume= 0.223 af, Depth= 2.76"
Routed to Pond 3P : SSSF1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
40,368	98	Paved parking, HSG A
136	74	>75% Grass cover, Good, HSG C
1,560	74	>75% Grass cover, Good, HSG C
189	74	>75% Grass cover, Good, HSG C
42,253	97	Weighted Average
1,885		4.46% Pervious Area
40,368		95.54% Impervious Area

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

Summary for Subcatchment 3:

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.00 cfs @ 23.96 hrs, Volume= 0.000 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
281	39	>75% Grass cover, Good, HSG A
635	98	Paved parking, HSG A
6,652	39	>75% Grass cover, Good, HSG A
7,568	44	Weighted Average
6,933		91.61% Pervious Area
635		8.39% Impervious Area

Summary for Subcatchment 4: (new Subcat)

Runoff = 0.22 cfs @ 12.02 hrs, Volume= 0.016 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
2,935	98	Roofs, HSG A
2,935		100.00% Impervious Area

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

Summary for Subcatchment 5: Woods/Lawn

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: Woods/Lawn

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
8,326	30	Woods, Good, HSG A
6,046	39	>75% Grass cover, Good, HSG A
14,372	34	Weighted Average
14,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: Woods/Lawn

[49] Hint: Tc<2dt may require smaller dt
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
12,831	30	Woods, Good, HSG A
10,847	39	>75% Grass cover, Good, HSG A
23,678	34	Weighted Average
23,678		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 8: Lawn

[49] Hint: Tc<2dt may require smaller dt
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
6,349	39	>75% Grass cover, Good, HSG A
6,349		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C**
					Unpaved Kv= 16.1 fps
2.5	186	Total			

Summary for Subcatchment 9:

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

Runoff = 0.01 cfs @ 12.12 hrs, Volume= 0.003 af, Depth= 0.25"
Routed to Reach POI1 : POI#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
4,245	39	>75% Grass cover, Good, HSG A
1,652	98	Paved parking, HSG A
380	39	>75% Grass cover, Good, HSG A
228	98	Paved parking, HSG A
6,505	56	Weighted Average
4,625		71.10% Pervious Area
1,880		28.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 10:

Runoff = 0.00 cfs @ 23.24 hrs, Volume= 0.001 af, Depth= 0.06"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
3,751	39	>75% Grass cover, Good, HSG A
1,957	39	>75% Grass cover, Good, HSG A
444	98	Paved parking, HSG A
139	98	Paved parking, HSG A
369	98	Paved parking, HSG A
6,660	47	Weighted Average
5,708		85.71% Pervious Area
952		14.29% Impervious Area

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

Summary for Subcatchment 11: Drive Entrance

Runoff = 0.17 cfs @ 12.03 hrs, Volume= 0.012 af, Depth= 1.03"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
832	39	>75% Grass cover, Good, HSG A
1,321	39	>75% Grass cover, Good, HSG A
221	39	>75% Grass cover, Good, HSG A
3,674	98	Paved parking, HSG A
6,048	75	Weighted Average
2,374		39.25% Pervious Area
3,674		60.75% Impervious Area

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

Summary for Subcatchment 30: Bank Parking

Runoff = 0.96 cfs @ 12.03 hrs, Volume= 0.064 af, Depth= 2.16"
Routed to Pond 6P : SSSF2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
13,681	98	Paved parking, HSG A
969	39	>75% Grass cover, Good, HSG A
240	39	>75% Grass cover, Good, HSG A
380	39	>75% Grass cover, Good, HSG A
196	39	>75% Grass cover, Good, HSG A
15,466	91	Weighted Average
1,785		11.54% Pervious Area
13,681		88.46% Impervious Area

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

Summary for Reach POI1: POI#1

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

Inflow Area = 1.474 ac, 87.08% Impervious, Inflow Depth = 2.36" for 2-yr event
Inflow = 0.45 cfs @ 12.52 hrs, Volume= 0.290 af
Outflow = 0.45 cfs @ 12.52 hrs, Volume= 0.290 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 0.292 ac, 36.40% Impervious, Inflow Depth = 0.52" for 2-yr event
Inflow = 0.17 cfs @ 12.03 hrs, Volume= 0.013 af
Outflow = 0.17 cfs @ 12.03 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Pond 3P: SSSF1

Inflow Area = 0.970 ac, 95.54% Impervious, Inflow Depth = 2.76" for 2-yr event
Inflow = 3.11 cfs @ 12.02 hrs, Volume= 0.223 af
Outflow = 0.32 cfs @ 12.62 hrs, Volume= 0.223 af, Atten= 90%, Lag= 35.7 min
Primary = 0.32 cfs @ 12.62 hrs, Volume= 0.223 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 10.76' @ 12.62 hrs Surf.Area= 4,163 sf Storage= 2,303 cf

Plug-Flow detention time= 43.4 min calculated for 0.223 af (100% of inflow)
Center-of-Mass det. time= 43.4 min (816.0 - 772.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	2,374 cf	**74.87'W x 55.61'L x 2.69'H Field A** 11,214 cf Overall - 5,279 cf Embedded = 5,934 cf x 40.0% Voids
#2A	10.25'	5,015 cf	**ACF R-Tank HD 1** x 1188 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 1188 Chambers in 54 Rows
		7,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 8.00'

Primary OutFlow Max=0.32 cfs @ 12.62 hrs HW=10.76' (Free Discharge)
└─**1=Exfiltration** (Controls 0.32 cfs)

Pond 3P: SSSF1 - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

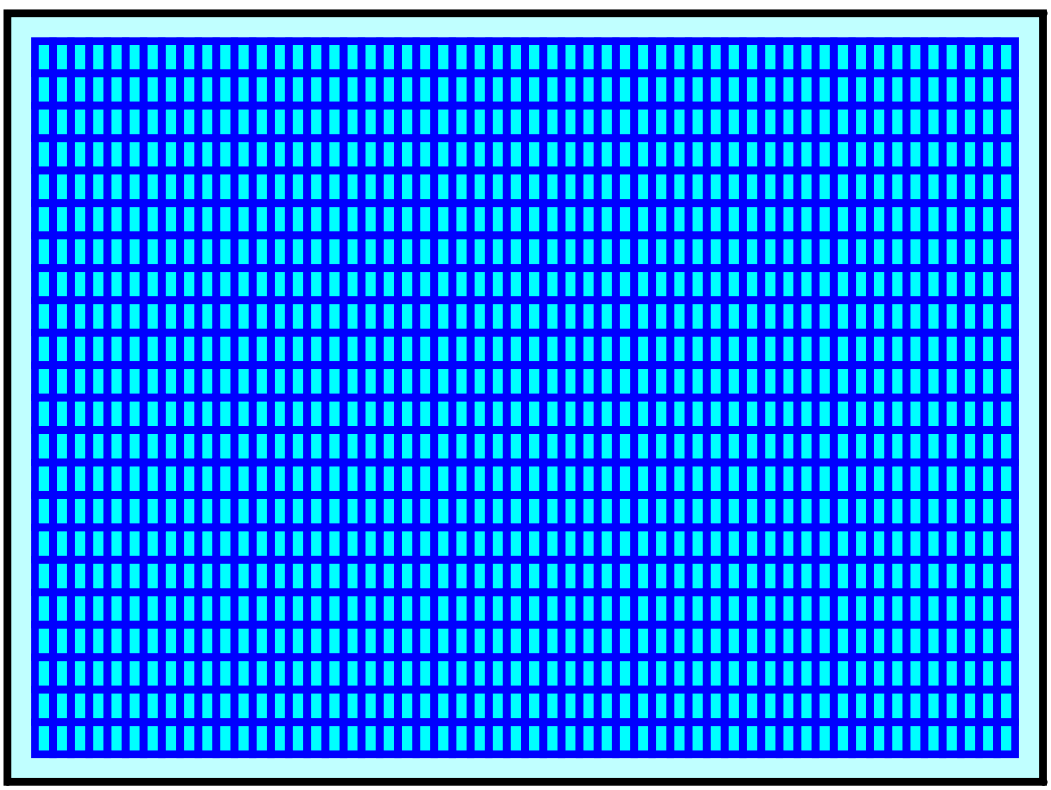
22 Chambers/Row x 2.35' Long = 51.61' Row Length +24.0" End Stone x 2 = 55.61' Base Length
54 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 74.87' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

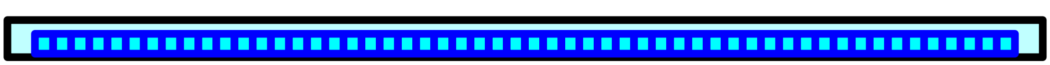
1,188 Chambers x 4.2 cf = 5,015.5 cf Chamber Storage
1,188 Chambers x 4.4 cf = 5,279.5 cf Displacement

11,213.7 cf Field - 5,279.5 cf Chambers = 5,934.2 cf Stone x 40.0% Voids = 2,373.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,389.2 cf = 0.170 af
Overall Storage Efficiency = 65.9%
Overall System Size = 55.61' x 74.87' x 2.69'

1,188 Chambers
415.3 cy Field
219.8 cy Stone





Summary for Pond 5P: Roof Infiltration

Inflow Area = 0.305 ac, 43.76% Impervious, Inflow Depth = 0.55" for 2-yr event
Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.014 af
Outflow = 0.05 cfs @ 12.00 hrs, Volume= 0.014 af, Atten= 69%, Lag= 0.0 min
Discarded = 0.05 cfs @ 12.00 hrs, Volume= 0.014 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 295.16' @ 12.28 hrs Surf.Area= 862 sf Storage= 56 cf

Plug-Flow detention time= 6.2 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 6.2 min (959.0 - 952.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	295.00'	559 cf	**25.00'W x 34.50'L x 2.69'H Field A** 2,323 cf Overall - 924 cf Embedded = 1,398 cf x 40.0% Voids
#2A	295.25'	878 cf	**ACF R-Tank HD 1** x 208 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 208 Chambers in 16 Rows
		1,437 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	295.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.05 cfs @ 12.00 hrs HW=295.04' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Pond 5P: Roof Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

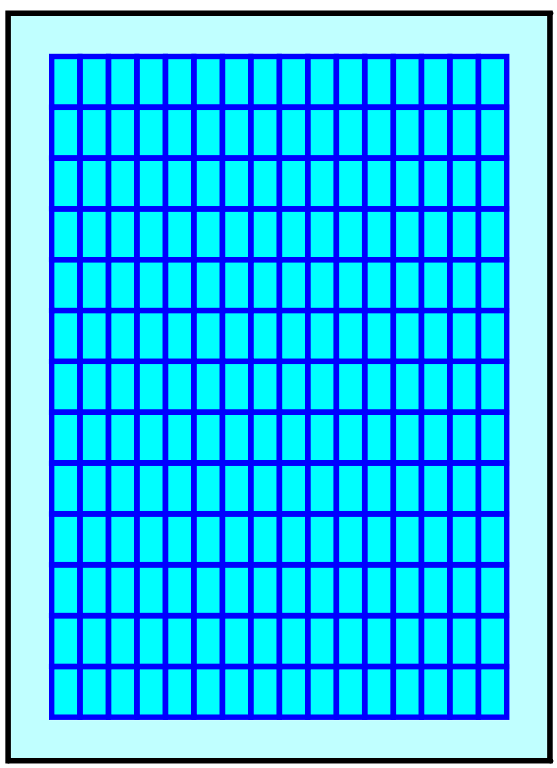
13 Chambers/Row x 2.35' Long = 30.50' Row Length +24.0" End Stone x 2 = 34.50' Base Length
16 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 25.00' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

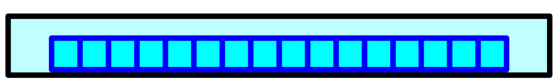
208 Chambers x 4.2 cf = 878.1 cf Chamber Storage
208 Chambers x 4.4 cf = 924.4 cf Displacement

2,322.7 cf Field - 924.4 cf Chambers = 1,398.3 cf Stone x 40.0% Voids = 559.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,437.5 cf = 0.033 af
Overall Storage Efficiency = 61.9%
Overall System Size = 34.50' x 25.00' x 2.69'

208 Chambers
86.0 cy Field
51.8 cy Stone





Summary for Pond 6P: SSSF2

Inflow Area = 0.355 ac, 88.46% Impervious, Inflow Depth = 2.16" for 2-yr event
Inflow = 0.96 cfs @ 12.03 hrs, Volume= 0.064 af
Outflow = 0.13 cfs @ 11.76 hrs, Volume= 0.064 af, Atten= 87%, Lag= 0.0 min
Primary = 0.13 cfs @ 11.76 hrs, Volume= 0.064 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 294.42' @ 12.51 hrs Surf.Area= 2,299 sf Storage= 561 cf

Plug-Flow detention time= 23.0 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 23.0 min (846.0 - 823.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	294.00'	1,268 cf	**38.12'W x 60.30'L x 2.04'H Field A** 4,683 cf Overall - 1,513 cf Embedded = 3,171 cf x 40.0% Voids
#2A	294.25'	1,437 cf	**ACF R-Tank SD 1** x 624 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 624 Chambers in 26 Rows
		2,705 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	294.00'	**2.410 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.13 cfs @ 11.76 hrs HW=294.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Pond 6P: SSSF2 - Chamber Wizard Field A

Chamber Model = ACF R-Tank SD 1 (ACF Environmental R-Tank SD)
Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf
Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf

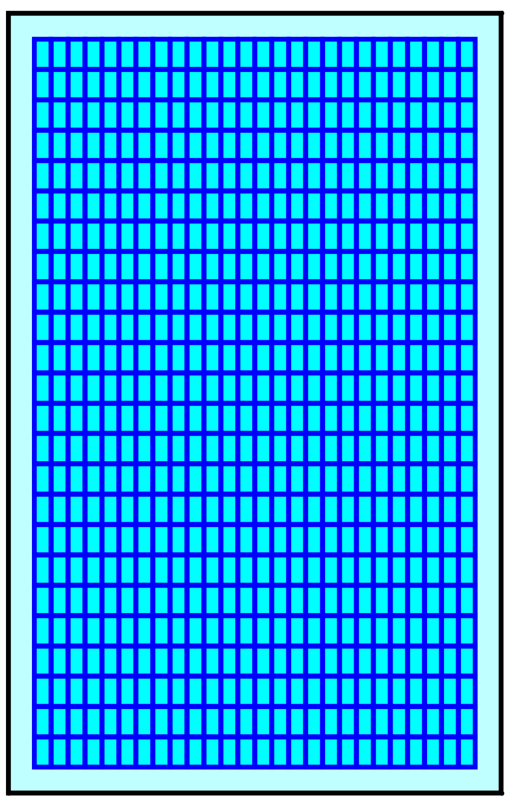
24 Chambers/Row x 2.35' Long = 56.30' Row Length +24.0" End Stone x 2 = 60.30' Base Length
26 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 38.12' Base Width
3.0" Stone Base + 9.4" Chamber Height + 12.0" Stone Cover = 2.04' Field Height

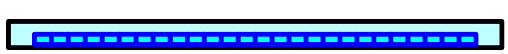
624 Chambers x 2.3 cf = 1,436.9 cf Chamber Storage
624 Chambers x 2.4 cf = 1,512.6 cf Displacement

4,683.3 cf Field - 1,512.6 cf Chambers = 3,170.7 cf Stone x 40.0% Voids = 1,268.3 cf Stone Storage

Chamber Storage + Stone Storage = 2,705.2 cf = 0.062 af
Overall Storage Efficiency = 57.8%
Overall System Size = 60.30' x 38.12' x 2.04'

624 Chambers
173.5 cy Field
117.4 cy Stone





Summary for Pond 7P: CB

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

Inflow Area = 1.325 ac, 93.64% Impervious, Inflow Depth = 2.60" for 2-yr event
Inflow = 0.45 cfs @ 12.62 hrs, Volume= 0.287 af
Primary = 0.45 cfs @ 12.62 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min
Routed to Reach POI1 : POI#1

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Subcatchment 1: Store Roof

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 1.39"
Routed to Pond 5P : Roof Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
5,262	98	Roofs, HSG A
784	39	>75% Grass cover, Good, HSG A
6,698	39	>75% Grass cover, Good, HSG A
559	98	Paved parking, HSG A
13,303	65	Weighted Average
7,482		56.24% Pervious Area
5,821		43.76% Impervious Area

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

Summary for Subcatchment 2: C-Store Parking

Runoff = 4.41 cfs @ 12.07 hrs, Volume= 0.343 af, Depth= 4.25"
Routed to Pond 3P : SSSF1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
40,368	98	Paved parking, HSG A
136	74	>75% Grass cover, Good, HSG C
1,560	74	>75% Grass cover, Good, HSG C
189	74	>75% Grass cover, Good, HSG C
42,253	97	Weighted Average
1,885		4.46% Pervious Area
40,368		95.54% Impervious Area

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

Summary for Subcatchment 3:

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.02 cfs @ 12.29 hrs, Volume= 0.004 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
281	39	>75% Grass cover, Good, HSG A
635	98	Paved parking, HSG A
6,652	39	>75% Grass cover, Good, HSG A
7,568	44	Weighted Average
6,933		91.61% Pervious Area
635		8.39% Impervious Area

Summary for Subcatchment 4: (new Subcat)

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
2,935	98	Roofs, HSG A
2,935		100.00% Impervious Area

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

Summary for Subcatchment 5: Woods/Lawn

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: Woods/Lawn

Runoff = 0.00 cfs @ 20.90 hrs, Volume= 0.001 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
8,326	30	Woods, Good, HSG A
6,046	39	>75% Grass cover, Good, HSG A
14,372	34	Weighted Average
14,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: Woods/Lawn

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

Runoff = 0.00 cfs @ 20.87 hrs, Volume= 0.001 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
12,831	30	Woods, Good, HSG A
10,847	39	>75% Grass cover, Good, HSG A
23,678	34	Weighted Average
23,678		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 8: Lawn

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

Runoff = 0.00 cfs @ 14.53 hrs, Volume= 0.002 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
6,349	39	>75% Grass cover, Good, HSG A
6,349		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total			

Summary for Subcatchment 9:

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

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.010 af, Depth= 0.84"
Routed to Reach POI1 : POI#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
4,245	39	>75% Grass cover, Good, HSG A
1,652	98	Paved parking, HSG A
380	39	>75% Grass cover, Good, HSG A
228	98	Paved parking, HSG A
6,505	56	Weighted Average
4,625		71.10% Pervious Area
1,880		28.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 10:

Runoff = 0.03 cfs @ 12.29 hrs, Volume= 0.005 af, Depth= 0.40"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
3,751	39	>75% Grass cover, Good, HSG A
1,957	39	>75% Grass cover, Good, HSG A
444	98	Paved parking, HSG A
139	98	Paved parking, HSG A
369	98	Paved parking, HSG A
6,660	47	Weighted Average
5,708		85.71% Pervious Area
952		14.29% Impervious Area

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

Summary for Subcatchment 11: Drive Entrance

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 2.13"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
832	39	>75% Grass cover, Good, HSG A
1,321	39	>75% Grass cover, Good, HSG A
221	39	>75% Grass cover, Good, HSG A
3,674	98	Paved parking, HSG A
6,048	75	Weighted Average
2,374		39.25% Pervious Area
3,674		60.75% Impervious Area

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

Summary for Subcatchment 30: Bank Parking

Runoff = 1.47 cfs @ 12.07 hrs, Volume= 0.106 af, Depth= 3.59"
Routed to Pond 6P : SSSF2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
13,681	98	Paved parking, HSG A
969	39	>75% Grass cover, Good, HSG A
240	39	>75% Grass cover, Good, HSG A
380	39	>75% Grass cover, Good, HSG A
196	39	>75% Grass cover, Good, HSG A
15,466	91	Weighted Average
1,785		11.54% Pervious Area
13,681		88.46% Impervious Area

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

Summary for Reach POI1: POI#1

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

Inflow Area = 1.474 ac, 87.08% Impervious, Inflow Depth = 3.75" for 10-Year event
Inflow = 0.60 cfs @ 12.09 hrs, Volume= 0.460 af
Outflow = 0.60 cfs @ 12.09 hrs, Volume= 0.460 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 0.292 ac, 36.40% Impervious, Inflow Depth = 1.22" for 10-Year event
Inflow = 0.37 cfs @ 12.08 hrs, Volume= 0.030 af
Outflow = 0.37 cfs @ 12.08 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Pond 3P: SSSF1

Inflow Area = 0.970 ac, 95.54% Impervious, Inflow Depth = 4.25" for 10-Year event
Inflow = 4.41 cfs @ 12.07 hrs, Volume= 0.343 af
Outflow = 0.43 cfs @ 12.83 hrs, Volume= 0.343 af, Atten= 90%, Lag= 45.5 min
Primary = 0.43 cfs @ 12.83 hrs, Volume= 0.343 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 11.68' @ 12.83 hrs Surf.Area= 4,163 sf Storage= 5,666 cf

Plug-Flow detention time= 111.4 min calculated for 0.343 af (100% of inflow)
Center-of-Mass det. time= 111.3 min (867.9 - 756.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	2,374 cf	**74.87'W x 55.61'L x 2.69'H Field A** 11,214 cf Overall - 5,279 cf Embedded = 5,934 cf x 40.0% Voids
#2A	10.25'	5,015 cf	**ACF R-Tank HD 1** x 1188 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 1188 Chambers in 54 Rows
		7,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 8.00'

Primary OutFlow Max=0.43 cfs @ 12.83 hrs HW=11.68' (Free Discharge)
1=Exfiltration (Controls 0.43 cfs)

Pond 3P: SSSF1 - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

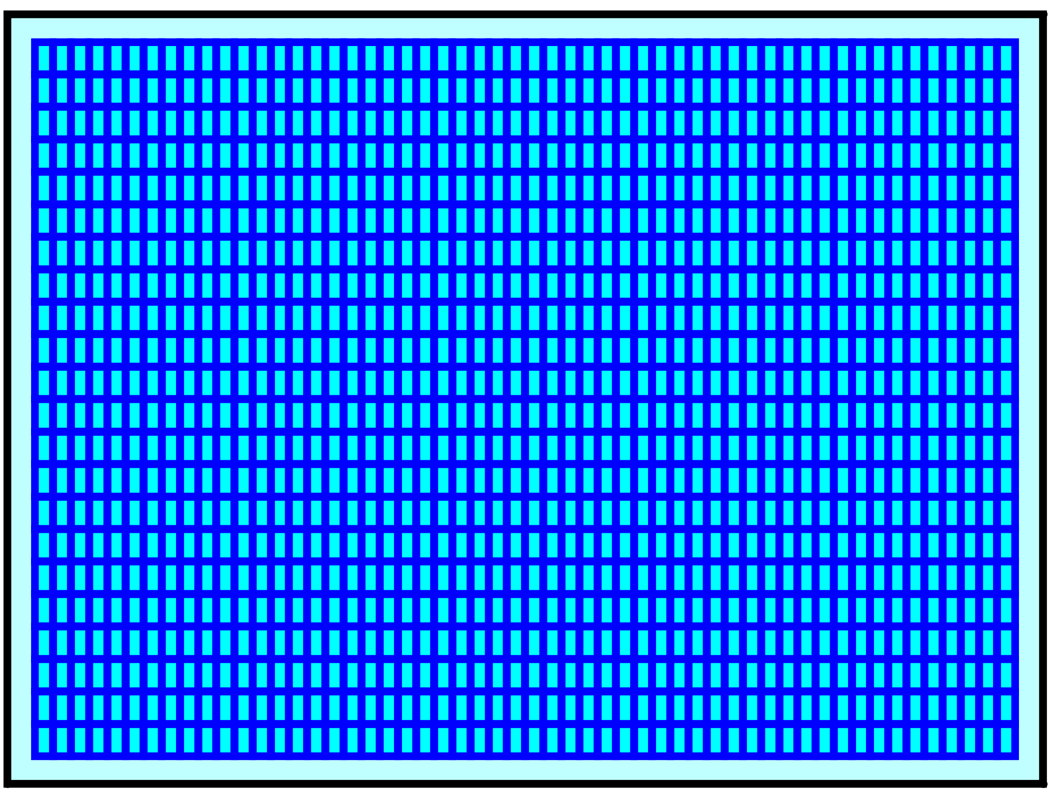
22 Chambers/Row x 2.35' Long = 51.61' Row Length +24.0" End Stone x 2 = 55.61' Base Length
54 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 74.87' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

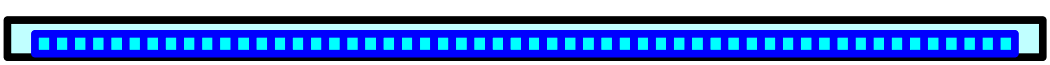
1,188 Chambers x 4.2 cf = 5,015.5 cf Chamber Storage
1,188 Chambers x 4.4 cf = 5,279.5 cf Displacement

11,213.7 cf Field - 5,279.5 cf Chambers = 5,934.2 cf Stone x 40.0% Voids = 2,373.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,389.2 cf = 0.170 af
Overall Storage Efficiency = 65.9%
Overall System Size = 55.61' x 74.87' x 2.69'

1,188 Chambers
415.3 cy Field
219.8 cy Stone





Summary for Pond 5P: Roof Infiltration

Inflow Area = 0.305 ac, 43.76% Impervious, Inflow Depth = 1.39" for 10-Year event
Inflow = 0.48 cfs @ 12.09 hrs, Volume= 0.035 af
Outflow = 0.05 cfs @ 11.80 hrs, Volume= 0.035 af, Atten= 90%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.80 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 295.91' @ 13.46 hrs Surf.Area= 862 sf Storage= 548 cf

Plug-Flow detention time= 106.9 min calculated for 0.035 af (100% of inflow)
Center-of-Mass det. time= 106.9 min (972.2 - 865.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	295.00'	559 cf	**25.00'W x 34.50'L x 2.69'H Field A**
			2,323 cf Overall - 924 cf Embedded = 1,398 cf x 40.0% Voids
#2A	295.25'	878 cf	**ACF R-Tank HD 1** x 208 Inside #1
			Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
			Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf
			208 Chambers in 16 Rows
		1,437 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	295.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.05 cfs @ 11.80 hrs HW=295.03' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Pond 5P: Roof Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

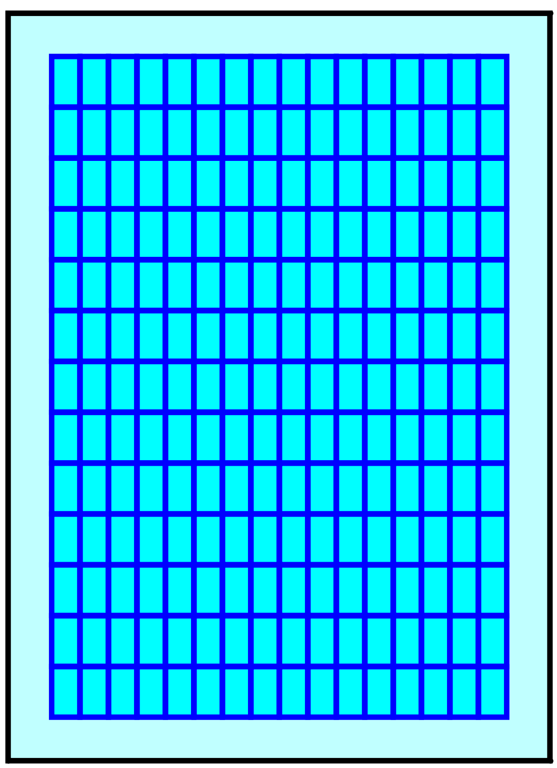
13 Chambers/Row x 2.35' Long = 30.50' Row Length +24.0" End Stone x 2 = 34.50' Base Length
16 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 25.00' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

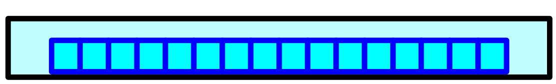
208 Chambers x 4.2 cf = 878.1 cf Chamber Storage
208 Chambers x 4.4 cf = 924.4 cf Displacement

2,322.7 cf Field - 924.4 cf Chambers = 1,398.3 cf Stone x 40.0% Voids = 559.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,437.5 cf = 0.033 af
Overall Storage Efficiency = 61.9%
Overall System Size = 34.50' x 25.00' x 2.69'

208 Chambers
86.0 cy Field
51.8 cy Stone





Summary for Pond 6P: SSSF2

Inflow Area = 0.355 ac, 88.46% Impervious, Inflow Depth = 3.59" for 10-Year event
Inflow = 1.47 cfs @ 12.07 hrs, Volume= 0.106 af
Outflow = 0.13 cfs @ 11.44 hrs, Volume= 0.106 af, Atten= 91%, Lag= 0.0 min
Primary = 0.13 cfs @ 11.44 hrs, Volume= 0.106 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 295.01' @ 12.97 hrs Surf.Area= 2,299 sf Storage= 1,731 cf

Plug-Flow detention time= 103.5 min calculated for 0.106 af (100% of inflow)
Center-of-Mass det. time= 103.5 min (892.2 - 788.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	294.00'	1,268 cf	**38.12'W x 60.30'L x 2.04'H Field A** 4,683 cf Overall - 1,513 cf Embedded = 3,171 cf x 40.0% Voids
#2A	294.25'	1,437 cf	**ACF R-Tank SD 1** x 624 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 624 Chambers in 26 Rows
		2,705 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	294.00'	**2.410 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.13 cfs @ 11.44 hrs HW=294.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Pond 6P: SSSF2 - Chamber Wizard Field A

Chamber Model = ACF R-Tank SD 1 (ACF Environmental R-Tank SD)
Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf
Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf

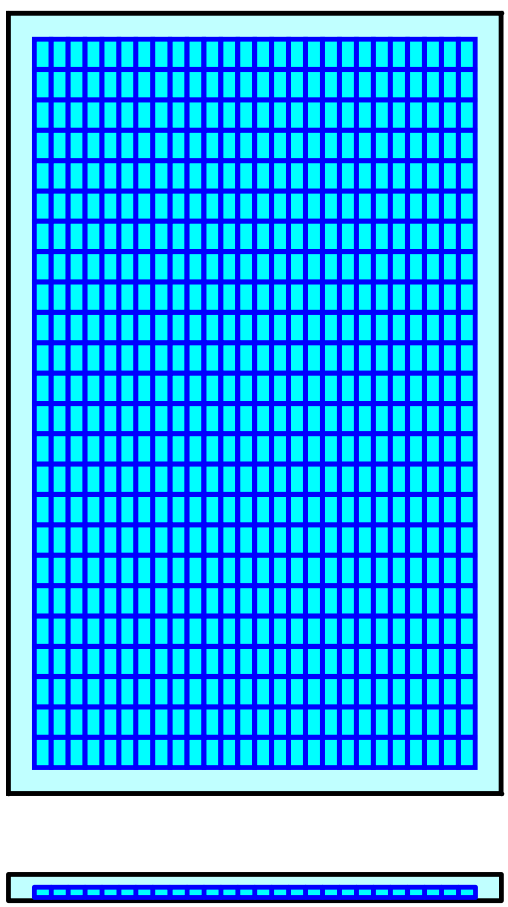
24 Chambers/Row x 2.35' Long = 56.30' Row Length +24.0" End Stone x 2 = 60.30' Base Length
26 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 38.12' Base Width
3.0" Stone Base + 9.4" Chamber Height + 12.0" Stone Cover = 2.04' Field Height

624 Chambers x 2.3 cf = 1,436.9 cf Chamber Storage
624 Chambers x 2.4 cf = 1,512.6 cf Displacement

4,683.3 cf Field - 1,512.6 cf Chambers = 3,170.7 cf Stone x 40.0% Voids = 1,268.3 cf Stone Storage

Chamber Storage + Stone Storage = 2,705.2 cf = 0.062 af
Overall Storage Efficiency = 57.8%
Overall System Size = 60.30' x 38.12' x 2.04'

624 Chambers
173.5 cy Field
117.4 cy Stone



Summary for Pond 7P: CB

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

Inflow Area = 1.325 ac, 93.64% Impervious, Inflow Depth = 4.07" for 10-Year event
Inflow = 0.56 cfs @ 12.83 hrs, Volume= 0.450 af
Primary = 0.56 cfs @ 12.83 hrs, Volume= 0.450 af, Atten= 0%, Lag= 0.0 min
Routed to Reach POI1 : POI#1

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Subcatchment 1: Store Roof

Runoff = 0.81 cfs @ 12.03 hrs, Volume= 0.056 af, Depth= 2.21"
Routed to Pond 5P : Roof Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
5,262	98	Roofs, HSG A
784	39	>75% Grass cover, Good, HSG A
6,698	39	>75% Grass cover, Good, HSG A
559	98	Paved parking, HSG A
13,303	65	Weighted Average
7,482		56.24% Pervious Area
5,821		43.76% Impervious Area

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

Summary for Subcatchment 2: C-Store Parking

Runoff = 5.87 cfs @ 12.02 hrs, Volume= 0.440 af, Depth= 5.44"
Routed to Pond 3P : SSSF1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
40,368	98	Paved parking, HSG A
136	74	>75% Grass cover, Good, HSG C
1,560	74	>75% Grass cover, Good, HSG C
189	74	>75% Grass cover, Good, HSG C
42,253	97	Weighted Average
1,885		4.46% Pervious Area
40,368		95.54% Impervious Area

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

Summary for Subcatchment 3:

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.07 cfs @ 11.99 hrs, Volume= 0.010 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
281	39	>75% Grass cover, Good, HSG A
635	98	Paved parking, HSG A
6,652	39	>75% Grass cover, Good, HSG A
7,568	44	Weighted Average
6,933		91.61% Pervious Area
635		8.39% Impervious Area

Summary for Subcatchment 4: (new Subcat)

Runoff = 0.41 cfs @ 12.02 hrs, Volume= 0.031 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
2,935	98	Roofs, HSG A
2,935		100.00% Impervious Area

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

Summary for Subcatchment 5: Woods/Lawn

Runoff = 0.00 cfs @ 23.96 hrs, Volume= 0.000 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: Woods/Lawn

Runoff = 0.01 cfs @ 17.44 hrs, Volume= 0.005 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
8,326	30	Woods, Good, HSG A
6,046	39	>75% Grass cover, Good, HSG A
14,372	34	Weighted Average
14,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: Woods/Lawn

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

Runoff = 0.01 cfs @ 17.40 hrs, Volume= 0.008 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
12,831	30	Woods, Good, HSG A
10,847	39	>75% Grass cover, Good, HSG A
23,678	34	Weighted Average
23,678		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 8: Lawn

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

Runoff = 0.01 cfs @ 12.32 hrs, Volume= 0.005 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
6,349	39	>75% Grass cover, Good, HSG A
6,349		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total			

Summary for Subcatchment 9:

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

Runoff = 0.26 cfs @ 12.01 hrs, Volume= 0.018 af, Depth= 1.48"
Routed to Reach POI1 : POI#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
4,245	39	>75% Grass cover, Good, HSG A
1,652	98	Paved parking, HSG A
380	39	>75% Grass cover, Good, HSG A
228	98	Paved parking, HSG A
6,505	56	Weighted Average
4,625		71.10% Pervious Area
1,880		28.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 10:

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.011 af, Depth= 0.85"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
3,751	39	>75% Grass cover, Good, HSG A
1,957	39	>75% Grass cover, Good, HSG A
444	98	Paved parking, HSG A
139	98	Paved parking, HSG A
369	98	Paved parking, HSG A
6,660	47	Weighted Average
5,708		85.71% Pervious Area
952		14.29% Impervious Area

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

Summary for Subcatchment 11: Drive Entrance

Runoff = 0.54 cfs @ 12.03 hrs, Volume= 0.036 af, Depth= 3.11"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
832	39	>75% Grass cover, Good, HSG A
1,321	39	>75% Grass cover, Good, HSG A
221	39	>75% Grass cover, Good, HSG A
3,674	98	Paved parking, HSG A
6,048	75	Weighted Average
2,374		39.25% Pervious Area
3,674		60.75% Impervious Area

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

Summary for Subcatchment 30: Bank Parking

Runoff = 2.01 cfs @ 12.02 hrs, Volume= 0.141 af, Depth= 4.76"
Routed to Pond 6P : SSSF2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
13,681	98	Paved parking, HSG A
969	39	>75% Grass cover, Good, HSG A
240	39	>75% Grass cover, Good, HSG A
380	39	>75% Grass cover, Good, HSG A
196	39	>75% Grass cover, Good, HSG A
15,466	91	Weighted Average
1,785		11.54% Pervious Area
13,681		88.46% Impervious Area

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

Summary for Reach POI1: POI#1

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

Inflow Area = 1.474 ac, 87.08% Impervious, Inflow Depth = 4.88" for 25-yr event
Inflow = 0.73 cfs @ 12.01 hrs, Volume= 0.599 af
Outflow = 0.73 cfs @ 12.01 hrs, Volume= 0.599 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 0.292 ac, 36.40% Impervious, Inflow Depth = 1.93" for 25-yr event
Inflow = 0.63 cfs @ 12.03 hrs, Volume= 0.047 af
Outflow = 0.63 cfs @ 12.03 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Pond 3P: SSSF1

Inflow Area = 0.970 ac, 95.54% Impervious, Inflow Depth = 5.44" for 25-yr event
Inflow = 5.87 cfs @ 12.02 hrs, Volume= 0.440 af
Outflow = 0.44 cfs @ 12.98 hrs, Volume= 0.440 af, Atten= 93%, Lag= 57.7 min
Primary = 0.44 cfs @ 12.98 hrs, Volume= 0.440 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 11.75' @ 12.98 hrs Surf.Area= 4,163 sf Storage= 5,820 cf

Plug-Flow detention time= 107.6 min calculated for 0.440 af (100% of inflow)
Center-of-Mass det. time= 107.5 min (862.2 - 754.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	2,374 cf	**74.87'W x 55.61'L x 2.69'H Field A** 11,214 cf Overall - 5,279 cf Embedded = 5,934 cf x 40.0% Voids
#2A	10.25'	5,015 cf	**ACF R-Tank HD 1** x 1188 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 1188 Chambers in 54 Rows
		7,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 8.00'

Primary OutFlow Max=0.44 cfs @ 12.98 hrs HW=11.75' (Free Discharge)
1=Exfiltration (Controls 0.44 cfs)

Pond 3P: SSSF1 - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

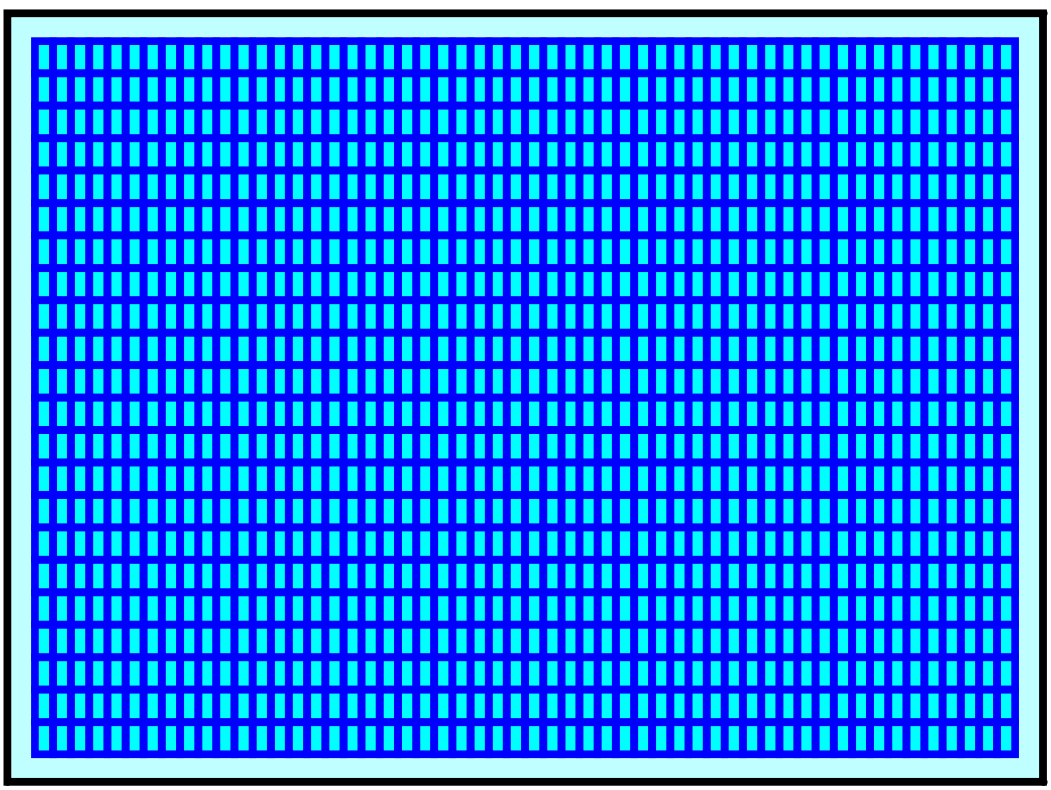
22 Chambers/Row x 2.35' Long = 51.61' Row Length +24.0" End Stone x 2 = 55.61' Base Length
54 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 74.87' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

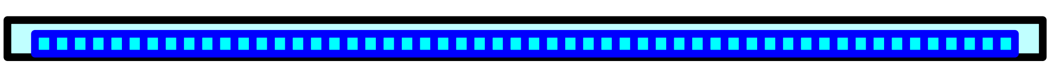
1,188 Chambers x 4.2 cf = 5,015.5 cf Chamber Storage
1,188 Chambers x 4.4 cf = 5,279.5 cf Displacement

11,213.7 cf Field - 5,279.5 cf Chambers = 5,934.2 cf Stone x 40.0% Voids = 2,373.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,389.2 cf = 0.170 af
Overall Storage Efficiency = 65.9%
Overall System Size = 55.61' x 74.87' x 2.69'

1,188 Chambers
415.3 cy Field
219.8 cy Stone





Summary for Pond 5P: Roof Infiltration

Inflow Area = 0.305 ac, 43.76% Impervious, Inflow Depth = 2.21" for 25-yr event
Inflow = 0.81 cfs @ 12.03 hrs, Volume= 0.056 af
Outflow = 0.05 cfs @ 11.52 hrs, Volume= 0.056 af, Atten= 94%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.52 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 296.31' @ 14.41 hrs Surf.Area= 862 sf Storage= 823 cf

Plug-Flow detention time= 175.2 min calculated for 0.056 af (100% of inflow)
Center-of-Mass det. time= 175.1 min (1,066.3 - 891.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	295.00'	559 cf	**25.00'W x 34.50'L x 2.69'H Field A** 2,323 cf Overall - 924 cf Embedded = 1,398 cf x 40.0% Voids
#2A	295.25'	878 cf	**ACF R-Tank HD 1** x 208 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 208 Chambers in 16 Rows
		1,437 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	295.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.05 cfs @ 11.52 hrs HW=295.03' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Pond 5P: Roof Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

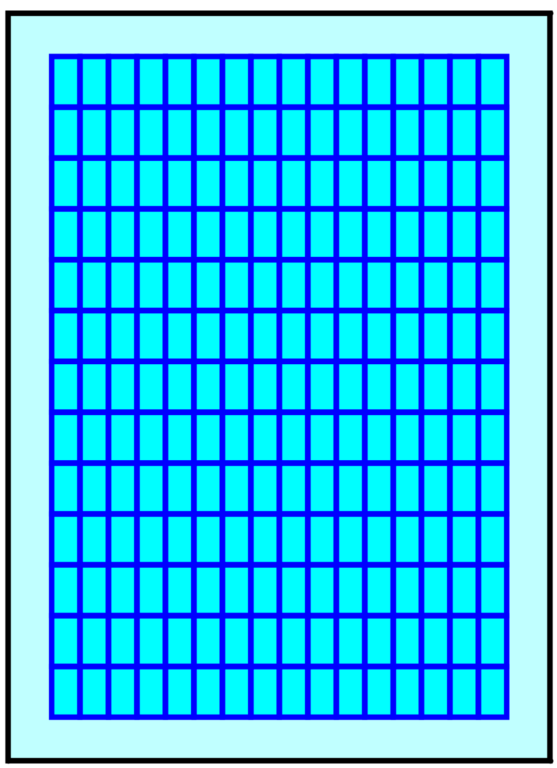
13 Chambers/Row x 2.35' Long = 30.50' Row Length +24.0" End Stone x 2 = 34.50' Base Length
16 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 25.00' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

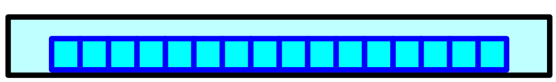
208 Chambers x 4.2 cf = 878.1 cf Chamber Storage
208 Chambers x 4.4 cf = 924.4 cf Displacement

2,322.7 cf Field - 924.4 cf Chambers = 1,398.3 cf Stone x 40.0% Voids = 559.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,437.5 cf = 0.033 af
Overall Storage Efficiency = 61.9%
Overall System Size = 34.50' x 25.00' x 2.69'

208 Chambers
86.0 cy Field
51.8 cy Stone





Summary for Pond 6P: SSSF2

Inflow Area = 0.355 ac, 88.46% Impervious, Inflow Depth = 4.76" for 25-yr event
Inflow = 2.01 cfs @ 12.02 hrs, Volume= 0.141 af
Outflow = 0.13 cfs @ 11.08 hrs, Volume= 0.141 af, Atten= 94%, Lag= 0.0 min
Primary = 0.13 cfs @ 11.08 hrs, Volume= 0.141 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 295.08' @ 13.30 hrs Surf.Area= 2,299 sf Storage= 1,829 cf

Plug-Flow detention time= 102.4 min calculated for 0.141 af (100% of inflow)
Center-of-Mass det. time= 102.3 min (895.3 - 793.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	294.00'	1,268 cf	**38.12'W x 60.30'L x 2.04'H Field A** 4,683 cf Overall - 1,513 cf Embedded = 3,171 cf x 40.0% Voids
#2A	294.25'	1,437 cf	**ACF R-Tank SD 1** x 624 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 624 Chambers in 26 Rows
		2,705 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	294.00'	**2.410 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.13 cfs @ 11.08 hrs HW=294.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Pond 6P: SSSF2 - Chamber Wizard Field A

Chamber Model = ACF R-Tank SD 1 (ACF Environmental R-Tank SD)
Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf
Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf

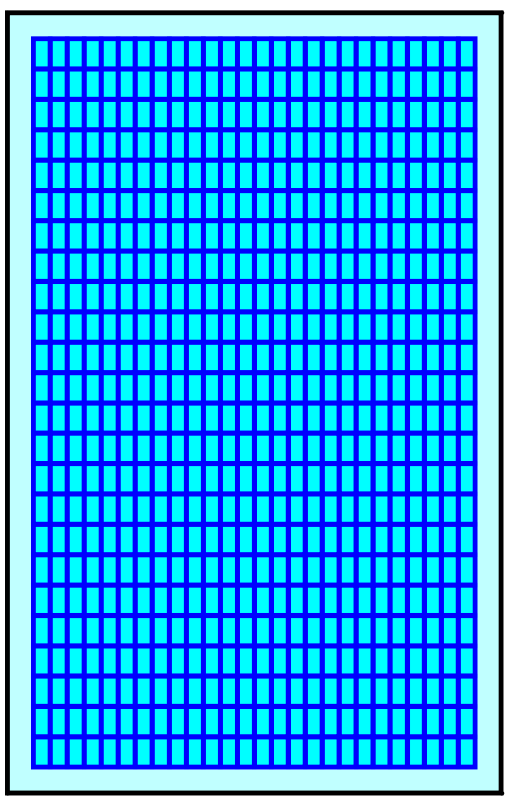
24 Chambers/Row x 2.35' Long = 56.30' Row Length +24.0" End Stone x 2 = 60.30' Base Length
26 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 38.12' Base Width
3.0" Stone Base + 9.4" Chamber Height + 12.0" Stone Cover = 2.04' Field Height

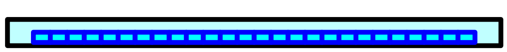
624 Chambers x 2.3 cf = 1,436.9 cf Chamber Storage
624 Chambers x 2.4 cf = 1,512.6 cf Displacement

4,683.3 cf Field - 1,512.6 cf Chambers = 3,170.7 cf Stone x 40.0% Voids = 1,268.3 cf Stone Storage

Chamber Storage + Stone Storage = 2,705.2 cf = 0.062 af
Overall Storage Efficiency = 57.8%
Overall System Size = 60.30' x 38.12' x 2.04'

624 Chambers
173.5 cy Field
117.4 cy Stone





Summary for Pond 7P: CB

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

Inflow Area = 1.325 ac, 93.64% Impervious, Inflow Depth = 5.26" for 25-yr event
Inflow = 0.56 cfs @ 12.98 hrs, Volume= 0.581 af
Primary = 0.56 cfs @ 12.98 hrs, Volume= 0.581 af, Atten= 0%, Lag= 0.0 min
Routed to Reach POI1 : POI#1

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Subcatchment 1: Store Roof

Runoff = 1.14 cfs @ 12.03 hrs, Volume= 0.077 af, Depth= 3.03"
Routed to Pond 5P : Roof Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
5,262	98	Roofs, HSG A
784	39	>75% Grass cover, Good, HSG A
6,698	39	>75% Grass cover, Good, HSG A
559	98	Paved parking, HSG A
13,303	65	Weighted Average
7,482		56.24% Pervious Area
5,821		43.76% Impervious Area

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

Summary for Subcatchment 2: C-Store Parking

Runoff = 7.01 cfs @ 12.02 hrs, Volume= 0.529 af, Depth= 6.54"
Routed to Pond 3P : SSSF1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
40,368	98	Paved parking, HSG A
136	74	>75% Grass cover, Good, HSG C
1,560	74	>75% Grass cover, Good, HSG C
189	74	>75% Grass cover, Good, HSG C
42,253	97	Weighted Average
1,885		4.46% Pervious Area
40,368		95.54% Impervious Area

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

Summary for Subcatchment 3:

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.19 cfs @ 11.97 hrs, Volume= 0.016 af, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
281	39	>75% Grass cover, Good, HSG A
635	98	Paved parking, HSG A
6,652	39	>75% Grass cover, Good, HSG A
7,568	44	Weighted Average
6,933		91.61% Pervious Area
635		8.39% Impervious Area

Summary for Subcatchment 4: (new Subcat)

Runoff = 0.49 cfs @ 12.02 hrs, Volume= 0.037 af, Depth= 6.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
2,935	98	Roofs, HSG A
2,935		100.00% Impervious Area

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

Summary for Subcatchment 5: Woods/Lawn

Runoff = 0.00 cfs @ 18.04 hrs, Volume= 0.001 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: Woods/Lawn

Runoff = 0.02 cfs @ 12.52 hrs, Volume= 0.011 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
8,326	30	Woods, Good, HSG A
6,046	39	>75% Grass cover, Good, HSG A
14,372	34	Weighted Average
14,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: Woods/Lawn

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

Runoff = 0.03 cfs @ 12.41 hrs, Volume= 0.018 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
12,831	30	Woods, Good, HSG A
10,847	39	>75% Grass cover, Good, HSG A
23,678	34	Weighted Average
23,678		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 8: Lawn

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

Runoff = 0.05 cfs @ 12.02 hrs, Volume= 0.009 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
6,349	39	>75% Grass cover, Good, HSG A
6,349		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total			

Summary for Subcatchment 9:

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

Runoff = 0.41 cfs @ 12.00 hrs, Volume= 0.027 af, Depth= 2.15"
Routed to Reach POI1 : POI#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
4,245	39	>75% Grass cover, Good, HSG A
1,652	98	Paved parking, HSG A
380	39	>75% Grass cover, Good, HSG A
228	98	Paved parking, HSG A
6,505	56	Weighted Average
4,625		71.10% Pervious Area
1,880		28.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 10:

Runoff = 0.20 cfs @ 12.04 hrs, Volume= 0.017 af, Depth= 1.35"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
3,751	39	>75% Grass cover, Good, HSG A
1,957	39	>75% Grass cover, Good, HSG A
444	98	Paved parking, HSG A
139	98	Paved parking, HSG A
369	98	Paved parking, HSG A
6,660	47	Weighted Average
5,708		85.71% Pervious Area
952		14.29% Impervious Area

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

Summary for Subcatchment 11: Drive Entrance

Runoff = 0.70 cfs @ 12.03 hrs, Volume= 0.047 af, Depth= 4.06"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
832	39	>75% Grass cover, Good, HSG A
1,321	39	>75% Grass cover, Good, HSG A
221	39	>75% Grass cover, Good, HSG A
3,674	98	Paved parking, HSG A
6,048	75	Weighted Average
2,374		39.25% Pervious Area
3,674		60.75% Impervious Area

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

Summary for Subcatchment 30: Bank Parking

Runoff = 2.44 cfs @ 12.02 hrs, Volume= 0.173 af, Depth= 5.84"
Routed to Pond 6P : SSSF2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr 50-yr Rainfall=6.90"

Area (sf)	CN	Description
13,681	98	Paved parking, HSG A
969	39	>75% Grass cover, Good, HSG A
240	39	>75% Grass cover, Good, HSG A
380	39	>75% Grass cover, Good, HSG A
196	39	>75% Grass cover, Good, HSG A
15,466	91	Weighted Average
1,785		11.54% Pervious Area
13,681		88.46% Impervious Area

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

Summary for Reach POI1: POI#1

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

Inflow Area = 1.474 ac, 87.08% Impervious, Inflow Depth = 5.93" for 50-yr event
Inflow = 0.90 cfs @ 12.01 hrs, Volume= 0.728 af
Outflow = 0.90 cfs @ 12.01 hrs, Volume= 0.728 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 0.292 ac, 36.40% Impervious, Inflow Depth = 2.64" for 50-yr event
Inflow = 0.90 cfs @ 12.03 hrs, Volume= 0.064 af
Outflow = 0.90 cfs @ 12.03 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Pond 3P: SSSF1

Inflow Area = 0.970 ac, 95.54% Impervious, Inflow Depth = 6.54" for 50-yr event
Inflow = 7.01 cfs @ 12.02 hrs, Volume= 0.529 af
Outflow = 0.54 cfs @ 12.93 hrs, Volume= 0.529 af, Atten= 92%, Lag= 54.7 min
Primary = 0.54 cfs @ 12.93 hrs, Volume= 0.529 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 12.64' @ 12.93 hrs Surf.Area= 4,163 sf Storage= 7,294 cf

Plug-Flow detention time= 126.0 min calculated for 0.528 af (100% of inflow)
Center-of-Mass det. time= 125.9 min (876.7 - 750.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	2,374 cf	**74.87'W x 55.61'L x 2.69'H Field A** 11,214 cf Overall - 5,279 cf Embedded = 5,934 cf x 40.0% Voids
#2A	10.25'	5,015 cf	**ACF R-Tank HD 1** x 1188 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 1188 Chambers in 54 Rows
		7,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 8.00'

Primary OutFlow Max=0.54 cfs @ 12.93 hrs HW=12.64' (Free Discharge)
└─**1=Exfiltration** (Controls 0.54 cfs)

Pond 3P: SSSF1 - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

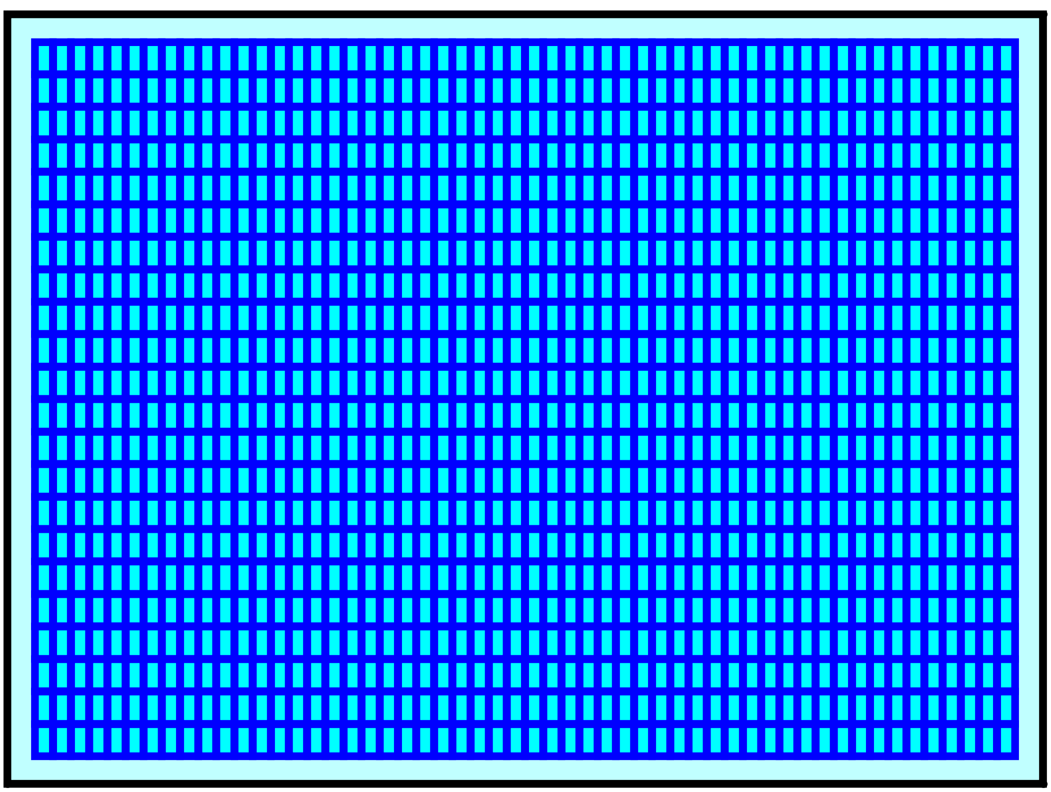
22 Chambers/Row x 2.35' Long = 51.61' Row Length +24.0" End Stone x 2 = 55.61' Base Length
54 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 74.87' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

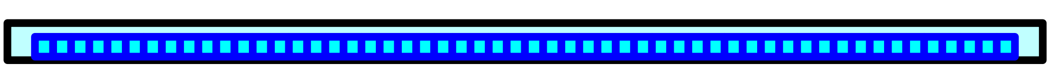
1,188 Chambers x 4.2 cf = 5,015.5 cf Chamber Storage
1,188 Chambers x 4.4 cf = 5,279.5 cf Displacement

11,213.7 cf Field - 5,279.5 cf Chambers = 5,934.2 cf Stone x 40.0% Voids = 2,373.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,389.2 cf = 0.170 af
Overall Storage Efficiency = 65.9%
Overall System Size = 55.61' x 74.87' x 2.69'

1,188 Chambers
415.3 cy Field
219.8 cy Stone





Summary for Pond 5P: Roof Infiltration

Inflow Area = 0.305 ac, 43.76% Impervious, Inflow Depth = 3.03" for 50-yr event
Inflow = 1.14 cfs @ 12.03 hrs, Volume= 0.077 af
Outflow = 0.05 cfs @ 11.16 hrs, Volume= 0.077 af, Atten= 96%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.16 hrs, Volume= 0.077 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 297.49' @ 15.87 hrs Surf.Area= 862 sf Storage= 1,367 cf

Plug-Flow detention time= 307.2 min calculated for 0.077 af (100% of inflow)
Center-of-Mass det. time= 307.3 min (1,185.5 - 878.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	295.00'	559 cf	**25.00'W x 34.50'L x 2.69'H Field A** 2,323 cf Overall - 924 cf Embedded = 1,398 cf x 40.0% Voids
#2A	295.25'	878 cf	**ACF R-Tank HD 1** x 208 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 208 Chambers in 16 Rows
		1,437 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	295.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.05 cfs @ 11.16 hrs HW=295.03' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Pond 5P: Roof Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

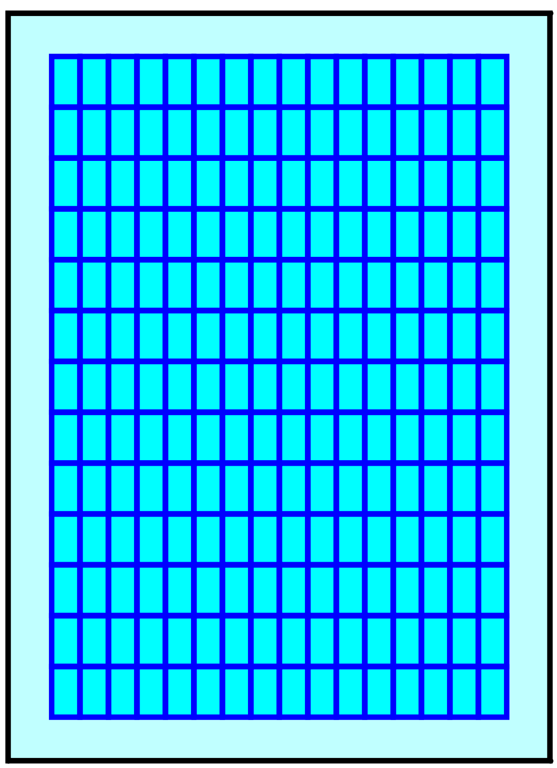
13 Chambers/Row x 2.35' Long = 30.50' Row Length +24.0" End Stone x 2 = 34.50' Base Length
16 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 25.00' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

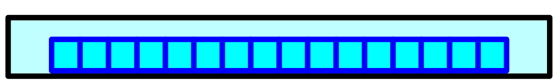
208 Chambers x 4.2 cf = 878.1 cf Chamber Storage
208 Chambers x 4.4 cf = 924.4 cf Displacement

2,322.7 cf Field - 924.4 cf Chambers = 1,398.3 cf Stone x 40.0% Voids = 559.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,437.5 cf = 0.033 af
Overall Storage Efficiency = 61.9%
Overall System Size = 34.50' x 25.00' x 2.69'

208 Chambers
86.0 cy Field
51.8 cy Stone





Summary for Pond 6P: SSSF2

Inflow Area = 0.355 ac, 88.46% Impervious, Inflow Depth = 5.84" for 50-yr event
Inflow = 2.44 cfs @ 12.02 hrs, Volume= 0.173 af
Outflow = 0.13 cfs @ 10.72 hrs, Volume= 0.173 af, Atten= 95%, Lag= 0.0 min
Primary = 0.13 cfs @ 10.72 hrs, Volume= 0.173 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 295.79' @ 13.73 hrs Surf.Area= 2,299 sf Storage= 2,477 cf

Plug-Flow detention time= 151.9 min calculated for 0.173 af (100% of inflow)
Center-of-Mass det. time= 151.7 min (937.6 - 785.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	294.00'	1,268 cf	**38.12'W x 60.30'L x 2.04'H Field A** 4,683 cf Overall - 1,513 cf Embedded = 3,171 cf x 40.0% Voids
#2A	294.25'	1,437 cf	**ACF R-Tank SD 1** x 624 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 624 Chambers in 26 Rows
		2,705 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	294.00'	**2.410 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.13 cfs @ 10.72 hrs HW=294.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Pond 6P: SSSF2 - Chamber Wizard Field A

Chamber Model = ACF R-Tank SD 1 (ACF Environmental R-Tank SD)
Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf
Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf

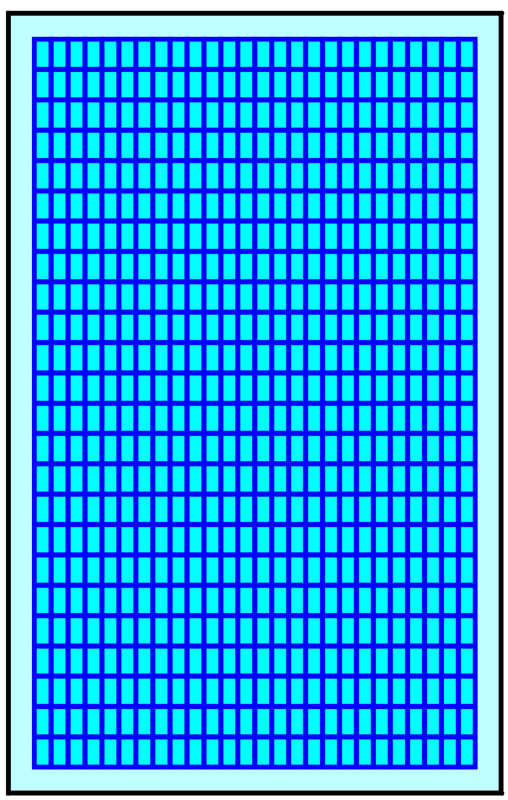
24 Chambers/Row x 2.35' Long = 56.30' Row Length +24.0" End Stone x 2 = 60.30' Base Length
26 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 38.12' Base Width
3.0" Stone Base + 9.4" Chamber Height + 12.0" Stone Cover = 2.04' Field Height

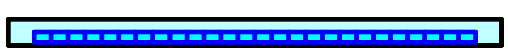
624 Chambers x 2.3 cf = 1,436.9 cf Chamber Storage
624 Chambers x 2.4 cf = 1,512.6 cf Displacement

4,683.3 cf Field - 1,512.6 cf Chambers = 3,170.7 cf Stone x 40.0% Voids = 1,268.3 cf Stone Storage

Chamber Storage + Stone Storage = 2,705.2 cf = 0.062 af
Overall Storage Efficiency = 57.8%
Overall System Size = 60.30' x 38.12' x 2.04'

624 Chambers
173.5 cy Field
117.4 cy Stone





Summary for Pond 7P: CB

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

Inflow Area = 1.325 ac, 93.64% Impervious, Inflow Depth = 6.35" for 50-yr event
Inflow = 0.67 cfs @ 12.93 hrs, Volume= 0.702 af
Primary = 0.67 cfs @ 12.93 hrs, Volume= 0.702 af, Atten= 0%, Lag= 0.0 min
Routed to Reach POI1 : POI#1

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Memorandum

To: Planning Board

Re: Planning Board Agenda Item # 6: Rusty Lantern Site Plan Review

From: Carla Nixon, Town Planner

Date: February 15, 2024

This is the first review for the proposed Rusty Lantern Market and bank to be located at the corner of Rt. 100 and Skillin Road.

This application is not ready for approval at this meeting, so the findings of fact are incomplete. I recommend the Board hear the presentation, ask questions, hold the public hearing, consider and act on the requested waivers, and then table the application.

While I have not had anyone reach out to me to comment on this project, I anticipate there will be residents at the meeting as there is concern about the safety of the gas tanks being located above the aquifer. A full hydrogeologic Report was submitted but has not had a peer review yet as that would require a hydrogeologist review the plan. Gorrill Palmer has done the peer review for the rest of the application.

Date: February 20, 2024
To: Town of Cumberland Planning Board
From: Carla Nixon, Town Planner
Subject: Site Plan Review: Rusty Lantern Convenience Store with Bank Drive-Through

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REQUEST/PROJECT DESCRIPTION:

The applicant is the Cumberland Real Estate Group, LLC. The development will affect all of Tax Map U19, Lot 12 - owned by Ronald Copp, Sr. and Ronald Copp, Jr., and a portion of Tax Map U 19, Lot 13 owned by Ronald Copp, Sr., Howell Copp and Jerald Copp, Jr. The total developed area will be 1.87 acres. There is a purchase and sale agreement dated March 14, 2023, on file. The request is for site plan review and approval for a 5,038-sf. convenience store with fuel pumps and a 2,935-sf bank with drive through to be located at 181 Gray Rd. in the Village Center Commercial (VCC) zoning district.

The applicant is represented by Curtis Neufeld, P.E., Priority Real Estate Group.

The project is being reviewed for conformance with Chapter 229, Site Plan Ordinance and the Route 100 Design Standards.

DEPARTMENT HEAD REVIEWS:

Dan Small, Fire Chief:

1) An ambulance trying to go through one of the drive through lanes when a person is in the process of making a transaction does not work.
    a. There would be a delay with the vehicle making the transaction and even longer if another vehicle is in line and can't move until the first vehicle moves.
    b. If the car moves prior to receiving the money/receipt/ATM card there would be a liability to the Town if the money is taken by another person or it blows away in the wind.
2) With two people on the ambulance(one driving/one performing patient care) there would be nobody to assist with backing the vehicle up to make sure there are no vehicles/pedestrians to the rear of the ambulance.
3) The turning radius you show on the updated drawing will likely be further restricted with snowbanks when they are not immediately cleared during/after a storm.
4) Curbing and/or bollard(s) would be a concern with trying to make a tight turn through the non-drive through lane. Can the island be shortened?

Charles Rumsey, Police Chief: No comments.

OUTSIDE AGENCY REVIEWS:

Maine DEP: Stormwater Permit by Rule Required. Outstanding.
Maine DOT: Traffic Movement Permit. Outstanding.

REQUESTED WAIVERS

1. High intensity soils survey.
2. ~~Hydrogeologic evaluation.~~
3. ~~Traffic study.~~
4. Market study.

TOWN ENGINEER'S REVIEW:

Doug Reynold, PE, Gorrill Palmer Engineers, February 12, 2024:

As requested by the Town, Gorrill Palmer has conducted an Engineering Peer Review for the above referenced project. Information received for this assignment included:

- Site Plan Application, dated January 29, 2024, prepared by Priority Real Estate Group, LLC on behalf of Cumberland Property Holdings, LLC, consisting of 509 pages
- Drawing Set, dated January, 2024, prepared by Priority Real Estate Group, LLC consisting of 32 drawings.
- Revised Site Plan Application form and Stormwater Management Report received February 12, 2024 prepared by Priority Real Estate Group, LLC.
- Revised Drawing Set, received February 12, 2024, prepared by Priority Real Estate Group, LLC consisting of 21 drawings.

Based on our review of this information, general engineering principles and the Town of Cumberland Zoning Ordinance, we offer the following comments related to the engineering and design aspects of this project. As there are substantial comments to follow, Gorrill Palmer reserves the right to provide additional comments on future submissions.

Site Plan Application:

1. As stated in the Application, two waivers were requested:
   a. High Intensity soil survey
   b. Market Study

   GP has no objections to the granting of waivers for items above from an engineering perspective based on the scale and nature of the project.
2. Survey does not show existing internal lot line. Please clarify if the lots are going to be combined, or remain the same.
3. Are there any environmental permitting requirements associated with this project? Specifically, regarding the underground propane tanks.
4. Is this for Cumberland Real Estate Group, LLC or Cumberland Property Holdings, LLC? Please clarify as both are discussed.
5. Attachment A – Application form & Checklists
   a. Application form states no deed restrictions or easements, however there is a 25' easement for Route 100. Please show this easement along the site's frontage.
   b. Please provide applicable sign information.
   c. Has the Fire/EMS Department reviewed for compliance with Town & State requirements for fire and alarm systems?
   d. Proposed disturbance exceeds 1 acre, has a MDEP general construction (stormwater) permit been applied for?
   e. Please provide a signed copy of the application form.

Ordinance Compliance:

6. Chapter 229 Section 10.B
   a. The cover letter states *"the site has been designed to accommodate fuel tankers and emergency vehicles"*
      Comment: The tanker movement appears to go through the parking spaces located at the center of the site. Based on review of the Town Ordinances, it appears only 28 and 17 parking spaces are required for the gas station and bank respectively. The proposed site has 37 and 24 parking spaces for

the gas station and bank respectively. It may be advisable to remove these parking spaces to prevent conflicts with parked cars. Has the Fire Department reviewed these plans? A turnaround area for the fire truck does not appear feasible.

   b. The cover letter states *"Entrances have been reviewed by MaineDOT and Gorrill-Palmer"*.
   Comment: MaineDOT doesn't allow slopes exceeding 4% within 6' of the gutter line. Slopes also exceed the maximum allowed by the ordinances, please revise.
   c. Section (1)(h)[2] states "*No use which generates 100 or more vehicle trips per day shall have more than two points of entry from and two points of egress to a single roadway. The combined width of all accessways must not exceed 60 feet."*.
   Comment: The combined width appears to be 62 feet, please revise or request a waiver of this section.
   d. Section (2)(a) states; *"Private entrances/exits must be located at least 50 feet from the closest unsignalized intersection and 150 feet from the closest signalized intersection, as measured from the point of tangency for the corner to the point of tangency for the accessway. This requirement may be reduced if the shape of the site does not allow conformance with this standard."*
   Comment: It appears that the entrance on Skillin Road may be within 50' of the point of tangency for the roundabout, a waiver should be requested for this.
   e. Section (4) states *"Parking lots on adjoining lots may be connected by accessways not exceeding 24 feet in width."*
   Comment: The access way appears to be 32 feet, please revise or request a waiver of this section.
7. Chapter 229 Section 10.D
   a. **Comment:** There is a hydrant at the corner of Rt 100 and Skillin Rd that will be used for fire protection, has the fire department reviewed these plans and concurred that the fire hydrant is close enough to the bank?
   b. **Comment:** Please provide ability to serve letters from the water district.
8. Chapter 229 Section 10.E
   a. **Comment:** All nearby wells should be depicted on the site plans.
   b. The hydrogeological report prepared and stamped by Sevee & Maher dated January 2024 states "the Site is suitable for the proposed storage of refined petroleum products". GP has no objections to the findings in this report.

Supporting Documents:

9. Attachment E – Supporting Documents
   a. HHE200 Applications should be signed by the owner/applicant.
10. Attachment F – Supporting Graphics
    a. **Comment:** What is the intent of the signing plan? Some items depicted on the signing plan do not appear in the plan set. Please note which signs are to be provided by the Town (if any).
11. Attachment G – Financial and Technical Capacity
    a. Letter states that the applicant has the financial capability up to $6,000,000, please confirm this is adequate for the project.
12. Attachment I – Storwmater Management Report
    a. As there are substantial comments to follow, Gorrill Palmer reserves the right to provide additional comments on future submissions.
    b. **Comment:** Please provide a statement from the MaineDEP that an Individual Stormwater Law Permit is not required for this project.
    c. **Comment:** Roof drip edge treatment measures are mentioned throughout the report, but this is not shown on plans/modeling. Additionally, there appears to be three SSSFs instead of two that are mentioned in the report.
    d. **Comment:** The report states that 1.36 acres or 63,190 s.f. of impervious area is being treated, please check conversions.
    e. **Comment:** Please provide BMP sizing calculations, including isolator rows.
    f. **Comment:** Please provide a letter from the Manufacturer stating the BMPs have been sized and designed in accordance with MaineDEP and the Manufacturer's requirements.
    g. **Comment:** Please describe the points of analysis in the report.

h. **Comment:** Provide narrative and details on how outflow is being controlled to ensure a 24-48 hour release time.
i. **Comment:** Please show test pits on plans and provide a narrative on the results of the test pits in the stormwater report discussing; separation from seasonal high water table, bedrock, and if proposing infiltration, permeability of the underlying soils and if underlying soils need to be amended to meet MaineDEP permeability rates.
j. **Comment:** Please note if impermeable liners or infiltration are proposed for each system in the report and plans.
k. **Comment:** Please review to make sure existing and proposed impervious/developed areas noted on the plans are consistent with the stormwater report. Without spot grades showing the breaks in subcatchments, it is difficult to review these areas.
l. **Comment:** For all ponds, please provide inverts & elevations that match the plans.
m. **Comment:** Please discuss overflow measures for SSSF#1 that will allow it to drain without flooding the roadway or building should the system becomes clogged.
n. **Comment:** Please stamp the stormwater report.

<u>Site Plans</u>

13. C2
    a. Please show existing lot lines for the development.
14. C3
    a. Please provide dimensions of proposed buildings.
    b. Please confirm the site is decreasing impervious area by 0.61 acres & update General Note 8 if needed.
    c. Concerns with midblock crossing for Route 100. Doesn't appear to coincide with roundabout and could potentially be dangerous with Driveway.
15. C4
    a. Please show the location and dimensions of the underground petroleum storage tanks to confirm there are no conflicts with other site features.

16. C5
    a. § 229-10.B.(c) states "The grade of any proposed drive or street must be not more than +3% for a minimum of two car lengths, or 40 feet, from the intersection." The proposed grades appear to exceed 5% at entrances, please revise.
    b. Please provide adequate spot grades to match the subcatchment boundaries in the stormwater analysis.
    c. Please review spot grades throughout, localized areas exceeding a 10% slope were noticed.
17. L1
    a. Please review proposed landscaping plan, the layout does not match the layout from the rest of the set.
    b. Confirm plantings will not affect stormwater management facilities.
    c. Please verify if plantings will need to be adjusted for the roundabout.
18. Lighting Plan
    a. Please review proposed lighting plan, the layout does not match the layout from the rest of the set.
    b. Foot candle points do not appear to align with the location of the proposed lighting fixtures, please review.
19. SW
    a. Approx limits of cut/fill extend onto private property. Please provide additional information relative to title-right-interest.
20. IA
    a. Area called out as wooded area as of 1997 should also include what is currently wooded area. Calculations should be updated.
21. C11
    a. Please show underdrain piping and overflow piping and inverts for each system.
    b. Please show isolator/maintenance rows and sizing calculations.
    c. Please indicate in the proposed systems are to be lined with an impermeable membrane, or if these are proposed to be infiltration systems.

MEMORANDUM
C-Store with Gas Fueling / Branch Bank
Traffic Peer Review
Cumberland, Maine
February 9, 2024

INTRODUCTION

Per the Town of Cumberland requests, Gorrill Palmer (GP) has completed a traffic peer review of submitted material for a Convenience Store with Gasoline Fueling and Branch Bank Development located on the easterly side of Route 100 in Cumberland, Maine. The following information was included in this review:

- Traffic Movement Permit Application: "Sections 1-7, Traffic Movement Permit Application", Submitted to: Maine Department of Transportation and prepared by Sewall (Diane Morabito) and dated November 22, 2023.

For the purposes of this review, GP focused on Section 7 – Traffic Impact Study (TIS), since the TIS should reflect previous comments as provided at the MaineDOT scoping meeting on Monday, October 30, 2023. Based on our review, we offer the following comments.

TRAFFIC IMPACT STUDY – SECTION 7

GP has no comments on the following sections as presented in the TIS:

A. Study Preparation
B. Study Horizon
C. Site and Traffic Information
D. Trip Assignments

E. TRAFFIC VOLUMES

- Turning movement counts were completed on August 9, 2023. This is an acceptable time-period to collect traffic volumes. Because the volumes were collected in the summer, we concur with the TIS that no seasonal adjustment was needed.
- The traffic volumes were adjusted by a yearly growth of 0.5% to 2024 design hourly volumes. We concur with this methodology and growth factor.
- GP concurs with the other development
- GP concurs with the 2024 Build volumes provided in the TIS

F. CAPACITY ANALYSES

- We concur with the criteria and general methodology used to complete the capacity analysis.

Auxiliary Turn Lane Warrants

- GP concurs with the methodology and results of the lane warrant analysis and neither left nor right turn lanes are required on Route 100.

Unsignalized Intersection Analysis

- GP concurs with the general methodology and results of the unsignalized analysis. All the unsignalized intersections evaluated were forecast to operate at acceptable levels of service.

Queue Analysis

- GP concurs with the general methodology and results of the queue analysis. There are no anticipated issues with the queuing of vehicles.

Pedestrian and Multi-Modal Considerations

- GP concurs with the general location of the proposed sidewalks. We support the suggestion for the development to be assessed an impact fee for the sidewalks such that the MaineDOT or Town can use that money toward sidewalks once the final design of the intersection is determined and is being re-constructed.

G. TRAFFIC SIGNAL WARRANT ANALYSIS

- GP concurs that a traffic signal warrant was not requested for this project.

H. SIGHT DISTANCE ANALYSIS

- GP concurs that no additional sight distance evaluation was requested of the applicant. The applicant should confirm that no signage or landscaping will restrict available sight lines within the sight triangles.

I. TRAFFIC ACCIDENTS

- GP concurs that this project does not require any further action to address traffic crashes.

J. RECOMMENDATIONS

- No comments.

K. CONCLUSIONS

- No comments.

STATE OF MAINE
RANDALL E. DUNTON
No. 8686
LICENSED PROFESSIONAL ENGINEER
2-09-24

Prepared By: Randy Dunton, PE, PTOE

SECTION 229 - SITE PLAN REVIEW

NOTE: THE FOLLOWING APPROVAL STANDARDS HAVE NOT BEEN FULLY ADDRESSED PRIOR TO THIS MEETING. THERE ARE DRAFT FINDINGS FOR A FUTURE REVIEW.

SECTION 10: APPROVAL STANDARDS AND CRITERIA

The following criteria shall be used by the Planning Board in reviewing applications for site plan review and shall serve as minimum requirements for approval of the application. The application shall be approved unless the Planning Board determines that the applicant has failed to meet one or more of these standards. In all instances, the burden of proof shall be on the applicant who must produce evidence sufficient to warrant a finding that all applicable criteria have been met.

10.A Utilization of the Site

A. Utilization of the Site: The plan for the development, including buildings, lots, and support facilities, must reflect the natural capabilities of the site to support development. Environmentally sensitive areas, including but not limited to, wetlands, steep slopes, floodplains, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, and sand and gravel aquifers must be maintained and preserved to the maximum extent. The development must include appropriate measures for protecting these resources, including but not limited to, modification of the proposed design of the site, timing of construction, and limiting the extent of excavation.

There is a sand and gravel aquifer located beneath the site, but safeguards have been proposed that will protect the aquifer.
The Town Engineer has made comments that must be addressed prior to approval.

Based on the above findings of fact, the Board finds the standards of this section have NOT been met.

B. Traffic, Circulation and Parking

(1) Traffic Access and Parking. Vehicular access to and from the development must be safe and convenient.
(a) Any driveway or proposed street must be designed so as to provide the minimum sight distance according to the Maine Department of Transportation standards, to the maximum extent possible.
(b) Points of access and egress must be located to avoid hazardous conflicts with existing turning movements and traffic flows.
(c) The grade of any proposed drive or street must be not more than + 3% for a minimum of two (2) car lengths, or forty (40) feet, from the intersection.
(d) The intersection of any access/egress drive or proposed street must function: (a) at a Level of Service D, or better, following development if the project will generate one thousand (1,000) or more vehicle trips per twenty-four (24) hour period; or (b) at a level which will allow safe access into and out of the project if less than one thousand (1,000) trips are generated.
(e) Where a lot has frontage on two (2) or more streets, the primary access to and egress from the lot must be provided from the street where there is less potential for traffic congestion and for traffic and pedestrians hazards. Access from other streets may be allowed if it is safe and does not promote short cutting through the site.
(f) Where it is necessary to safeguard against hazards to traffic and pedestrians and/ or to avoid traffic congestion, the applicant shall be responsible for providing turning lanes, traffic directional islands, and traffic controls within public streets.
(g) Access ways must be designed and have sufficient capacity to avoid queuing of entering vehicles on any public street.
(h) The following criteria must be used to limit the number of driveways serving a proposed project:

(1) No use which generates less than one hundred (100) vehicle trips per day shall have more than one (1) two-way driveway onto a single roadway. Such driveway must be no greater than thirty (30) feet wide.
(2) No use which generates one hundred (100) or more vehicle trips per day shall have more than two (2) points of entry from and two (2) points of egress to a single roadway. The combined width of all access ways must not exceed sixty (60) feet.

(2) Access way Location and Spacing

Access ways must meet the following standards:

(a) Private entrance / exits must be located at least fifty (50) feet from the closest un-signalized intersection and one hundred fifty (150) feet from the closest signalized intersection, as measured from the point of tangency for the corner to the point of tangency for the access way. This requirement may be reduced if the shape of the site does not allow conformance with this standard.

(b) Private access ways in or out of a development must be separated by a minimum of seventy-five (75) feet where possible.

(3) Internal Vehicular Circulation. The layout of the site must provide for the safe movement of passenger, service, and emergency vehicles through the site.

(a) Projects that will be served by delivery vehicles must provide a clear route for such vehicles with appropriate geometric design to allow turning and backing.

(b) Clear routes of access must be provided and maintained for emergency vehicles to and around buildings and must be posted with appropriate signage (fire lane - no parking).

(c) The layout and design of parking areas must provide for safe and convenient circulation of vehicles throughout the lot.

(d) All roadways must be designed to harmonize with the topographic and natural features of the site insofar as practical by minimizing filling, grading, excavation, or other similar activities which result in unstable soil conditions and soil erosion, by fitting the development to the natural contour of the land and avoiding substantial areas of excessive grade and tree removal, and by retaining existing vegetation during construction. The road network must provide for vehicular, pedestrian, and cyclist safety, all season emergency access, snow storage, and delivery and collection services.

(4) Parking Layout and Design. Off street parking must conform to the following standards:

(a) Parking areas with more than two (2) parking spaces must be arranged so that it is not necessary for vehicles to back into the street.

(b) All parking spaces, access drives, and impervious surfaces must be located at least fifteen (15) feet from any side or rear lot line, except where standards for buffer yards require a greater distance. No parking spaces or asphalt type surface shall be located within fifteen (15) feet of the front property line. Parking lots on adjoining lots may be connected by accessways not exceeding twenty-four (24) feet in width.

(c) Parking stalls and aisle layout must conform to the following standards.

Parking Angle	Stall Width	Skew Width	Stall Depth Width	Aisle
90°	9'-0"		18'-0"	24'-0" 2-way
60°	8'-6"	10'-6"	18'-0"	16'-0" 1-way
45°	8'-6"	12'-9"	17'-6"	12'-0" 1-way
30°	8'-6"	17'-0"	17'-0"	12'-0" 1 way

(d) In lots utilizing diagonal parking, the direction of proper traffic flow must be indicated by signs, pavement markings or other permanent indications and maintained as necessary.

(e) Parking areas must be designed to permit each motor vehicle to proceed to and from the parking space provided for it without requiring the moving of any other motor vehicles.

(f) Provisions must be made to restrict the "overhang" of parked vehicles when it might restrict traffic flow on adjacent through roads, restrict pedestrian or bicycle movement on adjacent walkways, or damage landscape materials.

(5) Building and Parking Placement

(a) The site design should avoid creating a building surrounded by a parking lot. Parking should be to the side and preferably in the back. In rural, uncongested areas buildings should be set well back from the road so as to conform to the rural character of the area. If the parking is in front, a generous, landscaped buffer between road and parking lot is to be provided. Unused areas should be kept natural, as field, forest, wetland, etc.

(b) Where two or more buildings are proposed, the buildings should be grouped and linked with sidewalks; tree planting should be used to provide shade and break up the scale of the site. Parking areas should be separated from the building by a minimum of five (5) to ten (10) feet. Plantings should be provided along the building edge, particularly where building facades consist of long or unbroken walls.
(6) Pedestrian Circulation: The site plan must provide for a system of pedestrian ways within the development appropriate to the type and scale of development. This system must connect the major building entrances/ exits with parking areas and with existing sidewalks, if they exist or are planned in the vicinity of the project. The pedestrian network may be located either in the street right-of-way or outside of the right-of-way in open space or recreation areas. The system must be designed to link the project with residential, recreational, and commercial facilities, schools, bus stops, and existing sidewalks in the neighborhood or, when appropriate, to connect the amenities such as parks or open space on or adjacent to the site
The location of the entrance drive provides adequate sight distance in both directions. Parking spaces are in conformance with the town ordinance. An application for a Maine DEP Traffic Movement Permit has been made. The site has been designed to accommodate fuel tankers and emergency vehicles. A pedestrian crosswalk with pedestrian activated flashing signage is shown for Route 100 and a crosswalk will be added on Skillin Road. Sidewalks will be constructed along Skillin Road to Kathy Lane and northerly along Gray Road to Faraday Lane.

The Town Engineer has made comments that must be addressed prior to approval.

Based on the above findings of fact, the Board finds the standards of this section have not been met.

C. Stormwater Management and Erosion Control
(1) Stormwater Management. Adequate provisions must be made for the collection and disposal of all stormwater that runs off proposed streets, parking areas, roofs, and other surfaces, through a stormwater drainage system and maintenance plan, which must not have adverse impacts on abutting or downstream properties.
(a) To the extent possible, the plan must retain stormwater on the site using the natural features of the site.
(b) Unless the discharge is directly to the ocean or major river segment, stormwater runoff systems must detain or retain water such that the rate of flow from the site after development does not exceed the predevelopment rate.
(c) The applicant must demonstrate that on - and off-site downstream channel or system capacity is sufficient to carry the flow without adverse effects, including but not limited to, flooding and erosion of shoreland areas, or that he / she will be responsible for whatever improvements are needed to provide the required increase in capacity and / or mitigation.
(d) All natural drainage ways must be preserved at their natural gradients and must not be filled or converted to a closed system unless approved as part of the site plan review.
(e) The design of the stormwater drainage system must provide for the disposal of stormwater without damage to streets, adjacent properties, downstream properties, soils, and vegetation.
(f) The design of the storm drainage systems must be fully cognizant of upstream runoff which must pass over or through the site to be developed and provide for this movement.
(g) The biological and chemical properties of the receiving waters must not be degraded by the stormwater runoff from the development site. The use of oil and grease traps in manholes, the use of on-site vegetated waterways, and vegetated buffer strips along waterways and drainage swales, and the reduction in use of deicing salts and fertilizers may be required, especially where the development stormwater discharges into a gravel aquifer area or other water supply source, or a great pond.
(2) Erosion Control
(a) All building, site, and roadway designs and layouts must harmonize with existing topography and conserve desirable natural surroundings to the fullest extent possible, such that filling, excavation and earth moving activity must be kept to a minimum. Parking lots on sloped sites must be terraced to avoid undue cut and fill, and / or the need for retaining walls. Natural vegetation must be preserved and protected wherever possible.

(b) Soil erosion and sedimentation of watercourses and water bodies must be minimized by an active program meeting the requirements of the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices, dated March 1991, and as amended from time to time.

The Town Engineer has made comments that must be addressed prior to approval.

Based on the above findings of fact, the Board finds the standards of this section have not been met.

(D) Water, Sewer, and Fire Protection
(1) Water Supply Provisions: The development must be provided with a system of water supply that provides each use with an adequate supply of water. If the project is to be served by a public water supply, the applicant must secure and submit a written statement from the supplier that the proposed water supply system conforms with its design and construction standards, will not result in an undue burden on the source of distribution system, and will be installed in a manner adequate to provide needed domestic and fire protection flows.
(2) Sewage Disposal Provisions: The development must be provided with a method of disposing of sewage which is in compliance with the State Plumbing Code. If provisions are proposed for on-site waste disposal, all such systems must conform to the Subsurface Wastewater Disposal Rules.
(3) Utilities: The development must be provided with electrical, telephone, and telecommunication service adequate to meet the anticipated use of the project. New utility lines and facilities must be screened from view to the extent feasible. If the service in the street or on adjoining lots is underground, the new service must be placed underground.
(4) Fire Protection: The site design must comply with the Fire Protection Ordinance. The Fire Chief shall issue the applicant a "Certificate of Compliance" once the applicant has met the design requirement of the Town's Fire Protection Ordinance.

Water service will be extended to the lots from the existing utilities located on Skillin and Gray Roads. Sewerage for each building will be managed by private subsurface disposal systems. The water and septic plans have been reviewed and approved by the Town Engineer. Utility lines will be underground.

The Town Engineer has made comments that must be addressed prior to approval.

Based on the above findings of fact, the Board finds the standards of this section have been met.

E. Water Protection
(1) Groundwater Protection: The proposed site development and use must not adversely impact either the quality or quantity of groundwater available to abutting properties or to the public water supply systems. Applicants whose projects involve on-site water supply or sewage disposal systems with a capacity of two thousand (2,000) gallons per day or greater must demonstrate that the groundwater at the property line will comply, following development, with the standards for safe drinking water as established by the State of Maine.
The project will be served by public water so there will be no extraction of groundwater for operations or irrigation. The sewage disposal system will comply with the standards for safe drinking water as established by the State of Maine.

(2) Water Quality: All aspects of the project must be designed so that:
(a) No person shall locate, store, discharge, or permit the discharge of any treated, untreated, or inadequately treated liquid, gaseous, or solid materials of such nature, quantity, obnoxious, toxicity, or temperature that may run off, seep, percolate, or wash into surface or groundwaters so as to contaminate, pollute, or harm such waters or cause nuisances, such as objectionable shore deposits, floating or submerged debris, oil or scum, color, odor, taste, or unsightliness or be harmful to human, animal, plant, or aquatic life.
(b) All storage facilities for fuel, chemicals, chemical or industrial wastes, and biodegradable raw materials, must meet the standards of the Maine Department of Environmental Protection and the State Fire Marshall's Office.

Stormwater runoff will be directed to new subsurface soil filters which will be lined with an impermeable liner to prevent any groundwater contamination.

(3) Aquifer Protection: If the site is located within the Town Aquifer Protection Area, a positive finding by the Board that the proposed plan will not adversely affect the aquifer is required.

The site is located within the Town Aquifer Protection Area. A hydrogeologic evaluation was conducted by Sevee and Maher Engineers that included field work to determine soils characteristics and groundwater depth and direction of flow. The report states that the "Site is suitable for proposed storage of refined petroleum products."
The refueling system will include double-walled fiberglass tanks that have advanced monitoring methods to detect any leaks before any product escapes the tank. The pipes to the fuel dispensers will also be double-walled. The leak detection system will have visual and audible alerts in the store. The concrete pad around the dispensers will have groves, referred to as Positive Limiting Barriers, at the perimeter that will contain spills during refueling vehicles. A spill kit will be maintained at the store and all store operators are trained per State and Federal standards.

The Town Engineer has made comments that must be addressed prior to approval.

Based on the above findings of fact, the Board finds that the standards of this section have NOT been met.

F. Floodplain Management: If any portion of the site is located within a special flood hazard area as identified by the Federal Emergency Management Agency, all use and development of that portion of the site must be consistent with the Town's Floodplain management provisions.

Based on a review of the FEMA floodplain maps, the site is not located within a floodplain. The location is classified as Zone C (areas of minimal flooding risk).
Based on the above finding of fact, the Board finds the standards of this section have been met.

Based on the above finding of fact, the Board finds the standards of this section have been met.

G. Historic and Archaeological Resources: If any portion of the site has been identified as containing historic or archaeological resources, the development must include appropriate measures for protecting these resources, including but not limited to, modification of the proposed design of the site, timing of construction, and limiting the extent of excavation.

There are no known historic or archeological resources located on the site. There is a letter on file from the Maine Historic Preservation Commission. will not have an adverse effect on any historical or archaeological resources.

Based on the above finding of fact, the Board finds the standards of this section have been met.

H. Exterior Lighting:
The proposed development must have adequate exterior lighting to provide for its safe use during nighttime hours, if such use is contemplated. All exterior lighting must be designed and shielded to avoid undue glare, adverse impact on neighboring properties and rights - of way, and the unnecessary lighting of the night sky.

Exterior lighting has been designed to provide adequate lighting for parking areas. Full cutoff fixtures be utilized to avoid glare and adverse impact on neighboring properties and rights of way, and unnecessary lighting of the night sky. A photometric plan has been submitted.

The Town Engineer has made comments that must be addressed prior to approval.

Based on the above finding of fact, the Board finds the standards of this section have NOT been met.

I. Buffering and Landscaping

(1) Buffering of Adjacent Uses: The development must provide for the buffering of adjacent uses where there is a transition from one type of use to another use and for the screening of mechanical equipment and service and storage areas. The buffer may be provided by distance, landscaping, fencing, changes in grade, and / or a combination of these or other techniques.

Buffering in the form of fences, grade changes, and landscaping, have been designed to screen the businesses and generally soften the appearance of the development. The existing wooded area between the businesses and the houses on Kathy Lane will be maintained to the extent possible.

(2) Landscaping: Landscaping must be provided as part of site design. The landscape plan for the entire site must use landscape materials to integrate the various elements on site, preserve and enhance the particular identity of the site, and create a pleasing site character. The landscaping should define street edges, break up parking areas, soften the appearance of the development, and protect abutting properties.

The Town Engineer has made comments that must be addressed prior to approval.

Based on the above findings of fact, the Board finds the standards of this section have NOT been met.

J. Noise: The development must control noise levels such that it will not create a nuisance for neighboring properties.

It is not anticipated that the development will create a noise level that will be a nuisance for adjacent properties. Ambient sounds will be comparable to those of Gray and Skillin Roads.

Based on the above findings of fact, the Board finds the standards of this section have been met.

K. Storage of Materials

(1) Exposed nonresidential storage areas, exposed machinery, and areas used for the storage or collection of discarded automobiles, auto parts, metals or other articles of salvage or refuse must have sufficient setbacks and screening (such as a stockade fence or a dense evergreen hedge) to provide a visual buffer sufficient to minimize their impact on abutting residential uses and users of public streets.

(2) All dumpsters or similar large collection receptacles for trash or other wastes must be located on level surfaces which are paved or graveled. Where the dumpster or receptacle is located in a yard which abuts a residential or institutional use or a public street, it must be screened by fencing or landscaping.

(3) Where a potential safety hazard to children is likely to arise, physical screening sufficient to deter small children from entering the premises must be provided and maintained in good condition.

The dumpsters are screened by either fencing or landscaping. A shed is proposed to be constructed as an accessory building to store dry goods for the convenience store. Other than some seasonal items displayed on the sidewalk at the building, there will be no storage of items or other materials outdoors.

Based on the above findings of fact, the Board finds the standards of this section have been met.

L. Capacity of the Applicant: The applicant must demonstrate that he / she has the financial and technical capacity to carry out the project in accordance with this ordinance and the approved plan.

Technical Ability: ***The applicant has retained professional engineers, surveyors, traffic, lighting and geotechnical consultants.***

Financial Capacity: ***There is a letter on file dated 1/26/24 from Maine Community Bank stating that the Cumberland Real Estate Group has the financial capability to borrow up to $6,000,000 for the construction project located at 187 Gray Road.***

The Town Engineer has asked for an estimate of values to ensure that the amount of $6 M is an accurate cost for construction.

Based on the above findings of fact, the Board finds the standards of this section have been met.

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M. Design and Performance Standards
(1) Route 100 Design Standards are applicable to this project.
(2) Route 1 Design Standards
(3) Town Center District Design and Performance Standards
(4) Village Mixed Use Performance Standards.

ROUTE 100 DESIGN STANDARDS

1.2 Site Planning and Design

1.1 Master Planning

On properties that are large enough to accommodate more than a single structure, developers will be expected to prepare a conceptual master plan to show the Planning Board the general location of future buildings, parking lots, circulation patterns, open space, utilities, provisions for stormwater management, and other components of site development.

On sites with multiple buildings, the outdoor space defined by the structures should be designed as a focal point for the development, with provisions for seating and other outdoor use. Landscaping, bollards and other site features should maintain a safe separation between vehicles and pedestrians.

FINDING:

1.2 Professional Design

Developers shall have their site plans designed by licensed professionals (civil engineers, architects or landscape architects) as required by State of Maine professional licensing requirements to address the health, safety, welfare and visual pleasure of the general public, during all hours of operation and all seasons of the year.

FINDING:

1.3 Vehicular Access

Development along Cumberland's Route 100 corridor should promote safe, user-friendly and efficient vehicular movement while reducing both the number of trips on the roadway and the number of curb cuts wherever possible.

The vehicular movements discussed in this chapter, both on-site and off-site, shall be designed by a professional engineer and shall be in conformance with all Maine Department of Transportation requirements.

FINDING:

1.3.1 Route 100 Curb Cuts

To promote vehicular, bicycle and pedestrian safety, the number of curb cuts on Route 100 should be kept to a minimum. Adjacent uses are encouraged to use shared driveways wherever possible, thereby reducing the number of turning motions onto and off of Route 100. This practice will increase motorist, bicycle and pedestrian safety, and has the added environmental benefit of helping to reduce impervious (paved) area.

Driveways and their associated turning movements should be carefully designed and spaced to reduce interruptions in Route 100's level of service and to promote safe and easily understandable vehicular movements. Where curb cuts will interrupt sidewalks, ADA requires that the cross slope not exceed 2% in order to maintain accessibility.

New driveways and existing driveways for which the use has changed or expanded require a Maine Department of Transportation "Driveway Entrance Permit." The Planning Board will not grant project approval until the Town has been provided a copy of the permit, or alternately, until the applicant provides the Town a letter from the DOT stating that such a permit is not required. The MDOT may also require a Traffic Movement Permit if the number of vehicle trips exceeds the threshold established by the MDOT.

FINDING:

1.3.2 Site Circulation

Internal vehicular movement on each site should be designed to achieve the following goals: to ensure the safety of motorists, delivery vehicles, pedestrians and cyclists by providing clear cues to the motorist as to where to drive or park, etc., once they enter the site. Landscaping, to reduce impervious areas, is encouraged as much possible.

Every effort should be made to restrict paved surfaces to a maximum of two sides of the building. The site should not feature a building surrounded by drive lanes and parking.

To ensure safe and easily understandable circulation, parking spaces, directional arrows, crosswalks and other markings on the ground should be painted on the pavement paint or shown by other suitable methods.

FINDING:

1.3.3 Driveways between Parcels

Driveways between adjacent parcels should be used where feasible in order to make deliveries easier and reduce unnecessary trips and turning movements on Route 100.

These driveways should provide safe, direct access between adjacent lots, but only where the paved areas of the two adjacent lots are reasonably close together. However, they are inappropriate where they would require excessive impervious (paved) area or impose undue financial burden on the owner.

All such driveways between parcels should have pedestrian walkways when possible.

FINDING:

1.4 Building Placement

Objective: Buildings should be placed on their sites in a way that is sensitive to existing site conditions and respectful of adjacent uses.

1.4.1 Location of Building on the Site

In placing the building on the site, the designer should carefully consider the building's relationship to existing site features such as the size of the site, existing vegetation and topography, drainage, etc., as well as the abutting land uses.

The site design should make every effort to avoid creating a building surrounded by parking lot. In addition, buildings should generally be square to Route 100 and should avoid unusual geometry in building placement unless the site requires it.

FINDING:

1.4.2 Building Entrances

The building's main entrance should be a dominant architectural feature of the building, clearly demarcated by the site design and landscaping. Main entrances should front onto the most convenient parking area.

At building entrance areas and drop-off areas, site furnishings such as benches, sitting walls and, if appropriate, bicycle racks should be encouraged. Additional plantings may be desirable at these points to clearly identify the building entrance and to invite pedestrians into it.

Where building entrances do not face Route 100, the Route 100 façade should still be made interesting and attractive to drivers on Route 100.

FINDING:

1.4.3 Building Setbacks

If adjacent building facades are parallel with Route 100 and buildings have consistent setbacks from Route 100, the visual effect from the road will be orderly and attractive.

Side and rear building setbacks must conform to the requirements of the underlying zone.

FINDING:

1.4.4 Hillside Development

When a proposed development is located on a hillside that is visible from Route 100 or from other public areas, its presence will be much more obvious than development on a level site. Because of this, it is even more important that the structure be designed to fit harmoniously into the visual environment. The use of berms and plantings, where appropriate, will help soften the impact of buildings located in open fields.

Site clearing should also be minimized and vegetation should be retained or provided to minimize the visual impact of the development. Issues of drainage, run-off and erosion should also be closely examined.

FINDING:

1.4.5 Universal Accessibility

Development of all properties, buildings, parking lots, crosswalks, walkways and other site features must comply with the applicable standards of the Americans with Disabilities Act (ADA).

FINDING:

1.5 Parking

Objective: Development should provide safe, convenient and attractive parking. Parking lots should be designed to complement adjacent buildings, the site and the Route 100 corridor without becoming a dominant visual element.

Every effort should be made to break up the scale of parking lots by reducing the amount of pavement visible from the road. Careful attention should be given to circulation, landscaping, lighting and walkways.

FINDING:

1.5.1 Location

Parking lots should be located to the side or rear of buildings. Parking should only be placed between the building and Route 100 if natural site constraints such as wetlands or topography, allow no other option. If parking must be built between the building and Route 100, it should be limited, if at all possible, to only one row of parking spaces and be adequately buffered.

FINDING:

1.5.2 Landscaping

A 25' landscaping easement to the Town of Cumberland will be required of each new development that is on Route 100. This easement will provide an area for the Town to install curbing, if needed, a sidewalk and the planting of trees. Beyond this easement, the developer will provide adequate landscaping to ensure that views from Route 100 are attractive and to buffer the presence of the parking and buildings.

Parking should be separated from the building by a landscaped strip a minimum of five to ten feet wide.

Landscaping around and within parking lots will shade hot surfaces and visually soften the appearance of the hard surfaces. Parking lots should be designed and landscaped to create a pedestrian-friendly environment. A landscaped border around parking lots is encouraged, and landscaping should screen the parking area from adjacent residential uses. Tree plantings between rows of parking are very desirable. Granite curbs, while more expensive, are more attractive and require less maintenance than asphalt ones.

Where there are trees in the 25" landscaping easement between Route 100 and the building, existing healthy trees should be maintained in their natural state. Where there are few or no trees in the 25' buffer, the buffer area should be landscaped either with trees, or with flowering shrubs, fencing, or such architectural elements as stone walls.

Where plantings do not survive or grow to a point where they no longer serve as effective buffers, they shall be replaced or enhanced to meet the intent of the approved plan.

FINDING:

1.5.3 Snow Storage

Provision should be made for snow storage in the design of all parking areas, and these areas should be indicated on the site plan. The area used for snow storage should not conflict with proposed landscaping or circulation patterns. These areas should be sited to avoid problems with visibility, drainage or icing during winter months.

FINDING:

1.5.4 Impervious Surfaces

The amount of paved surface required for parking, driveways and service areas should be limited as much as possible in order to provide green space, reduce run-off and preserve site character. This will have the added benefit of reducing construction and maintenance costs.

FINDING:

1.6 Service Areas

Objective: Service areas include exterior dumpsters, recycling facilities, mechanical units, loading docks and other similar uses. Service areas associated with uses along Route 100 should be designed to meet the needs of the facility with a minimum of visual, odor or noise problems. They should be the smallest size needed to fit the specific requirements of the building and its intended operation and should be fully screened from view by either plantings or architectural elements such as attractive fences.

FINDING:

1.6.1 Location

Service areas should, if possible, be located so that they are not visible from Route 100 or from the building entrance. Locations that face abutting residential properties should also be avoided wherever possible.

Dumpster, recycling facilities and other outdoor service facilities should be consolidated into a single site location, in accordance with appropriate life safety requirements.

FINDING:

1.6.2 Design

Service areas should be designed to accommodate the turning movements of anticipated vehicles, and should be separated from other vehicle movements, parking areas and pedestrian routes.

Wherever possible, service drives should be separated from areas where people will be walking by landscaped islands, grade changes, berms, or other devices to minimize conflicts.

Gates on enclosures should be designed to prevent sagging or binding. Wooden fencing is always preferred, but where chain link is necessary for safety considerations, it should be screened by landscaping and painted a dark color or coated with dark vinyl.

FINDING:

1.6.3 Buffering/Screening

Service areas should be screened to minimize visibility from sensitive viewpoints such as Route 100, nearby residential dwellings, public open space, pedestrian pathways, and building entrances. Landscape screening may consist of evergreen trees, shrubs, and/or planted earth berms. Architectural screening may consist of walls, fences or shed structures, and should complement the design of the main structure through repetition of materials, detailing, scale and color.

Where plantings do not survive, or where they grow to a point where they no longer serve as effective screens, they shall be replaced or supplemented to meet the intent of the plan as approved by the Planning Board.

FINDING:

1.7 Open Space

Objective: In order to provide an attractive, hospitable and usable environment, future development along Route 100 should have generous amounts of open space and attractive site details for such elements as pavement, curbing, sitting and other public areas, landscaping, planters, walls, signage, lighting, bollards, waste receptacles and other elements in the landscape.

FINDING:

1.7.1 Internal Walkways

Internal walkways should invite pedestrians onto the property and make them feel welcome.

Walkways extending the full length of a commercial building are encouraged along any façade that features a customer entrance and an abutting parking area. Such walkways should be located five to ten feet from the face of the building to allow for planting beds. Such walkways should be shown on the project's landscaping plan.

Wherever feasible, interconnections between adjacent properties should be developed to encourage pedestrian movement and reduce vehicle trips.

At a minimum bituminous concrete should be used as the primary material for internal walkways, except that for entrance areas and other special features the use of brick or special paving shall be encouraged. Walkways should be separated from parking areas and travel lanes by raised curbing. Granite is strongly preferred for its durability, appearance and low maintenance requirements.

Driveway crosswalks should be marked by a change in pavement texture, pattern or color to maximize pedestrian safety in parking and other potentially hazardous areas.

FINDING:

1.7.2 Landscaping

Where there are trees in the 75" buffer between Route 100 and the building, existing healthy trees should be maintained in their natural state. Where there are few or no trees in the 75' buffer, the buffer area should be landscaped either with trees, or with flowering shrubs, fencing, or such architectural elements as stone walls.

Where plantings do not survive, or grow to a point where they no longer serve as effective buffers, they shall be replaced or enhanced to meet the intent of the approved plan.

FINDING:

1.7.3 Usable Open Space

Whenever possible, site plans should provide inviting open spaces where people can sit, relax and socialize. Open spaces should be thought of as outdoor rooms, with consideration to ground surfaces, landscaping, lighting and other physical elements. Examples of such spaces include a forecourt outside a building entrance, or a peaceful place outdoors where employees can sit down and eat lunch or have breaks.

FINDING:

1.8 Buffering of Adjacent Uses

Objective: Buffering or screening may be necessary to effectively separate quite different land uses such as housing and office or commercial buildings. Plantings, earth berms, stone walls, grade changes, fences, distance and other means can be used to create the necessary visual and psychological separation.

1.8.1 Appropriateness

The selection of the proper type of buffer should result from considering existing site conditions, distances to property lines, the intensity (size, number of users) of the proposed land use, and the degree of concern expressed by the Planning Department, Planning Board, and abutting landowners. Discussions regarding the need for buffers, and appropriate sizes and types, should begin at the sketch plan stage of review.

FINDING:

1.8.2 Design

Buffers and screens should be considered an integral part of the site and landscaping plans. Stone walls, plantings, fencing, landforms, berms, and other materials used for buffers should be similar in form, texture, scale and appearance to other landscape elements. Structural measures, such as screening walls, should likewise be related to the architecture in terms of scale, materials, forms and surface treatment.

FINDING:

1.8.3 Maintenance

Where plantings do not survive, or where they grow to a point where they no longer serve as effective buffers, they shall be replaced or supplemented to meet the intent of the plan as approved by the Planning Board.

1.9 Erosion, Sedimentation and Stormwater Management

Objective: Protecting the natural environment in Cumberland is as much a priority in these design guidelines as protecting the visual environment. A developer should take every measure possible in the construction and operation of a project to ensure that little or no adverse impact to the natural environment occurs. These measures should be as visually attractive as possible.

1.10.1 Erosion and Sedimentation

Before any site work, construction or the disturbance of any soil occurs on a property, methods, techniques, designs, practices and other means to control erosion and sedimentation, as approved or required by the Maine Department of Environmental Protection, shall be in place. For guidance developers should refer to "Maine Erosion and Sedimentation Control Handbook for Construction – Best Management Practices," produced by the Cumberland County Soil and Water Conservation District and the Maine DEP.

FINDING:

1.10 Utilities

Objective: It is important to make efficient use of the utility infrastructure that exists along the Route 100 corridor, and to ensure that utility connections to individual development lots are as inconspicuous as possible.

FINDING:

1.10.1 Water and Sewer

All proposed development along the Route 100 Corridor must connect to the municipal water supply and the municipal sewer, wherever such connections are available. Proposed connections are subject to review by the Town and/or its peer reviewers.

FINDING:

1.10.2 Electric, Telephone and Cable

Electric, telephone, cable and other wired connections from existing utilities on Route 100 should be made to individual development lots via underground conduit wherever possible. This prevents the accumulation of unsightly overhead wires, and preserves the natural character of the corridor.

FINDING:

2. Building Types

The purpose of these guidelines is to encourage architectural styles within the Route 100 corridor that draw their inspiration from traditional New England examples. "Vernacular" or commonly used styles that are well represented in Cumberland are center-chimney Federal buildings in brick or clapboard, 100 and a half story Greek Revival "capes" with dormers, in white clapboard with corner pilasters or columns, and Victorians buildings with more steeply pitched roofs, porches and gingerbread trim. Except for mill buildings, the scale and nature of older commercial buildings in towns like Cumberland and Yarmouth, was similar to that of houses of the same period. Modern interpretations and versions of these styles, are entirely appropriate and encouraged. Because of their larger size, traditional barns are also sometimes used as inspiration for modern commercial buildings.

2.1 General Architectural Form

Traditional New England buildings look like they do because of the climate, the materials and technologies available for building and the styles and fads of the 19th century. This is what is meant when people talk about "vernacular architecture". It is the architecture that develops in a particular geographic area. Typically, while there may be architects who work in a particular "vernacular", vernacular architecture evolves over time and is not the product of a particular person's powerful vision.

These guidelines encourage the use of materials and forms that are characteristic of the construction of ordinary houses and commercial buildings of 19th century in northern New England, and particularly in Maine. Modern interpretations and versions of these materials and forms are entirely appropriate and encouraged.

FINDING:

2.1.1 Roofs

Because of the need to shed snow, New England roofs have generally been pitched rather than flat. Federal roofs are sometimes gambrel-shaped. In the Greek Revival style they are often gabled or have dormers, and have decorative "returns" at the bottom edge of the gable or dormers, suggesting the pediment of a Greek temple. Victorian houses typically have more steeply sloped roofs. Flat roofs are to be avoided.

FINDING:

2.1.2 Windows

Windows are typically vertical rectangles, often with two or more panes of glass. They may have shutters. If shutters are used, each should be wide enough to actually cover half of the window. Horizontal and vertical "lights", rows of small panes of New England buildings such as parapets. Where parapets are used to break up a flat roofline, the height of glass, are common over and next to doors. Window frames often have a decorative wood or stone pediment over them.

FINDING:

2.1.3 Detailing

Each historical period also has its characteristic embellishments. Federal buildings may have a decorative fanlight over the entrance door. Greek Revival buildings have corner-boards in the form of pilasters or even rows of actual columns across 100 façade, below a pediment. Victorian buildings use a wealth of turned columns and decorative scroll-work and shingle-work. Too many embellishments can look "busy", and mixing the details of several periods or styles can also spoil the desired effect. Modern interpretations of older styles often used simplified forms to suggest the details that were more elaborately defined in earlier periods.

FINDING:

2.1.4 Building Materials

Traditional siding materials common to Northern New England are brick, painted clapboard and either painted or unpainted shingles. Contemporary materials that have the same visual characteristics as traditional materials (e.g., cemeticious clapboards or vinyl siding) are acceptable if attention is paid to detailing (e.g., corners, trim at openings, changes in material). Metal cladding is not permitted.

Common traditional roofing materials are shingles – cedar originally or asphalt now, as well as standing seam metal. Where visible, the roofing color should be selected to complement the color and texture of the building's façade. Roofing colors are usually darker than the color of the façade.

Colors commonly found in historic New England houses vary by period. In the Federal and Greek Revival periods, white was the most common color, often with green or black shutters. But houses were not infrequently painted "sober" colors such as dull mustard or gray. In the Victorian period much brighter colors were often used, with trim in complementary colors. The characteristic colors for barns are white, barn red, or weathered shingle.

FINDING:

2.2 Large Scale Buildings

Objective: Due to their visibility and mass, the design of new large structures (10,000 square feet or greater) have the ability to greatly enhance or detract from Route 100's visual character. These structures should be designed as attractive pieces of commercial architecture that are responsive to their site and compatible with adjacent development.

FINDING:

2.2.1 Design and Massing

Large structures should be designed so that their large mass is broken up into smaller visual components through the use of clustered volumes, projections, recesses and varied façade treatment. The design should provide variation to add shadow and depth and a feeling of reduced scale.

FINDING:

2.2.2 Site Design

Wherever possible, large buildings should fit into the existing topography and vegetation,and should not require dramatic grade changes around their perimeter. Landscaping, site walls, pedestrian amenities and existing trees can be effective in reducing the apparent scale of large buildings.

FINDING:

2.2.3 Architectural Details

Large structures should have the same degree of detailing found in well-designed smaller and medium sized buildings along the Route 100 corridor. Architectural details can be used to reduce the scale and uniformity of large buildings. Elements such as colonnades, pilasters, gable ends, awnings, display windows and appropriately positioned light fixtures can be effective means of achieving a human scale.

FINDING:

2.2.4 Facades and Exterior Walls

Unbroken facades in excess of 80 feet are overwhelming whether they are visible from Route 100, other roadways or pedestrian areas, or when they abut residential areas. Breaking up the plane of the wall can reduce this sense of overwhelming scale. Where the plane of the wall is broken, the offset should be proportionate to the building's height and length. A general rule of thumb for such projections or recesses is that their depth shall be at least 3% of the façade's length, and they shall extend for at least 20% of the façade's length.

Other devices to add interest to long walls include strong shadow lines, changes in rooflines, pilasters and similar architectural details, as well as patterns in the surface material and wall openings. All façade elements should be coordinated with the landscape plan.

Facades of commercial buildings that face Route 100 or other roadways should have transparent openings (e.g. display windows or entry areas) along 30% or more of the length of the ground floor. Blank or unadorned walls facing public roads, residential neighborhoods, or abutting properties are boring and unattractive.

FINDING:

2.2.5 Building Entrances

Large structures should have clearly defined and highly visible entrances emphasized through such devices as significant variations in rooflines or cornice lines, changes in materials, porticos, landscape treatments, distinctive lighting or other architectural treatments.

FINDING:

2.3 Linear Commercial Buildings

Objective: Linear commercial structures, such as multi-tenant offices or commercial buildings may be appropriate along Route 100 provided that they are designed with façade and roofline elements that reduce their sense of large scale and add visual interest.

2.3.1 Design

Buildings with multiple storefronts should be visually unified through the use of complementary architectural forms, similar materials and colors, consistent details, and a uniform signage size and mounting system.

FINDING:

2.3.2 Façade Design

The use of covered walkways, arcades, or open colonnades is strongly encouraged along long facades to provide shelter, encourage people to walk from store to store, and to visually unite the structure. Pedestrian entrances to each business or tenant should be clearly defined and easily accessible.

FINDING:

2.3.3 Focal Points

Linear commercial buildings can include a focal point – such as a raised entranceway or clock tower, or other architectural element – to add visual interest and help reduce the scale of the building.

FINDING:

2.3.4 Façade Offsets

Variations in the plane of the front façade add visual interest. They also create opportunities for common entries, and social or landscaped spaces.

FINDING:

2.3.5 Rooflines

Variations in rooflines, detailing, cornice lines and building heights should be incorporated into the design to break up the scale of linear commercial buildings.

FINDING:

2.4 Smaller Freestanding Commercial Buildings

Objective: Smaller freestanding commercial buildings can easily make use of traditional New England building forms and should be designed to be attractive pieces of architecture, expressive of their use and compatible with surrounding buildings.

2.4.1 Single Use Buildings

Buildings that are constructed for use by a single business are generally smaller in scale than multi-tenant buildings. Single use buildings should be designed to be attractive and architecturally cohesive. To the greatest extent possible, the same materials, window types and roof types should be used throughout.

FINDING:

2.4.2 Franchise Design

Franchise architecture with highly contrasting color schemes, non-traditional forms, reflective siding and roof materials are not related to any traditional New England style. They are buildings that are stylized to the point where the structure is a form of advertising. However, franchises have been willing to use existing "vernacular" buildings, and sometimes have designs that somewhat reflect local styles.

FINDING:

2.4.3. Mixed Use Buildings

Buildings containing mixed uses (e.g., health club on the first floor with professional offices on the second floor) are encouraged. The architecture of a mixed-use building can reflect the different uses on the upper floors by a difference in façade treatment, as long as the building has a unified design theme.

FINDING:

2.5 Residential Structures

Objective: Cumberland's future housing stock in the Route 100 corridor should be well designed and constructed, and is encouraged to have some connection to the traditional styles of New England residential architecture. The large mass of multiplex dwellings, can be broken up by façade articulation and architectural detailing in order to reduce their apparent size.

Building form and massing can conform to traditional New England residences by using gable or gambrel roofs with generous overhangs. Traditional vertically hung windows are encouraged. Garages should not constitute a major element of the front of the house that faces the street, but should be located to the side or rear wherever possible.

Dwellings with ells and additions, and ones with multiple roof planes harken back to traditional New England farm and seaside homes. Box-like, ranch or split-level “contractor modern” type dwellings do not particularly reflect Maine styles.

Similarly, traditional New England building materials such as wooden shingles and clapboards are encouraged. Modern low-maintenance materials such as cemeticious shingles and clapboards may be substituted.

FINDING:

2.6 Residential Care Facilities

Objective: Ensure that the future needs of Cumberland’s aging population are met in healthy and well-designed facilities, and that the architecture and site design of such facilities fit into the Cumberland context.

The design of Residential Care Facilities can also draw on the local vernacular architecture of gable roofs, multiple building forms and traditional materials. Landscaping, site design and resident amenities will also be of concern to the Planning Board. The site should offer outdoor amenities such as decks, terraces, gardens, gazebos, lawns or similar features. Residential Care Facilities should be buffered from roadways and adjacent uses as much as possible.

FINDING:

2.7 Hotels

Objective: To ensure that any future hotels in the Town of Cumberland are in keeping with the character of the surrounding area, and that the scale and design respects the architectural context of the region.

Using traditional building materials and colors is encouraged, and the use of large blocks of bright, primary colors is discouraged.

The signage and lighting standards contained in this publication will help as well.

FINDING:

2.7.1 All Building Types: Awnings and Canopies

Awnings and canopies can enhance the appearance and function of a building by providing shade, shelter, shadow patterns, and visual interest. Where awnings are used, they should complement the overall design and color of the building.

Whether fixed or retractable, awnings and canopies should be an integral element of the architecture. They should be located directly over windows and doors to provide protection from the elements. Awnings or canopies should not be used as light sources or advertising features. Graphics and wording located on canopies and awnings will be considered part of the total signage area. Any such graphics shall be designed as an integral part of the signage program for the property, and coordinated with other sign elements in terms of typeface, color and spacing.

FINDING:

3 Signage

Signs play a central role in providing much-needed information and setting the tone for the Route 100 corridor. They inform motorists and pedestrians, and have a direct effect on the overall appearance of the roadway. Signage should not create visual clutter along the roadway, yet must provide basic, legible information about commercial goods and services. Signs should be compatible with the architecture and the context of the development.

3.1 Sign Design

Objective: Commercial uses along Route 100 in Cumberland should be identified by attractive, legible signs that serve the need of the individual business, while complementing the site and the architecture. All signage shall comply with the requirements of the Zoning Ordinance of the Town of Cumberland.

3.1.1 Signage Plan

For development proposals requiring one or more signs, the applicant shall provide a detailed signage plan as part of Site Plan or Subdivision review. The signage plan should show the location of all signs on a site plan drawing and on building elevations, as well as sign construction details, dimensions, elevations, etc., and accurate graphic representations of the proposed wording.

FINDING:

3.1.2 Sign Location

Signs should be placed in locations that do not interfere with the safe and logical usage of the site. They should not block motorists' lines of sight or create hazards for pedestrians or bicyclists. Roof mounted signs are not encouraged.

FINDING:

3.1.3 Sign Design

The shape and materials and finish of all proposed signage should complement the architectural features of the associated building. Simple geometric forms are preferable for all signs. All signage shall comply with the requirements of the Zoning Ordinance of the Town of Cumberland.

FINDING:

3.1.4 Sign Colors

Signs should be limited to two or three contrasting colors that are clearly complimentary to the colors of the associated building.

FINDING:

3.1.5 Sign Content

To ensure a clear and easily readable message, a single sign with a minimum of informational content should be used. As a general rule no more than about 30 letters should be used on any sign.

Lettering on any sign intended to be read by passing motorists needs to be legible at the posted speed limit. In general a minimum letter height of 6 inches is appropriate. Smaller letters can require motorists to slow down thereby creating traffic and safety hazards. Upper and lower case lettering is preferred to all upper case, as it is easier to read.

The use of variable message "reader boards", sponsor logos, slogans or other messages that promote products or services other than the tenants' are not permitted.

Signage for any proposed development should prominently feature its assigned street address to facilitate general way-finding and e-911 emergency response.

FINDING:

3.2 Sign Type

Objective: To ensure that any sign type complements the architecture of the associated building, and to ensure that they are attractively designed and functional while clearly delivering the intended information.

3.2.1 Building Mounted Signs

Building or façade mounted signs should be designed as an integral element of the architecture, and should not obscure any of the architectural details of the building. Signage should be mounted on vertical surfaces and should not project past or interfere with any fascia trim. Signs should be located a minimum of 18" from the edge of a vertical wall, however the overall proportions of both the wall and sign should be taken into consideration in the placement of the sign.

Flush mounted (flat) signage should be mounted with concealed hardware. Perpendicularly mounted hanging signs should be mounted with hardware designed to complement the building's architecture. All metal hardware should be corrosion and rust resistant to prevent staining or discoloration of the building.

FINDING;

3.2.2 Freestanding Signs

An alternative to a façade-mounted sign is a freestanding "pylon" sign. These signs are typically located between the building and the roadway right-of-way, adjacent to the site's vehicular entry point.

As with façade-mounted signage, design and content standards shall apply. Because freestanding signs amount to architecture themselves, it is important that they be carefully designed to complement the associated building. This will entail similar forms, materials, colors and finishes. Landscaping surrounding the base of such signs shall be consistent with the landscaping of the entire site.

Where a freestanding sign lists multiple tenants, there should be an apparent hierarchy: i.e., Address, name of the building or development, primary tenant, other tenants.

FINDING:

3.2.3 Wayfinding Signs

To prevent visual clutter and motorist confusion, additional smaller signs indicating site circulation are generally discouraged. However they are sometimes needed to clarify complex circulation patterns. Wayfinding signage is also sometimes required to indicate different areas of site usage, such as secondary building entries, loading, or service areas. The Planning Board shall exercise its discretion in the requirement or prohibition of such signs.

Where required, wayfinding signage should be unobtrusive, no taller than absolutely necessary, and shall complement the overall architecture and signage plan in terms of materials, color, form and finishes.

FINDING:

3.3 Sign Illumination

Only externally lit signs are permitted in the Route 100 corridor because, compared with internally lit signs, the direction and intensity of the light can be more easily controlled. Externally illuminated signs are made of an opaque material and have a dedicated light fixture or fixtures mounted in close proximity, aimed directly at the sign face. The illumination level on the vertical surface of the sign should create a noticeable contrast with the surrounding building or landscape without causing undue reflection or glare.

Lighting fixtures should be located, aimed and shielded such that light is only directed onto the surface of the sign. Wherever possible, fixtures should be mounted above the sign and be aimed downward to prevent illumination of the sky.

FINDING:

4 Lighting

Outdoor lighting is used to identify businesses and illuminate roadways, parking lots, yards, sidewalks and buildings. When well designed and properly installed it can be very useful in providing us with better visibility, safety, and a sense of security, while at the same time minimizing energy use and operating costs. If outdoor lighting is not well designed or is improperly installed it can be a costly and inefficient nuisance. The main issues are glare (hampering the safety of motorists and pedestrians rather than enhancing it), light trespass (shining onto neighboring properties and into residential windows), energy waste (lighting too brightly or lighting areas other than intended or necessary), and sky glow (lighting shining outward and upward washing out views of the nighttime sky).

4.1 Good Lighting

Objective: Good lighting does only the job it is intended to do, and with minimum adverse impact on the environment. Common sense and respect for neighbors goes a long way toward attaining this goal.

The applicant should provide sufficient lighting for the job without over-illuminating.

Fixtures should be fully shielded, giving off no light above the horizontal plane. They should also direct the light onto the intended areas. Fully shielded produce very little glare, which can dazzle the eyes of motorists and pedestrians.

The height and positioning of fixtures is also important, since even well shielded fixtures placed on tall poles can create light trespass. Fixtures should be positioned to uniformly illuminate the subject area. Hot spots created by too-bright or too-low fixtures make the in between areas seem dark, which can create safety problems.

High efficiency lamps are encouraged. Shielded lights can be lower in wattage, and will actually light an area better than unshielded high-output lights because they don't waste light by casting it outward and upward.

FINDING:

4.2 The Lighting Plan

Objective: As part of Site Plan or Subdivision review the Planning Board may, at its discretion, require that a lighting plan be provided. It should be prepared by a professional with expertise in lighting design. The intent of the lighting plan is to show how the least amount of light possible will be provided to achieve the lighting requirements.

4.2.1 Elements of the Lighting Plan

In addition to meeting the requirements of the Zoning Ordinance, the Lighting Plan should contain a narrative that describes the hierarchy of site lighting, describes how lighting will be used to provide safety and security, and describes how it will achieve aesthetic goals. The Lighting Plan should include specifications and illustrations of all proposed fixtures, including mounting heights, photometric data, and other descriptive information. It should also include a maintenance and replacement schedule for the fixtures and bulbs.

The Planning Board may require a photometric diagram that shows illumination levels from all externally and internally visible light sources, including signage.

The location and design of lighting systems should complement adjacent buildings, pedestrian routes, and site plan features. Pole fixtures should be proportionate to the buildings and spaces they are designed to illuminate.

Buffers, screen walls, fencing and other landscape elements should be coordinated with the lighting plan to avoid dark spots and potential hiding places.

Where proposed lighting abuts residential areas, parking lot lighting and other use-related site lighting should be substantially reduced in intensity within one hour of the business closing.

FINDING:

4.3 Types of Lighting

4.3.1 Façade and Landscaping Lighting

Lighting on the front of a building can highlight architectural features or details of a building and add depth and interest to landscaping. This style of lighting should not be used to wash an entire façade in light or light the entire yard. Rather should be used to emphasize particular aspects of the project. All fixtures should be located, aimed and shielded so that they only illuminate the façade or particular plantings and do not illuminate nearby roadways, sidewalks or adjacent properties. For lighting a façade, the fixtures should be designed to illuminate the portion of the face of the building from above, aimed downward, to eliminate skyglow.

4.3.2 Parking Lot and Driveway Lighting

Parking lot and driveway lighting should be designed to provide the minimum lighting necessary for safety and visibility. Poles and fixtures should be in proportion to the roadways and areas they are intended to illuminate.

All fixtures should be fully shielded or “cut-off” style, such that no light is cast above the horizontal plane. Decorative fixtures are strongly encouraged as long as they meet the cut-off criteria, and their design and color complements the architecture and landscaping of the project.

FINDING:

4.3.3 Pedestrian Lighting

Places where people walk, such as sidewalks, stairs, sitting areas, curbs and landscaping should be adequately but not excessively illuminated.

Mounting heights for pedestrian lighting should be appropriate in design and scale for the project and its setting. Bollard fixtures of 3’ to 4’ in height and ornamental fixtures of up to 12’ in height are encouraged. Fixtures should be a maximum of 100 watts and should not create glare or light trespass onto abutting properties.

FINDING:

LIMITATION OF APPROVAL:

Construction of the improvements covered by any site plan approval must be substantially commenced within twelve (12) months of the date upon which the approval was granted. If construction has not been substantially commenced and substantially completed within the specified period, the approval shall be null and void. The applicant may request an extension of the approval deadline prior to expiration of the period. Such request must be in writing and must be made to the Planning Board. The Planning Board may grant up to two (2), six (6) month extensions to the periods if the approved plan conforms to the ordinances in effect at the time the extension is granted and any and all federal and state approvals and permits are current.

STANDARD CONDITION OF APPROVAL:

This approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted by the applicant. Any variation from the plans, proposals and supporting documents, except deminimus changes as so determined by the Town Planner which do not affect approval standards, is subject to review and approval of the Planning Board prior to implementation.

CONDITIONS OF APPROVAL:

SITE PLAN REVIEW APPLICATION

RUSTY LANTERN MARKET

TAX MAP R01, LOT 11-3
181 GRAY ROAD
CUMBERLAND, MAINE 04021

January 29, 2024

Prepared For

CUMBERLAND PROPERTY HOLDINGS, LLC
2 Main Street
Topsham, Maine 04086

Prepared By

PRIORITY REAL ESTATE GROUP LLC

2 Main Street, Topsham, Maine 04086
207-837-6198 ▪ www.priorityrealestategroup.com

PRIORITY REAL ESTATE GROUP LLC

January 26, 2024

22-RLT-004

Carla Nixon, Town Planner
Town of Cumberland
290 Tuttle Road
Cumberland, Maine 04021

Re: Site Plan Review
PROPOSED CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME
Tax Map U19, Lot 12 & 13

Dear Carla:

Cumberland Real Estate Group, LLC, is pleased to submit the enclosed Site Plan Review Application for the development of a convenience store with fuel pumps and a bank with drive through service located on Gray Road at Skillin Road in Cumberland. This letter is intended to summarize the project to facilitate the review process.

PROPERTY

Cumberland Real Estate Group, LLC, has a purchase and sale agreement for a parcel of land located along Route 26 in Cumberland. The project parcel is identified as Tax Map U19, Lot 12 and a portion of Lot 13 on the Town of Cumberland Tax Maps. The parcel will be 1.87 ac (81,259 s.f.)

Lot 12 was developed as a gas station in 1957 and operated under different owners until 1989, at which time the tanks were removed. The building served as an auto maintenance garage for several years. A used car dealership has operated on that lot for several years. Lot 13 has been partially cleared since the mid to late 1980s. Although no permanent structure has been built, the lot has been used for pre-manufactured cabins and sheds at different times. Between 2003 and 2006, the last of the wooded area between the lots was cleared. The existing curb cuts from Gray Road and Skillin Road have been in use since the 1980s.

SITE DESIGN

The proposed site consists of an approximately 5,038 s.f. convenience store building, a 2,935 s.f. bank, associated parking, infrastructure, and landscaping. A total of 37 parking spaces will be provided for the convenience store, two (2) of which will be ADA compliant. The bank site will have 24 parking spaces, with one (1) ADA compliant. The site will be accessed via a new curb cut on Gray Road. Water, electric, and natural gas utilities are available to the parcels and contact has been made with the respective utility providers.

More

Based on the specifics of the project, the applicant requests waivers for the following application items:

- High intensity soils survey
- Market Study

Review Standards

To facilitate your review of our proposal, the following issues are summarized in accordance with *Chapter 229, Section 10 – Approval Standards and* Criteria of the Ordinance:

A. Utilization of the Site

There are no environmentally sensitive areas, such as wetlands, floodplains, significant wildlife habitats, fisheries, scenic areas, habitats for rare or endangered plants and animals, unique nature communities and natural areas, or sand and gravel aquifers present on site. The site has been previous developed and has been paved or packed gravel for several years.

B. Traffic, Circulation, and Parking

The location of the entrance drive provides adequate sight distance in both directions. Parking spaces have been designed to conform with the Town of Cumberland standards. An application for a Traffic Movement Permit from the Maine Department of Transportation has been made for the site. The site has been designed to accommodate fuel tankers and will accommodate emergency vehicles. The entrances to the site have been designed to accommodate the proposed roundabout under consideration and have been reviewed by MaineDOT and Gorrill-Palmer.

During the scoping meeting with MaineDOT, the existing concerns with traffic at the intersection of Skillin and Gray Roads was discussed. It was noted that a plan for new signage was being prepared by Gorrill-Palmer that will increase the awareness of divers approaching the intersection. The locations of the proposed signs have been added to the Site Plans. In addition, as part of the MaineDOT comments at the meeting, new pedestrian features have been added to the plan. A crosswalk with pedestrian activated flashing signage has been added for people wanting to cross Gray Road. The location of the crosswalk was chosen to separate pedestrians from the proposed entrance while being set as far from the roundabout under consideration as possible. Additionally, a crosswalk across Skillin Road will be added, including a new ADA ramp across from the site. Finally, sidewalks will be constructed along Skillin Road to Kathy Lane and northerly along Gray Road to Faraday Lane.

C. Stormwater Management and Erosion Control

A stormwater management plan and erosion control plan have been included in Attachment I of this application.

D. Water, Sewer, and Fire Protection

Water service will be extended to the lots from the existing utilities located on Skillin and Gray Roads. Sewerage for each building will be managed by private subsurface disposal systems. The systems have been designed by Frick and Associates and the designs are included in the supporting documentation.

E. Water Protection

It is not anticipated that the proposed site development will adversely the quality of quantity of groundwater available to abutting properties or public water supply systems. The project will not extract groundwater for operations or irrigation. The new building will utilize the existing public sewer system. Stormwater runoff from the developed areas will be directed to a new subsurface soil filters which will be lined with an impermeable liner to prevent any groundwater contamination.

All storage for fuel, chemicals, chemical or industrial waters, and biodegradable raw materials will meet the standards of the Maine Department of Environmental Protection and the State Fire Marshal's office.

The site is located within the aquifer protection area as identified on the Official Aquifer Protection Map. A hydrogeologic evaluation was conducted by Sevee & Maher Engineers that included field work to determine soils characteristics and groundwater depth and direction of flow. The report is included under Supporting Documents and concluded that "the Site is suitable for the proposed storage of refined petroleum products."

The refueling system will include double-walled fiberglass tanks that have advanced monitoring methods to detect any leaks before any product escapes the tank. The pipes to the fuel dispensers will also be double-walled. The leak detection system will have visual and audible alerts in the store. The concrete pad around the dispensers will have grooves, referred to as Positive Limiting Barriers, at the perimeter that will contain spills during refueling vehicles. A spill kit will be maintained at the store and all store operators are trained per State and Federal standards.

F. Floodplain Management

The site is in Zone C (areas of minimal flooding risk) as identified by the Federal Emergency Management Agency Flood Insurance Rate Map included in Attachment F of this application.

G. Historic and Archaeological Resources

There are no known historic or archaeological resources located on site. A letter verifying that there are no historic or archaeological resources on site was provided by the Maine Historic Preservation Commission, and is included under Supporting Documents.

H. Exterior Lighting

Exterior lighting has been designed to provide adequate lighting for parking areas. Full cutoff fixtures will be utilized to avoid glare and adverse impact on neighboring properties and rights-of-way, and any unnecessary lighting of the night sky. Details of the lighting fixtures have been included in Attachment H and a photometric plan showing lighting levels throughout the development has been included on Sheet L2.

I. Buffering and Landscaping

Buffers in the form of fences, grade changes, and landscaping, have been designed to screen the businesses and generally soften the appearance of the development. The existing wooded area between the businesses and the houses on Kathy Lane will be maintained to the extent possible. A detailed landscape plan has been included on sheet L1.

J. Noise

It is not anticipated that the development will create a noise level that will be a nuisance for adjacent properties. Ambient sounds will be comparable to those of Gray and Skillins Roads.

K. Storage of Materials

The dumpsters are screened by either fencing or landscaping. A shed is proposed to be constructed as an accessory building to store dry goods for the convenience store. Other than some seasonal items displayed on the sidewalk at the building, there will be no storage of items or other materials outdoors.

L. Capacity of the Applicant

Evidence of financial capacity has been included in Attachment G of this application. The design team, led by Priority Real Estate Group, LLC, has extensive experience planning, designing, and gaining approvals for commercial development projects throughout the state.

M. Design and Performance Standards

As the site is located along Route 26, the Route 100 Design Guidelines are applicable and have been followed to the greatest extent possible. Renderings of the proposed building and site development are included for reference.

SUMMARY

We look forward to presenting the project to the Planning Board at the meeting on February 20, 2024. Should you have any questions, please call or contact me at cneufeld@priorityrealestategroup.com.

Very truly yours,

Curtis Y. Neufeld, P.E.
Vice-President

Enclosures

STATE OF MAINE
CURTIS
Y.
NEUFELD
No. 9779
LICENSED
PROFESSIONAL ENGINEER

Table of Contents

A

Application Form & Checklist

Attachment A
Application Form & Checklists

A completed copy of the Site Plan Review Application Form and the Checklist are enclosed.

SITE PLAN REVIEW
Town of Cumberland

Appendix C
Planning Board Site Plan Review Application

Applicant's name Cumberland Real Estate Holdings, LLC

Applicant's address 2 Main Street, Topsham, ME 04086

Cell phone 207-798-0576 Home phone ______________ Office phone 207-837-6196

Email Address cneufeld@priorityrealestategroup.com

Project address 181 Gray Road, Cumberland, ME 04027

Project name Rusty Lantern Market

Describe project See cover letter

Number of employees 10-15

Days and hours of operation 7 days/week, 24 hours/day

Project review and notice fee $2,150

Name of representative Priority Real Estate Group, LLC, Attn: Curtis Y. Neufeld, P.E.

Contact information: Cell: 207-798-0576 Office: 207-637-6196

What is the applicant's interest in the property?

Own_______Lease_______Purchase and sale agreement ✕ (provide copy of document)
If you are not the owner, list owner's name, address and phone number Robert Copp
187 Gray Road, Cumberland, ME

If you are not the owner, list owner's name, address and phone number _______

Boundary Survey
Submitted? Yes ✕ No ______

Are there any deed restrictions or easements? Yes ______ No ✕ If yes, provide information and show easement location on site plan.

Building Information
Are there existing buildings on the site? Yes ______ No ✕ Number: ________________
Will they be removed? Yes ______ No______(Note: A demolition permit is required 10 days prior to demolition.)

Will a new structure(s) be built on the site? Yes ✕ No ______
Describe: Convenience Store & Bank
Number of new buildings 2
Square footage 15,000
Number of floor levels including basement 1

Parking
Number of existing parking spaces 0__________
Number of new parking spaces 50_________
Number of handicapped spaces 2__________
Will parking area be paved? _X_Yes ___No

Entrance
Location: Gray Rd/Skillin Rd
Width______Length _______
Is it paved?__X__Yes______No_______If not, do you plan to pave it?

Where will snow storage for entrance and parking be located? Show on site plan.

Utilities

Water: Public water__X___Well_______(Show location on site plan.)

Sewer/septic: Public sewer______Private septic___X___Show location on site plan and submit HHE-200 septic design or location of passing test pit locations if new system is proposed. Also show any wells on abutting properties within 200 feet of the site.

Electric: On site? Yes__X___No _______
Show location of existing and proposed utilities on the site plan and indicate if they are above or below ground.

Signs
Number: 2___________
Size:___________
Material: ___________
Submit sign design and completed sign application.
Will the sign be lighted? YES____Submit information on type and wattage of lights.
Show location of sign(s) on the site plan.

Natural Features
Show location of any of the following on the site plan:
River______Stream______Wetland ______ Pond ______ Lake ______ Stone walls ______
Are there any other historic or natural features? No___________________________

Lighting
Will there be any exterior lights? Yes __X___ No______Show location on site plan (e.g., pole fixtures, wall packs on building) and provide fixture and lumen information.

Trees
Show location of existing trees on the site plan and indicate if any are to be removed.

Landscaping
Is there existing landscaping on the site? Yes ______ No___X___Show type and location on site plan.

Is new landscaping proposed? (Note: if property has frontage on Route 100, a twenty-five-foot landscape easement to the Town is required.)

Buffering
Show any existing or proposed buffering measures for adjacent properties, e.g., plantings, fences.

Erosion Control
Has an erosion and sedimentation control plan been submitted? Yes __X__ No ______

Stormwater Management Plan
Provide stormwater information for both pre and post development of the site. Show location of any detention areas and/or culverts on the site plan.

Fire Protection
Location of nearest hydrant At Site Sprinklers? Yes ______ No __X__
Do you plan to have an alarm system? Yes__X__No_______Please contact the Fire/EMS Department at 829-4573 to discuss any Town or state requirements.

Trash
Will trash be stored inside ______ outside__X__. If outside, will a dumpster be used? Yes__X__No_______. Show location on site plan and show type of screening proposed (e.g., fencing, plantings).

Technical Capacity
List and provide contact information for all consultants who worked on the project, for example: licensed land surveyor, licensed soils evaluator, professional engineer, attorney, etc.
See Cover Letter

Financial Capacity
Please indicate how project will be financed. If obtaining a bank loan, provide a letter from the bank ________________

- Zoning district: VCC
- Minimum lot size: 20,000 SF
- Classification of proposed use: Gasoline Station
- Parcel size: 1.87
- Frontage: 460' ± on Gray Rd
- Setbacks: Front 25 Side 15 Rear 50
- Board of Appeals Required? No
- Tax Map U19 Lot 12&13 Deed book 20273 Deed page 256
- Floodplain map number 2301620018C Designation Zone C
- Vernal pool identified? No
- Is parcel in a subdivision? No
- Outside agency permits required:
  MDEP Tier 1________ MDEP Tier 2________ Army Corps of Engineers ________
  MDEP general construction (stormwater) permit (for disturbance of 1 acre or more)
- MDOT entrance permit No
- MDOT traffic movement permit Yes
- Traffic study required Yes
- Hydrogeologic evaluation Yes
- Market study ______________
- Route 1 Design Guidelines? No
- Route 100, VMU or TCD Design Standards? Yes

Applicant's signature ____________________________________

Submission date: ____________________________________

PLANNING BOARD SITE PLAN REVIEW SUBMISSION CHECKLIST

FOR ALL PROJECTS:

Submission Requirement	Provide Location in Application Packet (e.g., plan sheet number, binder section, narrative	If requesting a waiver, indicate below:
Example: Erosion Control	*Plan Sheet E-1*	
General Information:		
Completed Site Plan Application Form	Attachment A	
Names and addresses of all consultants	Attachment A	
Narrative describing existing conditions and the proposed project	Cover Letter	
Evidence of right, title or interest (deed, option, etc.)	Attachment B	
Names and Addresses of all property owners within 200 feet	Attachment C	
Boundaries of all contiguous property under control of owner	Plan C2	
Tax map and lot numbers	Attachment A	
Area of the parcel	Attachment A	
FEMA Floodplain designation & map #	Attachment F	
Zoning classification	Attachment F	
Evidence of technical and financial capability to carry out the project	Attachment G	
Boundary survey	Plan C2	
List of waiver requests on separate sheet with reason for request.	Attachment A	
Proposed solid waste disposal plan	Cover Letter	
Existing Conditions Plan showing:	Plan C2	
Name, registration number and seal of person who prepared plan	Plan C2	
North arrow, date, scale, legend	Plan C2	
Area of the parcel	Plan C2	
Setbacks and building envelope	Plan C2	
Utilities, including sewer & water, culverts & drains, on-site sewage	Plan C2	
Location of any septic systems	N/A	
Location, names, widths of existing public or private streets ROW's	Plan C2	

Location, dimension of ground floor elevation of all existing buildings	N/A	
Location, dimension of existing driveways, parking, loading, walkways	N/A	
Location of intersecting roads & driveways within 200 feet of the site	Plan C2	
Wetland areas	N/A	
Natural and historic features such as water bodies, stands of trees, streams, graveyards, stonewalls, floodplains	N/A	
Direction of existing surface water drainage across the site & off site	Plan C2	
Location, front view, dimensions and lighting of existing signs	N/A	
Location and dimensions of existing easements & copies of documents	Plan C2	
Location of nearest fire hydrant or water supply for fire protection	Plan C2	
Proposed Development Site Plan showing:	Plan C3	
Name of development	Plan C3	
Date	Plan C3	
North arrow	Plan C3	
Scale	Plan C3	
Legend	Plan C3	
Landscape plan	Plan L1	
Stormwater management	Attachment I & Plan C4	
Wetland delineation	N/A	
Current & proposed stands of trees	Plan L1	
Erosion control plan	Plan C4	
Landscape plan	Plan L1	
Lighting/photometric plan	Plan L2	
Location and dimensions of all proposed buildings	Plan C3	
Location and size of utilities, including sewer, water, culverts and drains	Plan C3	
Location and dimension of proposed on-site septic system; test pit locations and nitrate plumes	N/A	
Location of wells on subject property and within 200’ of the site	N/A	
Location, names and widths of existing and proposed streets and ROW’s	Plan C3	

Location and dimensions of all accessways and loading and unloading facilities	Plan C3	
Location and dimension of all existing and proposed pedestrian ways	Plan C3	
Location, dimension and # of spaces of proposed parking areas, including handicapped spaces	Plan C3	
Total floor area and ground coverage of each proposed building and structure	Plan C3	
Proposed sign location and sign lighting	Plan C3	
Proposed lighting location and details	Attachment H & Plan L2	
Covenants and deed restrictions proposed	N/A	
Snow storage location	Sheet C3	
Solid waste storage location and fencing/buffering	Sheet C3	
Location of all fire protection	Sheet C3	
Location of all temporary & permanent monuments	N/A	
Street plans and profiles	N/A	

ADDITIONAL REQUIREMENTS FOR MAJOR SITE PLAN PROJECTS:

Submission Requirement	**Provide Location in Application Packet (e.g., plan sheet number, binder section, narrative**	**If requesting a waiver, indicate below:**
High intensity soils survey		w
Hydro geologic evaluation		w
Traffic Study		w
Market Study		w
Location of proposed recreation areas (parks, playgrounds, other public areas)	N/A	
Location and type of outdoor furniture and features such as benches, fountains.	N/A	

Attachment B
Right, Title, & Interest

Copies of the current deed are included with this attachment.

DEED OF SALE BY PERSONAL REPRESENTATIVE (TESTATE)
Maine Statutory Short Form

WILLIAM B. GERRY, of Pea Ridge, County of Benton, and State of Arkansas, duly appointed and acting personal representative of the **ESTATE OF EILEEN G. RACKLEY, DECEASED** (testate), as shown by the probate records of Cumberland County, Maine, (Docket no. 2003-217), the said **EILEEN G. RACKLEY** being formerly known as **EILEEN M. GERRY**, and having given notice to each person succeeding to an interest in the real property described below at least ten (10) days prior to the sale, by the power conferred by the Probate Code, and every other power, for consideration paid, grants to **RONALD W. COPP, SR.** and **RONALD W. COPP, JR.**, of Cumberland, in the County of Cumberland, and State of Maine, whose mailing address is 187 Gray Road, Cumberland, Maine 04021, the real property in the Town of Cumberland, County of Cumberland, and State of Maine described as follows:

A certain lot or parcel of land, with the buildings and improvements thereon, situated in Cumberland, in the County of Cumberland, and State of Maine, bounded and described as follows:

MAINE REAL ESTATE TAX PAID

Beginning at a point on the easterly boundary of the new Gray Road, so called, at the northwesterly corner of the second parcel conveyed by Eva A. Burgess to Jeanette D. Goodoff by deed dated April 7, 1941 and recorded in Cumberland County Registry of Deeds, Book 1631, Page 468; thence northerly two hundred seven (207) feet more or less by said easterly boundary of said Gray Road to the intersection thereof with the southerly boundary of the Skillin Road, so called; thence easterly along said southerly boundary of said Skillin Road two hundred (200) feet to a point; thence southerly to a point on the northerly boundary of said land now or formerly of Goodoff which point is two hundred (200) feet easterly from the point of beginning; thence westerly along said northerly boundary of said land now or formerly of Goodoff two hundred (200) feet to the point of beginning.

Being the same premises described in the deed of Eva A. Burgess to Eileen M. Gerry dated August 30, 1956 and recorded in the Cumberland County Registry of Deeds in Book 2313, Page 493, and all rights in a lease, an assignment of which is attached hereto.

WITNESS my hand and seal this 25th day of September, 2003.

Keith Snitger
Witness

William B Gerry PR
William B. Gerry, Personal Representative
Estate of Eileen G. Rackley, Deceased

State of Maine
Cumberland, ss

September 25 2003

Personally appeared before me the above-named **William B. Gerry** in his said capacity and acknowledged the foregoing instrument to be his free act and deed.

Keith Snitger
Notary Public/Attorney at Law
KENNETH E. SNITGER
MAINE ATTORNEY AT LAW

Printed Name

ASSIGNMENT

KNOW ALL PERSONS BY THESE PRESENTS that William B. Gerry, of 14996 It'll Do Road, Pea Ridge, Arkansas 72751, duly appointed and acting personal representative of the Estate of Eileen G. Rackley, deceased (testate), as shown by the probate records of the County of Cumberland, Maine, Docket No. 2003-217 (hereinafter referred to as "Assignor"), for consideration paid by Ronald W. Copp, Sr. and Ronald W. Copp, Jr., both of 187 Gray Road, Cumberland, Maine 04021 ("Assignee"), hereby assigns all of Assignor's right, title and interest in and to:

A certain Lease on the premises situated at 181 Gray Road, Cumberland, Maine, being known as the property for "Mr. Bill's Auto Sales", which lease was executed between William Richards dba Mr. Bill's Auto Sales, Inc. and Eileen Rackley.

TO HAVE AND TO HOLD the same unto the Assignee and their heirs, successors, personal representatives and assigns, of the Assignee forever.

Witness my hand this 25th day of September, 2003.

Estate of Eileen G. Rackley (Assignor)

Keith Stacy
Attny: at Law

By: William B. Gerry P.R.
William B. Gerry,
Personal Representative

By: Ronald W. Copp Sr.
Ronald W. Copp, Sr. (Assignee)

To all

By: Ronald W. Copp Jr.
Ronald W. Copp, Jr. (Assignee)

Received
Recorded Register of Deeds
Sep 25,2003 03:11:10P
Cumberland County
John B. O Brien

53407

QUIT CLAIM DEED WITH COVENANT

Instr 53407 Bk 9758 Pg 327

I, JERALD E. COPP of West Cumberland, in the County of Cumberland and State of Maine

for consideration paid, hereby grant to

ELEANOR M. COPP, of West Cumberland, in the County of Cumberland and State of Maine, with QUIT CLAIM COVENANTS, the following described real estate:

A certain lot or parcel of land with any buildings or improvements thereon and easements appurtenant thereto as described in Appendix A attached hereto and made a part hereof.

Meaning and intending to convey and hereby conveying my one-third (1/3) undivided interest in that certain parcel of land conveyed to grantor herein et al by deed of Michael M. Wilson et al dated May 4, 1976, recorded in the Cumberland County Registry of Deeds in Book 3841, Page 153.

WITNESS my hand this 2nd day of Aug., 1988.

Jerald E. Copp Sr.
Jerald E. Copp

THE STATE OF MAINE Cumberland ss. August 2, 1988

Then personally appeared the above-named JERALD E. COPP and acknowledged the foregoing instrument to be his free act and deed.

Before me, Naomi H. Meadows
~~Attorney at Law~~ / Notary Public

SEAL

NAOMI H. MEADOWS
NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES JUNE 12, 1994

APPENDIX A

a certain lot or parcel of land situated in the Town of Cumberland, County of Cumberland and State of Maine, being a part of the parcel as described on the Cumberland Town Tax Map U-19, Lot #8, more particularly bounded and described as follows:

Beginning at a point on the Westerly sideline of the New Gray Road (Routes 26 and 100) at the Northeasterly corner of land now or formerly of Elizabeth I, Pendexter (Lot #7 on said Tax Map) and running in a general Westerly direction on a line parallel to the Northerly boundary of said Pendexter land in a straight line to a point on the boundary line of land of Mabel I. Wilson; thence in a general Northwesterly direction along the line of land of said Mabel I. Wilson to a point markingthe boundary of land owned by the Town of Cumberland; thence in a general Northeasterly direction SIX HUNDRED SIXTY-SEVEN (667) FEET, more or less, along the line of land of said Town of Cumberland to a point marking the Southeasterly corner of land of Grantees herein; thence in a general Easterly direction a distance of ONE HUNDRED SIXTY-FIVE (165) FEET, more or less, to the Westerly sideline of said New Gray Road; thence Southerly along the Westerly sideline of said New Gray Road a distance of SIX HUNDRED FORTY (640) FEET, more or less, to the point of beginning.

Recorded
Cumberland County
Registry of Deeds
10/22/91 12:55:28PM
Robert P. Titcomb
Register

MAINE SHORT FORM QUITCLAIM DEED WITH COVENANT

ELEANOR M. COPP. of Cumberland, Cumberland County, Maine, and **RONALD W. COPP** of Cumberland, Cumberland County, Maine, for consideration paid, hereby grant to **COPP BROTHERS REAL ESTATE,** a Maine corporation with a mailing address of 187 Gray Road, Cumberland, Maine 04021, with **QUITCLAIM COVENANT**, certain lots or parcels of land situated in Cumberland, Cumberland County, Maine, being more particularly described in the deed of Jerald E. Copp to Eleanor M. Copp, dated August 2, 1988, and recorded in the Cumberland County Registry of Deeds in Book 9758, Page 327, and in the deed of Michael M. Wilson dated May 4, 1976, and recorded in Book 3841, Page 153.

WITNESS my hand and seal this 31st day of December, 2004.

Linda O'Connor
Witness

Robyn Custer
Witness

Eleanor M. Copp
Eleanor M. Copp

Ronald W. Copp
Ronald W. Copp

STATE OF MAINE
COUNTY OF Cumberland, SS.

Personally appeared before me this 4 day of ~~November, 2004~~ January, 2005, the above-named Eleanor Copp, Ronald Copp acknowledged the foregoing instrument to be his/her/their free act and deed.

Amy Maheux
Notary Public/Attorney-at-Law

AMY D. MAHEUX
NOTARY PUBLIC, STATE OF MAINE
MY COMMISSION EXPIRES OCT. 26, 2007
Type or Print Name

My commission expires: ______________

TITLE NOT SEARCHED.
DESCRIPTION NOT VERIFIED.

H:\DOCS\RATTEY\Copp Brothers 33404\quitclaim deed - Wilson Lot.wpd
"Wilson Lot"

SEAL

Received
Recorded Register of Deeds
Jan 27,2005 03:21:10P
Cumberland County
John B OBrien

MAINE SHORT FORM QUITCLAIM DEED WITH COVENANT

KNOW ALL MEN BY THESE PRESENTS that **COPP BROTHERS REAL ESTATE,** a Maine corporation with a principal place of business in Cumberland, Cumberland County, Maine for consideration paid, hereby grants to **RONALD COPP, SR., HOWELL COPP**, and **JERALD COPP, JR.,** individuals with a mailing address of 187 Gray Road, Cumberland, Maine 04021, as tenants in common, with QUITCLAIM COVENANT, those certain lots or parcel of land situated in **Cumberland,** Cumberland County, Maine, being more particularly described ion the following deeds:

1. Deed from Eleanor M. Copp and Ronald W. Copp to Copp Brothers Real Estate recorded in the Cumberland County Registry of Deeds on January 27, 2005, in Book 22269, Page 349 (Wilson Lot)

2. Deed from Eleanor M. Copp and Ronald W. Copp to Copp Brothers Real Estate recorded in the Cumberland County Registry of Deeds on January 25, 2005, in Book 22270, Page 4 (Log Cabin).

The premises are conveyed subject to any easements and restrictions of record and include all rights, easements, and privileges pertaining thereto.

IN WITNESS whereof, Copp Brothers Real Estate has caused this instrument to be signed and sealed by Christopher J. Copp, its President, there unto duly authorized this 23rd day of ~~December, 2017~~.
JANUARY 2018

COPP BROTHERS REAL ESTATE

SEAL

Witness

By: Christopher J. Copp, President

STATE OF MAINE
COUNTY OF CUMBERLAND, SS.

Personally appeared before me this ___ day of December, 2017, the above-named Christopher J. Copp, President of Copp Brothers Real Estate and acknowledged the foregoing instrument to be his free act and deed in said capacity and the free act and deed of Copp Brothers Real Estate.

____
Notary Public/Maine Attorney-at-Law

____
Type or Print Name
My commission expires: ______________

TITLE NOT SEARCHED.

H:\DOCS\RATTEY\Copp Brothers 33404\MSFQCCDEED-R-H-J.docx

STATE OF MAINE - COUNTY OF Cumberland
Subscribed and sworn (or affirmed) before me this
this 23rd day of January, 20 18
by Christopher Copp
Personally Known____ OR Produced Identification ✓
Type of Identification Drivers License

NOLAN J. LOVELL, Notary Public
My Commission Expires May 8, 2024

Received
Recorded Register of Deeds
Feb 06,2018 01:37:23P
Cumberland County
Nancy A. Lane

Attachment C
Abutting Property Owners

A copy of the abutters map and a list of abutting property owners are included in this attachment for reference.

TOWN OF CUMBERLAND 290
TUTTLE RD.
CUMBERLAND CTR, ME 04021-9321

WSAH PROPERTY LLC
C/O CHARLES PERKINS, VMD
GRAY, ME 04039

COPP CHRISTOPHER J
17 BROWNING WAY
CUMBERLAND CTR, ME 04021

COPP RONALD W SR
187 GRAY ROAD
CUMBERLAND, ME 04021

COPP, RONALD SR; COPP, HOWELL
187 GRAY RD
CUMBERLAND CTR, ME 04021

COPP HOWELL
PO BOX 501
GRAY, ME 04039

WEED CLAYTON E
PO BOX 324
CUMBERLAND, ME 04021

TAYLOR, JENNIFER B
10 KATHY LN
CUMBERLAND, ME 04021

BUDD IRREVOCABLE TRUST
157 GRAY RD
CUMBERLAND, ME 04021

MARSH TIMOTHY J & AMY E
15 KATHY LANE
CUMBERLAND, ME 04021

GIBBS RICHARD S
7 KATHY LANE
CUMBERLAND, ME 04021

GRANT, KRISTINA L
10 SKILLIN RD
CUMBERLAND, ME 04021

RICHARDSON JAMES M
15 MILL RIDGE ROAD
CUMBERLAND, ME 04021

RICHARDSON JAMES M
15 MILL RIDGE ROAD
CUMBERLAND, ME 04021

GREEN SIP CONSTRUCTION, INC
110 MARGINAL WAY
PORTLAND, ME 04101

COPP RONALD W SR
187 GRAY ROAD
CUMBERLAND, ME 04021

CASCO HOLDINGS, LLC
1 FARADAY DRIVE, SUITE 1
CUMBERLAND, ME 04021

BOCCELLI, ADAM
8 WISTERIA LN
INLET BEACH, FL 32461

WETZEL CURTIN J*
6 SKILLIN ROAD
CUMBERLAND, ME 04021

D

Abutting Property Owners

Attachment D
Photographs

Photographs of the project area are included for reference.

Photographs of Existing Site

Aerial View of Existing Site

Photographs of Existing Site

Photograph 1: Auto Sales & Service Building

Photograph 2: Looking North from Proposed Entrance on Gray Road

Photographs of Existing Site

Photograph 3: Looking South from Proposed Entrance on Gray Road

Photograph 4: Looking East from Proposed Entrance on Skillin Road

PRIORITY REAL ESTATE GROUP LLC

Photographs of Existing Site

Photograph 5: Looking South from Intersection

Photograph 6: View of Site from South End

PRIORITY REAL ESTATE GROUP LLC

Attachment E
Supporting Documents

Copies of relevant correspondence and documents pertaining to the project are enclosed.

CONVENIENCE STORE WITH GASOLINE FUELING
and
BRANCH BANK DEVELOPMENT
CUMBERLAND, MAINE

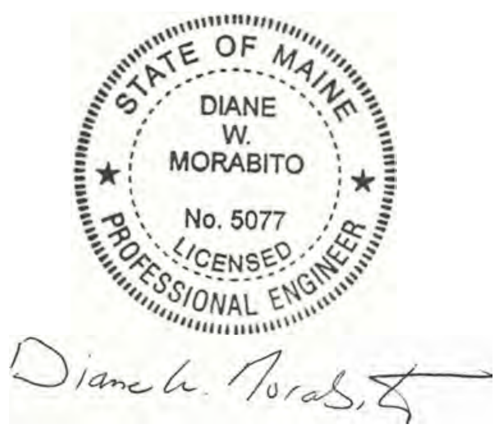
SECTIONS 1 – 7

TRAFFIC MOVEMENT PERMIT APPLICATION

Submitted to:

MAINE DEPARTMENT OF TRANSPORTATION

REGION 1, SCARBOROUGH, MAINE



November 22, 2023

Applicant:

Cumberland Real Estate Group, LLC
2 Main Street
Topsham, ME 04086

Sewall
The evolution of expertise

A TFIC Company

14 York Street · Portland, Maine 04101 · +1.207.817.5440 · sewall.com · info@sewall.com

INTRODUCTION

The purpose of this application is to summarize the information required by the Maine Department of Transportation (MaineDOT) in a Traffic Movement Permit application for a proposed development to be located on Route 26/100 in Cumberland, Maine. Trip generation, performed using the Institute of Transportation Engineers (ITE) report, indicates that the development will generate more than 100 new peak hour trips. As a result, the project requires a Traffic Movement Permit (TMP). The Scoping Meeting was held on Monday, October 30th at 11:00 AM via Zoom.

SITE DESCRIPTION - SECTION 1A

The site is located in the southeast quadrant of the intersection of Route 26, Skillin Road and Blackstrap Road in Cumberland, as shown on the map in Figure 1.

EXISTING AND PROPOSED USES - SECTION 1B

The proposed convenience store building will be 4,890 square feet (S.F.) in size, and it will provide eight (8) gasoline fueling positions. Additionally, a proposed branch bank will be located on site, 2,820 S.F. in size, which will provide two drive-through lanes. The site was recently occupied by a used car dealership, which was operating in 2022. The existing car dealership building is 1,120 S.F.

There are no sidewalks extending much beyond the intersection along Skillin Road, Blackstrap Road or Gray Road given the rural nature. However, there are some on-site sidewalks extending along the Route 26 and the Blackstrap Road property frontage at the development on the opposite side of Route 26. Similarly, the site plan for the proposed convenience store and bank shows sidewalks along the site frontage on Route 26 and down along Skillin Road to the proposed entrance. There is no public scheduled bus serving this portion of Cumberland.

SITE VICINITY - SECTION 1C

The site location is shown on the map in Figure 1.

OTHER DEVELOPMENT - SECTION 1D

The Town of Cumberland Planner was contacted to determine if there are any other approved (but unbuilt) developments, expected to significantly impact future volumes in the vicinity of the site, which should be considered in the traffic analysis. One other pending development project was identified, a 72-unit condominium complex at 77 Blackstrap Road. It is understood that the condominiums will be single-family detached homes. No traffic study has yet been performed for this proposed development but based upon ITE data these 72 condominiums would be expected to generate:

- 50 AM Peak Hour Trips, 13 entering and 37 exiting
- 68 PM peak Hour Trips, 43 entering and 25 exiting

TRIP GENERATION - SECTION 1E

The number of trips to be generated by the proposed convenience store and bank were estimated utilizing the latest Institute of Transportation Engineers (ITE) "Trip Generation, 11th edition". Land use code (LUC) 945 – Convenience Store/Gas station was utilized on the bases of both square footage and fueling positions. The bank was estimated utilizing LUC 912 – Drive-Bank on the bases of both 2,820 S.F. and 2 drive-in lanes. The results were averaged for both uses, as is customary. The results are summarized in the following table:

PROPOSED TRIP GENERATION (One-Way Trip-Ends)

	C-Store			Bank			Total
Time Period	F.P.	S.F.	Avg.	S.F.	Lanes	Avg.	Trips
Weekday	2058	3052	2556	284	250	268	2824
AM Peak Hour – Adjacent Street	216	198	207	28	17	23	230
Entering	108	99	104	16	10	13	117
Exiting	108	99	103	12	7	10	113
PM Peak Hour – Adjacent Street	182	237	210	59	54	57	267
Entering	91	119	105	30	27	29	134
Exiting	91	118	105	29	27	28	133
AM Peak Hour – Generator	216	203	210	42	34	38	248
Entering	108	101	105	22	19	21	126
Exiting	108	102	105	20	15	17	122

	C-Store			Bank			Total
Time Period	F.P.	S.F.	Avg.	S.F.	Lanes	Avg.	Trips
PM Peak Hour – Generator	191	245	218	59	45	52	270
Entering	96	123	109	29	22	26	135
Exiting	95	122	109	30	23	26	135
Saturday Peak Hour - Generator	164	--	164	74	55	65	229
Entering	83	--	83	38	27	33	116
Exiting	81	--	81	36	28	32	113

As seen above, total one-way trips to the site are estimated to range from 229 to 270 in peak hours. There is credit for grandfathered trips for recent uses. The trips for the former used car dealership were similarly estimated using ITE. Land use code 841 – Automobile Sales (Used) was used based on the 1,120 S.F. The results are summarized below:

FORMER TRIP GENERATION (One-Way Trip-Ends)

Time Period	Trips
Weekday	30
AM Peak Hour – Adjacent Street	2
Entering	2
Exiting	0
PM Peak Hour – Adjacent Street	4
Entering	2
Exiting	2
AM Peak Hour – Generator	5
Entering	3
Exiting	2
PM Peak Hour – Generator	6
Entering	3
Exiting	3
Saturday Peak Hour - Generator	--
Entering	--
Exiting	--

As seen above, the former used cars sales facility generated few trips, from 2 to 6 one-way trips, in peak hours. This does not alter the TMP level, nor would the credit have any significant impact on any traffic analysis. Hence, to simplify the analysis, since those trips would not be reflected in the current traffic counts, no credit was taken for these grandfathered trips in the trip assignments or forthcoming analysis.

Not all the trips generated by the convenience store or bank will be new trips to the adjacent street system. Many of the trips will be pass-by trips, trips that are already on Route 26 or Skillin Road. ITE data, from the 11th edition, indicates the following pass-by rates for the AM and PM peak hours:

Land Use	AM Pass-by Rate	PM Pass-by Rate
Convenience Store w/ Gasoline Pumps	60 %	56 %
Drive-In bank	29 %	35 %

The above percentages result in the following trip summary for the peak hours of the adjacent street, the expected analysis periods:

	C-Store		**Bank**		**Total Trips**	
Peak Hour	Pass-By	Primary	Pass-By	Primary	Pass-By	Primary
AM Peak Hour – Adjacent Street	124	83	7	16	131	99
Entering	62	42	4	9	66	51
Exiting	62	41	3	7	65	48
PM Peak Hour – Adjacent Street	118	92	20	37	138	129
Entering	59	46	10	19	69	65
Exiting	59	46	10	18	69	64

As seen above, the proposed development is expected to generate 99 primary trips in the AM peak hour and 129 in the PM peak hour. The remaining trips are expected to be pass-by trips, trips that are already on Route 26 or Skillin Road that simply divert into the site. The trip generation analysis and pass-by rates were reviewed and approved at the Scoping Meeting.

TRIP DISTRIBUTION AND ASSIGNMENTS - SECTION 1F & G

Turning movement/classification counts were conducted by Sewall during the weekday AM and PM peak hour periods as outlined below:

Intersection	Count Date	Count Period	Peak Hour
Route 26, Skillin & Blackstrap Roads	8/9/2023	7:00 – 9:00 AM	7:45 – 8:45
Route 26, Skillin & Blackstrap Roads	8/9/2023	3:00 – 6:00 PM	4:15 – 5:15

Additionally, a PM peak hour count was conducted at the intersection of Gray Road, Falmouth Road & Mountain Road on August 22, 2023. The peak hour occurred from 4:30 – 5:30.

The count records were included in the Section 1 – 6 submittal. Given that the counts were conducted under peak summer conditions no seasonal adjustments were necessary to obtain 30th highest hour volumes for analysis purposes. The count results are summarized in Figure 2.

The trip assignments were based upon the travel patterns recorded during the counts. The pass-by trips were assigned based upon the volumes passing the site during the peak hours. The resulting trip assignments are shown in Figures 3 & 4 for the AM and PM peak hours. These trip assignments were reviewed and approved at the Scoping Meeting. Based upon the trip assignments the study area for capacity analysis purposes was defined as the intersection of Route 26/100, Skillin Road and Blackstrap Road, as well as the site drive intersections.

ACCIDENT REVIEW - SECTION 2

The Maine Department of Transportation uses two criteria to determine high crash locations (HCLs). The first is the critical rate factor (CRF), which is a measure of the accident rate. A CRF greater than one indicates a location which has a higher than expected crash rate. The expected rate is calculated as a statewide average of similar facilities. The second criterion, which must also be met, is based upon the number of accidents that occur at a particular location. Eight or more accidents must occur over the three-year study period for the location to be considered a high crash location.

Accident data was obtained from MaineDOT for the vicinity of the site for the most recent 3-year period (2020 – 2022) for an extended study area, from Falmouth Road in Falmouth, to Yarmouth Road in Gray, as well as Skillin Road. The number of crashes and CRF are summarized by location in the following tables:

Route 26 Location Description	# of Crashes	CRF
Intersection of Falmouth and Mountain Roads in Falmouth	6	0.38
Between Eastern Avenue and 0.95 mile north	9	0.42
Between 0.95 mile north Eastern Avenue and Hadlock Road	2	0.29
Intersection of Hadlock Road in Falmouth	1	0.33
Between Hadlock and Hurricane Roads	7	0.53
Intersection of Hurricane Road in Falmouth	1	0.39
Between Hurricane and Schuster Roads	6	0.56
Between Schuster Road and Falmouth-Cumberland line	*7*	*1.24*
Between Falmouth-Cumberland line and Range Road	8	0.88
Intersection of Range Road in Cumberland	5	1.69
Between Range and Lower Methodist Roads	4	0.61
Between Lower Methodist and Castlerock Drive	3	0.44
Between Castlerock and Rooster Ridge	3	1.08
Between Rooster Ridge and Mill Road	1	0.28
Intersection of Mill Road in Cumberland	1	0.43
Between Mill and Skillin/Blackstrap Roads	2	0.24
Intersection of Skillin & Blackstrap Roads	5	1.34
Between Skillin/Blackstrap Roads and Highland Avenue	1	0.23
Intersection of Highland Avenue in Cumberland	1	0.43
Between Forest Ave and Old Gray Road	*7*	*1.00*
Intersection of Old Gray Road in Cumberland	2	0.89
Between Old Gray Road and Cumberland-Gray line	2	0.40
Between I-95 Parking and Verrill Road	1	0.11
Between Two Lights and Dutton HL	3	0.56
Intersection of Dutton HL	1	0.41

Route 26 Location Description	# of Crashes	CRF
Between Dutton HL and 0.63 Mile North	8	0.75
Between 0.63 mile north Dutton HL and Upper Marginal Way	1	0.21
Between Whitney Road and 0.36 mile north	5	0.66
Between 0.36 mile north Whitney Road and Old Hunts Hill Road	2	0.46
Between Old Hunts Hill and Long Hill Roads	1	0.51
Between Hunts Hill Road and 1.26 mile north	13	0.46
Between 1.26 mile north Hunts Hill and Yarmouth Road	5	0.34
Intersection of Yarmouth Road and Portland Road in Gray	11	0.43

Skillin Road Location Description	# of Crashes	CRF
Between Kathy Lane and Pond Shore Drive	1	0.17
Intersection of Blanchard Road	1	0.60

As seen above, there are no high crash locations within the extended study area. Two Route 26 segments are approaching the criteria with a CRF of 1.00 or more and 7 crashes. As a result, collision diagrams were requested from MaineDOT to determine if there are any accident patterns or trends are evident that may indicate a correctable safety deficiency. The diagrams are evaluated as follows:

Between Schuster Road and Falmouth-Cumberland line	7	1.24

There were two crashes in 2020, three in 2021 and two in 2022. Five of the seven crashes were single vehicle deer hits. One single vehicle off the road crash occurred when a driver fell asleep. Lastly, there was a head on type crash that occurred when a driver fell asleep. There is no pattern of correctable type crashes, but “deer” warning signs could be considered. A Google Earth review of the segment did not reveal any deer warning signs but the images are not up to date.

Between Forest Ave and Old Gray Road	7	1.00

There were two crashes in 2020, one in 2021 and four in 2022. Five of the seven crashes were single vehicle deer hits, all in the northbound direction. There was a single head on type crash attributed to a driver going the wrong way. There was a single vehicle fire. There is no pattern of correctable type crashes but “deer” warning signs, again, could be considered.

At the Scoping Meeting the Town Manager expressed concern with the accident data for the intersection of Skilllin Road and Blackstrap Road. While the 2020 – 2022 crash data, the most recent full 3-year study period, did not identify the intersection as a high crash location it is understood that there have been several crashes in 2023. As a result, an updated collision diagram was obtained from MaineDOT for the 2021 to 2023 period. This diagram is included in the appendix and is evaluated as follows:

Intersection of Route 100, Skillin Road and Blackstrap Road

There were nine crashes at the intersection over the 3-year period 10/1/20 to 9/30/23. The CRF factor for this period is 2.29 making the intersection a HCL. The diagram shows that there were two rear-end collisions, one on the Blackstrap Road approach attributed to following two close and one on Skillin Road attributed to excessive speed. There was a single vehicle car fire. The remaining six crashes were angle collisions between Route 100 vehicles and side street movements, three involving vehicles exiting Skillin Road and three involving vehicles exiting Blackstrap Road.

The Town has planned a signage improvement project to reduce the angle collisions. Sewall has reviewed the plan prepared by Gorrill Palmer and concurs with the recommended actions. It is important to note that the Town has been opposed to other corrective measures, such as all-way stop control. The Town is seeking MaineDOT funding to have a roundabout constructed to address the crash issues long-term.

ENTRANCES AND EXITS - SECTION 3

The site plan provides for two curb cuts, as is typical for on-site flow for a convenience store with gasoline fueling facilities. A single curb cut is proposed to Gray Road, aligning with the opposite drive and providing 300' of corner clearance. The single curb cut to Skillin Road is as far as possible from Gray Road, providing over 150' of corner clearance. The speed limits and sight distances are shown on the site plan prepared by Priority Real Estate Group, which is included in this application. Given that large delivery vehicles will cross the centerline of the drives, these deliveries are expected to be restricted to off-peak hours in the TMP.

TITLE, RIGHT OR INTEREST - SECTION 4

The deeds and sales agreements for the two parcels were included in Section 1 – 6 application package.

PUBLIC OR PRIVATE RIGHTS-OF-WAY - SECTION 5

No new public rights-of-way are proposed.

SCHEDULE - SECTION 6

Construction is expected to begin in spring of 2024 after permits are issued with completion in fall of 2024. Hence, 2024 was selected as the study year for traffic analysis purposes.

TRAFFIC IMPACT STUDY - SECTION 7

INTRODUCTION

The purpose of Section 7 of this report is to summarize the traffic study components requested by the Maine Department of Transportation (MaineDOT) during the Scoping Meeting for a Traffic Movement Permit for the proposed convenience store and bank development. The Scoping Meeting was held at 11:00 AM on Monday, October 30th, 2023 via Zoom.

A. STUDY PREPARATION

This study was prepared by Diane W. Morabito, Maine P.E. 5077 and PTOE 571.

B. STUDY HORIZON

Given the preceding construction schedule, 2024 was selected as the Build analysis year.

C. SITE AND TRAFFIC INFORMATION

Site and traffic information are provided in Section 1 of this report.

D. TRIP ASSIGNMENTS

The trip assignments are described in Section 1F and are shown in Figures 3 and 4, which were reviewed and approved at the Scoping Meeting. Based upon the trip assignments, the study area was defined as extending from the site through the unsignalized intersection of Gray Road, Skillin Road and Blackstrap Road.

E. TRAFFIC VOLUMES

As previously noted, Sewall conducted turning movement/classification counts at the intersection of Route 26/100, Skillin Road and Blackstrap Road under peak summer conditions in 2023, as outlined below:

Intersection	Count Date	Count Period	Peak Hour
Route 26, Skillin & Blackstrap Roads	8/9/2023	7:00 – 9:00 AM	7:45 – 8:45
Route 26, Skillin & Blackstrap Roads	8/9/2023	3:00 – 6:00 PM	4:15 – 5:15

The count records were included in the Section 1 – 6 application package. Given that the counts were conducted under peak summer conditions, no seasonal adjustments were necessary to obtain 30th highest hour volumes for analysis purposes. The count results are summarized in Figure 2.

Average annual daily traffic (AADT) data for the area was obtained from MaineDOT's Interactive Traffic Map. This data is summarized below:

	Average Annual Daily Traffic				
Location Description	2013	2015	2016	2018	2022
Route 26/100, south of Skillin/Blackstrap Rds	6100	6540	6260	6210	5560
Route 26/100, north of Skillin/Blackstrap Rds	6710	6120	6110	5720	5610
Route 26/100, north of Mountain/Falmouth Rds	8500	--	7550	--	6690
Route 26, north of Hunt Hill Road in Gray	6760	--	6340	--	6610

As seen above, traffic volumes on Route 26/100 have declined at the site, as well as north and south of the site, during the period 2013 to 2022. Based upon this historical data, a 0.50 % percent growth rate was utilized to project the 2023 volumes to base 2024 conditions.

As previously noted, one other development was identified, a proposed 72-unit condominium complex at 77 Blackstrap Road. It is understood that the condominiums will be single-family detached homes. No traffic study has yet been performed for the proposed development but based upon ITE data these 72 condominiums would be expected to generate:

- 50 AM Peak Hour Trips, 13 entering and 37 exiting
- 68 PM peak Hour Trips, 43 entering and 25 exiting

These trips were assigned to Blackstrap Road as shown in Figure 5. The projected 2024 No Build volumes, allowing for annual traffic growth and the condominiums to be fully occupied, are shown in Figure 6. Lastly, the projected 2024 Build volumes are shown in Figure 7.

F. CAPACITY ANALYSES

Traffic operations are evaluated in terms of level of service (LOS). Level of service is a qualitative measure that describes operations by letter designation. The levels range from A - very little delay to F - extreme delays. Level of service "D" is generally considered acceptable in urban locations while LOS "E" is generally considered the capacity of a facility and the minimum tolerable level. The level of service for unsignalized intersections is based upon average control delay per vehicle for each minor, opposed movement, as defined in the following table excerpted from the 2010 "Highway Capacity Manual":

Unsignalized Intersection Level of Service

LOS	Delay Range
A	< = 10.0 seconds
B	> 10.0 and <= 15.0
C	> 15.0 and <= 25.0
D	> 25.0 and <= 35.0
E	> 35.0 and <= 50.0
F	> 50.0

AUXILIARY TURN LANE WARRANTS

Auxiliary right-turn and left-turn lane warrant analyses were requested at the Scoping Meeting for the proposed Gray Road site drive intersection. The analyses were performed utilizing the warrant charts in NCHRP 457, which are included in the appendix. The projected Build volumes were adjusted to an average day utilizing MaineDOT group mean factors. Sewall utilized 40-mph for the analyses as opposed to the posted 35-mph speed limit. The results show that neither a right-turn lane nor a left-turn lane are warranted on Route 100 to store traffic entering the site.

UNSIGNALIZED INTERSECTION ANALYSIS

The level of service (LOS) was calculated for the unsignalized study area intersection and the site drives for projected 2024 No Build and Build conditions using Synchro 11/SimTraffic to assure acceptable levels of service, the average of ten (10) runs. The results are summarized in the following tables:

Route 26/100, Skillin Road and Blackstrap Road

AM Peak Hour Level of Service

Approach/Lane	No Build 2024	Build 2024
Blackstrap Rd Eastbound Approach	A (8.8)	A (9.6)
Skillin Rd Westbound Approach	A (7.7)	A (8.9)
Route 26/100 Northbound Approach	A (0.9)	A (1.1)
Route 26/100 Southbound approach	A (2.0)	A (2.1)
Intersection Overall	**A (4.2)**	**A (4.7)**

PM Peak Hour Level of Service

Approach/Lane	No Build 2024	Build 2024
Blackstrap Rd Eastbound Approach	B (11.9)	B (12.2)
Skillin Rd Westbound Approach	B (10.6)	B (11.5)
Route 26/100 Northbound Approach	A (1.5)	A (1.6)
Route 26/100 Southbound approach	A (1.9)	A (2.1)
Intersection Overall	**A (4.6)**	**A (4.8)**

As seen above, the SimTraffic analysis shows the side street approaches operate at LOS “A” during the AM peak hour and at LOS “B” during the PM peak hour, demonstrating no capacity concerns. The results also demonstrate the minimal impact the convenience store will have off-site with no significant change in delays (less than 1 second) between No Build and Build conditions.

Route 26/100 & Site Drive

AM Peak Hour Level of Service

Approach/Lane	Build 2024
Site Drive Westbound Lefts/Rights	A (5.9)
Route 26/100 Northbound Thrus/Rights	A (1.0)
Route 26/100 Southbound Thrus/Lefts	A (1.0)
Intersection Overall	**A (1.6)**

PM Peak Hour Level of Service

Approach/Lane	Build 2024
Site Drive Westbound Lefts/Rights	A (8.4)
Route 26/100 Northbound Thrus/Rights	A (1.9)
Route 26/100 Southbound Thrus/Lefts	A (1.3)
Intersection Overall	**A (2.5)**

As seen above, the Gray Road site drive will operate at LOS "A" during both the AM and PM peak hours. Hence, no capacity concerns are anticipated at the site drive.

Skillin Road & Site Drive
AM Peak Hour Level of Service

Approach/Lane	Build 2024
Skillin Rd Eastbound Thrus/Rights	A (1.2)
Skillin Rd Westbound Lefts/Thrus	A (1.5)
Site Drive Northbound Approach Lefts/Rights	A (3.6)
Intersection Overall	**A (1.6)**

PM Peak Hour Level of Service

Approach/Lane	Build 2024
Skillin Rd Eastbound Thrus/Rights	A (1.1)
Skillin Rd Westbound Lefts/Thrus	A (1.9)
Site Drive Northbound Approach Lefts/Rights	A (4.1)
Intersection Overall	**A (1.7)**

As seen above, the Skillin Road site drive will also operate at LOS "A" during both peak hours demonstrating no capacity concerns.

QUEUE ANALYSIS

In addition to level of service, queues were also evaluated using SimTraffic, as requested at the Scoping Meeting. The results, averaging ten (10) runs, are summarized in the following tables:

Route 26/100, Blackstrap & Skillin Roads
AM Peak Hour 95th Percentile Queues

Approach/Movement	No Build 2024	Build 2024
Blackstrap Rd Eastbound Approach	86’	92’
Skillin Rd Westbound Approach	70’	76’
Route 26/100 Northbound Approach	40’	45’
Route 26/100 Southbound Approach	43’	44’

PM Peak Hour 95th Percentile Queues

Approach/Movement	No Build 2024	Build 2024
Blackstrap Rd Eastbound Approach	87’	91’
Skillin Rd Westbound Approach	89’	93’
Route 26/100 Northbound Approach	56’	60’
Route 26/100 Southbound Approach	45’	50’

As seen above, the SimTraffic results do not project any unreasonable 95th percentile queues on any of the intersection approaches, during either peak hour. There is no significant change in any queue length due to the added convenience store and bank trips.

Route 26/100 and Site Drive
AM Peak Hour 95th Percentile Queues

Approach/Movement	Build 2024
Site Drive Westbound Lefts/Rights	73’
Route 26/100 Northbound Thrus/Rights	--
Route 26/100 Southbound Lefts/Thrus	48’

PM Peak Hour 95th Percentile Queues

Approach/Movement	Build 2024
Site Drive Westbound Lefts/Rights	71’
Route 26/100 Northbound Thrus/Rights	5’
Route 26/100 Southbound Lefts/Thrus	51’

As seen above, no unreasonable 95th percentile queues are projected on Gray Road due to vehicles entering the site.

PEDESTRIAN AND MULTI-MODAL CONSIDERATIONS

Multimodal analysis was requested at the Scoping Meeting for pedestrians and bicyclists. ITE does have some pedestrian and bicycle trip data. Data for the proposed land uses, convenience store with gasoline fueling facilities and drive-in bank, is quite limited since these uses are not high pedestrian or bicycle generators. There is no multimodal data for a drive-in bank. There is data for a convenience store with gasoline fueling facilities for the AM and PM peak hours of the adjacent street. However, this data is from just one study and ITE cautions use of the data given the very small sample size.

In terms of existing pedestrian and bicycle trips, Sewall counts pedestrians and bicycles during turning movement counts. The following activity was recorded at the intersection of Gray Road, Blackstrap Road and Skillin Road under peak summer conditions in August:

- During the AM peak hour, there was one pedestrian crossing Skillin Road and two crossing Blackstrap Road.
- During the PM peak hour, there were two pedestrians crossing Blackstrap Road.
- There were no bicycles recorded at the intersection during either period and no pedestrians crossed Gray Road.

Sewall recommends, based upon a review of the vicinity of the site (1/4 mile radius), that sidewalk be provided to connect the site to serve the following residences where pedestrians may originate:

- Along the east side of Gray Road, to the north to Farraday Drive, providing for the Mill House Townhouse Condominiums
- Along the south side of Skillin Road, to the east to Kathy Lane

Concept plans for the recommended new sidewalk locations are included in the appendix. It is noted that the Town of Cumberland has asked MaineDOT to fund construction of a roundabout at the Gray/Skillin/Blackstrap intersection. The concept plan for the roundabout shows new sidewalks in these locations as well as a center-left turn lane on Gary Road. As such, the convenience store concept plan locates the Gray Road sidewalk at the right-of-way line (with esplanade) to allow for this future construction, but this may not be sufficient to allow for the proposed center-turn lane. Hence, if the roundabout project is likely to proceed, MaineDOT may wish to assess the convenience store development a traffic impact fee towards sidewalks versus having to remove recently installed sidewalk.

Additionally, MaineDOT requested at the Scoping Meeting that a crosswalk be provided on Gray Road to connect the proposed sidewalks along the site frontage to the existing sidewalks on the opposite side of Gray Road. Sewall ran AutoTurn analysis for a single unit truck exiting the site drive, and Skillin and Blackstrap Roads, to locate this crosswalk outside of the vehicle turning paths. The proposed location is shown on the site plan. Note there is an existing light pole on the opposite parcel at this location. Additionally, the applicant will locate a light pole on the easterly side of Gray Road to light the easterly side of the crosswalk. Given the midblock location, this crosswalk will be equipped with RRFBs.

G. TRAFFIC SIGNAL WARRANT ANALYSIS

No traffic signal warrant analysis was requested at the Scoping Meeting. A recent Traffic Signal Warrant Analysis was conducted by VHB. This analysis showed that a traffic signal is not warranted at the intersection.

H. SIGHT DISTANCE ANALYSIS

No additional sight distance analysis was requested at the Scoping Meeting.

I. TRAFFIC ACCIDENTS

Traffic accidents were previously discussed under Section 2 and at the Scoping Meeting. The Town has developed a short-term improvement plan, focused on advanced and improved warning signage, to reduce the angle collisions that are occurring. Sewall has reviewed this plan and concurs with the proposed signage improvements. The Town is seeking MaineDOT funding to replace the two-way stop controlled intersection with a roundabout to improve safety long-term. Other short-term measures to improve safety, such as the implementation of all-way stop, have been rejected by the Town.

J. RECOMMENDATIONS

No capacity concerns were identified by the analysis and turn lanes are not warranted on Gray Road given the Gray Road volumes. Since sidewalk is proposed along the site frontage, and since there is existing sidewalk on the opposite side of Gray Road, a crosswalk to connect the two facilities was requested at the Scoping Meeting. Sewall has located this crosswalk outside of the turning path for vehicles exiting the site and Skillin/Blackstrap Road so that drivers will be focused straight ahead. This crosswalk should be marked with bold markings and equipped with RRFBs given the midblock location. Additionally, new sidewalk is recommended along Gray Road to the north to Farraday Drive and to the east along Skillin Road to Kathy Lane since pedestrians may originate from residences in these locations.

K. CONCLUSION

Safe and convenient site access is expected to be provided, based upon the capacity analysis results, and with the planned town intersection signage improvements. Area pedestrian facilities will be enhanced with the addition of sidewalks on Gray Road and Skillin Road, and with the proposed Gray Road crosswalk, to be equipped with RRFBs.

Figure 1

Site Location Map

Convenience Store & Bank Development

Cumberland, Maine

Sewall
The evolution of expertise
a TFC Company

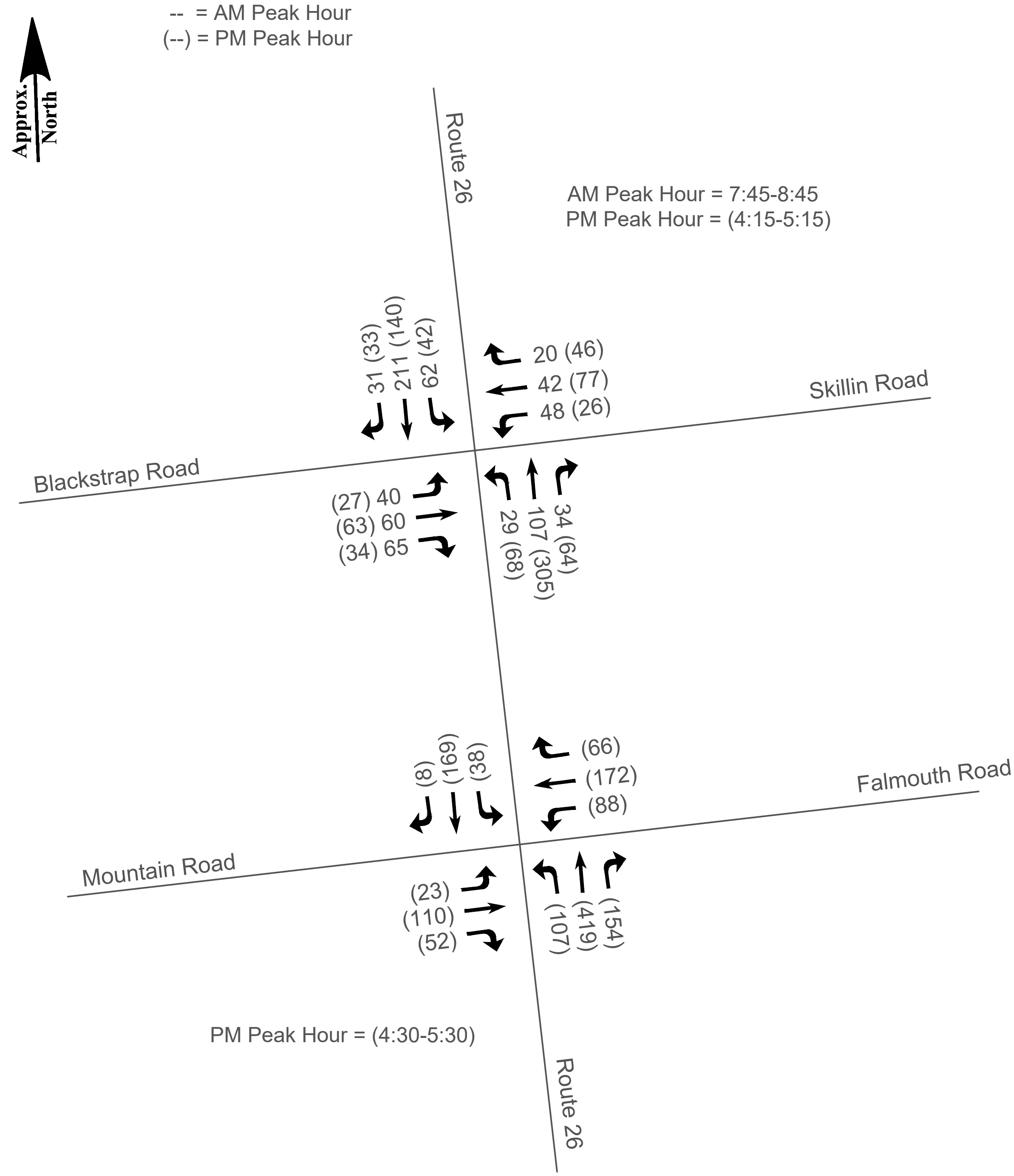


Figure 2

2023 Existing Peak Hour Volumes
Convenience Store & Bank Development
Cumberland, Maine

Sewall
The evolution of expertise

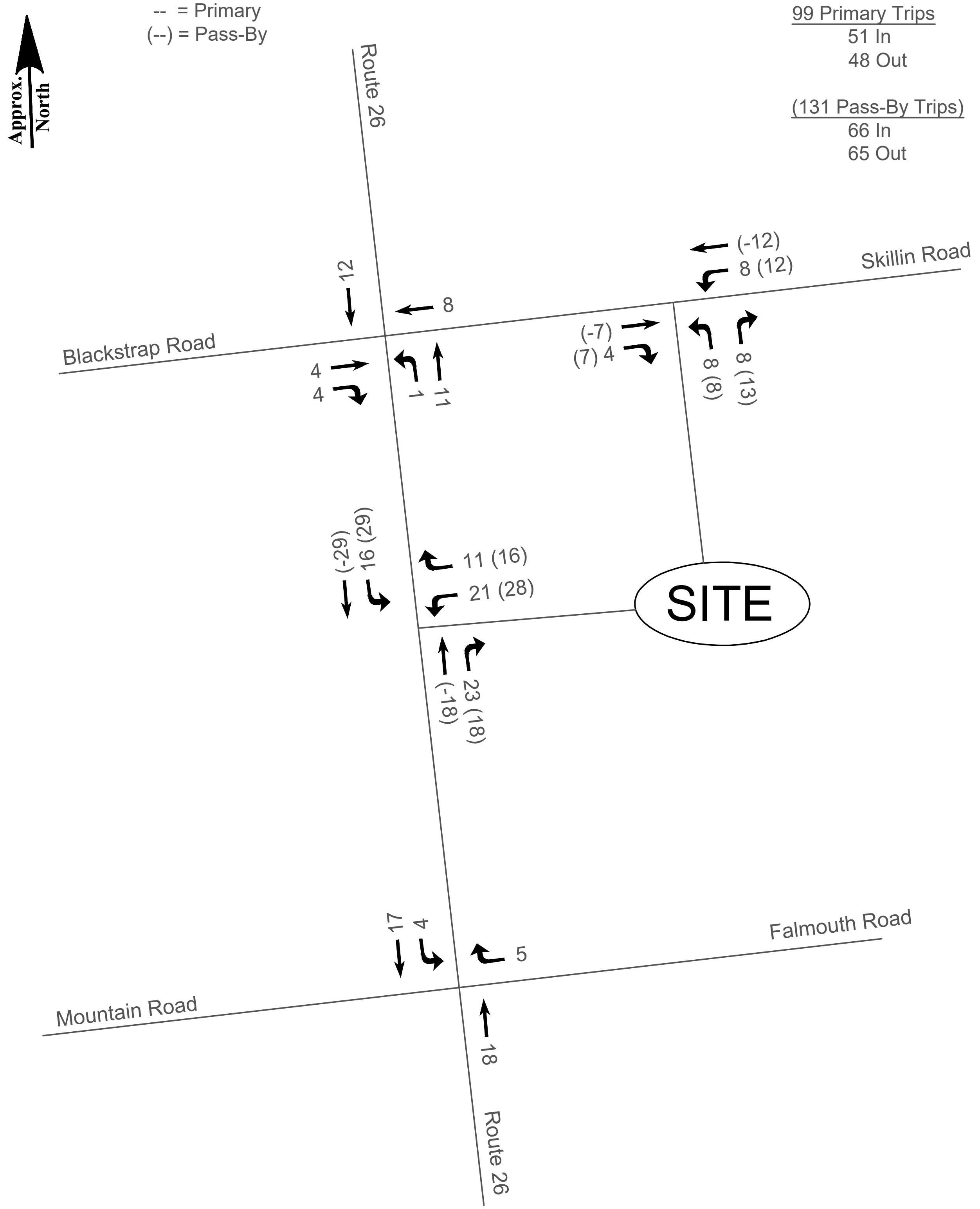


Figure 3

AM Peak Hour Trip Assignments
Convenience Store & Bank Development
Cumberland, Maine

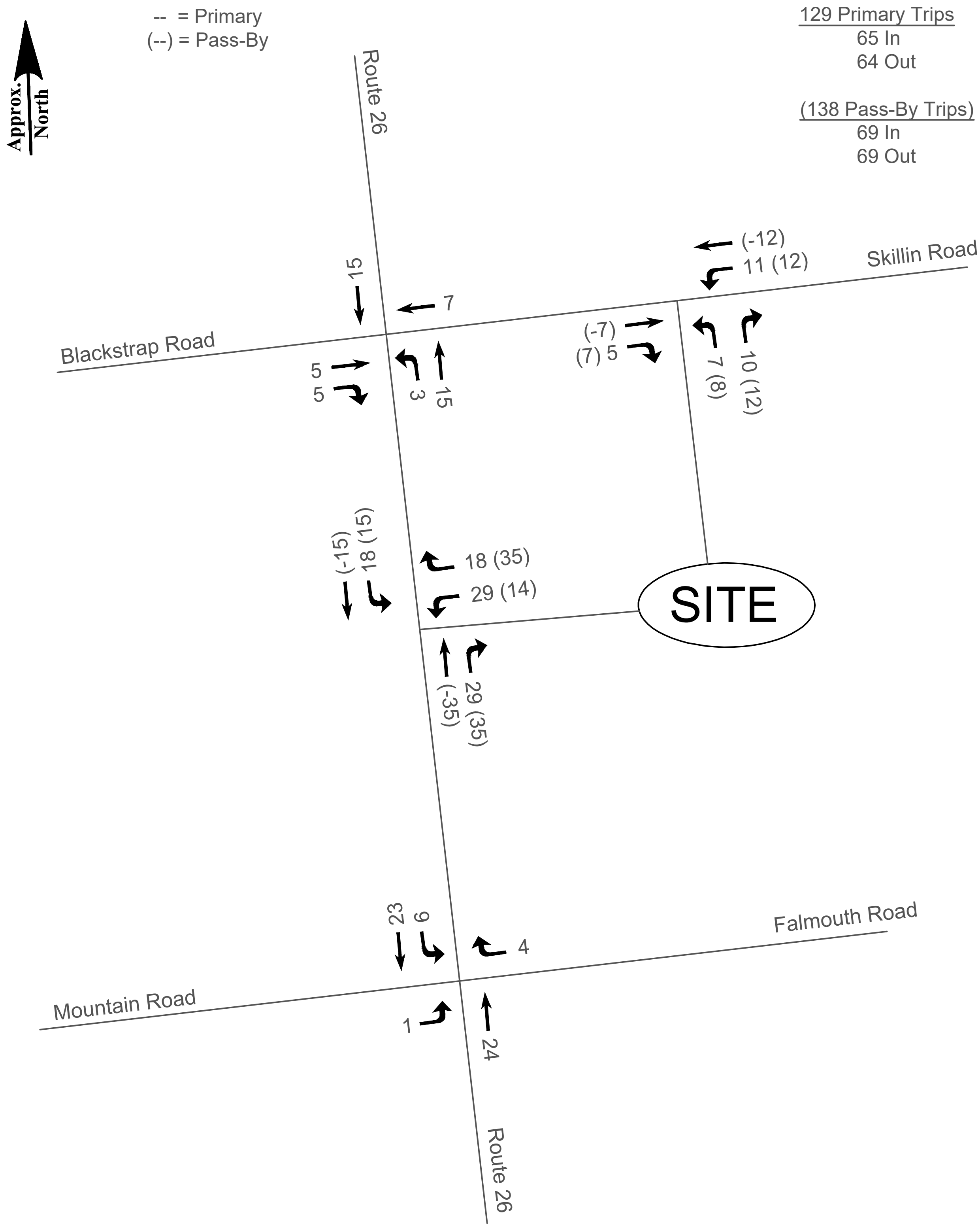


Figure 4

PM Peak Hour Trip Assignments
Convenience Store & Bank Development
Cumberland, Maine

Sewall
The evolution of expertise

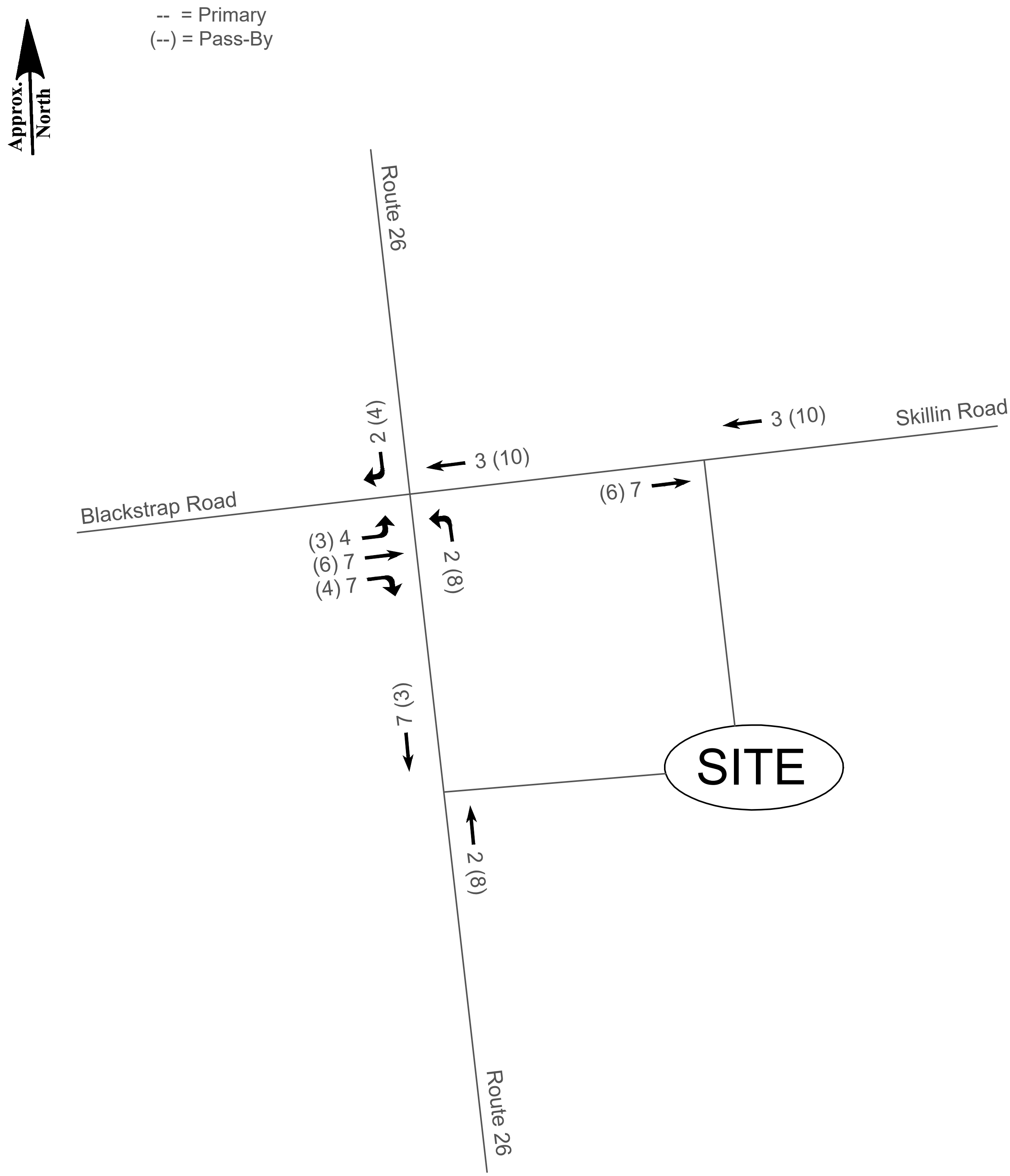


Figure 5

Other Development Trips

Convenience Store & Bank Development

Cumberland, Maine

Sewall
The evolution of expertise
A TRC Company

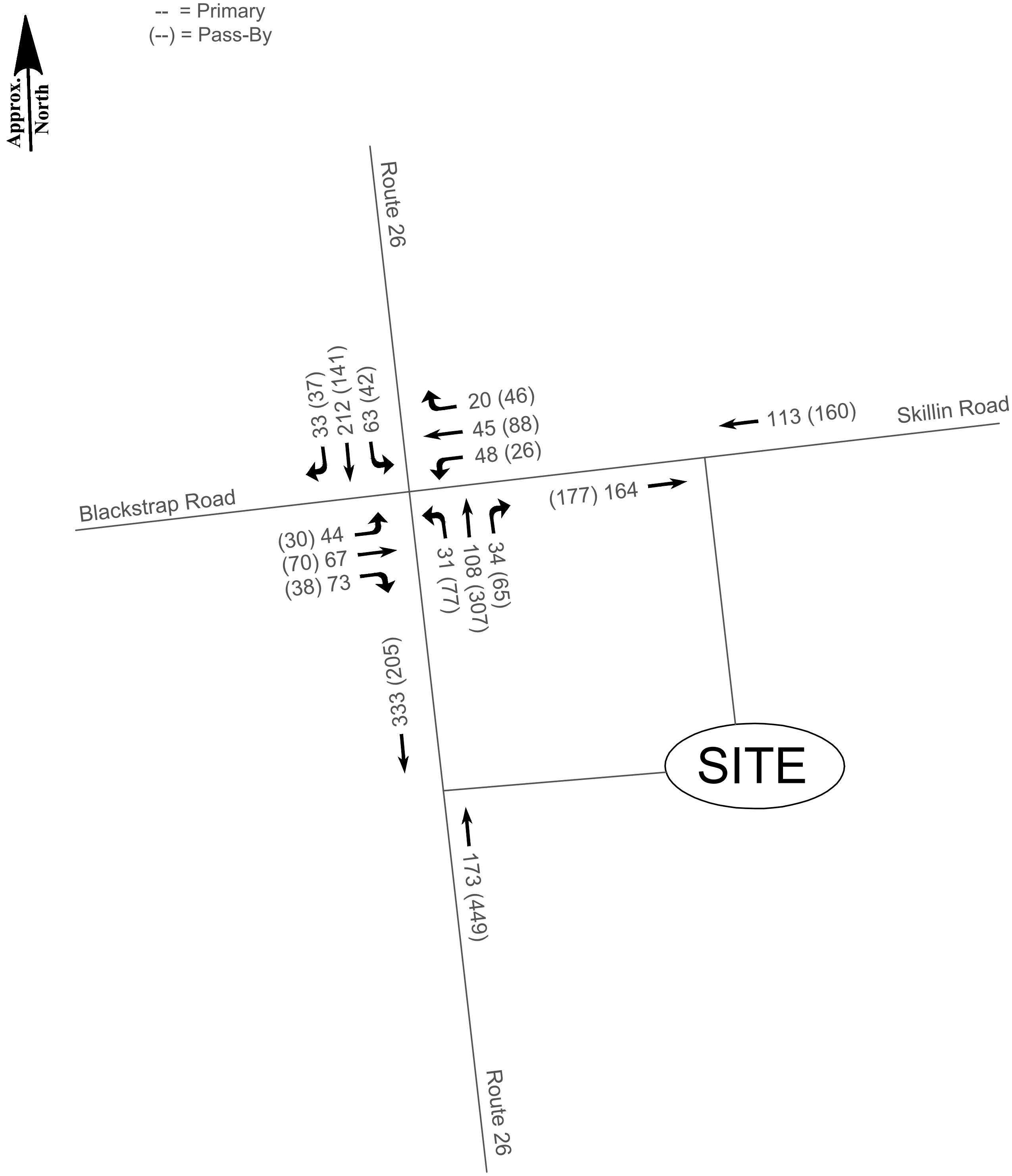


Figure 6

2024 No Build Peak Hour Volumes
Convenience Store & Bank Development
Cumberland, Maine

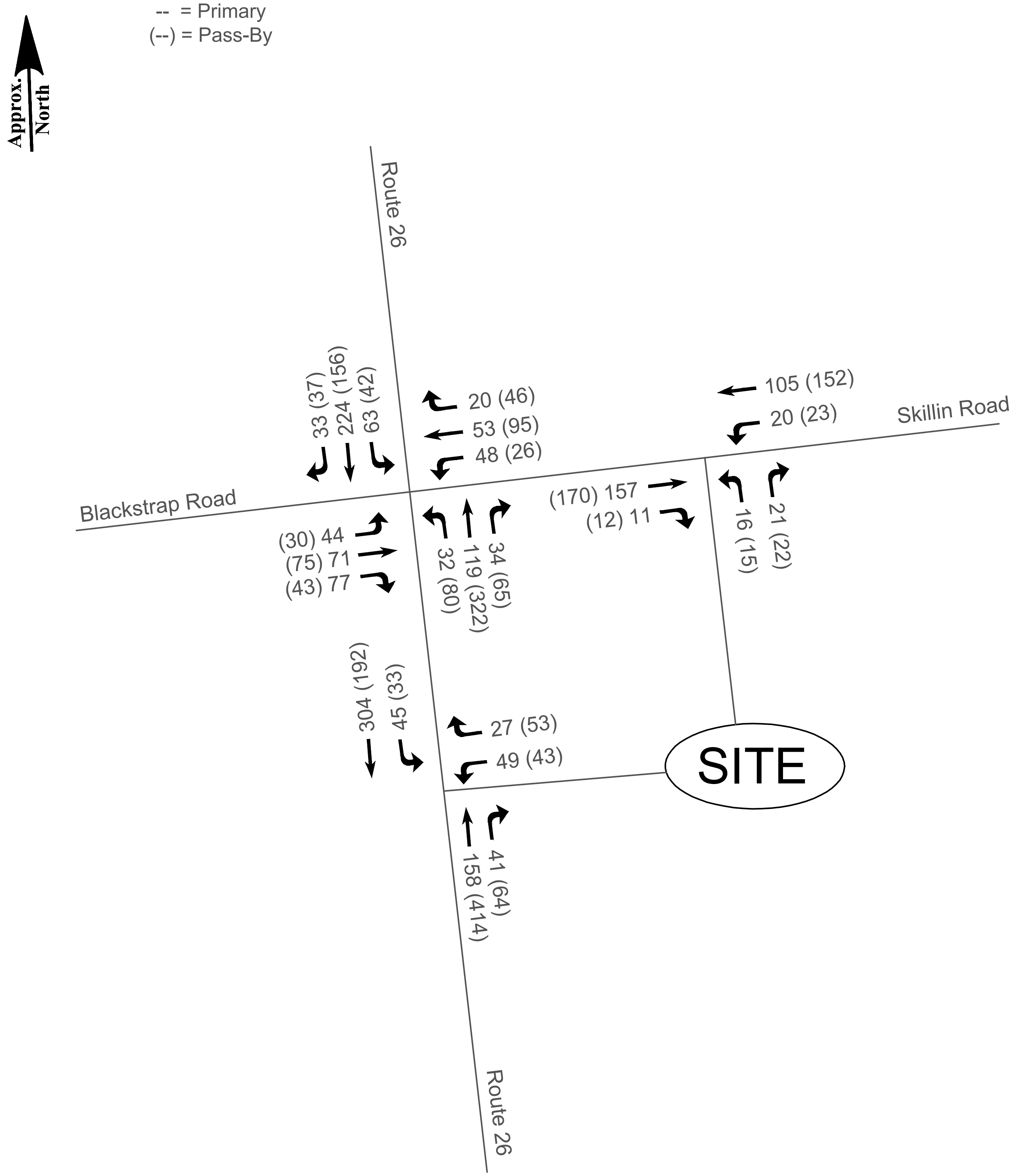


Figure 7

2024 Build Peak Hour Volumes	Sewall The evolution of expertise A TFC Company
Convenience Store & Bank Development	
Cumberland, Maine	

APPENDIX

Collision Diagram

Auxiliary Turn Lane Warrants

Capacity Analysis

Concept Plan for Sidewalks

Site Plan

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **CUMBERLAND** TOWN: **CUMBERLAND**

LOW NODE: **17087** HIGH NODE: **0000** REGION: **1** U/R: **URBAN**

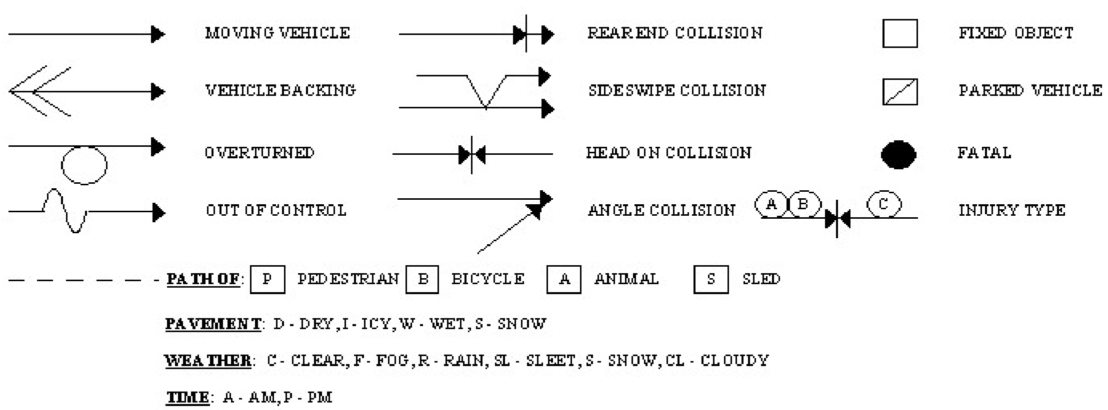
DESCRIPTION: **Int Gray Rd & Skillin Rd/Blackstrap Rd**

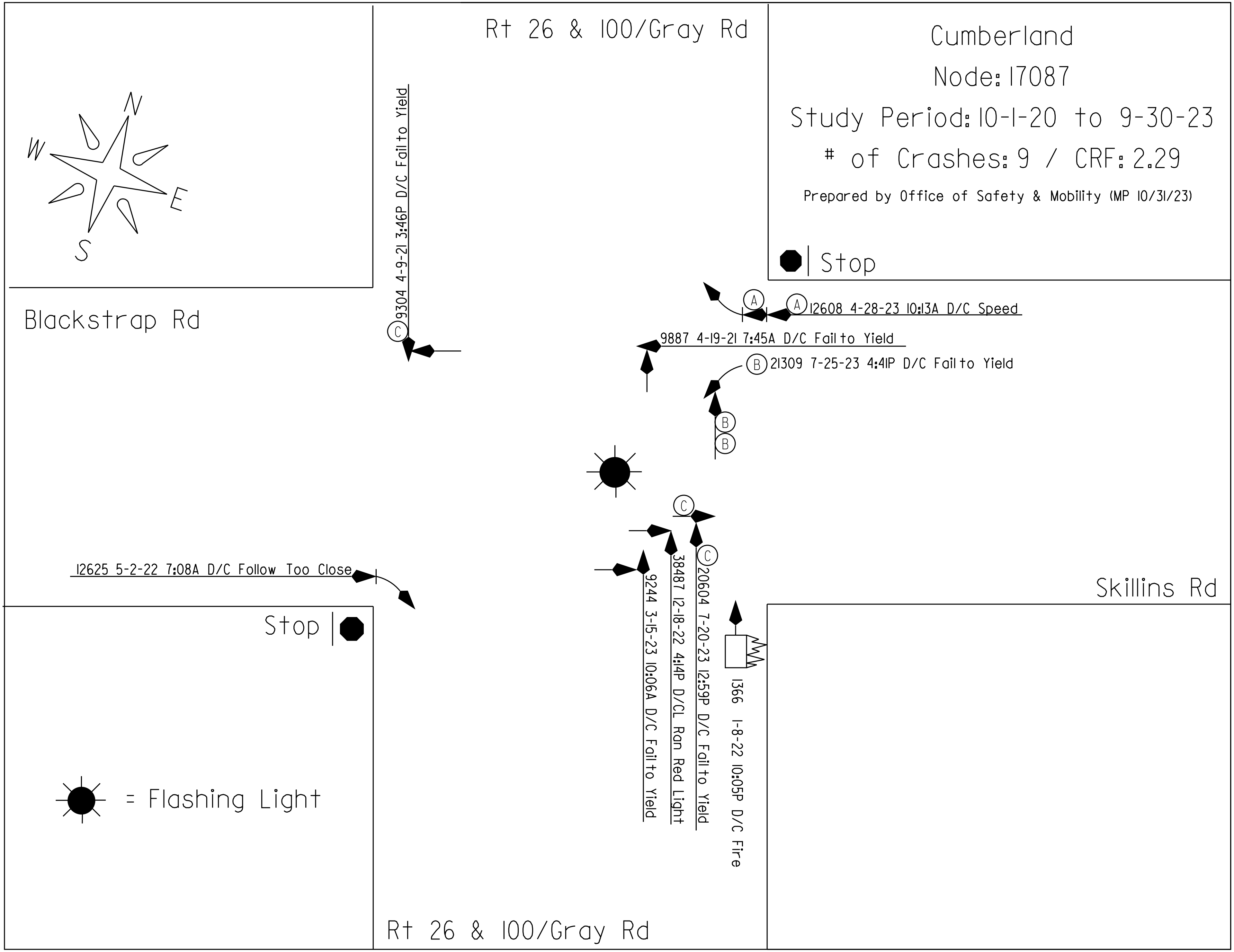
RTE # / RD #: **0026X** DATE DRAWN: **10/31/2023** DRAWN BY: **Michelle**

STUDY FROM: **10/1/2020** STUDY TO: **9/30/2023**

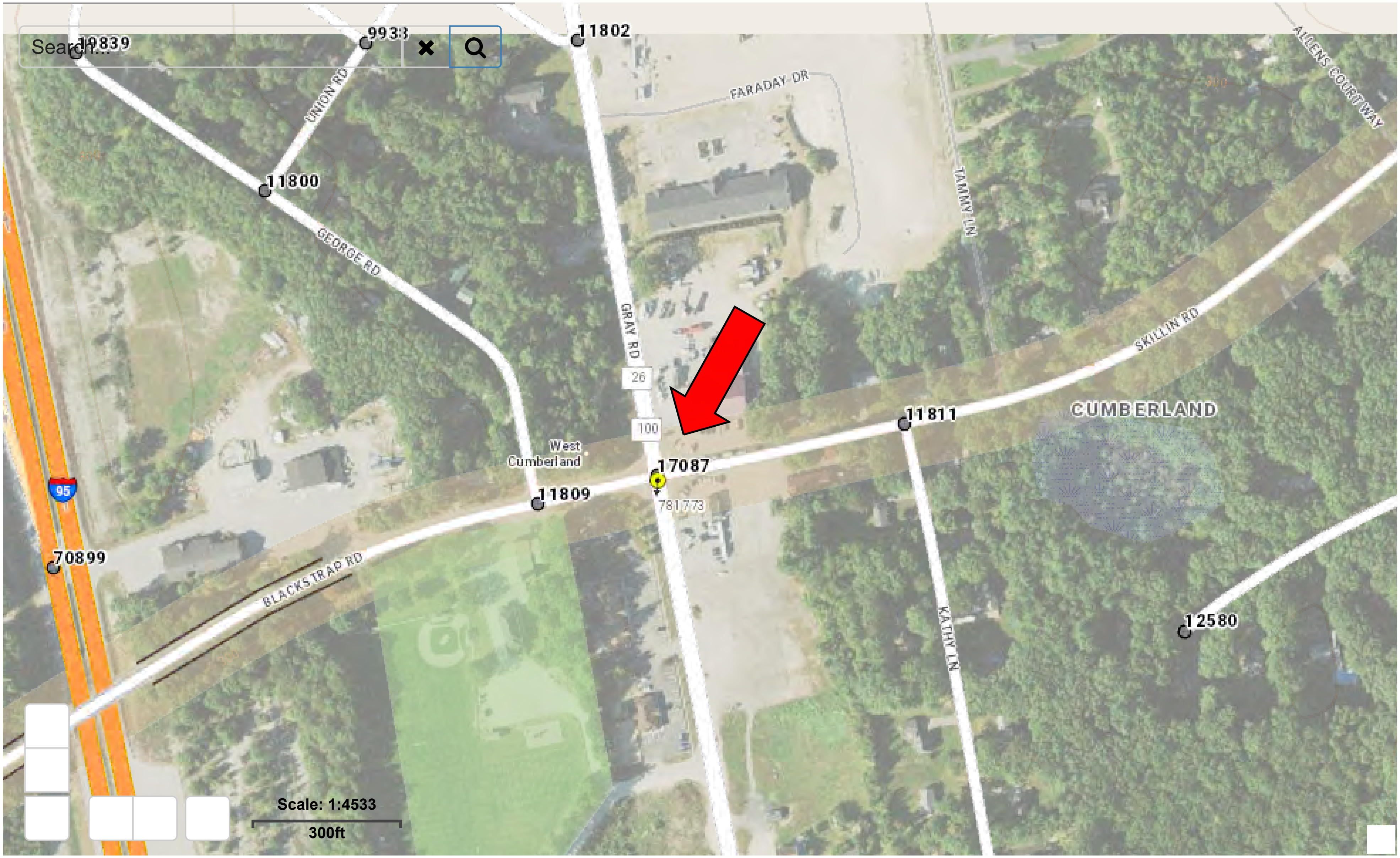
CRASH RATE: **0.97** CRF: **2.29** % INJURY: **44.4** TOTAL CRASHES: **9**

LEGEND





Rt 26 & 100/Gray Rd
Cumberland
Node: 17087
Study Period: 10-1-20 to 9-30-23
# of Crashes: 9 / CRF: 2.29
Prepared by Office of Safety & Mobility (MP 10/31/23)
Stop
N
W
E
S
Blackstrap Rd
9304 4-9-21 3:46P D/C Fail to Yield
12608 4-28-23 10:13A D/C Speed
9887 4-19-21 7:45A D/C Fail to Yield
21309 7-25-23 4:41P D/C Fail to Yield
12625 5-2-22 7:08A D/C Follow Too Close
Stop
Skillins Rd
9244 3-15-23 10:06A D/C Fail to Yield
38487 12-18-22 4:14P D/CL Ran Red Light
20604 7-20-23 12:59P D/C Fail to Yield
1366 1-8-22 10:05P D/C Fire
= Flashing Light
Rt 26 & 100/Gray Rd


Search...
10839
9933
11802
FARADAY DR
UNION RD
11800
GEORGE RD
TAMMY LN
ALLENS COURT WAY
GRAY RD
26
100
SKILLIN RD
11811
CUMBERLAND
West Cumberland
17087
11809
781773
95
70899
BLACKSTRAP RD
KATHY LN
12580
Scale: 1:4533
300ft

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I - Single Node ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Cumberland
Intersection of Rte. 26/100/Gray Rd. & Blackstrap/Skillin Rd.

REPORT PARAMETERS

Year 2020, Start Month 10 through Year 2023 End Month: 9

Route: 0026X	Start Node: 17087	Start Offset: 0	☐ Exclude First Node
	End Node: 17087	End Offset: 0	☐ Exclude Last Node

Crash Summary I

Nodes

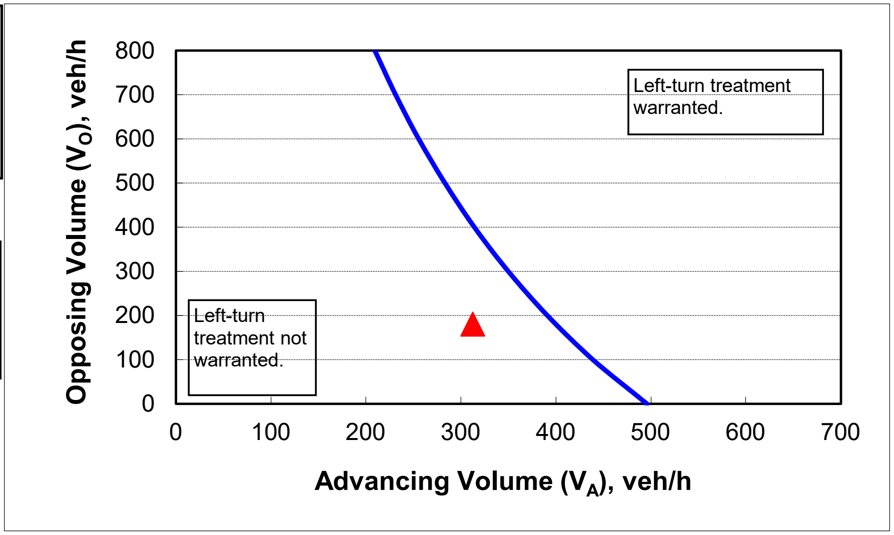
Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
17087	0026X - 11.49	Int of BLACKSTRAP RD GRAY RD SKILLIN RD	2	9	0	1	1	2	5	44.4	3.097	0.97	0.42	2.29
												Statewide Crash Rate:	0.15	
Study Years: 3.00		NODE TOTALS:		9	0	1	1	2	5	44.4	3.097	0.97	0.42	2.29

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	14%
Advancing volume (V_A), veh/h:	313
Opposing volume (V_O), veh/h:	180



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	400
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane , s:	1.9

2024 AM BUILD - GRAY ROAD AND SITE DRIVE - LEFT TURN LANE WARRANT NOT MET

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

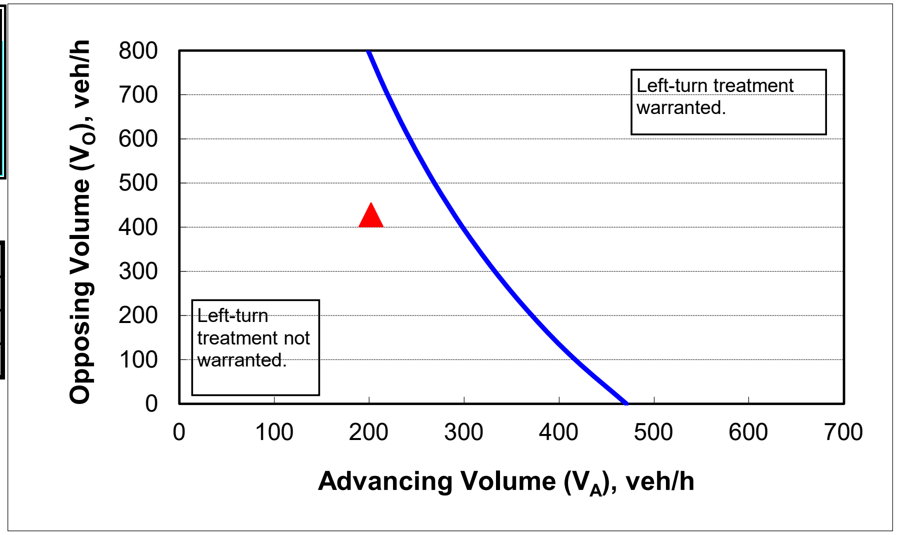
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	16%
Advancing volume (V_A), veh/h:	202
Opposing volume (V_O), veh/h:	428

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	290
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane , s:	1.9

2024 PM BUILD - GRAY ROAD AND SITE DRIVE - LEFT TURN LANE WARRANT NOT MET

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

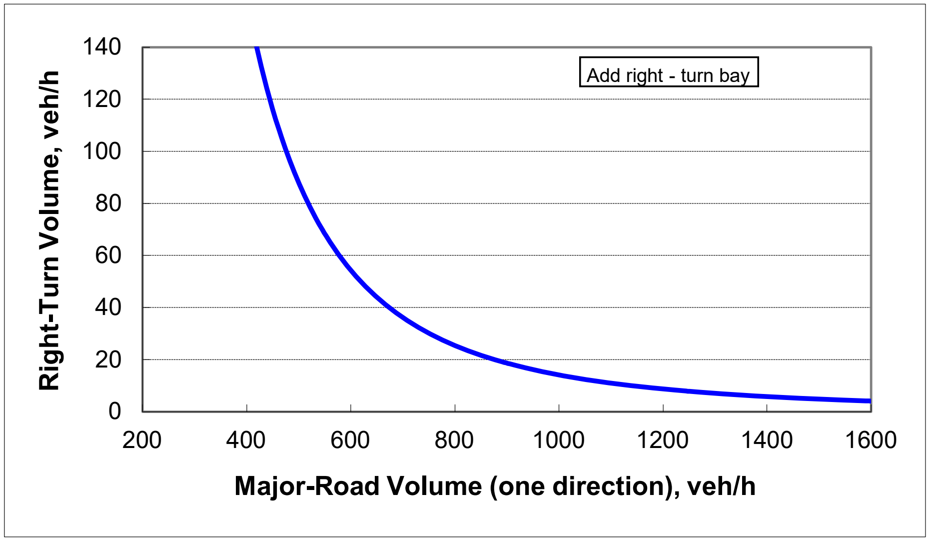
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	40
Major-road volume (one direction), veh/h:	180
Right-turn volume, veh/h:	41

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	1305
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



2024 AM BUILD - GRAY ROAD AND SITE DRIVE - RIGHT TURN LANE WARRANT NOT MET

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

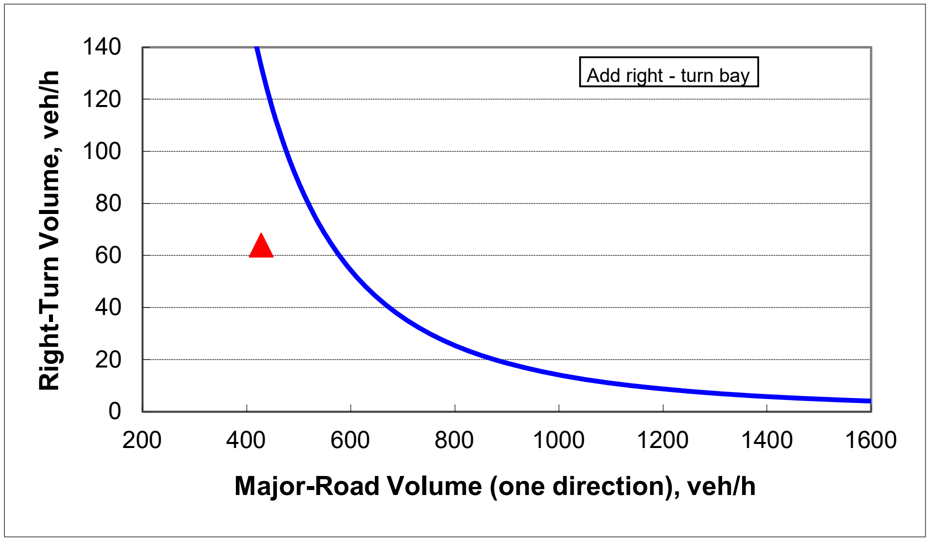
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	40
Major-road volume (one direction), veh/h:	428
Right-turn volume, veh/h:	64

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	132
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



2024 PM BUILD - GRAY ROAD AND SITE DRIVE - RIGHT TURN LANE WARRANT NOT MET

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	777	757	770	742	748	789	793
Vehs Exited	769	755	775	753	746	797	789
Starting Vehs	12	11	14	22	13	20	12
Ending Vehs	20	13	9	11	15	12	16
Travel Distance (mi)	454	444	457	438	440	469	466
Travel Time (hr)	15.3	14.8	15.3	14.8	14.7	15.8	15.7
Total Delay (hr)	1.3	1.2	1.2	1.2	1.1	1.3	1.4
Total Stops	325	312	336	279	309	315	330
Fuel Used (gal)	14.1	13.6	14.1	13.8	13.5	14.5	14.5

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	743	773	749	764
Vehs Exited	742	776	765	767
Starting Vehs	13	17	29	15
Ending Vehs	14	14	13	11
Travel Distance (mi)	440	459	445	451
Travel Time (hr)	14.8	15.4	14.9	15.1
Total Delay (hr)	1.2	1.3	1.3	1.2
Total Stops	315	329	307	314
Fuel Used (gal)	13.4	14.2	13.6	13.9

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	777	757	770	742	748	789	793
Vehs Exited	769	755	775	753	746	797	789
Starting Vehs	12	11	14	22	13	20	12
Ending Vehs	20	13	9	11	15	12	16
Travel Distance (mi)	454	444	457	438	440	469	466
Travel Time (hr)	15.3	14.8	15.3	14.8	14.7	15.8	15.7
Total Delay (hr)	1.3	1.2	1.2	1.2	1.1	1.3	1.4
Total Stops	325	312	336	279	309	315	330
Fuel Used (gal)	14.1	13.6	14.1	13.8	13.5	14.5	14.5

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	743	773	749	764
Vehs Exited	742	776	765	767
Starting Vehs	13	17	29	15
Ending Vehs	14	14	13	11
Travel Distance (mi)	440	459	445	451
Travel Time (hr)	14.8	15.4	14.9	15.1
Total Delay (hr)	1.2	1.3	1.3	1.2
Total Stops	315	329	307	314
Fuel Used (gal)	13.4	14.2	13.6	13.9

3: Route 26 & Blackstrap Rd/Skillin Rd Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.1
Total Del/Veh (s)	8.8	7.7	0.9	2.0	4.2

6: Route 26 & Site Drive Performance by lane

Lane	NB	SB	All
Movements Served	TR	LT	
Denied Del/Veh (s)			0.1
Total Del/Veh (s)	0.6	0.5	0.5

7: Site Drive & Skillin Rd Performance by lane

Lane	EB	WB	All
Movements Served	TR	LT	
Denied Del/Veh (s)			0.1
Total Del/Veh (s)	1.2	1.1	1.1

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	5.6

Intersection: 3: Route 26 & Blackstrap Rd/Skillin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	106	90	62	67
Average Queue (ft)	50	42	10	12
95th Queue (ft)	86	70	40	43
Link Distance (ft)	1767	110	127	1360
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Route 26 & Site Drive

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 7: Site Drive & Skillin Rd

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	777	757	770	742	748	789	793
Vehs Exited	769	755	775	753	746	797	789
Starting Vehs	12	11	14	22	13	20	12
Ending Vehs	20	13	9	11	15	12	16
Travel Distance (mi)	454	444	457	438	440	469	466
Travel Time (hr)	15.3	14.8	15.3	14.8	14.7	15.8	15.7
Total Delay (hr)	1.3	1.2	1.2	1.2	1.1	1.3	1.4
Total Stops	325	312	336	279	309	315	330
Fuel Used (gal)	14.1	13.6	14.1	13.8	13.5	14.5	14.5

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	743	773	749	764
Vehs Exited	742	776	765	767
Starting Vehs	13	17	29	15
Ending Vehs	14	14	13	11
Travel Distance (mi)	440	459	445	451
Travel Time (hr)	14.8	15.4	14.9	15.1
Total Delay (hr)	1.2	1.3	1.3	1.2
Total Stops	315	329	307	314
Fuel Used (gal)	13.4	14.2	13.6	13.9

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	777	757	770	742	748	789	793
Vehs Exited	769	755	775	753	746	797	789
Starting Vehs	12	11	14	22	13	20	12
Ending Vehs	20	13	9	11	15	12	16
Travel Distance (mi)	454	444	457	438	440	469	466
Travel Time (hr)	15.3	14.8	15.3	14.8	14.7	15.8	15.7
Total Delay (hr)	1.3	1.2	1.2	1.2	1.1	1.3	1.4
Total Stops	325	312	336	279	309	315	330
Fuel Used (gal)	14.1	13.6	14.1	13.8	13.5	14.5	14.5

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	743	773	749	764
Vehs Exited	742	776	765	767
Starting Vehs	13	17	29	15
Ending Vehs	14	14	13	11
Travel Distance (mi)	440	459	445	451
Travel Time (hr)	14.8	15.4	14.9	15.1
Total Delay (hr)	1.2	1.3	1.3	1.2
Total Stops	315	329	307	314
Fuel Used (gal)	13.4	14.2	13.6	13.9

3: Route 26 & Blackstrap Rd/Skillin Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.3	0.1
Total Del/Veh (s)	8.9	7.8	0.9	2.0	4.2

6: Route 26 & Site Drive Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.1
Total Del/Veh (s)	0.6	0.5	0.5

7: Site Drive & Skillin Rd Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.1	0.1
Total Del/Veh (s)	1.2	1.1	1.1

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	5.6

Intersection: 3: Route 26 & Blackstrap Rd/Skillin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	106	90	62	67
Average Queue (ft)	50	42	10	12
95th Queue (ft)	86	70	40	43
Link Distance (ft)	1767	110	127	1360
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Route 26 & Site Drive

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 7: Site Drive & Skillin Rd

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	959	959	956	1004	933	992	993
Vehs Exited	965	960	968	1006	931	993	996
Starting Vehs	24	21	27	24	22	21	21
Ending Vehs	18	20	15	22	24	20	18
Travel Distance (mi)	565	564	561	592	544	583	576
Travel Time (hr)	19.3	19.1	19.2	20.6	18.5	19.9	19.5
Total Delay (hr)	1.9	1.7	1.9	2.3	1.7	1.9	1.8
Total Stops	348	353	338	383	316	362	323
Fuel Used (gal)	17.5	17.4	17.2	18.5	16.7	18.0	17.6

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	989	939	960	968
Vehs Exited	989	942	976	972
Starting Vehs	20	19	31	22
Ending Vehs	20	16	15	15
Travel Distance (mi)	582	555	569	569
Travel Time (hr)	19.8	19.2	19.3	19.4
Total Delay (hr)	1.9	2.0	1.9	1.9
Total Stops	340	355	339	345
Fuel Used (gal)	17.8	17.2	17.7	17.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	959	959	956	1004	933	992	993
Vehs Exited	965	960	968	1006	931	993	996
Starting Vehs	24	21	27	24	22	21	21
Ending Vehs	18	20	15	22	24	20	18
Travel Distance (mi)	565	564	561	592	544	583	576
Travel Time (hr)	19.3	19.1	19.2	20.6	18.5	19.9	19.5
Total Delay (hr)	1.9	1.7	1.9	2.3	1.7	1.9	1.8
Total Stops	348	353	338	383	316	362	323
Fuel Used (gal)	17.5	17.4	17.2	18.5	16.7	18.0	17.6

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	989	939	960	968
Vehs Exited	989	942	976	972
Starting Vehs	20	19	31	22
Ending Vehs	20	16	15	15
Travel Distance (mi)	582	555	569	569
Travel Time (hr)	19.8	19.2	19.3	19.4
Total Delay (hr)	1.9	2.0	1.9	1.9
Total Stops	340	355	339	345
Fuel Used (gal)	17.8	17.2	17.7	17.6

3: Route 26 & Blackstrap Rd/Skillin Rd Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.1
Total Del/Veh (s)	11.9	10.6	1.5	1.9	4.6

6: Route 26 & Site Drive Performance by lane

Lane	NB	SB	All
Movements Served	TR	LT	
Denied Del/Veh (s)			0.2
Total Del/Veh (s)	1.3	0.4	1.0

7: Site Drive & Skillin Rd Performance by lane

Lane	EB	WB	All
Movements Served	TR	LT	
Denied Del/Veh (s)			0.1
Total Del/Veh (s)	1.2	1.6	1.4

Total Network Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	6.7

Intersection: 3: Route 26 & Blackstrap Rd/Skillin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	113	109	76	60
Average Queue (ft)	49	54	19	14
95th Queue (ft)	87	89	56	45
Link Distance (ft)	1767	110	127	1360
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		1	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Route 26 & Site Drive

Movement	NB
Directions Served	TR
Maximum Queue (ft)	12
Average Queue (ft)	0
95th Queue (ft)	12
Link Distance (ft)	1095
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Site Drive & Skillin Rd

Movement	WB
Directions Served	LT
Maximum Queue (ft)	35
Average Queue (ft)	2
95th Queue (ft)	17
Link Distance (ft)	1892
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	959	959	956	1004	933	992	993
Vehs Exited	965	960	968	1006	931	993	996
Starting Vehs	24	21	27	24	22	21	21
Ending Vehs	18	20	15	22	24	20	18
Travel Distance (mi)	565	564	561	592	544	583	576
Travel Time (hr)	19.3	19.1	19.2	20.6	18.5	19.9	19.5
Total Delay (hr)	1.9	1.7	1.9	2.3	1.7	1.9	1.8
Total Stops	348	353	338	383	316	362	323
Fuel Used (gal)	17.5	17.4	17.2	18.5	16.7	18.0	17.6

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	989	939	960	968
Vehs Exited	989	942	976	972
Starting Vehs	20	19	31	22
Ending Vehs	20	16	15	15
Travel Distance (mi)	582	555	569	569
Travel Time (hr)	19.8	19.2	19.3	19.4
Total Delay (hr)	1.9	2.0	1.9	1.9
Total Stops	340	355	339	345
Fuel Used (gal)	17.8	17.2	17.7	17.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	959	959	956	1004	933	992	993
Vehs Exited	965	960	968	1006	931	993	996
Starting Vehs	24	21	27	24	22	21	21
Ending Vehs	18	20	15	22	24	20	18
Travel Distance (mi)	565	564	561	592	544	583	576
Travel Time (hr)	19.3	19.1	19.2	20.6	18.5	19.9	19.5
Total Delay (hr)	1.9	1.7	1.9	2.3	1.7	1.9	1.8
Total Stops	348	353	338	383	316	362	323
Fuel Used (gal)	17.5	17.4	17.2	18.5	16.7	18.0	17.6

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	989	939	960	968
Vehs Exited	989	942	976	972
Starting Vehs	20	19	31	22
Ending Vehs	20	16	15	15
Travel Distance (mi)	582	555	569	569
Travel Time (hr)	19.8	19.2	19.3	19.4
Total Delay (hr)	1.9	2.0	1.9	1.9
Total Stops	340	355	339	345
Fuel Used (gal)	17.8	17.2	17.7	17.6

3: Route 26 & Blackstrap Rd/Skillin Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.2	0.1
Total Del/Veh (s)	11.9	10.5	1.5	1.9	4.6

6: Route 26 & Site Drive Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.2
Total Del/Veh (s)	1.3	0.4	1.0

7: Site Drive & Skillin Rd Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.2	0.1
Total Del/Veh (s)	1.2	1.6	1.4

Total Network Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	6.7

Intersection: 3: Route 26 & Blackstrap Rd/Skillin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	113	109	76	60
Average Queue (ft)	49	54	19	14
95th Queue (ft)	87	89	56	45
Link Distance (ft)	1767	110	127	1360
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		1	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Route 26 & Site Drive

Movement	NB
Directions Served	TR
Maximum Queue (ft)	12
Average Queue (ft)	0
95th Queue (ft)	12
Link Distance (ft)	1095
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Site Drive & Skillin Rd

Movement	WB
Directions Served	LT
Maximum Queue (ft)	35
Average Queue (ft)	2
95th Queue (ft)	17
Link Distance (ft)	1892
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	938	919	985	984	957	927	1009
Vehs Exited	944	915	992	992	966	929	1003
Starting Vehs	21	15	28	21	28	17	12
Ending Vehs	15	19	21	13	19	15	18
Travel Distance (mi)	503	485	522	521	506	480	521
Travel Time (hr)	17.4	16.8	18.3	18.2	17.5	16.5	18.5
Total Delay (hr)	1.6	1.7	1.9	1.9	1.7	1.5	2.0
Total Stops	456	442	476	485	477	455	488
Fuel Used (gal)	16.0	15.5	16.8	17.0	16.1	15.1	16.9

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	972	901	950	953
Vehs Exited	965	912	955	958
Starting Vehs	9	23	15	15
Ending Vehs	16	12	10	14
Travel Distance (mi)	506	478	496	502
Travel Time (hr)	17.7	16.5	17.3	17.5
Total Delay (hr)	1.8	1.5	1.8	1.7
Total Stops	482	438	447	465
Fuel Used (gal)	16.2	15.3	15.9	16.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	938	919	985	984	957	927	1009
Vehs Exited	944	915	992	992	966	929	1003
Starting Vehs	21	15	28	21	28	17	12
Ending Vehs	15	19	21	13	19	15	18
Travel Distance (mi)	503	485	522	521	506	480	521
Travel Time (hr)	17.4	16.8	18.3	18.2	17.5	16.5	18.5
Total Delay (hr)	1.6	1.7	1.9	1.9	1.7	1.5	2.0
Total Stops	456	442	476	485	477	455	488
Fuel Used (gal)	16.0	15.5	16.8	17.0	16.1	15.1	16.9

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	972	901	950	953
Vehs Exited	965	912	955	958
Starting Vehs	9	23	15	15
Ending Vehs	16	12	10	14
Travel Distance (mi)	506	478	496	502
Travel Time (hr)	17.7	16.5	17.3	17.5
Total Delay (hr)	1.8	1.5	1.8	1.7
Total Stops	482	438	447	465
Fuel Used (gal)	16.2	15.3	15.9	16.1

3: Route 26 & Blackstrap Rd/Skillin Rd Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.1
Total Del/Veh (s)	9.6	8.9	1.1	2.1	4.7

6: Route 26 & Site Drive Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	5.9	1.0	1.0	1.6

7: Site Drive & Skillin Rd Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	1.2	1.5	3.6	1.6

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	6.3

Intersection: 3: Route 26 & Blackstrap Rd/Skillin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	117	97	76	71
Average Queue (ft)	56	45	11	11
95th Queue (ft)	92	76	45	44
Link Distance (ft)	1767	110	127	1360
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Route 26 & Site Drive

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	89	77
Average Queue (ft)	39	12
95th Queue (ft)	73	48
Link Distance (ft)	223	127
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Site Drive & Skillin Rd

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	5	40	65
Average Queue (ft)	0	5	23
95th Queue (ft)	4	25	52
Link Distance (ft)	110	1892	120
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	938	919	985	984	957	927	1009
Vehs Exited	944	915	992	992	966	929	1003
Starting Vehs	21	15	28	21	28	17	12
Ending Vehs	15	19	21	13	19	15	18
Travel Distance (mi)	503	485	522	521	506	480	521
Travel Time (hr)	17.4	16.8	18.3	18.2	17.5	16.5	18.5
Total Delay (hr)	1.6	1.7	1.9	1.9	1.7	1.5	2.0
Total Stops	456	442	476	485	477	455	488
Fuel Used (gal)	16.0	15.5	16.8	17.0	16.1	15.1	16.9

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	972	901	950	953
Vehs Exited	965	912	955	958
Starting Vehs	9	23	15	15
Ending Vehs	16	12	10	14
Travel Distance (mi)	506	478	496	502
Travel Time (hr)	17.7	16.5	17.3	17.5
Total Delay (hr)	1.8	1.5	1.8	1.7
Total Stops	482	438	447	465
Fuel Used (gal)	16.2	15.3	15.9	16.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	938	919	985	984	957	927	1009
Vehs Exited	944	915	992	992	966	929	1003
Starting Vehs	21	15	28	21	28	17	12
Ending Vehs	15	19	21	13	19	15	18
Travel Distance (mi)	503	485	522	521	506	480	521
Travel Time (hr)	17.4	16.8	18.3	18.2	17.5	16.5	18.5
Total Delay (hr)	1.6	1.7	1.9	1.9	1.7	1.5	2.0
Total Stops	456	442	476	485	477	455	488
Fuel Used (gal)	16.0	15.5	16.8	17.0	16.1	15.1	16.9

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	972	901	950	953
Vehs Exited	965	912	955	958
Starting Vehs	9	23	15	15
Ending Vehs	16	12	10	14
Travel Distance (mi)	506	478	496	502
Travel Time (hr)	17.7	16.5	17.3	17.5
Total Delay (hr)	1.8	1.5	1.8	1.7
Total Stops	482	438	447	465
Fuel Used (gal)	16.2	15.3	15.9	16.1

3: Route 26 & Blackstrap Rd/Skillin Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.3	0.1
Total Del/Veh (s)	9.6	9.0	1.1	2.1	4.7

6: Route 26 & Site Drive Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.1
Total Del/Veh (s)	6.0	1.0	1.0	1.6

7: Site Drive & Skillin Rd Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.2	0.1	0.1
Total Del/Veh (s)	1.2	1.5	3.6	1.6

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	6.3

Intersection: 3: Route 26 & Blackstrap Rd/Skillin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	117	97	76	71
Average Queue (ft)	56	45	11	11
95th Queue (ft)	92	76	45	44
Link Distance (ft)	1767	110	127	1360
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Route 26 & Site Drive

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	89	77
Average Queue (ft)	39	12
95th Queue (ft)	73	48
Link Distance (ft)	223	127
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Site Drive & Skillin Rd

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	5	40	65
Average Queue (ft)	0	5	23
95th Queue (ft)	4	25	52
Link Distance (ft)	110	1892	120
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1165	1203	1122	1200	1149	1188	1232
Vehs Exited	1165	1191	1124	1190	1151	1185	1233
Starting Vehs	21	14	25	16	26	22	25
Ending Vehs	21	26	23	26	24	25	24
Travel Distance (mi)	610	627	593	626	604	629	641
Travel Time (hr)	21.7	22.5	21.0	22.2	21.4	22.5	22.9
Total Delay (hr)	2.5	2.7	2.3	2.5	2.4	2.8	2.7
Total Stops	517	521	498	535	490	547	554
Fuel Used (gal)	19.8	20.2	19.0	20.1	19.3	20.3	20.5

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1163	1154	1150	1174
Vehs Exited	1160	1164	1149	1171
Starting Vehs	16	26	24	19
Ending Vehs	19	16	25	18
Travel Distance (mi)	611	605	607	615
Travel Time (hr)	21.7	21.6	21.4	21.9
Total Delay (hr)	2.5	2.6	2.4	2.5
Total Stops	517	530	501	523
Fuel Used (gal)	19.4	19.3	19.4	19.7

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1165	1203	1122	1200	1149	1188	1232
Vehs Exited	1165	1191	1124	1190	1151	1185	1233
Starting Vehs	21	14	25	16	26	22	25
Ending Vehs	21	26	23	26	24	25	24
Travel Distance (mi)	610	627	593	626	604	629	641
Travel Time (hr)	21.7	22.5	21.0	22.2	21.4	22.5	22.9
Total Delay (hr)	2.5	2.7	2.3	2.5	2.4	2.8	2.7
Total Stops	517	521	498	535	490	547	554
Fuel Used (gal)	19.8	20.2	19.0	20.1	19.3	20.3	20.5

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1163	1154	1150	1174
Vehs Exited	1160	1164	1149	1171
Starting Vehs	16	26	24	19
Ending Vehs	19	16	25	18
Travel Distance (mi)	611	605	607	615
Travel Time (hr)	21.7	21.6	21.4	21.9
Total Delay (hr)	2.5	2.6	2.4	2.5
Total Stops	517	530	501	523
Fuel Used (gal)	19.4	19.3	19.4	19.7

3: Route 26 & Blackstrap Rd/Skillin Rd Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.1
Total Del/Veh (s)	12.2	11.5	1.6	2.1	4.8

6: Route 26 & Site Drive Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	8.4	1.9	1.3	2.5

7: Site Drive & Skillin Rd Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	1.1	1.9	4.1	1.7

Total Network Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	7.4

Intersection: 3: Route 26 & Blackstrap Rd/Skillin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	111	114	82	67
Average Queue (ft)	53	56	22	17
95th Queue (ft)	91	93	60	50
Link Distance (ft)	1767	110	127	1360
Upstream Blk Time (%)		1	0	
Queuing Penalty (veh)		1	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Route 26 & Site Drive

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	96	12	73
Average Queue (ft)	40	0	16
95th Queue (ft)	71	5	51
Link Distance (ft)	223	1095	127
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Site Drive & Skillin Rd

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	5	49	54
Average Queue (ft)	0	5	24
95th Queue (ft)	5	28	49
Link Distance (ft)	110	1892	120
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 1

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1165	1203	1122	1200	1149	1188	1232
Vehs Exited	1165	1191	1124	1190	1151	1185	1233
Starting Vehs	21	14	25	16	26	22	25
Ending Vehs	21	26	23	26	24	25	24
Travel Distance (mi)	610	627	593	626	604	629	641
Travel Time (hr)	21.7	22.5	21.0	22.2	21.4	22.5	22.9
Total Delay (hr)	2.5	2.7	2.3	2.5	2.4	2.8	2.7
Total Stops	517	521	498	535	490	547	554
Fuel Used (gal)	19.8	20.2	19.0	20.1	19.3	20.3	20.5

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1163	1154	1150	1174
Vehs Exited	1160	1164	1149	1171
Starting Vehs	16	26	24	19
Ending Vehs	19	16	25	18
Travel Distance (mi)	611	605	607	615
Travel Time (hr)	21.7	21.6	21.4	21.9
Total Delay (hr)	2.5	2.6	2.4	2.5
Total Stops	517	530	501	523
Fuel Used (gal)	19.4	19.3	19.4	19.7

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1165	1203	1122	1200	1149	1188	1232
Vehs Exited	1165	1191	1124	1190	1151	1185	1233
Starting Vehs	21	14	25	16	26	22	25
Ending Vehs	21	26	23	26	24	25	24
Travel Distance (mi)	610	627	593	626	604	629	641
Travel Time (hr)	21.7	22.5	21.0	22.2	21.4	22.5	22.9
Total Delay (hr)	2.5	2.7	2.3	2.5	2.4	2.8	2.7
Total Stops	517	521	498	535	490	547	554
Fuel Used (gal)	19.8	20.2	19.0	20.1	19.3	20.3	20.5

Interval #1 Information Off-Peak

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1163	1154	1150	1174
Vehs Exited	1160	1164	1149	1171
Starting Vehs	16	26	24	19
Ending Vehs	19	16	25	18
Travel Distance (mi)	611	605	607	615
Travel Time (hr)	21.7	21.6	21.4	21.9
Total Delay (hr)	2.5	2.6	2.4	2.5
Total Stops	517	530	501	523
Fuel Used (gal)	19.4	19.3	19.4	19.7

3: Route 26 & Blackstrap Rd/Skillin Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.2	0.1
Total Del/Veh (s)	12.2	11.5	1.6	2.1	4.8

6: Route 26 & Site Drive Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.4	0.0	0.2
Total Del/Veh (s)	8.3	1.9	1.3	2.5

7: Site Drive & Skillin Rd Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.2	0.1	0.1
Total Del/Veh (s)	1.1	1.9	4.0	1.7

Total Network Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	7.4

Intersection: 3: Route 26 & Blackstrap Rd/Skillin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	111	114	82	67
Average Queue (ft)	53	56	22	17
95th Queue (ft)	91	93	60	50
Link Distance (ft)	1767	110	127	1360
Upstream Blk Time (%)		1	0	
Queuing Penalty (veh)		1	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Route 26 & Site Drive

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	96	12	73
Average Queue (ft)	40	0	16
95th Queue (ft)	71	5	51
Link Distance (ft)	223	1095	127
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Site Drive & Skillin Rd

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	5	49	54
Average Queue (ft)	0	5	24
95th Queue (ft)	5	28	49
Link Distance (ft)	110	1892	120
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	67	73	48	45	20	31	108	34	63	212	33
Future Volume (vph)	44	67	73	48	45	20	31	108	34	63	212	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.976			0.973			0.985	
Flt Protected		0.988			0.979			0.991			0.990	
Satd. Flow (prot)	0	1691	0	0	1713	0	0	1621	0	0	1732	0
Flt Permitted		0.988			0.979			0.991			0.990	
Satd. Flow (perm)	0	1691	0	0	1713	0	0	1621	0	0	1732	0
Link Speed (mph)		40			35			35			35	
Link Distance (ft)		1795			174			178			1389	
Travel Time (s)		30.6			3.4			3.5			27.1	
Peak Hour Factor	0.83	0.83	0.83	0.69	0.69	0.69	0.92	0.92	0.92	0.77	0.77	0.77
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	13%	13%	13%	7%	7%	7%
Adj. Flow (vph)	53	81	88	70	65	29	34	117	37	82	275	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	222	0	0	164	0	0	188	0	0	400	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 41.5%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	173	0	0	333
Future Volume (vph)	0	0	173	0	0	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1681	0	1681	0	0	1776
Flt Permitted						
Satd. Flow (perm)	1681	0	1681	0	0	1776
Link Speed (mph)	25		35			35
Link Distance (ft)	252		1129			178
Travel Time (s)	6.9		22.0			3.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.77	0.77
Heavy Vehicles (%)	13%	13%	13%	13%	7%	7%
Adj. Flow (vph)	0	0	188	0	0	432
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	188	0	0	432
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 20.9%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	164	0	0	113	0	0
Future Volume (vph)	164	0	0	113	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1810	0	0	1792	1792	0
Flt Permitted						
Satd. Flow (perm)	1810	0	0	1792	1792	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	174			1915	149	
Travel Time (s)	4.0			37.3	3.4	
Peak Hour Factor	0.83	0.83	0.69	0.69	0.60	0.60
Heavy Vehicles (%)	5%	5%	6%	6%	6%	6%
Adj. Flow (vph)	198	0	0	164	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	198	0	0	164	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 12.0%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	70	38	26	88	46	77	307	65	42	141	37
Future Volume (vph)	30	70	38	26	88	46	77	307	65	42	141	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.963			0.962			0.981			0.977	
Flt Protected		0.989			0.992			0.991			0.991	
Satd. Flow (prot)	0	1723	0	0	1760	0	0	1793	0	0	1821	0
Flt Permitted		0.989			0.992			0.991			0.991	
Satd. Flow (perm)	0	1723	0	0	1760	0	0	1793	0	0	1821	0
Link Speed (mph)		40			35			35			35	
Link Distance (ft)		1795			174			178			1389	
Travel Time (s)		30.6			3.4			3.5			27.1	
Peak Hour Factor	0.76	0.76	0.76	0.93	0.93	0.93	0.95	0.95	0.95	0.84	0.84	0.84
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	1%	1%	1%
Adj. Flow (vph)	39	92	50	28	95	49	81	323	68	50	168	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	181	0	0	172	0	0	472	0	0	262	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.7%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	449	0	0	205
Future Volume (vph)	0	0	449	0	0	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1845	0	1845	0	0	1881
Flt Permitted						
Satd. Flow (perm)	1845	0	1845	0	0	1881
Link Speed (mph)	25		35			35
Link Distance (ft)	252		1129			178
Travel Time (s)	6.9		22.0			3.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.77	0.77
Heavy Vehicles (%)	3%	3%	3%	3%	1%	1%
Adj. Flow (vph)	0	0	488	0	0	266
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	488	0	0	266
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 27.0%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	177	0	0	160	0	0
Future Volume (vph)	177	0	0	160	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1810	0	0	1845	1845	0
Flt Permitted						
Satd. Flow (perm)	1810	0	0	1845	1845	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	174			1915	149	
Travel Time (s)	4.0			37.3	3.4	
Peak Hour Factor	0.76	0.76	0.93	0.93	0.60	0.60
Heavy Vehicles (%)	5%	5%	3%	3%	3%	3%
Adj. Flow (vph)	233	0	0	172	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	233	0	0	172	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 12.6%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	71	77	48	53	20	32	119	34	63	224	33
Future Volume (vph)	44	71	77	48	53	20	32	119	34	63	224	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.978			0.975			0.986	
Flt Protected		0.989			0.981			0.991			0.990	
Satd. Flow (prot)	0	1693	0	0	1720	0	0	1625	0	0	1733	0
Flt Permitted		0.989			0.981			0.991			0.990	
Satd. Flow (perm)	0	1693	0	0	1720	0	0	1625	0	0	1733	0
Link Speed (mph)		40			35			35			35	
Link Distance (ft)		1795			174			178			1389	
Travel Time (s)		30.6			3.4			3.5			27.1	
Peak Hour Factor	0.83	0.83	0.83	0.69	0.69	0.69	0.92	0.92	0.92	0.77	0.77	0.77
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	13%	13%	13%	7%	7%	7%
Adj. Flow (vph)	53	86	93	70	77	29	35	129	37	82	291	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	232	0	0	176	0	0	201	0	0	416	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 43.0%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	49	27	158	41	45	304
Future Volume (vph)	49	27	158	41	45	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.952		0.972			
Flt Protected	0.969					0.994
Satd. Flow (prot)	1551	0	1634	0	0	1765
Flt Permitted	0.969					0.994
Satd. Flow (perm)	1551	0	1634	0	0	1765
Link Speed (mph)	25		35			35
Link Distance (ft)	252		1129			178
Travel Time (s)	6.9		22.0			3.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.77	0.77
Heavy Vehicles (%)	13%	13%	13%	13%	7%	7%
Adj. Flow (vph)	53	29	172	45	58	395
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	217	0	0	453
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 43.7% ICU Level of Service A
Analysis Period (min) 15

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	157	11	20	105	16	21
Future Volume (vph)	157	11	20	105	16	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991				0.924	
Flt Protected				0.992	0.979	
Satd. Flow (prot)	1793	0	0	1778	1621	0
Flt Permitted				0.992	0.979	
Satd. Flow (perm)	1793	0	0	1778	1621	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	174			1915	149	
Travel Time (s)	4.0			37.3	3.4	
Peak Hour Factor	0.83	0.83	0.69	0.69	0.60	0.60
Heavy Vehicles (%)	5%	5%	6%	6%	6%	6%
Adj. Flow (vph)	189	13	29	152	27	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	202	0	0	181	62	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.9%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	75	43	26	95	46	80	322	65	42	156	37
Future Volume (vph)	30	75	43	26	95	46	80	322	65	42	156	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.963			0.981			0.979	
Flt Protected		0.990			0.992			0.992			0.991	
Satd. Flow (prot)	0	1722	0	0	1762	0	0	1795	0	0	1825	0
Flt Permitted		0.990			0.992			0.992			0.991	
Satd. Flow (perm)	0	1722	0	0	1762	0	0	1795	0	0	1825	0
Link Speed (mph)		40			35			35			35	
Link Distance (ft)		1795			174			178			1389	
Travel Time (s)		30.6			3.4			3.5			27.1	
Peak Hour Factor	0.76	0.76	0.76	0.93	0.93	0.93	0.95	0.95	0.95	0.84	0.84	0.84
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	1%	1%	1%
Adj. Flow (vph)	39	99	57	28	102	49	84	339	68	50	186	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	0	0	179	0	0	491	0	0	280	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 52.3%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	53	414	64	33	192
Future Volume (vph)	43	53	414	64	33	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.925		0.982			
Flt Protected	0.978					0.993
Satd. Flow (prot)	1669	0	1811	0	0	1868
Flt Permitted	0.978					0.993
Satd. Flow (perm)	1669	0	1811	0	0	1868
Link Speed (mph)	25		35			35
Link Distance (ft)	252		1129			178
Travel Time (s)	6.9		22.0			3.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.77	0.77
Heavy Vehicles (%)	3%	3%	3%	3%	1%	1%
Adj. Flow (vph)	47	58	450	70	43	249
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	0	520	0	0	292
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 50.4%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	170	12	23	152	15	22
Future Volume (vph)	170	12	23	152	15	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991				0.919	
Flt Protected				0.993	0.980	
Satd. Flow (prot)	1793	0	0	1832	1661	0
Flt Permitted				0.993	0.980	
Satd. Flow (perm)	1793	0	0	1832	1661	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	174			1915	149	
Travel Time (s)	4.0			37.3	3.4	
Peak Hour Factor	0.76	0.76	0.93	0.93	0.60	0.60
Heavy Vehicles (%)	5%	5%	3%	3%	3%	3%
Adj. Flow (vph)	224	16	25	163	25	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	240	0	0	188	62	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 32.3%	ICU Level of Service A
Analysis Period (min) 15	

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

FIELD WK:	SCALE: 1"=30'
DRN BY: CYN	JOB #: 22-RLM-004
CH'D BY: CYN	MAP/LOT: U-19 12&13
DATE: 08-07-23	FILE:

SHEET: SW

TITLE:
SIDEWALK CONCEPT PLAN

PROJECT:
RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE ★ CURTIS Y. NEUFELD 9779 LICENSED PROFESSIONAL ENGINEER ★

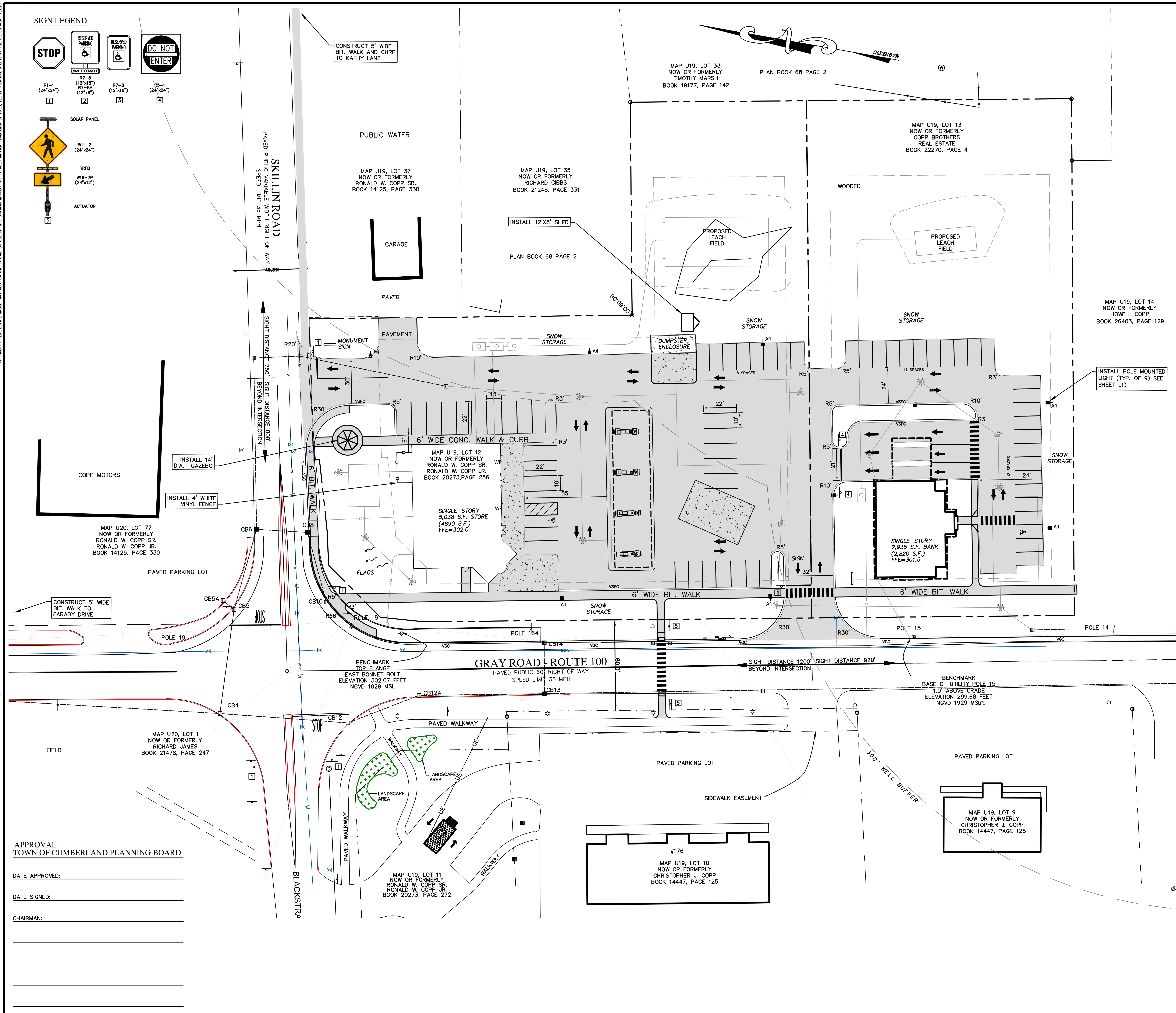
8-11-23

1.	08-11-23 SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION

THIS PLAN IS ISSUED FOR REVIEW AND INFORMATION PURPOSES ONLY. THIS PLAN WILL CHANGE AND IS NOT INTENDED FOR PRICING OR CONSTRUCTION.

PRICING BASED ON THIS PLAN SHALL BE CONSIDERED PRELIMINARY AND MUST BE UPDATED PRIOR TO FINAL CONSTRUCTION DRAWINGS.

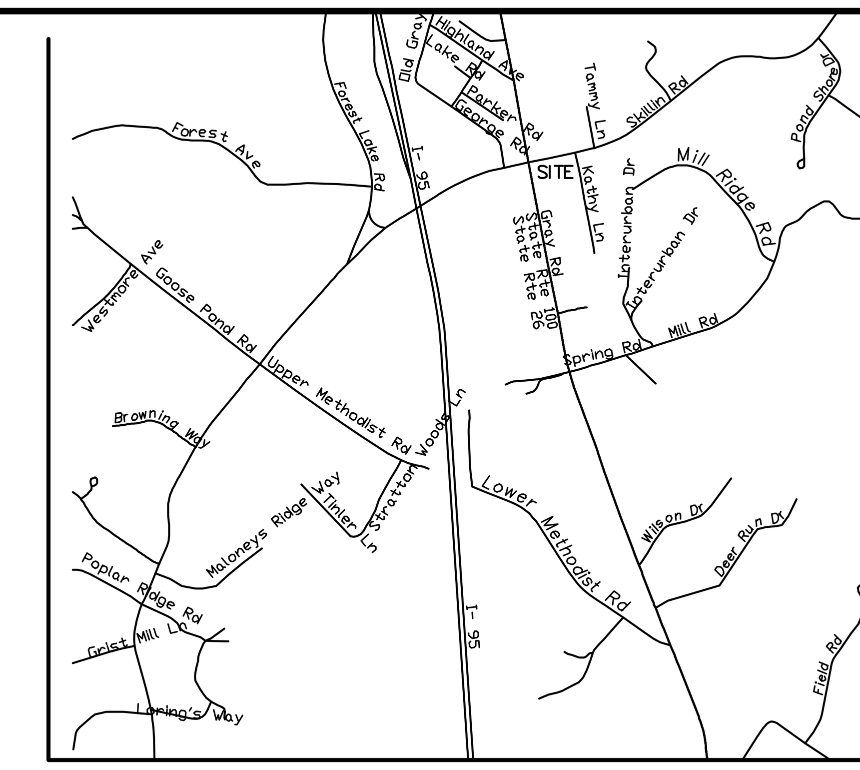


APPROVAL
TOWN OF CUMBERLAND PLANNING BOARD

DATE APPROVED: ____________

DATE SIGNED: ____________

CHAIRMAN: ____________



LOCATION MAP
NOT TO SCALE

GENERAL NOTES:

1. TITLE REFERENCE FOR SURVEYED PARCEL:
   BK 20273, PG 256 (U19-12)
   BK 34640, PG 209 (U19-13)
2. PLAN REFERENCE(S):
   (1) EXISTING CONDITIONS SURVEY FOR PRIORITY REAL ESTATE GROUP OF 181 GRAY ROAD, CUMBERLAND, MAINE 04021, PREPARED BY BOUNDARY POINTS, NOT RECORDED.
3. AREA INFORMATION:
   LOT AREA: 141,116 S.F. (3.24 ACRES)
4. TAX MAP REFERENCE:
   TAX MAP U19, LOT 12 & 13.
5. BASIS OF BEARINGS:
   BEARINGS ARE MAINE STATE PLANE, WEST ZONE, NAD 83.
6. ELEVATION DATUM:
   NGVD 1929 MSL
7. FLOOD ZONE INFORMATION:
   PARCEL IS LOCATED WITHIN ZONE C (AREAS OF MINIMAL FLOODING) OF THE FLOOD INSURANCE RATE MAPS FOR CUMBERLAND COUNTY, MAINE. THE PROJECT IS LOCATED ON PANEL 15 OF 25 (COMMUNITY PANEL 230162 0015 B, EFF. DATE MAY 19, 1981)
8. IMPERVIOUS AREA:
   EXISTING IMPERVIOUS AREA: 94,773 S.F. (2.18 AC)
   PROPOSED IMPERVIOUS AREA: 68,232 S.F. (1.57 AC)
   NET CHANGE IN IMPERVIOUS AREA: -26,541 S.F. (0.61 AC)

UTILITY NOTES:

1. INFORMATION REGARDING THE LOCATION OF EXISTING UNDERGROUND UTILITIES IS A COMPILATION OF THAT FOUND IN THE FIELD AND THAT SHOWN ON A PREVIOUS PLANS, AND SHALL NOT BE CONSIDERED AN AS-BUILT PLAN. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING UTILITY LOCATIONS PRIOR TO COMMENCING WORK. NOTIFY ENGINEER OF ANY DISCREPANCY BETWEEN UTILITIES AS SHOWN AND AS FOUND. CONTRACTOR SHALL NOTIFY DIG-SAFE PRIOR TO EXCAVATION. 1-888-344-7233

LAYOUT NOTES:

1. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB OR FOUNDATION.
2. BOUNDARY INFORMATION ON LAYOUT PLAN IS FOR REFERENCE ONLY, REFER TO CERTIFIED BOUNDARY PLAN FOR BOUNDARY INFORMATION.
3. ALL HANDICAP ACCESSIBLE PARKING SPACES, RAMPS AND SIDEWALKS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).
4. ALL SITE SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. (MUTCD)
5. BUILDING FOUNDATION SHOWN IS NOT FOR FOUNDATION LAYOUT. COORDINATE SITE WORK WITH ARCHITECTURAL DRAWINGS INCLUDING BUILDING FEATURES AND FOUNDATION PLAN.
6. REFER TO SHEET C4 FOR GRADING AND DRAINAGE INFORMATION.
7. REFER TO SHEET L1 FOR LANDSCAPE INFORMATION.
8. REFER TO SHEET L2 FOR LIGHTING INFORMATION.

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

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP

SHEET: C3

SCALE: 1"=30'
JOB #: 22-RLM-004
MAP/LOT: U-19 12&13
FILE:
FIELD WK:
DRN BY: CYN
CHD BY: CYN
DATE: 11-22-23

TITLE: SITE PLAN

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME 04021

PREPARED FOR: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE CURTIS Y. NEUFELD LICENSED PROFESSIONAL ENGINEER
11-22-23

1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

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C:\USERS\CNEUF\ONEDRIVE\DOCUMENTS\PROJECTS\22-RLM-004 CUMBERLAND\DWG\22-004 SITE.DWG, C3 SITE, 11/22/2023 9:43 AM, CURTIS NEUFELD

PURCHASE AND SALE AGREEMENT
(Commercial Real Estate)

This Agreement is made on this 14th day of ~~February~~ March, 2023 (the "Effective Date") by and between **Cumberland Real Estate Group, LLC,** a Maine Limited Liability Company with a mailing address at 2 Main Street, Topsham, Maine 04086 (hereinafter referred to as the "Purchaser"), and **Ronald W. Copp, Sr.** with a mailing address at 187 Gray Rd Cumberland Me 04021 and **Ronald W. Copp, Jr.** with a mailing address at 25 Interurban Dr. Cumberland Me 04021 (hereinafter collectively referred to as the "Seller").

1. **Purchase and Sale.** Subject to the terms and conditions of this Agreement, Seller agrees to sell and convey to Purchaser and Purchaser agrees to purchase from Seller, fee simple absolute title to real estate and buildings located at or near 181 Gray Road, Cumberland, Maine, as more fully described in a Deed of Sale by Personal Representative, Testate, dated September 25, 2003, from William B. Gerry, Personal Representative, to Ronald W. Copp, Sr. and Ronald W. Copp, Jr., recorded in the Cumberland County Registry of Deeds at Book 20273, Page 256, said real estate being more fully described in Exhibit "A" attached hereto and made a part hereof (being the current Town of Cumberland Tax Map U19, Lot 12), together with all rights, privileges, easements, and appurtenances benefitting said real estate (hereinafter collectively referred to as the "Real Property" or the "Real Estate"). For all purposes of this Agreement, the term "Real Estate" and "Real Property" shall be deemed to include the land, structures, and improvements affixed to the Real Estate.

2. **Purchase Price.**

(a) The purchase price for the Real Estate shall be [redacted] (the "Purchase Price").

(b) The Purchase Price shall be paid by the Purchaser to the Seller as follows:

(i) Within Three (3) business days subsequent to the Effective Date, the Purchaser shall deliver to the Escrow Agent, hereinafter defined, a deposit of [redacted] (the "Deposit"). The Deposit shall be payable to The Bell Firm, P.A., 810 Lisbon Street, P.O. Box 1776, Lewiston, Maine 04241-1776 ("Escrow Agent"). The Deposit shall be held and/or disposed of by the Escrow Agent in accordance with provisions of this Agreement. The Deposit shall be held by the Escrow Agent in a non-interest-bearing account.

(ii) The balance of the Purchase Price ([redacted] shall be paid by the Purchaser to the Seller in lawful currency of the United States in immediately available funds by wire transfer or other means acceptable to Seller.

(iii) The parties hereto acknowledge and agree with the Escrow Agent that the Escrow Agent shall act hereunder as a depository only and shall not be a party to or be bound by any agreement or undertaking which may be evidenced by or arise out of the escrow deposited with it hereunder. The Escrow Agent shall not be responsible or liable in any manner for the identity or rights of any person depositing the Deposit in escrow. The Escrow Agent shall not be liable for any error of judgment or for any act omitted by it in good faith, or for anything which it may in good faith do or refrain from doing in connection herewith. The Escrow Agent is authorized to act on any document believed by it to be genuine and to be signed by the proper party or parties, and will incur no liability in so acting.

In the event of any disagreements or presentation of adverse claims or demands in connection with the Deposit deposited with the Escrow Agent, the Escrow Agent shall at its option be entitled to refuse to comply with any such claims or demands during the continuance of such disagreement and may refrain from delivering any item effected hereby, and in so doing the Escrow Agent shall not become liable to the undersigned, or to any person, due to its failure to comply with any such adverse claim or demand. The Escrow Agent shall be entitled (but not obligated) to continue, without liability, to refrain and refuse to act: (a) until all the rights of the adverse claimants have been finally adjudicated by a court of competent jurisdiction, after which time the Escrow Agent shall be entitled to act in conformity with such adjudication; or (b) until all differences shall have been adjudicated by agreement and the Escrow Agent shall have been notified thereof and shall have been directed in writing signed by the undersigned and by all persons making adverse claims or demands, at which time the Escrow Agent shall be protected in acting in compliance therewith.

Notwithstanding anything elsewhere set forth herein, the Escrow Agent shall not be required to make delivery of the Deposit unless it has been indemnified against any liability for doing so in a manner which it deems satisfactory.

3. **Adjustments.** The following items shall be prorated, adjusted and paid as follows:

(a) All applicable real estate taxes, assessments, and rents affecting the Real Estate shall be apportioned between Seller and Purchaser as of the Closing Date (as hereinafter defined). Utilities shall be prorated up to the date of closing unless otherwise paid for by tenants.

(b) Seller and Purchaser shall each pay their equal share of the real estate transfer taxes.

(c) Each party shall pay all costs and expenses incurred by such party in connection with the transactions contemplated by this Agreement not otherwise adjusted as set forth in this Section or otherwise provided for in this Agreement.

(d) The Purchaser shall be responsible for all costs and expenses associated with its due diligence review. The Seller and the Purchaser shall each be responsible for the payment of costs of their respective legal counsel, tax advisors, and other professionals.

4. **Title.** Seller shall convey the Real Estate to Purchaser by good and sufficient Warranty Deed (the "Deed"), prepared at the Seller's sole expense, conveying good and marketable title to the Real Estate as defined by the standards adopted by the Maine State Bar Association, free and clear of all encumbrances, except for conventional utility easements and such restrictions as would not make the title unmarketable. The title shall also be insurable by any reputable title insurance company licensed to do business in the State of Maine. All costs of title insurance shall be borne by Purchaser. Seller will execute such affidavits as may be required by the applicable title insurance company to cause the deletion of the standard mechanics' lien exception from the to-be issued title insurance policy.

Purchaser may examine, at Purchaser's sole expense, the title to the Real Estate and will report in writing on or before that date which is One Hundred Twenty (120) days from the Effective Date ("Due Diligence Period") any valid objections (hereafter "Exceptions") based on the standards adopted by the Maine State Bar Association. Any Exceptions to the title which would be disclosed by examination of the records shall be deemed to have been accepted by Purchaser if title is transferred to Purchaser without removal of said Exceptions, unless otherwise agreed to in writing and signed by Seller. If Purchaser objects to any Exceptions to the title, Seller shall (i) use all due diligence to remove such exceptions at Seller's own expense within Thirty (30) days thereafter, or (ii) notify the Purchaser that the Seller does not intend to remove said Exceptions. Notwithstanding Seller's due diligence, if such Exceptions objected to by Purchaser cannot be removed within the said Thirty (30) day period, or such additional period as Purchaser in Purchaser's sole discretion may allow, or if the Seller indicates that it does not intend to remove said Exceptions, Purchaser may elect to terminate this Agreement. Purchaser shall notify Seller of such election, in which case the obligations of all parties under this Agreement shall thereupon terminate and the Deposit shall be promptly returned to the Purchaser. Alternatively, Purchaser may elect to purchase the Real Estate under the provisions of this Agreement subject to any title Exceptions which cannot be removed without any adjustment in the Purchase Price.

5. **Due Diligence. Inspections**. The Seller shall, within Five (5) business days from the Effective Date, provide to the Purchaser such information as the Purchaser reasonably requests relating to the Real Estate, provided that said information is within the Seller's possession or control (the "Due Diligence Information"). The Due Diligence period shall be extended by One (1) day for each day that the Seller takes to deliver the Due Diligence Information to the Seller beyond the Five (5) business day period set forth above. All proprietary and confidential information that the Seller provides to the Purchaser relating to the Real Estate shall be used by the Purchaser solely for purposes of the transactions contemplated herein. All such information will be held by the Purchaser in strict confidence and not disclosed to anyone, other than legal counsel, employees and agents on a need-to-know basis, lenders, and third-party due diligence contractors and professionals;

Provided, However, that it shall not be a breach of this covenant in the event of disclosure of any such information if it is or becomes available from other sources which are not subject to an obligation of confidentiality. Notwithstanding anything else set forth herein, nothing shall prohibit the Purchaser from filing or disclosing such information in connection with, and as may be required by, a judicial or regulatory body or law enforcement agency.

During the Due Diligence Period, the Purchaser shall be entitled to conduct such inspections on the Real Estate as the Purchaser, in its sole discretion, shall determine, including, without limitation, general building inspection, sewer disposal, water quality, radon air quality, radon water quality, asbestos air quality, lead-based paint inspections, asbestos inspections, ADA inspections, wetland surveys, environmental inspections, state and local codes, surveys, leases and tenancies, and any and all other inspections which the Purchaser deems just and appropriate. The Purchaser shall indemnify and hold the Seller harmless from any and all injury which the Seller may incur in connection with the Purchaser's inspections on the Real Estate. If the Purchaser is dissatisfied with any of its inspections, in the Purchaser's sole and absolute discretion, the Purchaser shall be entitled to terminate this Agreement on or before the expiration of the Due Diligence Period by notice in writing to the Seller, and the Deposit shall be promptly returned to the Purchaser. If the Purchaser fails to notify the Seller in writing of its election to terminate on or before the expiration of the Due Diligence Period as a result of its due diligence review, then the Purchaser shall be deemed to be satisfied with its due diligence review, and the Purchaser shall have no further right to terminate under this Item 5.

6. **Items to be Delivered to Purchaser from Seller.** Seller shall deliver to Purchaser such information and/or documentation pertaining to the Real Estate as is reasonably requested by Purchaser from time-to-time to the extent the same is in the possession or control of Seller.

7. **Sole Representations and Warranties.** The Seller represents and warrants to the Purchaser that the following are true and correct as of the Effective Date and will be true and correct as of the Closing:

(a) This Agreement is valid, binding, and enforceable against the Seller. Seller has not received any notice from any source claiming or inquiring into the existence of any violations of laws, ordinances, or regulations affecting the Real Estate; and

(b) there is no action, suit, or other proceeding (including condemnation actions) pending or, to the best of Seller's knowledge, threatened against Seller or affecting any portion of the Real Estate in any court or before any arbitrator of any kind or before any governmental body that may materially or adversely affect the Real Estate or the transactions contemplated by this Agreement.

8. **Purchaser Representations and Warranties.** The Purchaser represents and warrants to the Seller that the following are true and correct as of the Effective Date and will be true and correct as of the Closing:

(a) The Purchaser has the requisite power and authority to execute, deliver, and perform its obligations under this Agreement. This Agreement is valid, binding, and enforceable against the Purchaser.

(b) The Purchaser is a Limited Liability Company, duly formed, valid and existing, and in good standing of the laws of the State of Maine.

(c) There are no actions, suits, claims, investigations, or other legal proceedings pending, or to the Purchaser's knowledge, threatened against or by the Purchaser that challenge or seek to prevent, or otherwise delay the consummation of the transactions contemplated herein.

9. **General Covenants and Agreements of Seller.** Seller agrees with Purchaser as follows:

(a) Between the Effective Date and the Closing, Seller shall not, without Purchaser's consent (i) convey or otherwise dispose of any interest in the Real Estate; (ii) mortgage, pledge, lease, or subject to any lien or other encumbrances any interest in the Real Estate which exceed the Purchase Price; (iii) enter into any agreement relating to the Real Estate that would affect the transaction contemplated hereby or survive the Closing; or (iv) alter the physical condition of the Real Estate; and

(b) Between the Effective Date and the Closing, Seller shall not take any action or knowingly fail to take any action that would cause the Real Estate not to conform with the provisions of this Agreement, cause any statements set forth in this Agreement to be untrue or incorrect, or otherwise cause Seller to be unable to perform the Seller's obligations under this Agreement.

(c) The Seller has all requisite power and authority to execute, deliver, and perform Seller's obligations under this Agreement. This Agreement is valid, binding, and enforceable against the Seller.

(d) The Seller is not a "foreign person" as such term is defined in Section 1445 of the Internal Revenue Code of 1986, as amended, or any related regulations.

(e) There are no mechanic's liens or other claims against the Real Estate, and all invoices for work done and materials supplied to the Real Estate have been or will, as of the date of Closing, be paid.

(f) The Seller has received no notices from regulatory agencies regarding any environmental conditions at the Real Estate that have not been remedied or disclosed in writing to the Purchaser prior to the expiration of the Due Diligence Period. The Seller has no knowledge of any environmental issue with respect to the Real Estate.

(g) The Seller has no knowledge of any asbestos or lead-based paint located on structures on the Real Estate.

10. **Closing; Conditions.**

(a) Unless otherwise provided in this Agreement or otherwise agreed by the parties, the consummation of the transaction contemplated hereby (the "Closing") shall take place not later than that date which is Forty-Five (45) days subsequent to the date that all Preconditions to Closing have been satisfied (the "Closing Date"); **Provided, However**, that if the Preconditions to Closing, as hereinafter defined, have not been met by that date which is Twelve (12) months from the Effective Date, the Purchaser shall have the right to extend the Closing Date for a period of up to Ninety (90) additional days by depositing an additional [redacted] to become part of the Deposit (all of which shall be applicable to the Purchase Price), or, in the alternative, the Purchaser shall have the right to terminate this Agreement, in which event the Deposit shall be promptly refunded to the Purchaser. The Closing shall take place at the offices of The Bell Firm, P.A., 810 Lisbon Street, Lewiston, Maine, or such other place, and at such time, as the parties shall mutually agree upon. Alternatively, the parties may agree to close this transaction remotely via overnight mail or other appropriate delivery service.

(b) Notwithstanding anything elsewhere set forth herein, the Purchaser's obligation to close hereunder shall be contingent upon the following ("Preconditions to Closing"):

(i) The Purchaser shall enter into a Purchase and Sale Agreement with Ronald W. Copp, Sr., Jerald E. Copp, Jr., and Howell R. Copp relating to certain real estate located at 173 Gray Road, Cumberland, Maine (the "173 Gray Road Agreement");

(ii) The parties to the 173 Gray Road Agreement shall be prepared to, and shall, close the transactions contemplated in the 173 Gray Road Agreement simultaneous with the Closing on the transactions contemplated herein;

(iii) The Purchaser shall have obtained financing for the purchase of the Real Estate upon terms and conditions reasonably satisfactory to the Purchaser;

(iv) The Purchaser shall have obtained all licenses, permits, and approvals necessary and appropriate for the operation of a convenience store and fueling station at the Real Estate; and

(v) The Purchaser shall have entered into a lease with Rusty Lantern relating to the Real Estate upon terms and conditions reasonably acceptable to the Purchaser.

In the event that any of the foregoing Preconditions to Closing have not been met by the Closing Date, as the same may be extended as provided above, the Purchaser shall have the right to terminate this Agreement in which event the Deposit shall be promptly refunded to the Purchaser.

(c) At the Closing, the Seller shall deliver to the Purchaser the following documents:

(i) Duly Executed Warranty Deed in format for recording in the Cumberland County Registry of Deeds, and otherwise reasonably satisfactory to the Purchaser;

(ii) A Real Estate Transfer Tax Declaration for the Real Estate;

(iii) Seller shall deliver certification that Seller is not a "foreign person" as such term is defined in Section 1445 of the Internal Revenue Code of 1986, as amended, and the Seller shall deliver a certification that the Seller is a Maine resident, or otherwise disclose that it is not a Maine resident and deliver such other documentation as the Purchaser shall reasonably request with respect to said certification;

(iv) The Seller shall deliver such title insurance affidavits relating to mechanic's liens and persons in possession; and

(v) The Seller shall convey such other documents as are customary in the State of Maine for commercial real estate transactions, or as otherwise reasonably requested by the Purchaser.

(d) The Purchaser shall deliver to the Seller the following:

(i) The Purchase Price; and

(ii) Such other documents as are customary in the State of Maine for commercial real estate transactions, or as are otherwise reasonably requested by the Seller.

11. **Risk of Loss; Possession and Condition.**

(a) Risk of loss to the Real Estate prior to the Closing shall be borne by Seller. If between the Effective Date and the Closing any or all of the Real Estate shall be partially or totally destroyed (such that the cost of repairing damage to the Real Estate exceeds Ten Percent (10%) of the Purchase Price), and the Real Estate is, in the reasonable opinion of the Purchaser, rendered unsuitable for its permitted use, Purchaser shall have the option, in its sole and absolute discretion, to (i) terminate this Agreement and receive a refund of the Deposit, or (ii) proceed to Closing, in which event the Seller shall assign all insurance proceeds pertaining to the damage to the Purchaser and credit the Purchaser with any insurance deductibles (less the amounts Seller expends on repairing such damage prior to the Closing).

(b) The Seller agrees to deliver to the Purchaser at Closing full possession of the Real Estate, free of all tenants and occupants in substantially the same condition as they are in on the Effective Date, reasonable use and wear thereof excepted, and not in violation of any laws, ordinances, or regulations.

12. **Brokers**. Seller and Purchaser warrant and represent to each other that they have not employed or engaged any real estate broker or agent in connection with the transaction contemplated by this Agreement. Each party hereto agrees to hold the other party harmless from and against any and all costs, expenses, claims, losses, or damages, including reasonable attorneys' and paralegal fees and costs, resulting from a breach of such party's representation or covenant contained in this Section. The provisions of this Section shall survive the Closing.

13. **Default.** In the event of a default hereunder by the Seller, the Purchaser shall be entitled to any and all remedies available at law or in equity, including the right to specific performance. In the event of a default by the Purchaser hereunder, the Seller's absolute recourse shall be retaining the Deposit as full and complete liquidated damages.

14. **Notices**. All notices and other communications required or permitted under this Agreement shall be in writing and shall be hand delivered, or given by certified mail, return receipt requested, or by Federal Express or another nationally recognized overnight courier service, addressed to the party to receive such notice at the address set forth on Page 1 to this Agreement. Any notice delivered personally shall be deemed delivered on the date received or first rejected. Any notice sent via certified mail, return receipt requested, shall be deemed delivered on the date received or first rejected. Any notice sent via overnight mail by Federal Express or another nationally recognized overnight courier service shall be deemed delivered Twenty-Four (24) hours after being deposited with the overnight delivery courier. Any party may change the address to which its future notices shall be sent by notice given in the manner set forth above.

15. **Miscellaneous.**

(a) Any time period provided for herein which ends on a Saturday, Sunday or statutory holiday in the State of Maine shall extend to midnight at the end of the next day that is not a Saturday, Sunday, or statutory holiday.

(b) This Agreement shall be binding upon and shall inure to the benefit of Seller and Purchaser and their respective heirs, personal representatives, successors and assigns. The Purchaser shall have the right to assign the Purchaser's rights and obligations hereunder to an entity controlled by James G. Howard, without the prior written consent of the Seller, but upon notification to the Seller of the name and address of the assignee. All other assignments by the Purchaser shall require the prior written consent of the Seller. The Seller shall have the right to assign this Agreement.

(c) All understandings, agreements, warranties, and representations, either oral or in writing, heretofore between the parties hereto with respect to the purchase and sale of the Real Estate are merged into this Agreement, which alone fully and completely expresses the parties' agreement with respect to the transactions described herein. This Agreement may not be modified in any manner except by an instrument in writing signed by Seller and Purchaser. All representations and warranties set forth in this Agreement shall survive the Closing.

(d) This Agreement shall be governed by and interpreted in accordance with the laws of the State of Maine without regard to or application of its conflicts of law principles. Whenever the word "include," "includes," or "including" is used in this Agreement, it is deemed to be followed by the words "without limitation." The terms "this Agreement," "hereof," "herein," "hereby," "hereunder" and similar expressions refer to this Agreement as a whole and not to any particular section of this Agreement. In the event of a breach of this Agreement by any party, the other party shall be entitled to recover reasonable attorneys' and paralegal fees and costs incurred in connection with the enforcement of its rights hereunder. This Agreement may be executed in multiple counterparts, each of which shall constitute an original, and all of which, taken together, shall constitute a single instrument.

(e) The Seller and the Purchaser each (i) has agreed to permit the use from time to time, where appropriate, of pdf, Docusign, or other electronic signatures in order to expedite the transactions contemplated, (ii) intends to be bound by its respective pdf, Docusign, or other electronic signature, (iii) is aware that the other will rely on the pdf, Docusign, or other electronically transmitted signature, and (iv) acknowledges such reliance and waives any defenses to the enforcement of this Agreement and the documents effecting the transactions contemplated herein based on the fact that the signature was sent by electronic transmission only and in any number of counterparts, each of which shall be deemed to be an original and all of which together shall constitute one and the same instrument.

In Witness Whereof, the parties hereto have duly executed this Agreement as of the date first above written.

Witness:	**Cumberland Real Estate Group, LLC**
Martin Moffatt	By: James G. Howard
	James G. Howard, Manager
Madelyn M. Meier	Ronald W. Copp Sr.
	Ronald W. Copp, Sr.
Madelyn M. Meier	Ronald W. Copp
	Ronald W. Copp, Jr.

EXHIBIT A – Deed

PURCHASE AND SALE AGREEMENT
(Commercial Real Estate)

This Agreement is made on this 14th day of ~~February~~ March, 2023 (the "Effective Date") by and between **Cumberland Real Estate Group, LLC,** a Maine Limited Liability Company with a mailing address at 2 Main Street, Topsham, Maine 04086 (hereinafter referred to as the "Purchaser"), and **Ronald W. Copp, Sr.** with a mailing address at 187 Gray Rd Cumberland ME 04021, **Howell R. Copp** with a mailing address at 30 Browning Way Cumberland, ME 04021, and **Jerald E. Copp, Jr.** with a mailing address at 40 Blackstrap Rd Cumberland ME 04021 (hereinafter collectively referred to as the "Seller").

1. **Purchase and Sale.** Subject to the terms and conditions of this Agreement, Seller agrees to sell and convey to Purchaser and Purchaser agrees to purchase from Seller, fee simple absolute title to real estate and buildings located at or near 173 Gray Road, Cumberland, Maine, as more fully described in a Quitclaim Deed with Covenant dated January 23, 2018 from Copp Brothers Real Estate to Ronald Copp, Sr., Howell Copp, and Jerald Copp, Jr. recorded in the Cumberland County Registry of Deeds at Book 34640, Page 209, said real estate being more fully described in Exhibit "A" attached hereto and made a part hereof (being the current Town of Cumberland Tax Map U19, Lot 13), together with all rights, privileges, easements, and appurtenances benefitting said real estate (hereinafter collectively referred to as the "Real Property" or the "Real Estate"). For all purposes of this Agreement, the term "Real Estate" and "Real Property" shall be deemed to include the land, structures, and improvements affixed to the Real Estate.

2. **Purchase Price.**

(a) The purchase price for the Real Estate shall be [redacted] (the "Purchase Price").

(b) The Purchase Price shall be paid by the Purchaser to the Seller as follows:

(i) Within Three (3) business days subsequent to the Effective Date, the Purchaser shall deliver to the Escrow Agent, hereinafter defined, a deposit of [redacted] (the "Deposit"). The Deposit shall be payable to The Bell Firm, P.A., 810 Lisbon Street, P.O. Box 1776, Lewiston, Maine 04241-1776 ("Escrow Agent"). The Deposit shall be held and/or disposed of by the Escrow Agent in accordance with provisions of this Agreement. The Deposit shall be held by the Escrow Agent in a non-interest-bearing account.

(ii) The balance of the Purchase Price ([redacted]) shall be paid by the Purchaser to the Seller in lawful currency of the United States in immediately available funds by wire transfer or other means acceptable to Seller.

(iii) The parties hereto acknowledge and agree with the Escrow Agent that the Escrow Agent shall act hereunder as a depository only and shall not be a party to or be bound by any agreement or undertaking which may be evidenced by or arise out of the escrow deposited with it hereunder. The Escrow Agent shall not be responsible or liable in any manner for the identity or rights of any person depositing the Deposit in escrow. The Escrow Agent shall not be liable for any error of judgment or for any act omitted by it in good faith, or for anything which it may in good faith do or refrain from doing in connection herewith. The Escrow Agent is authorized to act on any document believed by it to be genuine and to be signed by the proper party or parties, and will incur no liability in so acting.

In the event of any disagreements or presentation of adverse claims or demands in connection with the Deposit deposited with the Escrow Agent, the Escrow Agent shall at its option be entitled to refuse to comply with any such claims or demands during the continuance of such disagreement and may refrain from delivering any item effected hereby, and in so doing the Escrow Agent shall not become liable to the undersigned, or to any person, due to its failure to comply with any such adverse claim or demand. The Escrow Agent shall be entitled (but not obligated) to continue, without liability, to refrain and refuse to act: (a) until all the rights of the adverse claimants have been finally adjudicated by a court of competent jurisdiction, after which time the Escrow Agent shall be entitled to act in conformity with such adjudication; or (b) until all differences shall have been adjudicated by agreement and the Escrow Agent shall have been notified thereof and shall have been directed in writing signed by the undersigned and by all persons making adverse claims or demands, at which time the Escrow Agent shall be protected in acting in compliance therewith.

Notwithstanding anything elsewhere set forth herein, the Escrow Agent shall not be required to make delivery of the Deposit unless it has been indemnified against any liability for doing so in a manner which it deems satisfactory.

3. **Adjustments.** The following items shall be prorated, adjusted and paid as follows:

(a) All applicable real estate taxes, assessments, and rents affecting the Real Estate shall be apportioned between Seller and Purchaser as of the Closing Date (as hereinafter defined). Utilities shall be prorated up to the date of closing unless otherwise paid for by tenants.

(b) Seller and Purchaser shall each pay their equal share of the real estate transfer taxes.

(c) Each party shall pay all costs and expenses incurred by such party in connection with the transactions contemplated by this Agreement not otherwise adjusted as set forth in this Section or otherwise provided for in this Agreement.

(d) The Purchaser shall be responsible for all costs and expenses associated with its due diligence review. The Seller and the Purchaser shall each be responsible for the payment of costs of their respective legal counsel, tax advisors, and other professionals.

4. **Title.** Seller shall convey the Real Estate to Purchaser by good and sufficient Warranty Deed (the "Deed"), prepared at the Seller's sole expense, conveying good and marketable title to the Real Estate as defined by the standards adopted by the Maine State Bar Association, free and clear of all encumbrances, except for conventional utility easements and such restrictions as would not make the title unmarketable. The title shall also be insurable by any reputable title insurance company licensed to do business in the State of Maine. All costs of title insurance shall be borne by Purchaser. Seller will execute such affidavits as may be required by the applicable title insurance company to cause the deletion of the standard mechanics' lien exception from the to-be issued title insurance policy.

Purchaser may examine, at Purchaser's sole expense, the title to the Real Estate and will report in writing on or before that date which is One Hundred Twenty (120) days from the Effective Date ("Due Diligence Period") any valid objections (hereafter "Exceptions") based on the standards adopted by the Maine State Bar Association. Any Exceptions to the title which would be disclosed by examination of the records shall be deemed to have been accepted by Purchaser if title is transferred to Purchaser without removal of said Exceptions, unless otherwise agreed to in writing and signed by Seller. If Purchaser objects to any Exceptions to the title, Seller shall (i) use all due diligence to remove such exceptions at Seller's own expense within Thirty (30) days thereafter, or (ii) notify the Purchaser that the Seller does not intend to remove said Exceptions. Notwithstanding Seller's due diligence, if such Exceptions objected to by Purchaser cannot be removed within the said Thirty (30) day period, or such additional period as Purchaser in Purchaser's sole discretion may allow, or if the Seller indicates that it does not intend to remove said Exceptions, Purchaser may elect to terminate this Agreement. Purchaser shall notify Seller of such election, in which case the obligations of all parties under this Agreement shall thereupon terminate and the Deposit shall be promptly returned to the Purchaser. Alternatively, Purchaser may elect to purchase the Real Estate under the provisions of this Agreement subject to any title Exceptions which cannot be removed without any adjustment in the Purchase Price.

5. **Due Diligence. Inspections**. The Seller shall, within Five (5) business days from the Effective Date, provide to the Purchaser such information as the Purchaser reasonably requests relating to the Real Estate, provided that said information is within the Seller's possession or control (the "Due Diligence Information"). The Due Diligence period shall be extended by One (1) day for each day that the Seller takes to deliver the Due Diligence Information to the Seller beyond the Five (5) business day period set forth above. All proprietary and confidential information that the Seller provides to the Purchaser relating to the Real Estate shall be used by the Purchaser solely for purposes of the transactions contemplated herein. All such information will be held by the Purchaser in strict confidence and not disclosed to anyone, other than legal counsel, employees and agents on a need-to-know basis, lenders, and third-party due diligence contractors and professionals;

Provided, However, that it shall not be a breach of this covenant in the event of disclosure of any such information if it is or becomes available from other sources which are not subject to an obligation of confidentiality. Notwithstanding anything else set forth herein, nothing shall prohibit the Purchaser from filing or disclosing such information in connection with, and as may be required by, a judicial or regulatory body or law enforcement agency.

During the Due Diligence Period, the Purchaser shall be entitled to conduct such inspections on the Real Estate as the Purchaser, in its sole discretion, shall determine, including, without limitation, general building inspection, sewer disposal, water quality, radon air quality, radon water quality, asbestos air quality, lead-based paint inspections, asbestos inspections, ADA inspections, wetland surveys, environmental inspections, state and local codes, surveys, leases and tenancies, and any and all other inspections which the Purchaser deems just and appropriate. The Purchaser shall indemnify and hold the Seller harmless from any and all injury which the Seller may incur in connection with the Purchaser's inspections on the Real Estate. If the Purchaser is dissatisfied with any of its inspections, in the Purchaser's sole and absolute discretion, the Purchaser shall be entitled to terminate this Agreement on or before the expiration of the Due Diligence Period by notice in writing to the Seller, and the Deposit shall be promptly returned to the Purchaser. If the Purchaser fails to notify the Seller in writing of its election to terminate on or before the expiration of the Due Diligence Period as a result of its due diligence review, then the Purchaser shall be deemed to be satisfied with its due diligence review, and the Purchaser shall have no further right to terminate under this Item 5.

6. **Items to be Delivered to Purchaser from Seller.** Seller shall deliver to Purchaser such information and/or documentation pertaining to the Real Estate as is reasonably requested by Purchaser from time-to-time to the extent the same is in the possession or control of Seller.

7. **Sole Representations and Warranties.** The Seller represents and warrants to the Purchaser that the following are true and correct as of the Effective Date and will be true and correct as of the Closing:

(a) This Agreement is valid, binding, and enforceable against the Seller. Seller has not received any notice from any source claiming or inquiring into the existence of any violations of laws, ordinances, or regulations affecting the Real Estate; and

(b) there is no action, suit, or other proceeding (including condemnation actions) pending or, to the best of Seller's knowledge, threatened against Seller or affecting any portion of the Real Estate in any court or before any arbitrator of any kind or before any governmental body that may materially or adversely affect the Real Estate or the transactions contemplated by this Agreement.

8. **Purchaser Representations and Warranties.** The Purchaser represents and warrants to the Seller that the following are true and correct as of the Effective Date and will be true and correct as of the Closing:

(a) The Purchaser has the requisite power and authority to execute, deliver, and perform its obligations under this Agreement. This Agreement is valid, binding, and enforceable against the Purchaser.

(b) The Purchaser is a Limited Liability Company, duly formed, valid and existing, and in good standing of the laws of the State of Maine.

(c) There are no actions, suits, claims, investigations, or other legal proceedings pending, or to the Purchaser's knowledge, threatened against or by the Purchaser that challenge or seek to prevent, or otherwise delay the consummation of the transactions contemplated herein.

9. **General Covenants and Agreements of Seller.** Seller agrees with Purchaser as follows:

(a) Between the Effective Date and the Closing, Seller shall not, without Purchaser's consent (i) convey or otherwise dispose of any interest in the Real Estate; (ii) mortgage, pledge, lease, or subject to any lien or other encumbrances any interest in the Real Estate which exceed the Purchase Price; (iii) enter into any agreement relating to the Real Estate that would affect the transaction contemplated hereby or survive the Closing; or (iv) alter the physical condition of the Real Estate; and

(b) Between the Effective Date and the Closing, Seller shall not take any action or knowingly fail to take any action that would cause the Real Estate not to conform with the provisions of this Agreement, cause any statements set forth in this Agreement to be untrue or incorrect, or otherwise cause Seller to be unable to perform the Seller's obligations under this Agreement.

(c) The Seller has all requisite power and authority to execute, deliver, and perform Seller's obligations under this Agreement. This Agreement is valid, binding, and enforceable against the Seller.

(d) The Seller is not a "foreign person" as such term is defined in Section 1445 of the Internal Revenue Code of 1986, as amended, or any related regulations.

(e) There are no mechanic's liens or other claims against the Real Estate, and all invoices for work done and materials supplied to the Real Estate have been or will, as of the date of Closing, be paid.

(f) The Seller has received no notices from regulatory agencies regarding any environmental conditions at the Real Estate that have not been remedied or disclosed in writing to the Purchaser prior to the expiration of the Due Diligence Period. The Seller has no knowledge of any environmental issue with respect to the Real Estate.

(g) The Seller has no knowledge of any asbestos or lead-based paint located on structures on the Real Estate.

10. **Closing; Conditions.**

(a) Unless otherwise provided in this Agreement or otherwise agreed by the parties, the consummation of the transaction contemplated hereby (the "Closing") shall take place not later than that date which is Forty-Five (45) days subsequent to the date that all Preconditions to Closing have been satisfied (the "Closing Date"); **Provided, However**, that if the Preconditions to Closing, as hereinafter defined, have not been met by that date which is Twelve (12) months from the Effective Date, the Purchaser shall have the right to extend the Closing Date for a period of up to Ninety (90) additional days by depositing an additional [redacted] to become part of the Deposit (all of which shall be applicable to the Purchase Price), or, in the alternative, the Purchaser shall have the right to terminate this Agreement, in which event the Deposit shall be promptly refunded to the Purchaser. The Closing shall take place at the offices of The Bell Firm, P.A., 810 Lisbon Street, Lewiston, Maine, or such other place, and at such time, as the parties shall mutually agree upon. Alternatively, the parties may agree to close this transaction remotely via overnight mail or other appropriate delivery service.

(b) Notwithstanding anything elsewhere set forth herein, the Purchaser's obligation to close hereunder shall be contingent upon the following ("Preconditions to Closing"):

(i) The Purchaser shall enter into a Purchase and Sale Agreement with Ronald W. Copp, Sr. and Ronald W. Copp, Jr. relating to certain real estate located at 181 Gray Road, Cumberland, Maine (the "181 Gray Road Agreement");

(ii) The parties to the 181 Gray Road Agreement shall be prepared to, and shall, close the transactions contemplated in the 181 Gray Road Agreement simultaneous with the Closing on the transactions contemplated herein;

(iii) The Purchaser shall have obtained financing for the purchase of the Real Estate upon terms and conditions reasonably satisfactory to the Purchaser;

(iv) The Purchaser shall have obtained all licenses, permits, and approvals necessary and appropriate for the operation of a convenience store and fueling station at the Real Estate; and

(v) The Purchaser shall have entered into a lease with Rusty Lantern relating to the Real Estate upon terms and conditions reasonably acceptable to the Purchaser.

In the event that any of the foregoing Preconditions to Closing have not been met by the Closing Date, as the same may be extended as provided above, the Purchaser shall have the right to terminate this Agreement in which event the Deposit shall be promptly refunded to the Purchaser.

(c) At the Closing, the Seller shall deliver to the Purchaser the following documents:

(i) Duly Executed Warranty Deed in format for recording in the Cumberland County Registry of Deeds, and otherwise reasonably satisfactory to the Purchaser;

(ii) A Real Estate Transfer Tax Declaration for the Real Estate;

(iii) Seller shall deliver certification that Seller is not a "foreign person" as such term is defined in Section 1445 of the Internal Revenue Code of 1986, as amended, and the Seller shall deliver a certification that the Seller is a Maine resident, or otherwise disclose that it is not a Maine resident and deliver such other documentation as the Purchaser shall reasonably request with respect to said certification;

(iv) The Seller shall deliver such title insurance affidavits relating to mechanic's liens and persons in possession; and

(v) The Seller shall convey such other documents as are customary in the State of Maine for commercial real estate transactions, or as otherwise reasonably requested by the Purchaser.

(d) The Purchaser shall deliver to the Seller the following:

(i) The Purchase Price; and

(ii) Such other documents as are customary in the State of Maine for commercial real estate transactions, or as are otherwise reasonably requested by the Seller.

11. **Risk of Loss; Possession and Condition.**

(a) Risk of loss to the Real Estate prior to the Closing shall be borne by Seller. If between the Effective Date and the Closing any or all of the Real Estate shall be partially or totally destroyed (such that the cost of repairing damage to the Real Estate exceeds Ten Percent (10%) of the Purchase Price), and the Real Estate is, in the reasonable opinion of the Purchaser, rendered unsuitable for its permitted use, Purchaser shall have the option, in its sole and absolute discretion, to (i) terminate this Agreement and receive a refund of the Deposit, or (ii) proceed to Closing, in which event the Seller shall assign all insurance proceeds pertaining to the damage to the Purchaser and credit the Purchaser with any insurance deductibles (less the amounts Seller expends on repairing such damage prior to the Closing).

(b) The Seller agrees to deliver to the Purchaser at Closing full possession of the Real Estate, free of all tenants and occupants in substantially the same condition as they are in on the Effective Date, reasonable use and wear thereof excepted, and not in violation of any laws, ordinances, or regulations.

12. **Brokers**. Seller and Purchaser warrant and represent to each other that they have not employed or engaged any real estate broker or agent in connection with the transaction contemplated by this Agreement. Each party hereto agrees to hold the other party harmless from and against any and all costs, expenses, claims, losses, or damages, including reasonable attorneys' and paralegal fees and costs, resulting from a breach of such party's representation or covenant contained in this Section. The provisions of this Section shall survive the Closing.

13. **Default.** In the event of a default hereunder by the Seller, the Purchaser shall be entitled to any and all remedies available at law or in equity, including the right to specific performance. In the event of a default by the Purchaser hereunder, the Seller's absolute recourse shall be retaining the Deposit as full and complete liquidated damages.

14. **Notices**. All notices and other communications required or permitted under this Agreement shall be in writing and shall be hand delivered, or given by certified mail, return receipt requested, or by Federal Express or another nationally recognized overnight courier service, addressed to the party to receive such notice at the address set forth on Page 1 to this Agreement. Any notice delivered personally shall be deemed delivered on the date received or first rejected. Any notice sent via certified mail, return receipt requested, shall be deemed delivered on the date received or first rejected. Any notice sent via overnight mail by Federal Express or another nationally recognized overnight courier service shall be deemed delivered Twenty-Four (24) hours after being deposited with the overnight delivery courier. Any party may change the address to which its future notices shall be sent by notice given in the manner set forth above.

15. **Miscellaneous.**

(a) Any time period provided for herein which ends on a Saturday, Sunday or statutory holiday in the State of Maine shall extend to midnight at the end of the next day that is not a Saturday, Sunday, or statutory holiday.

(b) This Agreement shall be binding upon and shall inure to the benefit of Seller and Purchaser and their respective heirs, personal representatives, successors and assigns. The Purchaser shall have the right to assign the Purchaser's rights and obligations hereunder to an entity controlled by James G. Howard, without the prior written consent of the Seller, but upon notification to the Seller of the name and address of the assignee. All other assignments by the Purchaser shall require the prior written consent of the Seller. The Seller shall have the right to assign this Agreement.

(c) All understandings, agreements, warranties, and representations, either oral or in writing, heretofore between the parties hereto with respect to the purchase and sale of the Real Estate are merged into this Agreement, which alone fully and completely expresses the parties' agreement with respect to the transactions described herein. This Agreement may not be modified in any manner except by an instrument in writing signed by Seller and Purchaser. All representations and warranties set forth in this Agreement shall survive the Closing.

(d) This Agreement shall be governed by and interpreted in accordance with the laws of the State of Maine without regard to or application of its conflicts of law principles. Whenever the word "include," "includes," or "including" is used in this Agreement, it is deemed to be followed by the words "without limitation." The terms "this Agreement," "hereof," "herein," "hereby," "hereunder" and similar expressions refer to this Agreement as a whole and not to any particular section of this Agreement. In the event of a breach of this Agreement by any party, the other party shall be entitled to recover reasonable attorneys' and paralegal fees and costs incurred in connection with the enforcement of its rights hereunder. This Agreement may be executed in multiple counterparts, each of which shall constitute an original, and all of which, taken together, shall constitute a single instrument.

(e) The Seller and the Purchaser each (i) has agreed to permit the use from time to time, where appropriate, of pdf, Docusign, or other electronic signatures in order to expedite the transactions contemplated, (ii) intends to be bound by its respective pdf, Docusign, or other electronic signature, (iii) is aware that the other will rely on the pdf, Docusign, or other electronically transmitted signature, and (iv) acknowledges such reliance and waives any defenses to the enforcement of this Agreement and the documents effecting the transactions contemplated herein based on the fact that the signature was sent by electronic transmission only and in any number of counterparts, each of which shall be deemed to be an original and all of which together shall constitute one and the same instrument.

In Witness Whereof, the parties hereto have duly executed this Agreement as of the date first above written.

Witness:	**Cumberland Real Estate Group, LLC**
Martin Moffett	By: James G. Howard James G. Howard, Manager
Madelyn M. Mein	Ronald W. Copp, Sr. **Ronald W. Copp, Sr.**
Madelyn M. Mein	Jerald E. Copp, Jr. **Jerald E. Copp, Jr.**
Madelyn M. Mein	Howell Copp **Howell R. Copp**

EXHIBIT A – Deed

Curt Nuefeld

From: Sirois, Alison <Alison.Sirois@maine.gov>
Sent: Thursday, August 3, 2023 10:58 AM
To: cneufeld@priorityrealestategroup.com
Subject: RE: Stormwater Law Question

Sorry about that, SW laws became effective July 1, 1997, so it looks like the impervious area on the lots is grandfathered for the most part. Therefore, any disturbance over 1 acre will require SW PBR, and disturbed area does include redevelopment. If the project meets the >1 acre of disturbance and < 1 acre of impervious are proposed a SW PBR is required: https://www.maine.gov/dep/land/stormwater/SW-PBR-AppBooklet-Fillable.pdf

Additional Info: Based on the Maine Construction General Permit, July 21, 2006 and Chapter 500, Section 3, August 12, 2015 the definition of disturbed area includes redevelopment:

D. Disturbed area. All land areas that are stripped, graded, grubbed, filled, or excavated at any time during the site preparation or removing vegetation for, or construction of, a project. "Disturbed area" does not include routine maintenance, but does include re-development and new impervious areas. "Routine maintenance" is maintenance performed to maintain the original line and grade, hydraulic capacity, and original purpose of the facility. Paving impervious gravel surfaces while maintaining the original line and grade, hydraulic capacity and original purpose of the facility is considered routine maintenance. Cutting of trees, without grubbing, stump removal, disturbance or exposure of soil is not considered "disturbed area." A disturbed area continues to be considered as disturbed area if it meets the definition of "developed area" or "impervious area" following final stabilization.

From: cneufeld@priorityrealestategroup.com <cneufeld@priorityrealestategroup.com>
Sent: Thursday, August 03, 2023 10:12 AM
To: Sirois, Alison <Alison.Sirois@maine.gov>
Subject: RE: Stormwater Law Question

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Alison,

Why doesn't the redevelopment standard apply?

Curt

Curtis Y. Neufeld, PE
Priority Real Estate Group
2 Main Street
Topsham, ME 04086

O: 207-837-6196
M: 207-798-0576

From: Sirois, Alison <Alison.Sirois@maine.gov>
Sent: Thursday, August 3, 2023 8:06 AM
To: cneufeld@priorityrealestategroup.com
Subject: RE: Stormwater Law Question

Hi Curt,

Looks like in1985 Lot 13 was undeveloped. By 1997 Lot 13 had been cleared and impervious area covers ¾ of the parcel. All impervious area that currently exists on site will count toward permitting thresholds and after the fact permitting will be required for new development

Looks like Lot 12 may have had some impervious area prior 1985, the 1997 impervious area represented would be the only area that may not count toward permitting thresholds. Otherwise, any new impervious area since 1997 counts toward permitting thresholds.

And since ownership is the same, both lots will be considered and permitted together. Any new development will require a partial after-the-fact individual Stormwater permit application. The entire parcel would need to meet current Chapter 500 rules, redevelopment standard would not apply here.

Alison Sirois (she/her)
Regional Manager, Bureau of Land Resources
Maine Department of Environmental Protection
Phone (207)699-7028 Office (207)822-6300
www.maine.gov/dep

From: cneufeld@priorityrealestategroup.com <cneufeld@priorityrealestategroup.com>
Sent: Thursday, July 27, 2023 1:15 PM
To: Sirois, Alison <Alison.Sirois@maine.gov>
Subject: FW: Stormwater Law Question

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Alison,

I would like to follow up with you about this site/project. Can you give me a call at your earliest convenience?

Thanks,
Curt

Curtis Y. Neufeld, PE
Priority Real Estate Group
2 Main Street
Topsham, ME 04086

O: 207-837-6196
M: 207-798-0576

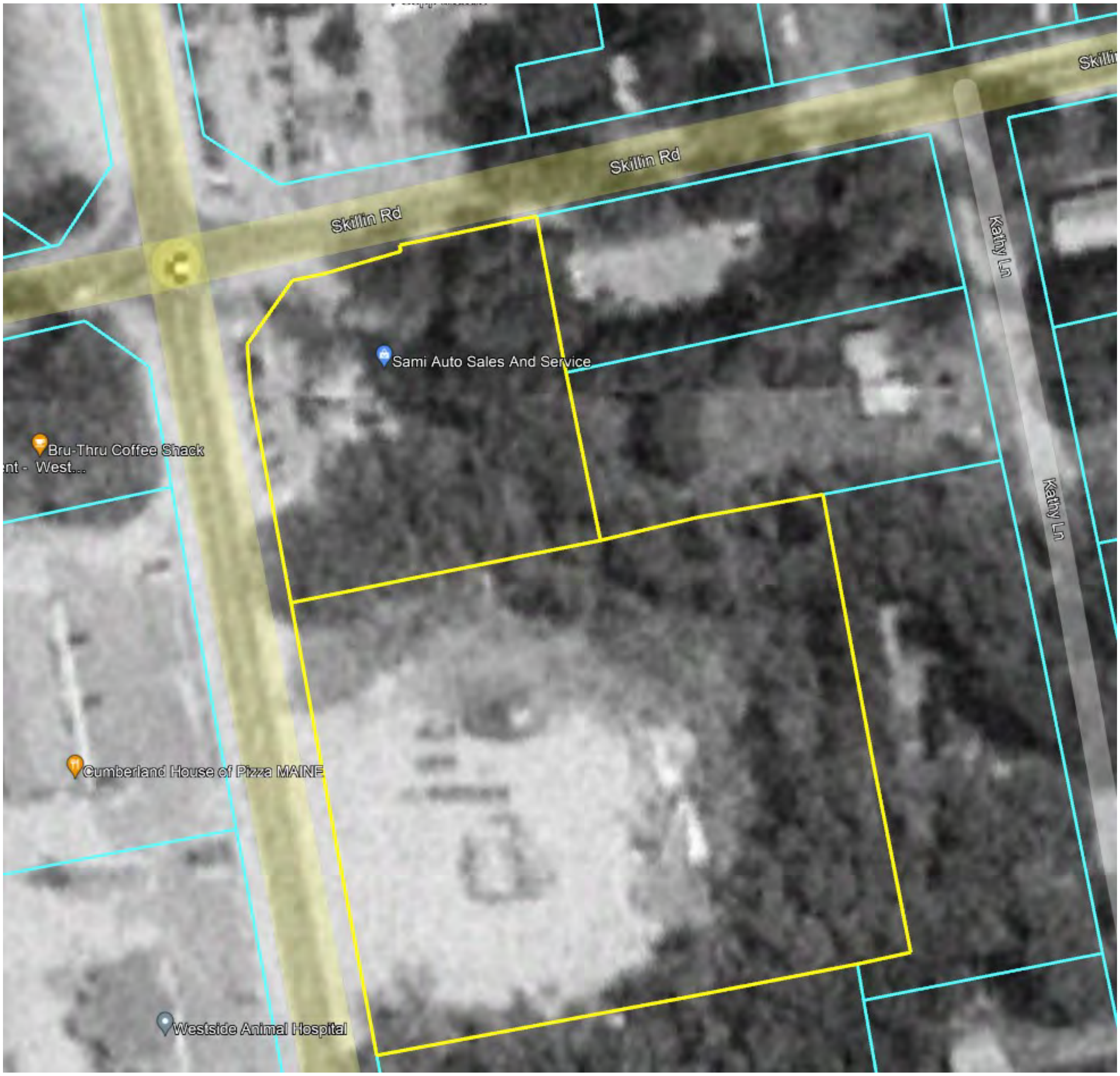
From: cneufeld@priorityrealestategroup.com <cneufeld@priorityrealestategroup.com>
Sent: Monday, July 10, 2023 10:49 AM
To: 'alison.sirois@maine.gov' <alison.sirois@maine.gov>
Subject: Stormwater Law Question

Hi Alison,

I hope all is well with you. Good news – I am not writing about anything at Brunswick Landing.

We are looking at two parcels in Cumberland for the development of a convenience store/gas station and bank/credit union. The parcels are owned by members of the Copp family but by different legal entities. They have been occupied in some form since the mid-'90s. Attached are KML files that would take you to them in Google Earth Pro, if you are used to using that. A few screenshots are from Google Earth and shown below with the month/year. My question is, given the long history of development/impervious area, what are the permitting requirements per Chapter 500? Both parcels have been developed area for long before Priority Real Estate Group has thought about buying them. Our project would result in less than 1-acre of new impervious area.

6/1997


Skillin Rd
Skillin Rd
Skillin Rd
Kathy Ln
Kathy Ln
Sami Auto Sales And Service
Bru-Thru Coffee Shack
Cumberland House of Pizza MAINE
Westside Animal Hospital

12/2003


Skillin Rd
Skillin Rd
Kathy Ln
Kathy Ln
Kathy Ln
Sami Auto Sales And Service
Bru-Thru Coffee Shack
Cumberland House of Pizza MAINE
Westside Animal Hospital

4/2006


Copp Motors
Skillin Rd
Skillin Rd
Skillin Rd
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Kathy Ln
Kathy Ln
Kathy Ln
Sami Auto Sales And Service
Bru-Thru Coffee Shack
Department - West...
Cumberland House of Pizza MAINE
Westside Animal Hospital

5/2010


Skillin Rd
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Kathy Ln
Kathy Ln
Kathy Ln
Sami Auto Sales And Service
Bru-Thru Coffee Shack
Cumberland House of Pizza MAINE
Westside Animal Hospital

9/2014


Skillin Rd
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Sami Auto Sales And Service
Bru-Thru Coffee Shack West...
Cumberland House of Pizza MAINE
Westside Animal Hospital
Kathy Ln
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Kathy Ln

6/2020


Skillin Rd
Skillin Rd
Skillin Rd
Kathy Ln
Kathy Ln
Kathy Ln
Sami Auto Sales And Service
Bru-Thru Coffee Shack
Cumberland House of Pizza MAINE
Westside Animal Hospital

4/2023

Curtis Y. Neufeld, PE
Priority Real Estate Group
2 Main Street
Topsham, ME 04086

O: 207-837-6196
M: 207-798-0576

PROPOSED FUEL SYSTEM COMPONENTS & SAFTEY FEATURES

The following is a technical summary of the proposed fuel system safety features and operational procedures that will be implemented for the Rusty Lanter Market project. The intent of these design enhancements is to maximize safety and minimize any potential petroleum releases to the environment as a result of the proposed redevelopment.

1. **Fuel Dispensing Area**
   a. Positive Limiting Barriers – The fuel dispensing area will consist of a 6" reinforced concrete mat with spill containment grooves (Positive Limiting Barriers or PLB) around each dispenser island. These concrete grooves will contain any minor spillage that might occur at the fuel dispensing islands and will be designed to contain 5 gallons (minimum) of fuel product. This allows any minor spillage to be trapped at the fuel dispensing area for immediate clean-up by the store attendant using the on-site spill kit.
   b. Dispenser Hoses – The fuel dispensing hoses on each dispenser contain a breakaway coupling (dry-break connection). In the event that a driver inadvertently leaves the dispensing area with the hose nozzle still connected to the vehicle fill pipe, the dry break will disconnect the hose from the dispenser. Mechanisms inside the dry-break coupling will prevent a release of fuel product to the environment at the disconnect.
   c. Dispenser Shear Valves – Within each dispenser, there is an emergency shear valve on the fuel piping supply line below the dispenser. Should the dispenser become dislodged by a vehicle, the emergency shear valve will close and prevent an uncontrolled release of fuel products into the environment.
   d. Dispenser Sumps – A sump constructed of a fiber-reinforced plastic (FRP) is located under each dispenser, along with an electronic liquid sensor located at the bottom of the sump. Should a fuel product leak from within the dispenser unit, it would be captured by the sump, and the electronic sump sensor would activate the central leak detection console located inside of the convenience store.
   e. Fire Suppression System – The fuel dispensing canopy will be equipped with an overhead dry chemical fire suppression system that will be automatically and/or manually activated in the event of a fire.
   f. Emergency Shutoff – The facility will be equipped with an emergency shutoff switch located inside the store at the cashier. This switch allows the attendant to immediately cut all power to the dispensers.

2. **Fuel Storage System**
   a. Leak Detection Console Unit - The fuel storage system will be monitored 24 hours a day, 365 days a year by a state-of-the-art central monitoring system located inside the convenience store. This electronic monitoring system continuously monitors the level of gasoline in each tank and can detect a 0.1-gallon per hour loss of fuel product. In addition, the system monitors all sensors connected to the fuel piping sumps, dispenser sumps, and the double wall (annular) space of each tank.
   b. Double Wall Fiberglass Tanks - The facility will be supplied with double wall fiberglass underground fuel storage tanks. Fiberglass is inherently corrosion-proof, and the annular space between the two walls is filled with brine (a freeze-resistant liquid solution). The level

of the brine is monitored continuously with an electronic sensor. Any change in the level of the brine will cause the sensor to activate the central console alarm unit in the convenience store.

c. Double Wall Fuel Piping - The fuel product piping will consist of double-wall construction. The primary pipe contains the gasoline or diesel fuel. In the unlikely event of a failure in the primary pipeline, the interstice between the two pipes will allow the fuel product to flow toward a containment sump on the tank. This tank containment sump will have an electronic sensor located at the bottom of the sump. All underground piping is sloped towards a containment sump, so any potential release of fuel product will flow to the containment sump for detection. Activation of a sump sensor creates an audible/visual alarm at the central console unit located in the convenience store.

d. Overfill Prevention - When the underground storage tanks are filled by the fuel tanker, numerous precautions are taken to prevent surface spillage. Prior to filling the tanks, the tanker truck driver will check the contents of the tank with a measuring stick. The driver then checks this measurement against a tank gauge chart to verify that the tank will hold the amount of fuel product that was ordered. The central console unit is also checked electronically to confirm the volume of fuel product in the tank. As an additional factor of safety, there is an overfill shut-off valve located inside of each underground tank. This device is designed to prevent the delivery truck from continuing the transfer of fuel product into the tanks once the product level reaches 95% tank capacity.

e. Fill and Vapor Spill Prevention - In order to prevent minor surface spillage when the fuel tanker delivery hose is removed from the tank connection point on the ground, there is a spill containment manhole proposed on each fill tube and vapor tube which holds a minimum capacity of 5 gallons. In the unlikely event of a spill, the fill containment manhole will contain any fuel product remaining in the delivery hose. Therefore, should the delivery truck driver inadvertently spill any fuel product while disconnecting the delivery hose from the tank fill, it would be contained and removed from the containment manhole.

f. Pressurized Line Leak Detection – The pressure within the product piping will be continually monitored by an in-line leak detector attached directly to the submerged turbine pump (STP) located in each tank. This detector is activated when the dispenser is turned on by the customer. This detector monitors the pressure in each line electronically. If a pressure loss is detected, the system will shut down the dispensers. These product piping detectors are also connected to the console alarm unit located inside of the store.

g. Observation Wells - Two observation wells will be installed at the tank field when the facility is constructed. These wells allow access to the groundwater for future testing of the groundwater quality, if necessary. The groundwater in these two wells can be tested prior to the facility opening in order to set up a "baseline" of groundwater data for future reference purposes.

h. An Oil Stop Valve and a 1,500-gallon sediment & oil separator will be installed. The purpose of this structure is to provide a 'belt and suspenders' approach to capturing any spills that exceed the capacity of the spill bucket and PLB and make it to the catch basin but escape before the Oil Stop Valve is seated.

3. Emergency Preparedness

a. An emergency response procedure will be developed for this facility to supplement local authorities' preparedness in reacting to an emergency situation. This emergency response plan outlines the procedures to be taken by the employees of the facility in the event of an emergency. This response plan will include an Emergency Contact List, which provides contact names and phone numbers of response personnel and remediation companies that will be contacted if an emergency occurs. This response plan will be conspicuously posted at the convenience store, and employees will be trained in emergency preparedness.

b. An emergency spill kit will be provided and located in the convenience store for use by the store employees. This kit will include absorbent material (speedy dry/granular cellulose), absorbent pads, absorbent pillows/booms, gloves, safety goggles, and disposal bags.

4. **Training** - Federal EPA regulations require that all owners and operators have certified employees operating the fuel facility. There are three categories of operators for each underground tank, known as A, B, or C operators. The A operator is responsible for meeting all regulations at the company level. The B operator must know the equipment and operations of the tank fuel system, including the inspection of these systems on a monthly basis. These inspections include monthly inventory control in accordance with current regulations. The A & B operators are both required to pass a test to become certified. The A and/or B operator is also responsible for training the C operators. The C operator must be present whenever a tank system is in operation. The C operator must also be trained to respond to an emergency.

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div of Environmental Health, 11 SHS
(207) 287-2070 FAX (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	CUMBERLAND
Street or Road	GRAY ROAD
Subdivision, Lot #	

OWNER/APPLICANT INFORMATION

Name (last, first, MI): PRIORITY REAL ESTATE GROUP, LLC — ☐ Owner ■ Applicant

Mailing Address of Owner/Applicant: C/O BRANDON CUMMINGS, PRIORITY REAL ESTATE GROUP, LLC, 2 MAIN STREET, TOPSHAM, ME 04086

Daytime Tel. #: 248-7983

>>CAUTION: LPI APPROVAL REQUIRED<<

Town/City ______ Permit # ______

Date Permit Issued __/__/__ Fee $ ______ Double Fee Charged [ ]

______ L.P.I.# ______

Local Plumbing Inspector Signature

Fee $ ______ State Fee Fee $ ______ Locally Adopted Fee

Copy: [ ] Owner [ ] Town [ ] State

The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # U-19 Lot # 13

OWNER OR APPLICANT STATEMENT

I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a permit.

Signature of Owner/Applicant ______ Date ______

CAUTION: INSPECTION REQUIRED

I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.

(1st) Date Approved ______

Local Plumbing Inspector Signature ______ (2nd) Date Approved ______

PERMIT INFORMATION

TYPE OF APPLICATION

- ■ 1. First Time System
- ☐ 2. Replacement System
  - Type Replaced: ______
  - Year Installed: ______
- ☐ 3. Expanded System
  - ☐ a. <25% Expansion
  - ☐ b. >25% Expansion
- ☐ 4. Experimental System
- ☐ 5. Seasonal Conversion

THIS APPLICATION REQUIRES

- ■ 1. No Rule Variance
- ☐ 2. First Time System Variance
  - ☐ a. Local Plumbing Inspector Approval
  - ☐ b. State & Local Plumbing Inspector Approval
- ☐ 3. Replacement System Variance
  - ☐ a. Local Plumbing Inspector Approval
  - ☐ b. State & Local Plumbing Inspector Approval
- ☐ 4. Minimum Lot Size Variance
- ☐ 5. Seasonal Conversion Permit

DISPOSAL SYSTEM COMPONENTS

- ■ 1. Complete Non-Engineered System
- ☐ 2. Primitive System(graywater & alt toilet)
- ☐ 3. Alternative Toilet, specify: ______
- ☐ 4. Non-Engineered Treatment Tank (only)
- ☐ 5. Holding Tank, ______ gallons
- ☐ 6. Non-Engineered Disposal Field (only)
- ☐ 7. Separated Laundry System
- ☐ 8. Complete Engineered System(2000gpd+)
- ☐ 9. Engineered Treatment Tank (only)
- ☐ 10. Engineered Disposal Field (only)
- ☐ 11. Pre-treatment, specify: ______
- ☐ 12. Miscellaneous components

SIZE OF PROPERTY

1.4 +/- ☐ SQ. FT. ■ ACRES

SHORELAND ZONING

☐ Yes ■ No

DISPOSAL SYSTEM TO SERVE

- ☐ 1. Single Family Dwelling Unit, No. of Bedrooms: ______
- ☐ 2. Multiple Family Dwelling, No of Units: ______
- ■ 3. Other: BANK (specify)

Current Use ☐ Seasonal ☐ Year Round ■ Undeveloped

TYPE OF WATER SUPPLY

☐ 1. Drilled Well ☐ 2. Dug Well ☐ 3. Private ■ 4. Public ☐ 5. Other:

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK

- ■ 1. Concrete
  - ■ a. Regular
  - ☐ b. Low Profile
- ☐ 2. Plastic
- ☐ 3. Other: ______

CAPACITY: 1500 GAL.

SEE NOTE ON PAGE 3

DISPOSAL FIELD TYPE & SIZE

- ☐ 1. Stone Bed ☐ 2. Stone Trench
- ■ 3. Proprietary Device
  - ■ a. Cluster array ☐ c. Linear
  - ☐ b. Regular ■ d. H-20 loaded
- ☐ 4. Other: ______

SIZE: 1280 ■ sq. ft. ☐ lin. ft.

20 H-20 RATED CONCRETE CHAMBER UNITS

GARBAGE DISPOSAL UNIT

■ 1. No ☐ 2. Yes ☐ 3. Maybe

If Yes or Maybe, specify one below:

- ☐ a. Multi-compartment tank
- ☐ b. ______ tanks in series
- ☐ c. Increase in tank capacity
- ☐ d. Filter on tank outlet

DESIGN FLOW

397 gallons per day

BASED ON:

- ☐ 1. Table 4A (dwelling unit(s))
- ■ 2. Table 4C (other facilities)

SHOW CALCULATIONS for other facilities

BANK WITH 6 EMPLOYEES @ 12 GALLONS PER DAY EACH + PUBLIC RESTROOM @ 325 GALLONS PER DAY=

- ☐ 3. Section 4G (meter readings) ATTACH WATER-METER DATA

SOIL DATA & DESIGN CLASS

PROFILE CONDITION: 5 / C

at Observation Hole # TP 1

Depth 30 " of Most Limiting Soil Factor

DISPOSAL FIELD SIZING

- ■ 1. Medium - 2.6 sq.ft./gpd
- ☐ 2. Medium-Large - 3.3 sq.ft./gpd
- ☐ 3. Large - 4.1 sq.ft./gpd
- ☐ 4. Extra-Large - 5.0 sq.ft./gpd

EFFLUENT/EJECTOR PUMP

- ☐ 1. Not required
- ■ 2. May be required
- ☐ 3. Required

Specify only for engineered systems: SEE NOTE ON PAGE 3 DOSE: ______ gallons

LATITUDE AND LONGITUDE

at center of disposal area

Lat. N43 d 48 m 52.93 s

Lon. W70 d 18 m 44.28 s

if g.p.s., state margin of error ______

SITE EVALUATOR STATEMENT

I certify that on 9/6/23 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed sytem is in compliance with the Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Site Evaluator Signature: [signature] SE #: 352 Date: 9/27/23

BRADY A. FRICK — Site Evaluator Name Printed

(207) 839-5563 — Telephone Number

INFO@ALBERTFRICK.COM — E-mail Address

ALBERT FRICK ASSOCIATES - 731 FOSS ROAD, LIMERICK, MAINE 04048 - (207) 839-5563

Note: Changes to or deviations from the design should be confirmed with the Site Evaluator

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

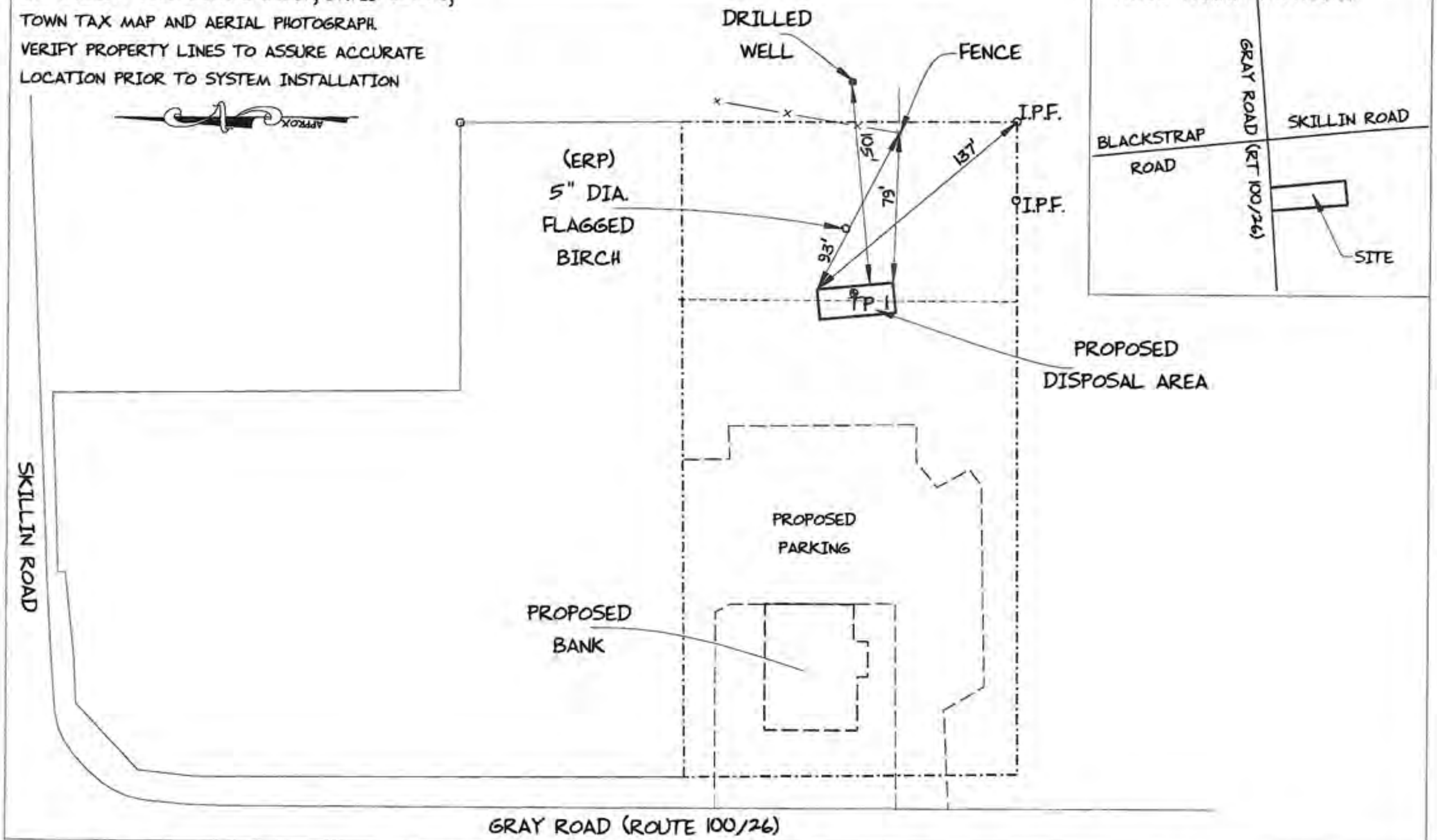
Department of Health and Human Services
Division of Environmental Health
(207) 287-2070 FAX (207) 287-4172

Town, City, Plantation	Street, Road Subdivision	Owner's Name
CUMBERLAND	GRAY ROAD	PRIORITY REAL ESTATE GROUP, LLC

ALBERT FRICK ASSOCIATES ARE NOT SURVEYORS
PROPERTY INFORMATION APPROXIMATED PER PLAN BY PRIORITY REAL ESTATE GROUP, DATED 8-7-23, TOWN TAX MAP AND AERIAL PHOTOGRAPH.
VERIFY PROPERTY LINES TO ASSURE ACCURATE LOCATION PRIOR TO SYSTEM INSTALLATION

SITE PLAN Scale 1" = 100 Ft. or as shown

SITE LOCATION PLAN (Attach Map from Maine Atlas Recommended)



SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 1 ■ Test Pit ☐ Boring
____ " Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–10	LOAMY SAND		BROWN	
10–20		FRIABLE	DARK YELLOW BROWN	
20–30	SAND		YELLOW BROWN	
30–40		SOMEWHAT FIRM	LIGHT YELLOW BROWN	
40–50				

Soil Classification: 5 Profile, C Condition | Slope: 0–3 % | Limiting Factor: 30 " | ☐ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole ____ ☐ Test Pit ☐ Boring
____ " Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–10				
10–20				
20–30				
30–40				
40–50				

Soil Classification: ____ Profile ____ Condition | Slope: ____ % | Limiting Factor: ____ " | ☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

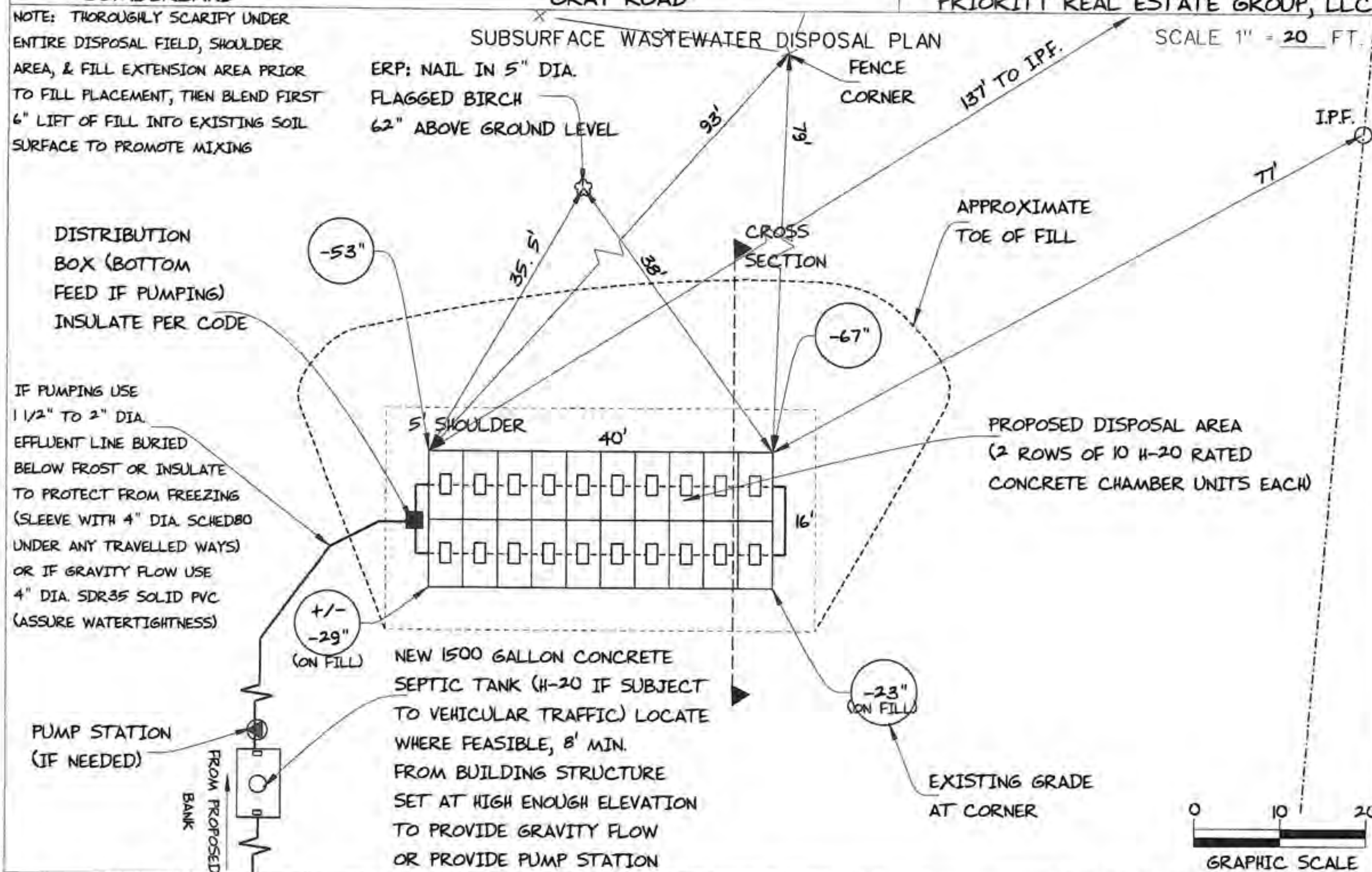
Site Evaluator Signature: [signature] SE # 352 Date 9/27/23

ALBERT FRICK ASSOCIATES – 731 FOSS ROAD, LIMERICK, MAINE 04048 – (207) 839-5563

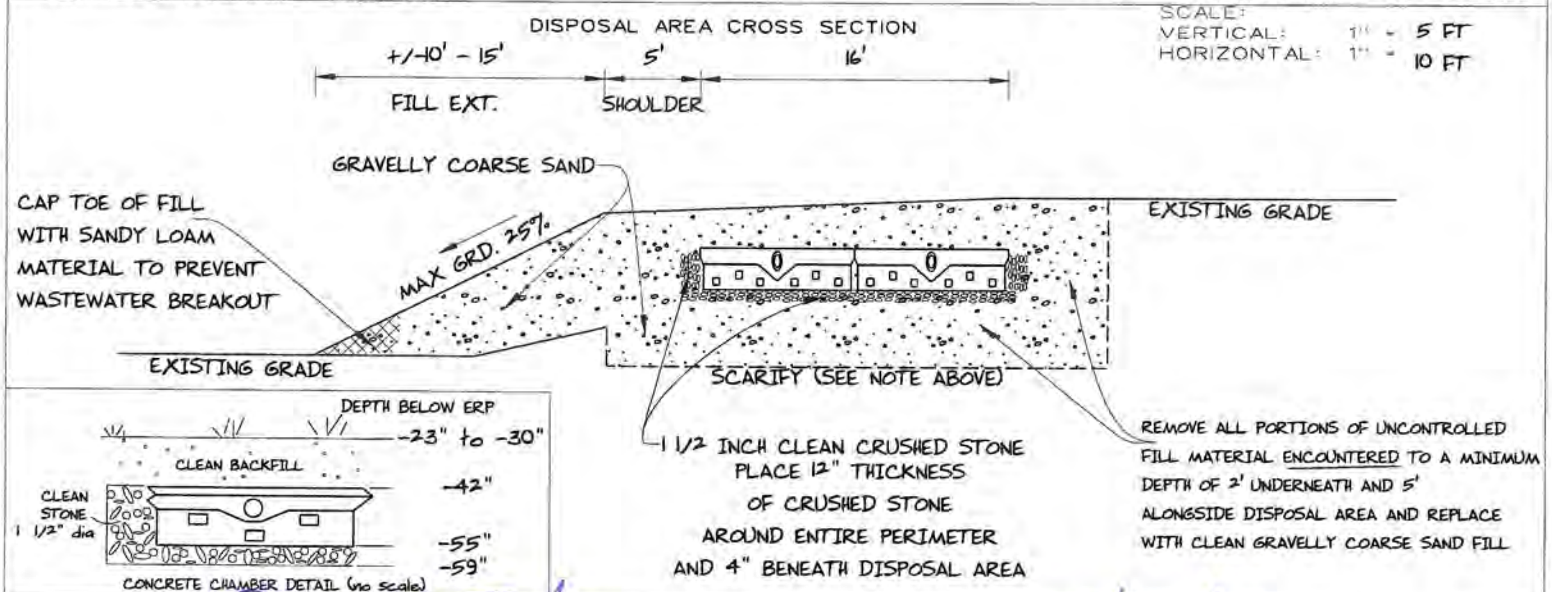
SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health and Human Services
Division of Environmental Health
(207) 287-2070 FAX (207) 287-4172

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
CUMBERLAND	GRAY ROAD	PRIORITY REAL ESTATE GROUP, LLC



FILL REQUIREMENTS		CONSTRUCTION ELEVATIONS		ELEVATION REFERENCE POINT
Depth of Fill (Upslope)	: 0"	Finished Grade Elevation	SEE DETAIL BELOW	Location & Description 5" DIA. FLAGGED BIRCH, NAIL 62" ABOVE BASE
Depth of Fill (Downslope)	: 23" - 37"	Top of Distribution Pipe or Proprietary Device		Reference Elevation is: 0.0" or _____
DEPTHS AT CROSS-SECTION (shown below)		Bottom of Disposal Area		



Site Evaluator Signature | 352 SE # | 9/27/23 Date

ALBERT FRICK ASSOCIATES – 731 FOSS ROAD, LIMERICK, MAINE 04048 – (207) 839-5563

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
731 Foss Road Limerick, Maine 04048
(207) 839-5563

CUMBERLAND	GRAY ROAD	PRIORITY REAL ESTATE GROUP, LLC
TOWN	LOCATION	APPLICANT'S NAME

1) The Plumbing and Subsurface Wastewater Disposal Rules adopted by the State of Maine, Division of Health and Human Services pursuant to 22 M.R.S.A. § 42 (the "Rules") are incorporated herein by reference and made a part of this application and shall be consulted by the owner/applicant, the system installer and/or building contractor for further construction details and material specifications. The system Installer should contact Albert Frick Associates, Inc. 839-5563, if there are any questions concerning materials, procedures or designs. The system installer and/or building contractor installing the system shall be solely responsible for compliance with the Rules and with all state and municipal laws and ordinances pertaining to the permitting, inspection and construction of subsurface wastewater disposal systems.

2) This application is intended to represent facts pertinent to the Rules only. It shall be the responsibility of the owner/applicant, system Installer and/or building contractor to determine compliance with and to obtain permits under all applicable local, state and/or federal laws and regulations (including, without limitation, Natural Resources Protection Act, wetland regulations, zoning ordinances, subdivision regulations, Site Location of Development Act and Minimum Lot Size law) before installing this system or considering the property on which the system is to be installed a "buildable" lot. It is recommended that a wetland scientist be consulted regarding wetland regulations. Prior to the commencement of construction/installation, the local plumbing inspector or Code Enforcement Officer shall inform the owner/applicant and Albert Frick Associates, Inc of any local ordinances which are more restrictive than the Rules in order that the design may be amended. All designs are subject to review by local, state and/or federal authorities. Albert Frick Associates, Inc.'s liability shall be limited to revisions required by regulatory agencies pursuant to laws or regulations in effect at the time of preparation of this application.

3) All information shown on this application relating to property lines, well locations, subsurface structures and underground facilities (such as utility lines, drains, septic systems, water lines, etc.) are based upon information provided by the owner/applicant and has been relied upon by Albert Frick Associates, Inc. in preparing this application. The owner/applicant shall review this application prior to the start of construction and confirm this information. Well locations on abutting properties but not readily visible above grade should be confirmed by the owner/applicant prior to system installation to assure minimum setbacks.

4) Installation of a garbage (grinder) disposal is not recommended. If one is installed, an additional 1000 gallon septic tank or a septic tank filter shall be connected in series to the proposed septic tank. Risers and covers should be installed over the septic tank outlet per the "Rules" to allow for easy maintenance of filter.

5) The septic tank should be pumped within two years of installation and subsequently as recommended by the pump service, but in no event should the septic tank be pumped less often than every three years.

The system user shall avoid introducing kitchen grease or fats into this system. Chemicals such as septic tank cleaners and/or chlorine or water treatment backwash and controlled or hazardous substances shall not be disposed of in this system. Additives such as yeast or enzymes are discouraged, since they have not been proven to extend system life.

6) All septic tanks, pump stations and additional treatment tanks shall be installed to prevent ground water and surface water infiltration. Risers and covers should be properly installed to provide access while preventing surface water intrusion to finished ground surface.
One 18" dia. (min) riser and cover is required over septic tank

Vehicular traffic over disposal system is prohibited unless specifically designed with H-20 rated components.

ATTACHMENT TO SUBSURFACE WASTEWATER DISPOSAL APPLICATION

CUMBERLAND	GRAY ROAD	PRIORITY REAL ESTATE GROUP, LLC
TOWN	LOCATION	APPLICANT'S NAME

7) The actual waste water flow or number of bedrooms shall not exceed the design criteria indicated on this application without a re-evaluation of the system as proposed

8) The general minimum setbacks between a well (public or private) and septic system serving a single family residence is 100-300 feet, unless the local municipality has a more stringent requirement. A well installed by an abutter within the minimum setback distances prior to the issuance of a permit for the proposed disposal system may void this design.

9) When a gravity system is proposed: BEFORE CONSTRUCTION/INSTALLATION BEGINS, the system installer or building contractor shall review the elevations of all points given in this application and the elevation of the existing and/or proposed building drain and septic tank inverts for compatibility to minimum pitch requirements. In gravity systems, the invert of the septic tank(s) outlet(s) should be at least 4 inches above the invert of the distribution box outlet at the disposal area.

10) <u>When an effluent pump is required</u>: Pump stations should be sized per manufacturer's specifications to meet lift requirements and friction loss. Provisions shall be made to make certain that surface and ground water does not enter the septic tank or pump station, by sealing/grouting all seams and connections, and by placement of a riser and 18" dia. (min.) cover at or above grade.
An alarm device warning of a pump failure shall be installed. Also, when pumping is required of a chamber system, install a ' T' connection in the distribution box and place 3 inches of stone or a splash plate in the first chamber. Insulate gravity pipes, pump lines and the distribution box as necessary to prevent freezing.

11) On all systems, remove the vegetation, organic duff and old fill material from under the disposal area and any fill extension. Additional fill beyond indicated on plan may be necessary to replace organic matter. On sites where the proposed system is to be installed in natural soil, scarify the bottom and sides of the excavated disposal area with a rake. Do not use wheeled equipment on the scarified soil surface. For systems installed in fill, scarify the native soil by roto-tilling or scarifying with teeth of backhoe to a depth of at least 8 inches over the entire disposal and fill extension area to prevent glazing and to promote fill bonding. Place fill in loose layers no deeper than 8 inches and compact before placing more fill (this ensures that voids and loose pockets are eliminated to minimize the chance of leakage or differential settling). Do not use wheeled equipment on the scarified soil area until after 12 inches of fill is in place. Keep equipment off proprietary devices. Divert the surface water away from the disposal area by ditching or shallow landscape swales.

12) Unless noted otherwise, fill shall be gravelly coarse sand, which contains no more that 5% fines (silt and clay). Crushed stone shall be clean and free of any rock dust from the crushing process.

13) Do not install systems on loamy, silty, or clayey soils during wet periods since soil smearing/glazing may seal off the soil interface.

14) Seed all filled and disturbed surfaces with perennial grass seed, with 4" min. soil or soil amendment mix suitable for growing, then mulch with hay or equivalent material to prevent erosion. Alternatively, bark or permanent landscape mulch may be used to cover system. Woody trees or shrubs are not permitted on the disposal area or fill extensions.

15) If an advanced wastewater treatment unit is part of the design, the system shall be operated and maintained per manufacturer's specifications.

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
731 Foss Road Limerick, Maine 04048
(207) 839-5563

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div of Environmental Health, 11 SHS
(207) 287-2070 FAX (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	CUMBERLAND
Street or Road	GRAY ROAD
Subdivision, Lot #	

>>CAUTION: LPI APPROVAL REQUIRED<<

Town/City ______ Permit # ______

Date Permit Issued __/__/__ Fee $ ______ Double Fee Charged [ ]

______ L.P.I.# ______

Local Plumbing Inspector Signature

Fee $ ______ State Fee Fee $ ______ Locally Adopted Fee

Copy: [ ] Owner [ ] Town [ ] State

OWNER/APPLICANT INFORMATION

Name (last, first, MI): PRIORITY REAL ESTATE GROUP, LLC ☐ Owner ■ Applicant

Mailing Address of Owner/Applicant: c/o BRANDON CUMMINGS, PRIORITY REAL ESTATE GROUP, LLC, 2 MAIN STREET, TOPSHAM, ME 04086

Daytime Tel. #: 248-7983

The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # U-19 Lot # 13

OWNER OR APPLICANT STATEMENT

I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a permit.

______ Signature of Owner/Applicant ______ Date

CAUTION: INSPECTION REQUIRED

I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.

______ (1st) Date Approved

______ Local Plumbing Inspector Signature ______ (2nd) Date Approved

PERMIT INFORMATION

TYPE OF APPLICATION

- ■ 1. First Time System
- ☐ 2. Replacement System
  - Type Replaced: ______
  - Year Installed: ______
- ☐ 3. Expanded System
  - ☐ a. <25% Expansion
  - ☐ b. >25% Expansion
- ☐ 4. Experimental System
- ☐ 5. Seasonal Conversion

THIS APPLICATION REQUIRES

- ■ 1. No Rule Variance
- ☐ 2. First Time System Variance
  - ☐ a. Local Plumbing Inspector Approval
  - ☐ b. State & Local Plumbing Inspector Approval
- ☐ 3. Replacement System Variance
  - ☐ a. Local Plumbing Inspector Approval
  - ☐ b. State & Local Plumbing Inspector Approval
- ☐ 4. Minimum Lot Size Variance
- ☐ 5. Seasonal Conversion Permit

DISPOSAL SYSTEM COMPONENTS

- ■ 1. Complete Non-Engineered System
- ☐ 2. Primitive System(graywater & alt toilet)
- ☐ 3. Alternative Toilet, specify: ______
- ☐ 4. Non-Engineered Treatment Tank (only)
- ☐ 5. Holding Tank, ______ gallons
- ☐ 6. Non-Engineered Disposal Field (only)
- ☐ 7. Separated Laundry System
- ☐ 8. Complete Engineered System(2000gpd+)
- ☐ 9. Engineered Treatment Tank (only)
- ☐ 10. Engineered Disposal Field (only)
- ☐ 11. Pre-treatment, specify: 1000 GALLON
- ☐ 12. Miscellaneous components GREASE TRAP

SIZE OF PROPERTY

1.9 +/- ☐ SQ. FT. ■ ACRES

SHORELAND ZONING

☐ Yes ■ No

DISPOSAL SYSTEM TO SERVE

- ☐ 1. Single Family Dwelling Unit, No. of Bedrooms: ______
- ☐ 2. Multiple Family Dwelling, No of Units: ______
- ■ 3. Other: GAS STATION & CONVENIENCE STORE (specify)

Current Use ☐ Seasonal ☐ Year Round ■ Undeveloped

TYPE OF WATER SUPPLY

☐ 1. Drilled Well ☐ 2. Dug Well ☐ 3. Private ■ 4. Public ☐ 5. Other:

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

2 TREATMENT TANKS IN SERIES

- ■ 1. Concrete
  - ■ a. Regular
  - ☐ b. Low Profile
- ☐ 2. Plastic
- ☐ 3. Other: ______

PROVIDE RISERS AND COVERS

CAPACITY: 2-1500's GAL.

SEE NOTE ON PAGE 3

DISPOSAL FIELD TYPE & SIZE

- ☐ 1. Stone Bed ☐ 2. Stone Trench
- ■ 3. Proprietary Device
  - ☐ a. Cluster array ■ c. Linear
  - ■ b. Regular ☐ d. H-20 loaded
- ☐ 4. Other: ______

SIZE: 3300 ■ sq. ft. ☐ lin. ft.

66 HIGH CAPACITY PLASTIC CHAMBER UNITS

GARBAGE DISPOSAL UNIT

■ 1. No ☐ 2. Yes ☐ 3. Maybe

If Yes or Maybe, specify one below:

- ☐ a. Multi-compartment tank
- ☐ b. ______ tanks in series
- ☐ c. Increase in tank capacity
- ☐ d. Filter on tank outlet

DESIGN FLOW

964 gallons per day

BASED ON:

- ☐ 1. Table 4A (dwelling unit(s))
- ■ 2. Table 4C (other facilities)

SHOW CALCULATIONS for other facilities

SEE WATER USE RECORDS FROM SIMILAR STORES (USING PEAK FLOW FOR DESIGN PURPOSES)

- ☐ 3. Section 4G (meter readings) ATTACH WATER-METER DATA

SOIL DATA & DESIGN CLASS

PROFILE CONDITION

5 / C

at Observation Hole # TP 2

Depth 30 "

of Most Limiting Soil Factor

DISPOSAL FIELD SIZING

- ■ 1. Medium - 2.6 sq.ft./gpd
- ☐ 2. Medium-Large - 3.3 sq.ft./gpd
- ☐ 3. Large - 4.1 sq.ft./gpd
- ☐ 4. Extra-Large - 5.0 sq.ft./gpd

EFFLUENT/EJECTOR PUMP

PROVIDE RISERS AND COVERS

- ☐ 1. Not required
- ■ 2. May be required
- ☐ 3. Required

Specify only for engineered systems:

DOSE: SEE NOTE ON PAGE 3 gallons

LATITUDE AND LONGITUDE

at center of disposal area

Lat. N43 d 48 m 53.62 s

Lon. W70 d 18 m 44.54 s

if g.p.s., state margin of error ______

SITE EVALUATOR STATEMENT

I certify that on 9/6/23 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed sytem is in compliance with the Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Brady A. Frick ______ 352 ______ 9/27/23

Site Evaluator Signature ______ SE # ______ Date

BRADY A. FRICK ______ (207) 839-5563 ______ INFO@ALBERTFRICK.COM

Site Evaluator Name Printed ______ Telephone Number ______ E-mail Address

ALBERT FRICK ASSOCIATES - 731 FOSS ROAD, LIMERICK, MAINE 04048 - (207) 839-5563

Note: Changes to or deviations from the design should be confirmed with the Site Evaluator

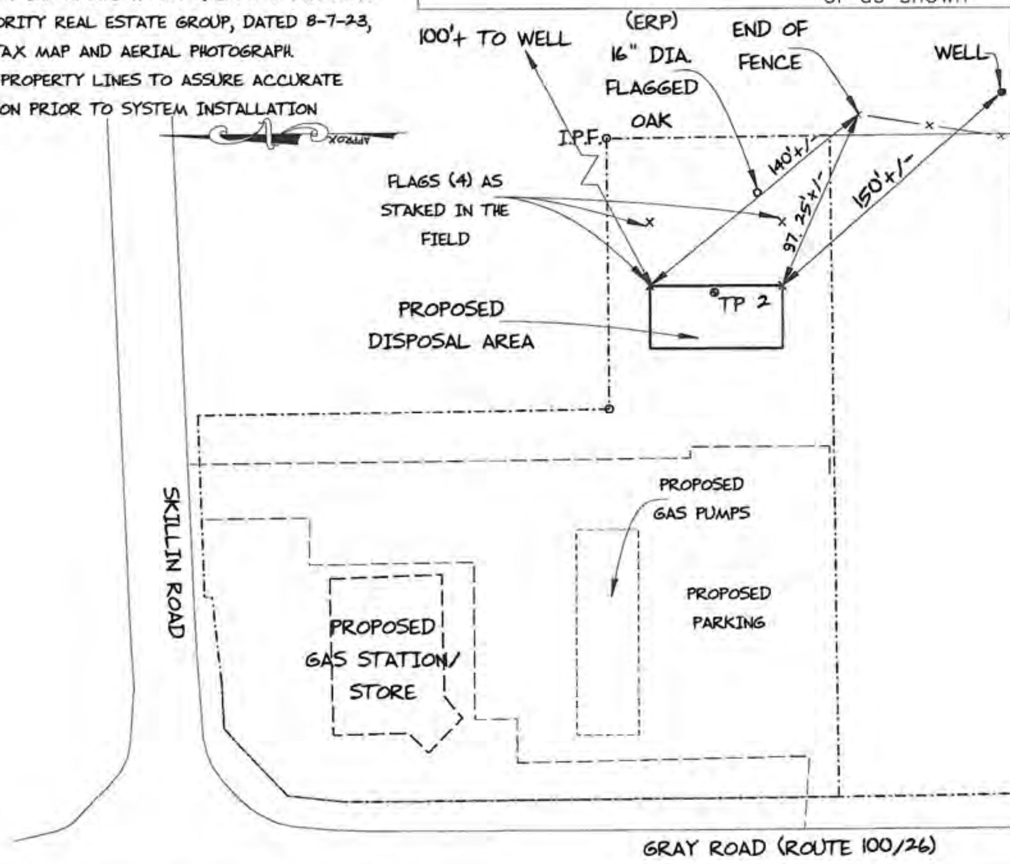
SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health and Human Services
Division of Environmental Health
(207) 287-2070 FAX (207) 287-4172

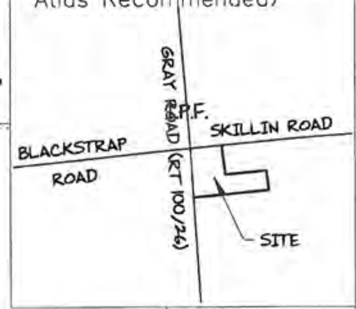
Town, City, Plantation	Street, Road Subdivision	Owner's Name
CUMBERLAND	GRAY ROAD	PRIORITY REAL ESTATE GROUP, LLC

ALBERT FRICK ASSOCIATES ARE NOT SURVEYORS
PROPERTY INFORMATION APPROXIMATED PER PLAN BY PRIORITY REAL ESTATE GROUP, DATED 8-7-23, TOWN TAX MAP AND AERIAL PHOTOGRAPH.
VERIFY PROPERTY LINES TO ASSURE ACCURATE LOCATION PRIOR TO SYSTEM INSTALLATION

SITE PLAN Scale 1" = 100 Ft. or as shown



SITE LOCATION PLAN (Attach Map from Maine Atlas Recommended)



SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 2 ■ Test Pit ☐ Boring
_____ " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0				
	LOAMY SAND		BROWN	
10		FRIABLE	DARK YELLOW BROWN	
20	SAND		YELLOW BROWN	
30		SOMEWHAT FIRM	LIGHT YELLOW BROWN	
40				
50				

Soil Classification		Slope	Limiting Factor	
5 (Profile)	C (Condition)	0-3 %	30 "	☐ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole _____ ☐ Test Pit ☐ Boring
_____ " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0				
10				
20				
30				
40				
50				

Soil Classification		Slope	Limiting Factor	
Profile	Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

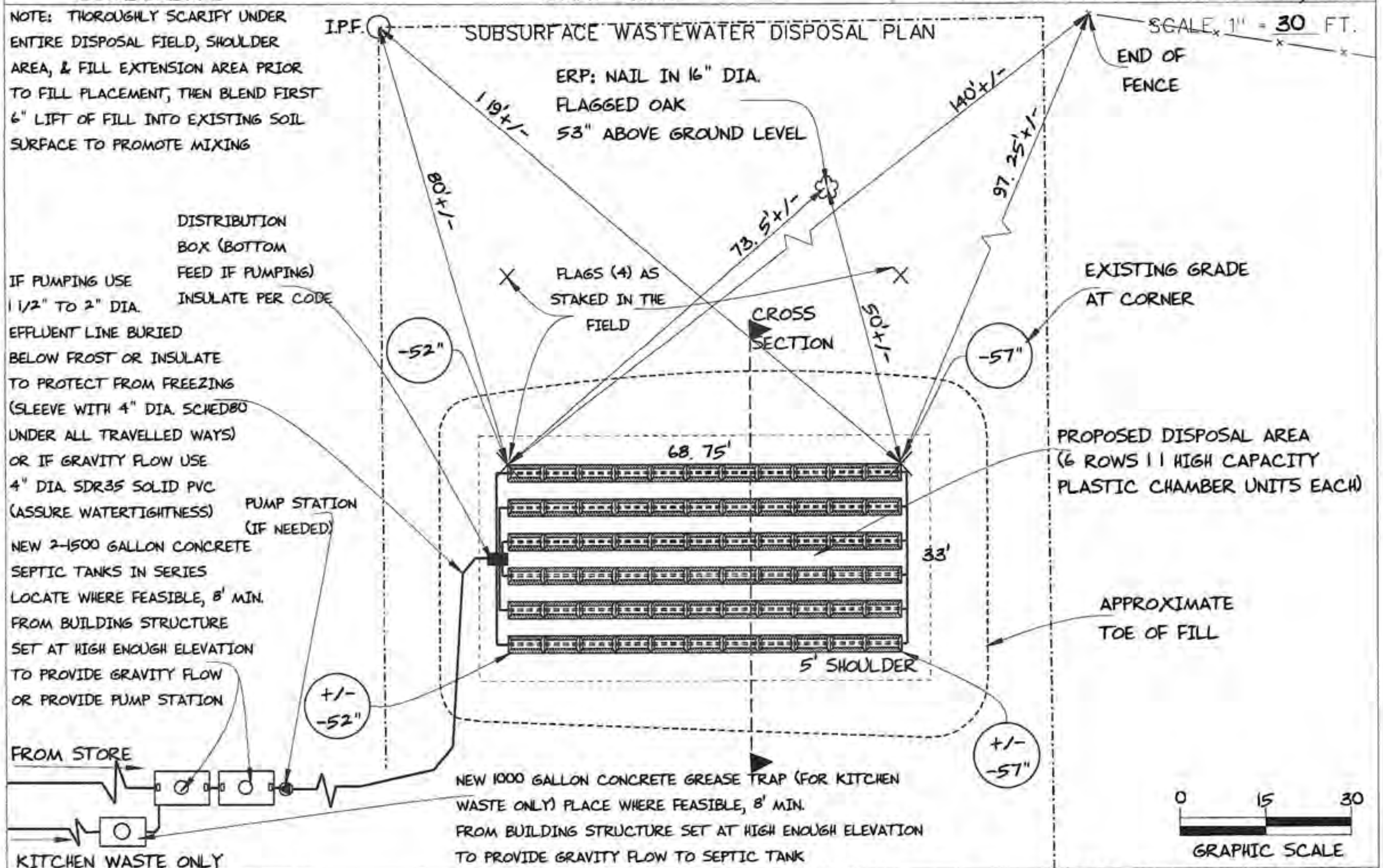
Site Evaluator Signature: [signature] SE # 352 Date 9/27/23

ALBERT FRICK ASSOCIATES - 731 FOSS ROAD, LIMERICK, MAINE 04048 - (207) 839-5563

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health and Human Services
Division of Environmental Health
(207) 287-2070 FAX (207) 287-4172

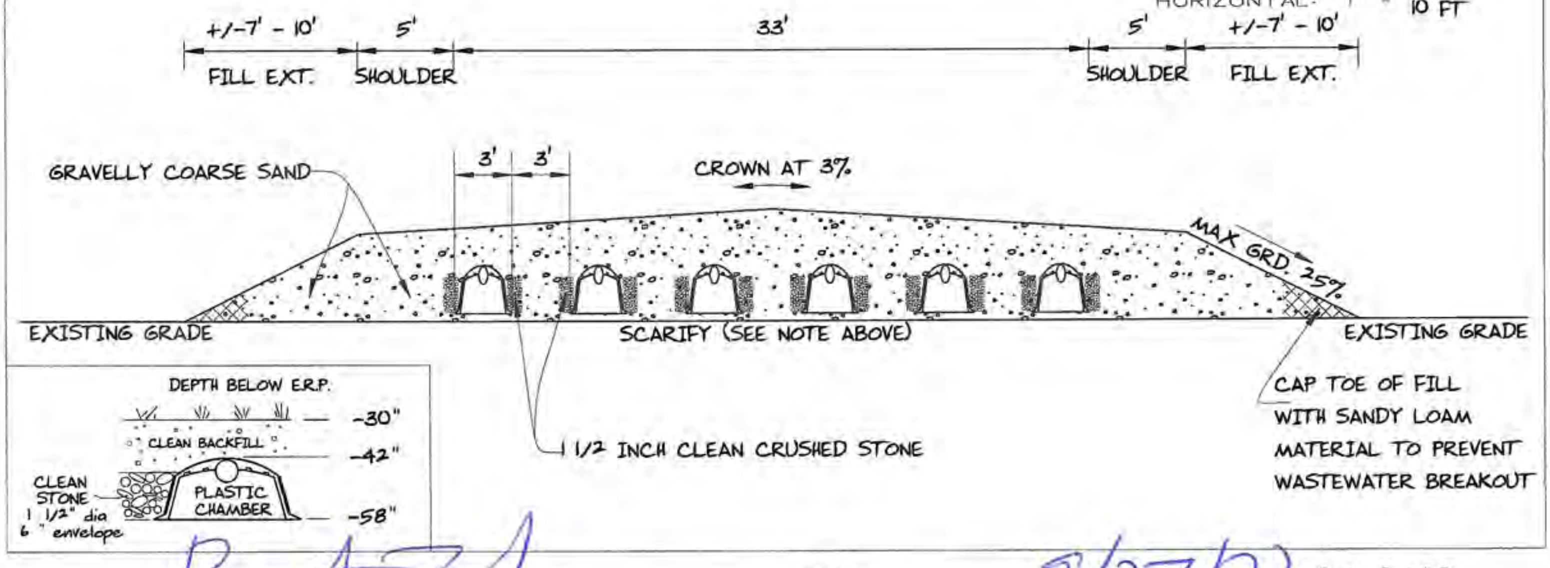
Town,City,Plantation	Street,Road,Subdivision	Owner's Name
CUMBERLAND	GRAY ROAD	PRIORITY REAL ESTATE GROUP, LLC



FILL REQUIREMENTS		CONSTRUCTION ELEVATIONS		ELEVATION REFERENCE POINT
Depth of Fill (Upslope)	22"- 27"	Finished Grade Elevation	SEE DETAIL BELOW	Location & Description 16" DIA. FLAGGED OAK, NAIL 53" ABOVE BASE
Depth of Fill (Downslope)	22"- 27"	Top of Distribution Pipe or Proprietary Device		Reference Elevation is: 0.0" or _____
DEPTHS AT CROSS-SECTION (shown below)		Bottom of Disposal Area		

DISPOSAL AREA CROSS SECTION

SCALE: VERTICAL: 1" = 5 FT
HORIZONTAL: 1" = 10 FT



By A Z | 352 | 9/27/23
Site Evaluator Signature | SE # | Date

ALBERT FRICK ASSOCIATES - 731 FOSS ROAD, LIMERICK, MAINE 04048 - (207) 839-5563

ATTACHMENT TO SUBSURFACE WASTEWATER DISPOSAL APPLICATION

CUMBERLAND	GRAY ROAD	PRIORITY REAL ESTATE GROUP, LLC
TOWN	LOCATION	APPLICANT'S NAME

7) The actual waste water flow or number of bedrooms shall not exceed the design criteria indicated on this application without a re-evaluation of the system as proposed

8) The general minimum setbacks between a well (public or private) and septic system serving a single family residence is 100-300 feet, unless the local municipality has a more stringent requirement. A well installed by an abutter within the minimum setback distances prior to the issuance of a permit for the proposed disposal system may void this design.

9) When a gravity system is proposed: BEFORE CONSTRUCTION/INSTALLATION BEGINS, the system installer or building contractor shall review the elevations of all points given in this application and the elevation of the existing and/or proposed building drain and septic tank inverts for compatibility to minimum pitch requirements. In gravity systems, the invert of the septic tank(s) outlet(s) should be at least 4 inches above the invert of the distribution box outlet at the disposal area.

10) When an effluent pump is required: Pump stations should be sized per manufacturer's specifications to meet lift requirements and friction loss. Provisions shall be made to make certain that surface and ground water does not enter the septic tank or pump station, by sealing/grouting all seams and connections, and by placement of a riser and 18" dia. (min.) cover at or above grade.
An alarm device warning of a pump failure shall be installed. Also, when pumping is required of a chamber system, install a ' T' connection in the distribution box and place 3 inches of stone or a splash plate in the first chamber. Insulate gravity pipes, pump lines and the distribution box as necessary to prevent freezing.

11) On all systems, remove the vegetation, organic duff and old fill material from under the disposal area and any fill extension. Additional fill beyond indicated on plan may be necessary to replace organic matter. On sites where the proposed system is to be installed in natural soil, scarify the bottom and sides of the excavated disposal area with a rake. Do not use wheeled equipment on the scarified soil surface. For systems installed in fill, scarify the native soil by roto-tilling or scarifying with teeth of backhoe to a depth of at least 8 inches over the entire disposal and fill extension area to prevent glazing and to promote fill bonding. Place fill in loose layers no deeper than 8 inches and compact before placing more fill (this ensures that voids and loose pockets are eliminated to minimize the chance of leakage or differential settling). Do not use wheeled equipment on the scarified soil area until after 12 inches of fill is in place. Keep equipment off proprietary devices. Divert the surface water away from the disposal area by ditching or shallow landscape swales.

12) Unless noted otherwise, fill shall be gravelly coarse sand, which contains no more that 5% fines (silt and clay). Crushed stone shall be clean and free of any rock dust from the crushing process.

13) Do not install systems on loamy, silty, or clayey soils during wet periods since soil smearing/glazing may seal off the soil interface.

14) Seed all filled and disturbed surfaces with perennial grass seed, with 4" min. soil or soil amendment mix suitable for growing, then mulch with hay or equivalent material to prevent erosion. Alternatively, bark or permanent landscape mulch may be used to cover system. Woody trees or shrubs are not permitted on the disposal area or fill extensions.

15) If an advanced wastewater treatment unit is part of the design, the system shall be operated and maintained per manufacturer's specifications.

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
731 Foss Road Limerick, Maine 04048
(207) 839-5563

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
731 Foss Road Limerick, Maine 04048
(207) 839-5563

CUMBERLAND	GRAY ROAD	PRIORITY REAL ESTATE GROUP, LLC
TOWN	LOCATION	APPLICANT'S NAME

1) The Plumbing and Subsurface Wastewater Disposal Rules adopted by the State of Maine, Division of Health and Human Services pursuant to 22 M.R.S.A. § 42 (the "Rules") are incorporated herein by reference and made a part of this application and shall be consulted by the owner/applicant, the system installer and/or building contractor for further construction details and material specifications. The system Installer should contact Albert Frick Associates, Inc. 839-5563, if there are any questions concerning materials, procedures or designs. The system installer and/or building contractor installing the system shall be solely responsible for compliance with the Rules and with all state and municipal laws and ordinances pertaining to the permitting, inspection and construction of subsurface wastewater disposal systems.

2) This application is intended to represent facts pertinent to the Rules only. It shall be the responsibility of the owner/applicant, system Installer and/or building contractor to determine compliance with and to obtain permits under all applicable local, state and/or federal laws and regulations (including, without limitation, Natural Resources Protection Act, wetland regulations, zoning ordinances, subdivision regulations, Site Location of Development Act and Minimum Lot Size law) before installing this system or considering the property on which the system is to be installed a "buildable" lot. It is recommended that a wetland scientist be consulted regarding wetland regulations. Prior to the commencement of construction/installation, the local plumbing inspector or Code Enforcement Officer shall inform the owner/applicant and Albert Frick Associates, Inc of any local ordinances which are more restrictive than the Rules in order that the design may be amended. All designs are subject to review by local, state and/or federal authorities. Albert Frick Associates, Inc.'s liability shall be limited to revisions required by regulatory agencies pursuant to laws or regulations in effect at the time of preparation of this application.

3) All information shown on this application relating to property lines, well locations, subsurface structures and underground facilities (such as utility lines, drains, septic systems, water lines, etc.) are based upon information provided by the owner/applicant and has been relied upon by Albert Frick Associates, Inc. in preparing this application. The owner/applicant shall review this application prior to the start of construction and confirm this information. Well locations on abutting properties but not readily visible above grade should be confirmed by the owner/applicant prior to system installation to assure minimum setbacks.

4) Installation of a garbage (grinder) disposal is not recommended. If one is installed, an additional 1000 gallon septic tank or a septic tank filter shall be connected in series to the proposed septic tank. Risers and covers should be installed over the septic tank outlet per the "Rules" to allow for easy maintenance of filter.

5) The septic tank should be pumped within two years of installation and subsequently as recommended by the pump service, but in no event should the septic tank be pumped less often than every three years.

The system user shall avoid introducing kitchen grease or fats into this system. Chemicals such as septic tank cleaners and/or chlorine or water treatment backwash and controlled or hazardous substances shall not be disposed of in this system. Additives such as yeast or enzymes are discouraged, since they have not been proven to extend system life.

6) All septic tanks, pump stations and additional treatment tanks shall be installed to prevent ground water and surface water infiltration. Risers and covers should be properly installed to provide access while preventing surface water intrusion to finished ground surface.
One 18" dia. (min) riser and cover is required over septic tank

Vehicular traffic over disposal system is prohibited unless specifically designed with H-20 rated components.

Water Use Records and Percentile Calculations

rev. 02/2004

Date	cubic feet	gallons	# days	avg. gpd
29-Nov-2022	12381	92622.26	96	964.82
4-Jan-2023	14270	14129.00	36	392.47
28-Sep-2023	400	29297.00	95	308.39
		0.00	0	0.00
		0.00	0	0.00
		0.00	0	0.00
		0.00	0	0.00
		0.00	0	0.00
		0.00	0	0.00
		0.00	0	0.00
		0.00	0	0.00
		0.00	0	0.00
			0	0.00

Daily	Weekly	Monthly	Quarterly
80th percentile	85th percentile	90th percentile	95th percentile
185	325	376	621

	cubic feet	gallons
total	27051.00	136048.26
average	9017.00	11337.36

To use: Enter the date, number of days, and cubic feet. The gallons and percentiles will be calculated automatically by the spreadsheet. To add more readings, simply insert additional rows into the spreadsheet. Choose the precentile which corresponds to the reading frequency: daily, weekly, monthly, or quarterly.

CITY OF BROCKTON
OFFICE OF THE COLLECTOR OF TAXES
45 SCHOOL STREET
BROCKTON, MA 02301-4059
000084 0021935

The Commonwealth of Massachusetts

ACCOUNT NO.
3-00334

MARTIN S. BROPHY -TREASURER / COLLECTOR

Department of Public Works
WATER, SEWER, REFUSE UTILITY BILL

***NEW WATER USAGE MONITORING PROGRAM
my-broc.sensus-analytics.com/login.html#/signin
DO NOT USE THE DASH IN YOUR ACCOUNT NUMBER TO REGISTER

Hours: Monday - Friday, 8:30 AM - 4:30 PM

Phone: Collector's Office (508) 580-7130 Press 6 for payment questions

DPW (508) 580-7143 option 7 for Water and Sewer billing questions and address changes. (ACCOUNT NO. and BILL NUMBER required).

For Refuse/Recycling questions (508) 580-7827

Interest at a rate of 14% per annum will accrue on overdue payments from the due date until the payment is made.

ALL FOR AADC 023 000084 0021935
BROCKTON 683 PLEASANT LLC
858 WASHINGTON ST STE 309
DEDHAM, MA 02026-6021

PAY ONLINE AT: www.brockton.ma.us

WATER & SEWER USER FEES - These fees are for the purpose of repairing and maintaining the water and sewer infrastructure.

LOCATION	PARCEL ID	ACCOUNT NO.	BILL DATE	BILL NUMBER
683 PLEASANT ST	032017	3-00334	11/17/2022	1383267

CODE	READ CODE	PREVIOUS READ DATE	CURRENT READ DATE	PREVIOUS READING	CURRENT READING	USAGE	CHARGE
1WTRIR	A	06/25/2022	09/28/2022	3059	32356	29297	$2,395.23

If you do not have an "A" under the READ CODE column, please call 508-580-7143 Ext. 7 for assistance. Thank you.

Water User Fee	
Sewer User Fee	
Total Current Charges	$2,395.23
Past Due	$0.00
Interest to Bill Date	$0.00
Amount Due	$2,395.23
Due & Payable	12/16/2022

NOTE: For the yard waste pickup schedule please refer to the insert. Winter parking ban in effect on 12/01/22, please see insert. Per ordinance: **DO NOT** rake/blow leaves or snow into the street. Sewer Preventative Maintenance: **DO NOT** use your sink, toilet or any other drains to dispose of grease, oil, or fat.

REMINDER - Tampering with a City water meter results in a $1,000.00 fine.

CUSTOMER PORTION

PLEASE SEE REVERSE SIDE FOR IMPORTANT INFORMATION

YOUR CANCELLED CHECK IS YOUR RECEIPT PLEASE USE ENCLOSED ENVELOPE FOR PAYMENT

Detach Here **Please return this portion of the bill with your payment** Detach Here

THE COMMONWEALTH OF MASSACHUSETTS
CITY OF BROCKTON - OFFICE OF THE COLLECTOR OF TAXES
45 SCHOOL STREET, BROCKTON, MA 02301-4059

LOCATION	PARCEL ID	ACCOUNT NO.	BILL DATE	BILL NUMBER
683 PLEASANT ST	032017	3-00334	11/17/2022	1383267

DEPARTMENT OF PUBLIC WORKS
WATER, SEWER, REFUSE UTILITY BILL

Total Current Charges	$2,395.23
Past Due	$0.00
Interest to Bill Date	$0.00
Amount Due	$2,395.23
Due & Payable	12/16/2022

To pay your bill on-line go to www.brockton.ma.us and click below Make a Payment.

"Please write **ACCOUNT NO.** on your check"

BROCKTON 683 PLEASANT LLC
858 WASHINGTON ST STE 309
DEDHAM, MA 02026-6021

AMOUNT ENCLOSED

MAKE CHECKS PAYABLE TO: CITY OF BROCKTON
or PAY ONLINE AT: www.brockton.ma.us

PAYMENT COUPON

04486042023001383267000002395234

PROVIDENCE WATER

PO BOX 1456
PROVIDENCE, RI 02901-1456

Account Number	820344
Bill To	C/O RUSTY LANTERN #4038, LLC 38 PLEASANT VALLEY PKWY 9 INDUSTRIAL PKWY SUITE 4 BRUNSWICK ME 04011
Service Location	36 PLEASANT VALLEY PKWY

This page has Billing and History Detail ONLY.

For TOTAL DUE, please see Total Amount Due on **FIRST PAGE** of Billing Statement.

Current Consumption

#Days	Read Date	Read Type	Meter Read	HCF
	11/29/2022	Actual	12381	
36	01/04/2023	Actual	14270	18.89
			Total HCF	18.89

PROVIDENCE WATER OFFERS 0% INTEREST LOAN TO HELP HOMEOWNERS REPLACE PRIVATE LEAD SERVICE LINES

Providence Water is offering 10-year 0% interest loans for homeowners to replace their private lead service lines. To learn more, please call (401) 521-6303 or visit us online at: www.provwater.com/loan.

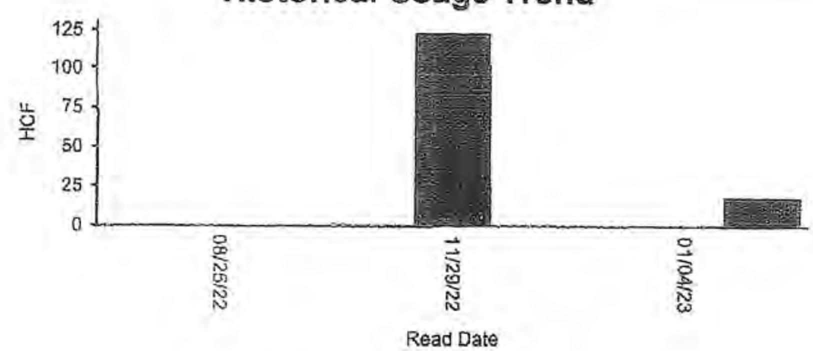
WATER QUALITY REPORT

The 2021 Water Quality Report is now available online at: **www.provwater.com/ waterqualityreport**. To receive a printed copy, please call (401) 521-6303.

IMPORTANT INFORMATION: LEAD IN DRINKING WATER

Providence Water found high lead levels in drinking water in some homes with lead plumbing or service connections. Lead can cause serious health problems. Always flush from the cold faucet for at least 30 seconds when using water for drinking or cooking. If water has not been used for several hours, flush cold water for at least 3-5 minutes. For more information, please call Providence Water at (401) 521-6303 or visit our website at: www.provwater.com/lead

Historical Usage Trend



# Days	Read Date	Actual Usage			
		Read	HCF	GAL	Gals/Day
0	08/25/22	0	0.00	0	
96	11/29/22	12381	123.81	92609	965
36	01/04/23	14270	18.89	14129	392

1 HCF = 100 CF = 748 gallons

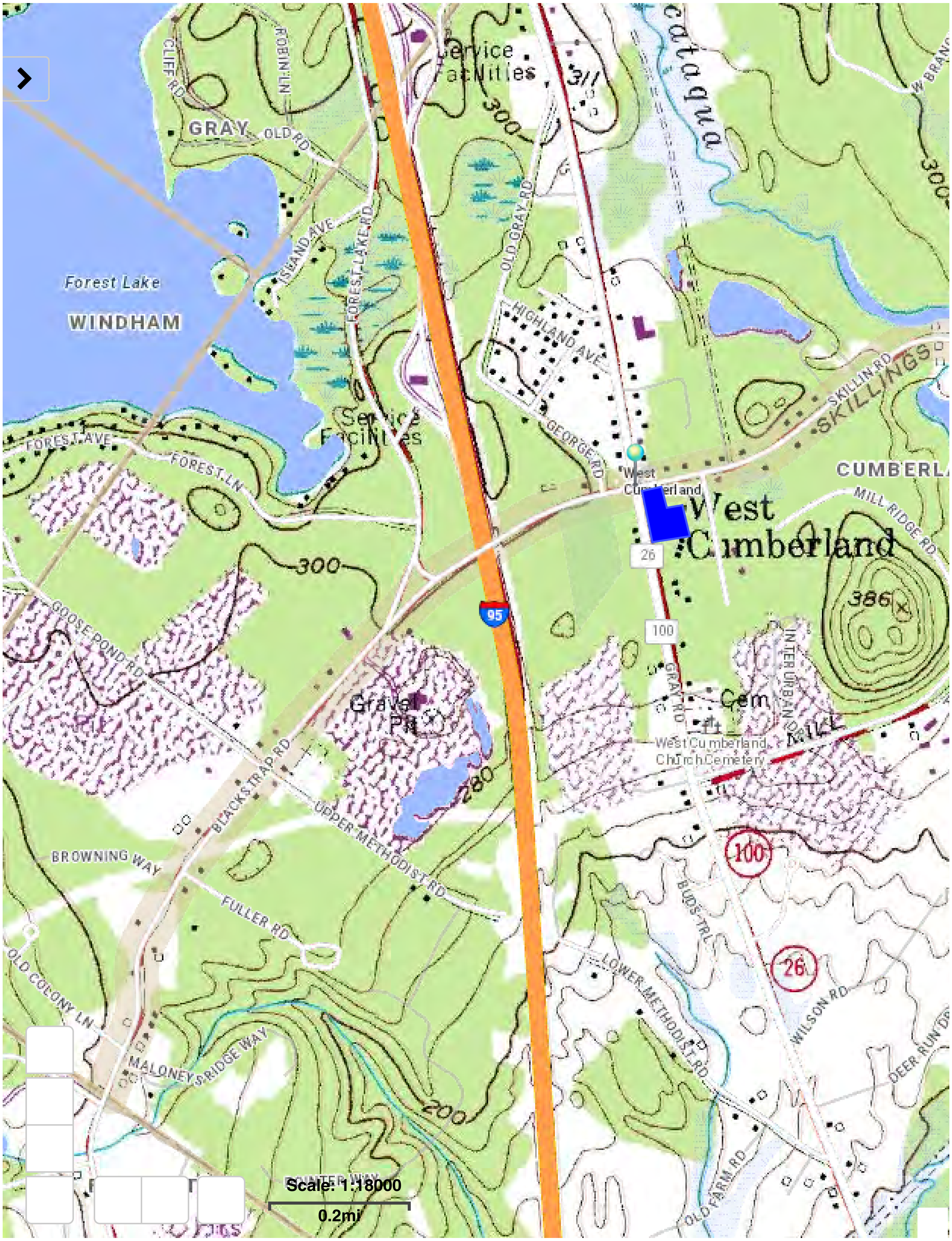
The recommended usage is 65 gallons per person per day. Divide the gallons per day by the number of people in your household to determine your daily, per person usage.

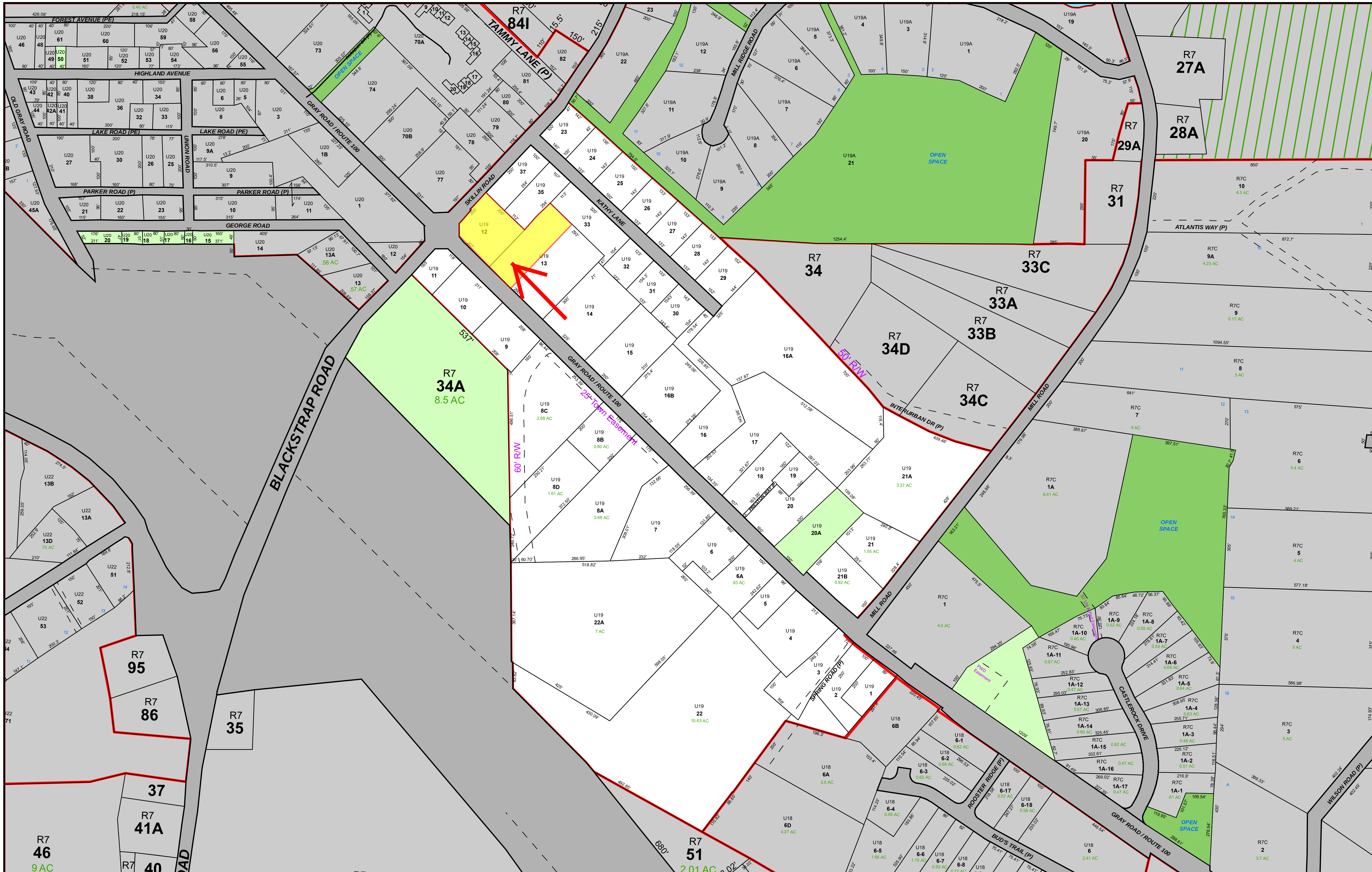
F

Attachment F
Supporting Graphics

This attachment includes supporting materials and graphics for this application. This includes an excerpt of the applicable USGS 7.5-minute quadrangle map, an excerpt of the FEMA flood rate insurance map (FIRM), a reduced size copy of the tax map, and a NRCS soils map.

Supporting Graphics


Service Facilities
GRAY
Forest Lake
WINDHAM
Service Facilities
FOREST AVE
FOREST LN
GEORGE RD
HIGHLAND AVE
OLD GRAY RD
FOREST LAKE RD
ISLAND AVE
CLIFF RD
ROBIN LN
OLD RD
SKILLIN RD
SKILLINGS
CUMBERLA
MILL RIDGE RD
West Cumberland
West Cumberland
26
100
95
386
300
280
200
GOOSE POND RD
Gravel Pit
BLACKSTRAP RD
UPPER METHODIST RD
BROWNING WAY
FULLER RD
OLD COLONY LN
MALONEYS RIDGE WAY
GRAY RD
Cem
INTERURBAN DR
MILL
West Cumberland Church Cemetery
100
BUDS TRL
26
LOWER METHODIST RD
WILSON RD
DEER RUN DR
OLD FARM RD
Scale: 1:18000
0.2mi



Maps Prepared by: Spatial Alternatives 207.846.2355 www.spatialalternatives.com

Tax Sheets are intended for assessing purposes only. Boundary locations are approximate and should not be used for conveyance of property.

Legend

ROW/Easements

Tax Parcels

Parcels

Farmland and Tree Growth

Town Owned or Cemetery

Open Space

ROW

Utility

Railroad

Roads

Water

Town of Cumberland, Maine

350 Feet

Index Map

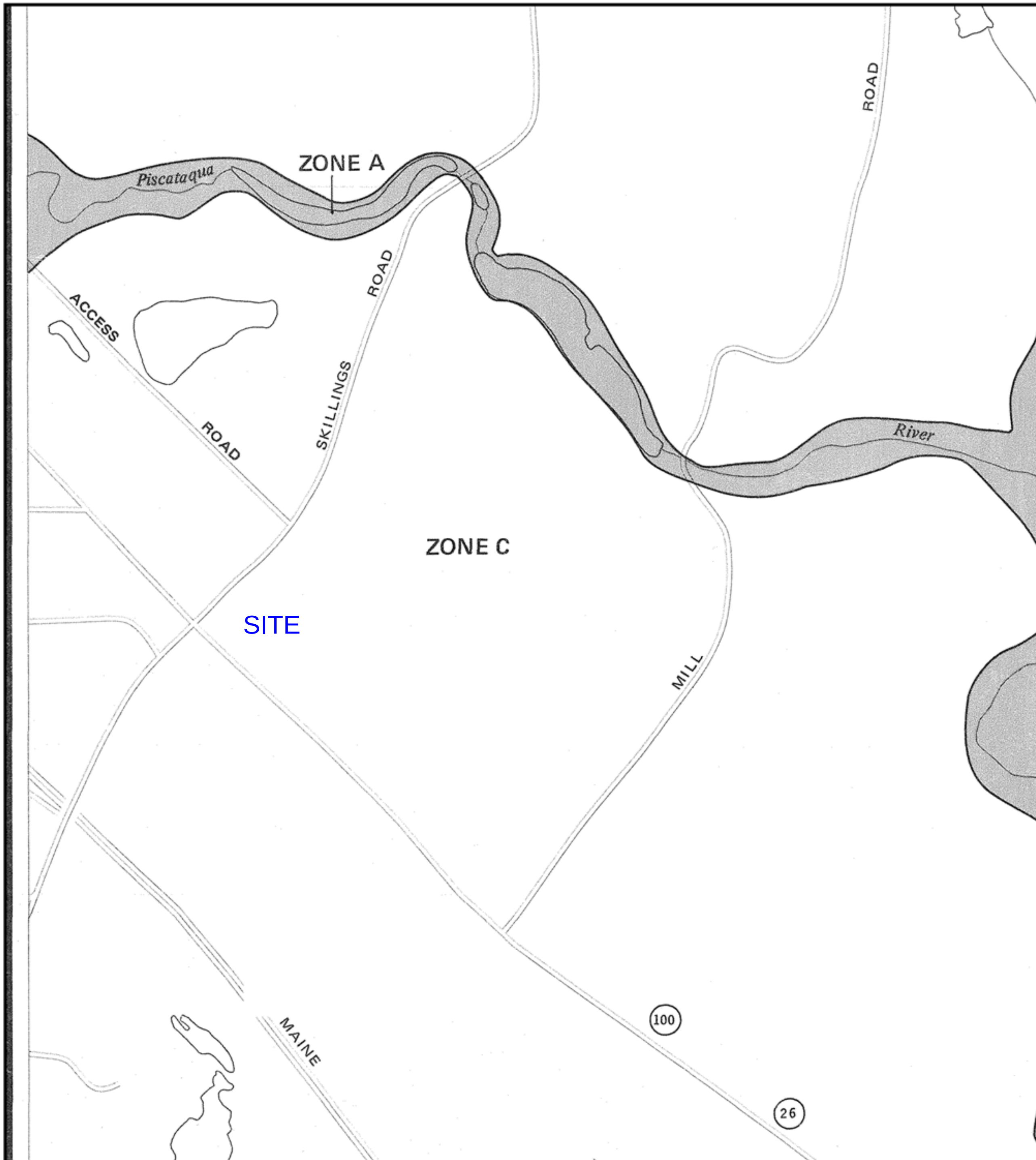
U19

N

Cumberland Tax Map

U19

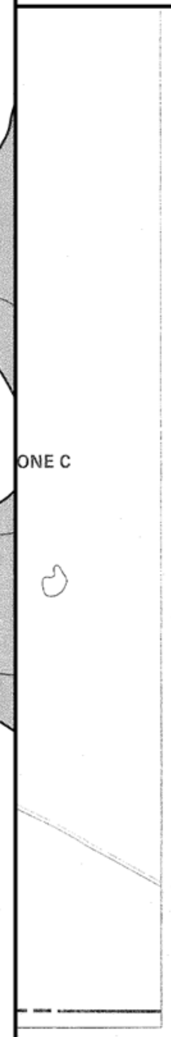
Map updated to: April 1, 2021



Program at (800) 638-6620, or (800) 424-8872.

APPROXIMATE SCALE

800 0 800 FEET



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
CUMBERLAND, MAINE
CUMBERLAND COUNTY

PANEL 15 OF 25
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230162 0015 B

EFFECTIVE DATE:
MAY 19, 1981

federal emergency management agency
federal insurance administration

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.

Skillin Road
Blackstrap Road
W2-1 30"x30"
W16-8aP Varies x 15"
Route 100/26 approach
Clear back brush and/or trim tree branches to increase intersection sight distance
ROUTE 100/26
Minimum 125'-0"
Restripe 24" stop bars and provide retroreflective beads (or equivalent) (typ of 2)
STOP
CROSS TRAFFIC DOES NOT STOP
R1-1 36"x36"
W4-4P 24"x12"
(Solar Powered LED Flashing)
Skillin Road approach
(Remove existing stop sign)
STOP
R1-1 36"x36"
(Solar Powered LED Flashing)
Blackstrap Road approach
(Remove existing oversized stop sign)
Remove existing stop ahead flasher and replace with
W3-1
36"x36"
(Solar Powered LED Flashing)
Skillin Road Approach
BLACKSTRAP ROAD
SKILLIN ROAD
STOP
CROSS TRAFFIC DOES NOT STOP
R1-1 36"x36"
W4-4P 24"x12"
(Solar Powered LED Flashing)
Blackstrap Road approach
(Remove existing stop sign)
STOP
R1-1 36"x36"
(Solar Powered LED Flashing)
Skillin Road approach
Clear brush and/or trim tree branches to ensure sign visibility
Remove existing stop ahead flasher and replace with
W3-1
36"x36"
(Solar Powered LED Flashing)
Blackstrap Road Approach
Clear brush and/or trim tree branches to ensure stop sign visibility
Replace existing flashing beacon with LED double headed flashing beacon for increased visibility. Red facing Skillin and Backstrap roads and yellow facing Route 100/26
Minimum 125'-0"
Blackstrap Road
Skillin Road
W2-1 30"x30"
W16-8aP Varies x15"
Route 100/26 approach
ROUTE 100/26
Notes:
1. The sign locations shown are approximate only. Exact sign locations to be determined in the field by town representative.
2. All signs shall be retroreflective and meet or exceed MUTCD standards.
3. Stop bars shall be restriped as 24" (white) with retroreflective beads, or equivalent, to meet or exceed MUTCD and MaineDOT standards.
4. All signs shall meet or exceed MUTCD standards, including placement.
5. New intersection flashing beacon shall meet MUTCD and MaineDOT standards.
6. All sign posts shall have post retroreflectorized strips as shown.

Attachment G
Financial and Technical Capability

Priority Real Estate Group, LLC, has developed dozens of convenience stores over the last decade. The most recent Rusty Lantern Market locations are in Turner, West Paris, and Bethel, and have all opened in the last 6 months. Additional locations include Lisbon and Sabattus, Maine, and Louden, NH. By focusing on Rusty Lantern Market projects, Priority Real Estate Group, LLC, has developed a proven system for designing and constructing facilities, which are operated by Rusty Lantern Market. Priority Real Estate Group, LLC, has assembled a team of contractors that construct the facilities and have a solid understanding of means and methods to execute the plans.

The project budget, including land acquisition and soft costs, is $6,000,000. Financial support will be provided by Maine Community Bank. This attachment includes a Certificate of Good Standing from the Department of the Secretary of the State and a letter of financial capacity from Maine Community Bank.

MAINE
Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Interactive Corporate Services

Corporate Name Search

Information Summary

Subscriber activity report

This record contains information from the CEC database and is accurate as of: Fri Jan 26 2024 16:22:35. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
CUMBERLAND REAL ESTATE GROUP, LLC	20241327DC	LIMITED LIABILITY COMPANY	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
01/19/2023	N/A	MAINE

Other Names **(A=Assumed ; F=Former)**

NONE

Principal Home Office Address

Physical	Mailing

Clerk/Registered Agent

Physical	Mailing
SHAWN K BELL C/O THE BELL FIRM, P.A. 810 LISBON STREET LEWISTON, ME 04240	SHAWN K BELL C/O THE BELL FIRM, P.A. P.O. BOX 1776 LEWISTON, ME 04241-1776

New Search

Click on a link to obtain additional information.

List of Filings View list of filings

January 26, 2024

Cumberland Real Estate Group
James Howard
2 Main Street, Suite 200
Topsham, ME 04086

To Whom it May Concern,

This letter is to confirm that Cumberland Real Estate Group has the financial capability to borrower up to $6,000,000 in regards to the construction project located at 187 Gray Road, Cumberland, ME.

This is not a formal commitment letter.

Sincerely,

Justin Laverriere
Vice-President
Commercial Loan Officer III

H

Lighting Details

Attachment H
Lighting Details

Information on the proposed lighting is enclosed for reference.

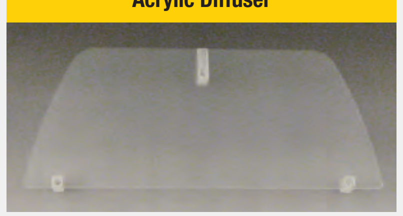
Compact by design – **Packed with Performance!** The compact LED LNC2 family offers five different lumens packages for maximum light level and mounting height flexibility. LNC2 is designed for perimeter illumination for safety, security and identity. Typical mounting height is up to 15 feet with 50-60ft fixture spacing (without acrylic diffuser) and 40ft spacing (with acrylic diffuser installed). LNC2 is available with battery back-up in LNC2-12L units for egress applications.

Shown with acrylic diffuser for reduced brightness applications

Quick Mounting

Quick mount – easy mounting without opening fixture. Attach adapter plate to wall, connect wires, hang fixture and tighten set screws.

Acrylic Diffuser



Frosted acrylic diffuser accessory – included with fixture! Softens output improves uniformity and protects LED lenses. Use near pedestrian entry applications or where low brightness is preferred.

Battery Backup

Battery back-up option provides 1fc average over 16'L x 48'W at 11' mounting in battery mode – Cold pack for operation down to -20˚C

Motion Sensor

Sensor offers greater control and energy savings with SCP - programmable sensor with adjustable delay and dimming levels (factory default is 10%) – Accessory option

1 Over traditional sources
† Conduit wiring option not available in BBU unit

Due to our continued efforts to improve our products, product specifications are subject to change without notice.

PERFORMANCE

LNC2 SERIES

LNC2-18L	3311 Lumens
Equivalency	250w MH

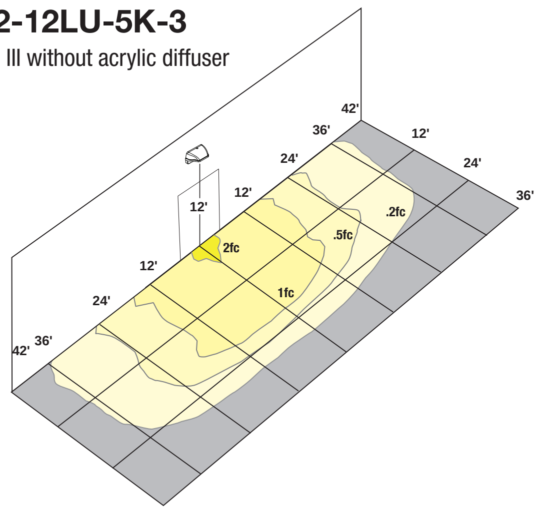
LNC2-12L	2420 Lumens
Equivalency	150w-175w MH

LNC-9L	1745 Lumens
Equivalency	70w MH

LNC-7L	1389 Lumens
Equivalency	50w MH

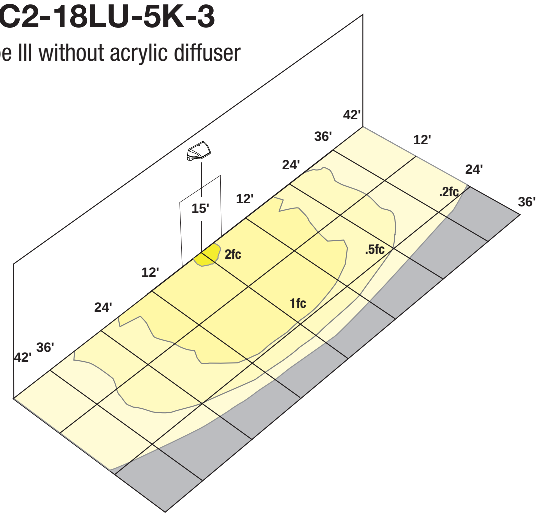
LNC2-12LU-5K-3

Type III without acrylic diffuser



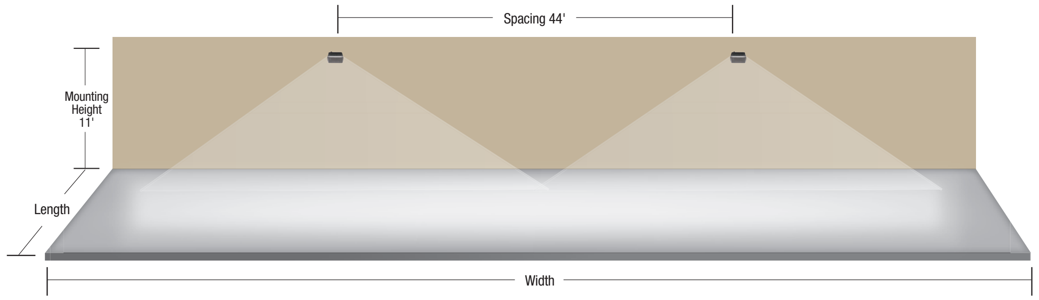
LNC2-18LU-5K-3

Type III without acrylic diffuser

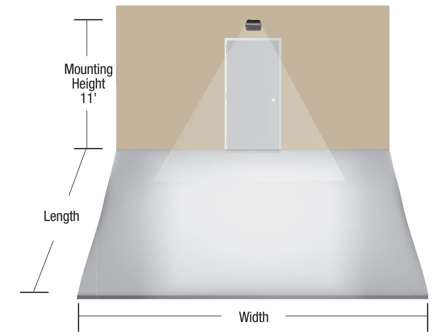


LNC2-12 BATTERY BACK-UP MODE PERFORMANCE

Provides Life Safety Code average illuminance of 1.0 fc. Assumes open space with no obstructions and mounting height of 11'.
Diagrams for illustration purposes only, please consult factory for application layout.



Targeted Light Level Coverage		
Twin Unit installation	1 fc Average	1 fc Minimum
Length	16'	15'
Width	112'	68'



Targeted Light Level Coverage		
Single Unit installation	1 fc Average	1 fc Minimum
Length	16'	15'
Width	48'	24'

LNC2 SERIES

Cat.# LNC2-48L-35-3K7-4W-UNV-DBT

Job: Rusty Lantern Market

Type

HUBBELL Outdoor Lighting

Approvals

SPECIFICATIONS

The small sized LNC2 is designed for perimeter illumination for safety, security and identification. No uplight and prismatic lenses offer neighbor friendly lighting at typical mounting heights of 8-15'. Units have protective polyester finish for long lasting appearance. Ideal for schools, factories, hospitals, warehouses and retail applications. Energy efficient LEDs provide up to 85% energy savings when compared to traditional light sources with little to no maintenance.

Construction:
Rugged die-cast aluminum housing protects components and provides an architectural appearance. Casting thermally conducts LED heat to optimize performance and long life. Powder paint finish provides durability in outdoor environments.

Electrical:
- 120V-277V universal voltage 50/60Hz 0-10V dimming drivers
- 347V and 480V dimmable driver option in 12L-070 configuration
- Minimum operating temperature is -40˚C/-40˚F (excludes 12L-035 and P15 configurations)
- Drivers have greater than .90 power factor and less than 20% Total Harmonic Distortion
- Driver RoHS and IP66
- 10kA surge protector

LED(s) CCT:
- 3000K CCT nominal , 4000K CCT nominal, 5000K CCT nominal (70 CRI)
- 9, 12 and 18 LED configurations available see pages 2 and 3 for electrical and photometric details

Optical:
Zero uplight distributions using individual acrylic LED optics provide IES type II, III and IV distributions. Optional (CS) acrylic diffuser available for reduced glare. Prismatic refractor lens provides ~10% uplight for increased vertical FC and forward light projection ideal for security lighting.

Lumen Maintenance:
L96 at 60,000hrs (Projected per IESNA TM-21-11), see table on page 2 for all values

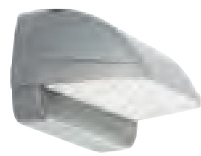
Installation:
Quick-mount adapter provides easy installation to wall or to recessed junction boxes (4" square junction box). Designed for direct j-box mount. Optional 1/2" conduit hubs available (standard for sensor, SiteSync and battery versions).

Options/Controls:
- Universal button photocontrol
- Occupancy sensor options available for complete on/off and dimming control
- SiteSync pre-commissioned wireless controls (with or without sensor)
- Integral Battery Backup provides emergency lighting for the required 90 minute path of egress
- Dual Driver and Dual Power Feed option for 18L-070 versions

Listings:
- Listed to UL1598 and CSAC22.2#250.0-24 for wet locations
- DesignLights Consortium® (DLC) qualified. Please refer to the DLC website for specific product qualifications at www.designlights.org
- Made-to-order versions are IP-65 rated

Warranty:
Five year limited warranty (for more information visit: https://www.hubbell.com/hubbelllightingci/en/warranty

PRODUCT IMAGE(S)


Standard 9, 12, and 18L Version*


Prismatic Version

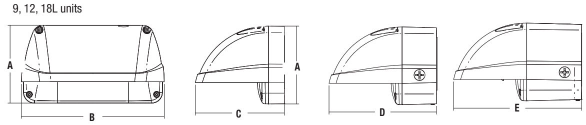

Surface Conduit Hubs, Sensor & SiteSync Version


Battery Backup Version

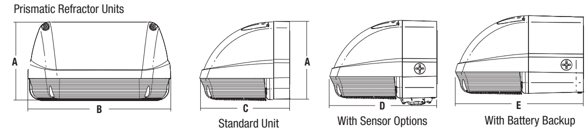
*Shown with CS acrylic diffuser

DIMENSIONS

9, 12, 18L units



Prismatic Refractor Units



A	B	C	D	E
5.54"	10.16"	6.33"	7.64"	9.10"
40.7 mm	258 mm	160.7 mm	194 mm	231 mm

BASE MODEL 7.0 lbs / 3.2 kg
PC SENSOR 7.5 lbs / 3.4 kg • **BBU MODELS** 9.5 lbs / 4.3 kg

SHIPPING INFORMATION (Stock)

Catalog Number	G.W(kg)/ CTN	Carton Dimensions			Carton Qty. per Master Pack
		Length Inch (cm)	Width Inch (cm)	Height Inch (cm)	
LNC2-12LU	14.3 (6.5)	14.5 (37)	11.4 (29)	8.4 (21.5)	2
LNC2-18LU	14.8 (6.7)	14.9 (38)	11.4 (29)	8.4 (21.5)	2

CERTIFICATIONS/LISTINGS

C US
Turtle Friendly
*3000K and warmer CCTs only
DLC QPL LISTED

ORDERING INFORMATION – ORDERING EXAMPLE: LNC2-12L-4K-070-3-1-DB-PCU-EH-CS

LNC2 - 48 - 3K - 35 - 4 - U - DBT - ___ - ___ - ___

SERIES
- **LNC2** Small LitePak LNC2

LED SELECTION
- **9L** 9 LEDs
- **12L** 12 LEDs
- **18L** 18 LEDs
- **P15** 15w Prismatic Refractor
- **P25** 25w Prismatic Refractor
- **P35** 35w Prismatic Refractor

CCT/CRI
- **3K** 3000K, 70 CRI
- **4K** 4000K, 70 CRI
- **5K** 5000K, 70 CRI
- **AM** Amber (350mA only)

DRIVE CURRENT
- **070** 700mA
- **035** 350mA (12L & 18L only)

IES DISTRIBUTION
- **2**[1] IES Type II
- **3**[1] IES Type III
- **4**[1] IES Type IV
- **FT** Forward Throw (Prismatic Refractor only)

VOLTAGE
- **U** 120V-277V
- **1** 120V
- **2** 208V
- **3** 240V
- **4** 277V
- **5**[8] 480V
- **F**[8] 347V

MOUNTING
- Leave Blank for down position
- **NV**[2] Inverted

FINISH
- **DB** Dark Bronze Textured
- **BL** Black Textured
- **GYS** Gray Smooth
- **PS** Platinum Silver Smooth
- **WH** White Textured
- **CC** Custom Color

CONTROL OPTIONS
- **SCP**[4,5] Occupancy Sensor Programmable (Dim)
- **PCU** Universal Button Photocontrol
- **SWP**[6] SiteSync Pre-Commision
- **SWPM**[6,7] SiteSync Pre-Commision w/ OCC Sensor

SPECIFY SCP HEIGHT
- **8F** Up to 8ft mount height
- **20F** Up to 20ft mount height

OPTIONS
- **EH**[3] Battery Backup Unit with Heater (-30˚C)
- **E**[3] Battery Backup Unit (0˚C)
- **F**[3] Fuse & Fuse-holder (not available with Battery Backup)
- **CS** Comfort Shield (N/A with Prismatic Refractor)
- **2DR** Dual Driver (18L - 700mA only)
- **2PF** Dual Power Feed (18L - 700mA only)
- **CH** Surface Conduit Hubs

1 IES distributions only available with 9L, 12L, and 18L versions
2 Not available with occupancy sensor, battery backup or prismatic refractor options
3 Must specify voltage (120 or 277 only for E & EH)
4 Must order minimum of one remote control to program dimming settings, 0-10V fully adjustable dimming with automatic daylight calibration and different time delay settings, 120-277V only
5 PCU option not applicable, included in sensor
6 18L - 700mA versions only. Not available with 2DR or 2PF options. Must specify group and zone information at time of order
7 Specify time delay; dimming level and mounting height
8 12L - 700mA version only

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VIPER Area/Site

VIPER LUMINAIRE

DATE: Plan C3	LOCATION: Gray Rd/Skillin Rd
TYPE:	PROJECT: Rusty Lantern Market
CATALOG #: VP-1-160L-160-3K7-5QW/4W	

MICROSTRIKE | OPTICS STRIKE

FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as auto dealership, retail, commercial, and campus parking lots
- Featuring two different optical technologies, Strike and Micro Strike Optics, which provide the best distribution patterns for retrofit or new construction
- Rated for high vibration applications including bridges and overpasses. All sizes are rated for 1.5G
- Control options including photo control, occupancy sensing, NX Lighting Controls™, wiSCAPE and 7-Pin with networked controls
- New customizable lumen output feature allows for the wattage and lumen output to be customized in the factory to meet whatever specification requirements may entail
- Field interchangeable mounting provides additional flexibility after the fixture has shipped

c UL us IP65 BUY AMERICAN SOLUTIONS See Certification Specifications DLC LISTED DLC LISTED PREMIUM

10-DAY QUICK SHIP PROGRAM

QS 10

CONTROL TECHNOLOGY

NX LIGHTING CONTROLS wiSCAPE™

SPECIFICATIONS

CONSTRUCTION
- Die-cast housing with hidden vertical heat fins are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with 1000 hour powder coat paint finish
- External hardware is corrosion resistant

OPTICS
- Micro Strike Optics (160, 320, 480, or 720 LED counts) maximize uniformity in applications and come standard with mid-power LEDs which evenly illuminate the entire luminous surface area to provide a low glare appearance. Catalog logic found on page 2
- Strike Optics (36, 72, 108, or 162 LED counts) provide best in class distributions and maximum pole spacing in new applications with high powered LEDs. Strike optics are held in place with a polycarbonate bezel to mimic the appearance of the Micro Strike Optics so both solutions can be combined on the same application. Catalog logic found on page 3
- Both optics maximize target zone illumination with minimal losses at the house-side, reducing light trespass issues. Additional backlight control shields and house side shields can be added for further reduction of illumination behind the pole
- One-piece silicone gasket ensures a weatherproof seal
- Zero up-light at 0 degrees of tilt
- Field rotatable optics

INSTALLATION
- Mounting patterns for each arm can be found on page 11
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option (ASQU) or accessory for square and round poles
- All mounting hardware included

INSTALLATION (CONTINUED)
- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater that 20ft, a vibration damper is recommended

ELECTRICAL
- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40˚C to 40˚C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/ IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised
- Dual Driver option provides 2 drivers within luminaire but only one set of leads exiting the luminaire, where Dual Power Feed provides two drivers which can be wired independently as two sets of leads are extended from the luminaire. Both options cannot be combined

CONTROLS
- Photo control, occupancy sensor programmable controls, and Zigbee wireless controls available for complete on/off and dimming control
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)

CONTROLS (CONTINUED)
- 0- 10V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard
- NX Lighting Controls™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor. Also available in 7-pin configuration

CERTIFICATIONS
- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Not all product variations listed in this document are DLC® qualified. Refer to http://www.designlights.org for the most up-to-date list.
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- 1.5 G rated for ANSI C136.31 high vibration applications
- Fixture is IP65 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/23/2020.

WARRANTY
- 5 year warranty

KEY DATA	
Lumen Range	5,000–80,000
Wattage Range	36–600
Efficacy Range (LPW)	92–155
Weight lbs. (kg)	13.7-30.9 (6.2-13.9)

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DATE: Plan C3	LOCATION: Gray Rd/Skillin Rd
TYPE:	PROJECT: Rusty Lantern Market

CATALOG #: VP-1-160L-160-3K7-5QW/4W

VIPER Area/Site

VIPER LUMINAIRE

MICROSTRIKE OPTICS – ORDERING GUIDE

= Service Program Limit of 15 luminaires

Example: VP–2–320L-145–3K7–2–R–UNV–A3–BLT

CATALOG # VP-1-160L-160-3K7-5QW/4W

Series	Optic Platform	Size	Light Engine	CCT/CRI	Distribution	Optic Rotation	Voltage
VP		1	160L	3K7	4W		

Series

VP	Viper

Optic Platform

Micro Strike

Size / Light Engine

Size	Light Engine	
1 Size 1	**160L-35** [6]	5500 lumens
	160L-50 [6]	7500 lumens
	160L-75	10000 lumens
	160L-100	12500 lumens
	160L-115	15000 lumens
	160L-135	18000 lumens
	160L-160	21000 lumens
2 Size 2	**320L-145**	21000 lumens
	320L-170	24000 lumens
	320L-185	27000 lumens
	320L-210	30000 lumens
	320L-235	33000 lumens
	320L-255	36000 lumens
	320L-315 [6]	40000 lumens
3 Size 3	**480L-285**	40000 lumens
	480L-320	44000 lumens
	480L-340	48000 lumens
	480L-390	52000 lumens
	480L-425	55000 lumens
	480L-470	60000 lumens
4 Size 4	**720L-435**	60000 lumens
	720L-475	65000 lumens
	720L-515	70000 lumens
	720L-565 [6]	75000 lumens
	720L-600 [6]	80000 lumens
	CLO	Custom Lumen Output [1]

CCT/CRI

AP	AP-Amber Phosphor Converted
27K8	2700K, 80 CRI
3K7	3000K, 70 CRI
3K8	3000K, 80 CRI
35K8	3500K, 80 CRI
3K9	3000K, 90 CRI
4K7	4000K, 70 CRI
4K8	4000K, 80 CRI
4K9	4000K, 90 CRI
5K7	5000K, 70 CRI
5K8	5000K, 80 CRI

Distribution

2	Type 2
3	Type 3
4F	Type 4 Forward
4W	Type 4 Wide
5QW	Type 5 Square Wide

Optic Rotation

BLANK	**No Rotation**
L	Optic rotation left
R	Optic rotation right

Voltage

UNV	120-277V
120	120V
208	208V
240	240V
277	277V
347	347V
480	480V

Mounting

A	Arm mount for square pole/flat surface (B3 Drill Pattern) (Does not include round pole adapter)
A_	Arm mount for round pole [2]
ASQU	Universal arm mount for square pole. Can be used with B3 or S2 Drill Pattern
A_U	Universal arm mount for round pole [2]
AAU	Adjustable arm for pole mounting (universal drill pattern)
AA_U	Adjustable arm mount for round pole [2]
ADU	Decorative upswept Arm (universal drill pattern)
AD_U	Decorative upswept arm mount for round pole [2]
MAF	Mast arm fitter for 2-3/8" OD horizontal arm
K	Knuckle
T	Trunnion
WB	Wall Bracket, horizontal tenon with MAF
WM	Wall mount bracket with decorative upswept arm
WA	Wall mount bracket with adjustable arm

Color

BLT	Black Matte Textured
BLS	Black Gloss Smooth
DBT	Dark Bronze Matte Textured
DBS	Dark Bronze Gloss Smooth
GTT	Graphite Matte Textured
LGS	Light Grey Gloss Smooth
LGT	Light Grey Gloss Textured
PSS	Platinum Silver Smooth
WHT	White Matte Textured
WHS	White Gloss Smooth
VGT	Verde Green Textured

Color Option

CC	Custom Color

Options

F	Fusing
2PF	Dual Power Feed
2DR	Dual Driver
TE	Tooless Entry
BC	Backlight Control [8]
TB	Terminal Block

Network Control Options

NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [3,4]
WIR	wiSCAPE® In-Fixture Module [3,4]
WIRSC	wiSCAPE® Module and Occupancy Sensor [3,4]

Stand Alone Sensors

BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens [9]
BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens [9]
BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens [9]
7PR	7-Pin Receptacle [4]
7PR-SC	7-Pin Receptacle with shorting cap [4]
3PR	3-Pin twist lock [4]
3PR-SC	3-Pin receptacle with shorting cap [4]
3PR-TL	3-Pin PCR with photocontrol [4]

Programmed Controls

SCP-_F	Sensor Control Programmable, 8F or 40F [10]
ADD	AutoDim Timer Based Dimming [4]
ADT	AutoDim Time of Day Dimming [4]

Photocontrols

PC	Button Photocontrol [4,7]

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
2 – Replace "_" with "2" for 2.5"-3.4" OD pole, "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
3 – Networked Controls cannot be combined with other control options
4 – Not available with 2PF option
5 – Not available with Dual Driver option
6 – Some voltage restrictions may apply when combined with controls
7 – Not available with 480V
8 – BC not available on 4F and type 5 distributions
9 – BTS and BTSO are only available on Size 3 and Size 4
10 – At least one SCPREMOTE required to program SCP motion sensor. Must select 8ft or 40ft.

VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

STRIKE OPTIC – ORDERING GUIDE

Example: VP–ST–1–36L-39–3K7–2–UNV–A–BLT

CATALOG #

Series		Optic Platform		Size	
VP	Viper	ST	Strike	1	Size 1
				2	Size 2
				3	Size 3
				4	Size 4

Light Engine

Size		
1	36L-39 [8]	5500 lumens
1	36L-55 [8]	7500 lumens
1	36L-85	10000 lumens
1	36L-105	12500 lumens
1	36L-120	14000 lumens
2	72L-115	15000 lumens
2	72L-145	18000 lumens
2	72L-180	21000 lumens
2	72L-210	24000 lumens
2	72L-240	27000 lumens
3	108L-215 [8]	27000 lumens
3	108L-250	30000 lumens
3	108L-280	33000 lumens
3	108L-325	36000 lumens
3	108L-365	40000 lumens
4	162L-320	40000 lumens
4	162L-365 [10]	44000 lumens
4	162L-405	48000 lumens
4	162L-445	52000 lumens
4	162L-485	55000 lumens
4	162L-545 [8]	60000 lumens
	CLO	Custom Lumen Output [1]

CCT/CRI

AM	monochromatic amber, 595nm
27K8	2700K, 80 CRI
3K7	3000K, 70 CRI
3K8	3000K, 80 CRI
3K9	3000K, 90 CRI
35K8	3500K, 80 CRI
4K7	4000K, 70 CRI
4K8	4000K, 80 CRI
4K9	4000K, 90 CRI
5K7	5000K, 70 CRI
5K8	5000K, 80 CRI

Distribution

FR	Auto Front Row
2	Type 2
3	Type 3
4F	Type 4 Forward
4W	Type 4 Wide
5QN	Type 5 Square Narrow
5QW	Type 5 Square Wide
5QM	Type 5 Square Medium
5W	Type 5 Wide (Round)
5RW	Type 5 Rectangular
C	Corner Optic
TC	Tennis Court Optic

Optic Rotation

BLANK	No Rotation
L	Optic rotation left
R	Optic rotation right

Voltage

UNV	120-277V
120	120V
208	208V
240	240V
277	277V
347	347V
480	480V

Mounting

A	Arm mount for square pole/flat surface
A_	Arm mount for round pole [3]
ASQU	Universal arm mount for square pole
A_U	Universal arm mount for round pole [3]
AAU	Adjustable arm for pole mounting (universal drill pattern)
AA_U	Adjustable arm mount for round pole [3]
ADU	Decorative upswept Arm (universal drill pattern)
AD_U	Decorative upswept arm mount for round pole [3]
MAF	Mast arm fitter for 2-3/8" OD horizontal arm
K	Knuckle
T	Trunnion
WB	Wall Bracket, horizontal tenon with MAF
WM	Wall mount bracket with decorative upswept arm
WA	Wall mount bracket with adjustable arm

Color

BLT	Black Matte Textured
BLS	Black Gloss Smooth
DBT	Dark Bronze Matte Textured
DBS	Dark Bronze Gloss Smooth
GTT	Graphite Matte Textured
LGS	Light Grey Gloss Smooth
LGT	Light Grey Gloss Textured
PSS	Platinum Silver Smooth
WHT	White Matte Textured
WHS	White Gloss Smooth
VGT	Verde Green Textured

Color Option

CC	Custom Color

Options

F	Fusing
E	Battery Backup [1,2,7,8,9]
2PF	Dual Power Feed
2DR	Dual Driver
TE	Tooless Entry
BC	Backlight Control
TB	Terminal Block

Network Control Options

NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [3,4]
WIR	wiSCAPE® In-Fixture Module [3,4]
WIRSC	wiSCAPE® Module and Occupancy Sensor [3,4]

Stand Alone Sensors

BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens [11]
BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming® Photocell and 360° Lens [11]
BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens [11]
7PR	7-Pin Receptacle [4]
7PR-SC	7-Pin Receptacle with shorting cap [4]
3PR	3-Pin twist lock [4]
3PR-SC	3-Pin receptacle with shorting cap [4]
3PR-TL	3-Pin PCR with photocontrol [4]

Programmed Controls

SCP-_F	Sensor Control Programmable, 8F or 40F [12]
ADD	AutoDim Timer Based Dimming [4]
ADT	AutoDim Time of Day Dimming [4]

Photocontrols

PC	Button Photocontrol [4,7]

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
2 – Battery temperature rating -20C to 55C
3 – Replace "_" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
4 – Networked Controls cannot be combined with other control options
5 – Not available with 2PF option
6 – Not available with 480V
7 – Not available with 347 or 480V
8 – Not available with Dual Driver option
9 – Only available in Size 1 housing, up to 105 Watts
10 – Some voltage restrictions may apply when combined with controls
11 – BTS and BTSO are only available on Size 3 and Size 4
12 – At least one SCPREMOTE required to program SCP motion sensor. Must select 8ft or 40ft.

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VIPER Area/Site

VIPER LUMINAIRE

DATE: | LOCATION:
TYPE: | PROJECT:
CATALOG #:

ORDERING GUIDE (CONTINUED)

CATALOG #

Accessory Type		Size		Option	
SHD	Shield	**1**	Size 1	**HSS-90-B**	House Side Shield 90º Back
		2	Size 2	**HSS-90-F**	House Side Shield 90º Front
		3	Size 3	**HSS-90-S**	House Side Shield 90º Side
		4	Size 4	**HSS-270-BSS**	House Side Shield 270º Back/Side/Side
				HSS-270-FSS	House Side Shield 270º Front/Side/Side
				HSS-270-FSB	House Side Shield 270º Front/Side/Back
				HSS-360	House Side Shield 360º
				BC	Back Light Control
MTG	Mounting			**A**	Arm Mount for square pole/flat surface
				ASQU	Universal Arm Mount for square pole
				AAU	Adjustable Arm for pole mounting
				ADU	Decorative upswept Arm
				RPA	Round Pole Adapter
				MAF	Mast Arm Fitter for 2-3/8" OD horizontal arm
				K	Knuckle
				T	Trunnion
				WB	Wall Bracket (compatible with universal arm mounts)

Color	
BLS	Black Gloss Smooth
BLT	Black Matte Textured
DBS	Dark Bronze Gloss Smooth
DBT	Dark Bronze Matte Textured
GTT	Graphite Matte Textured
LGS	Light Gray Gloss Smooth
PSS	Platinum Silver Smooth
WHS	White Gloss Smooth
WHT	White Matte Textured
VGT	Green Landscape Decorative
LEG	Legacy Colors
Color Option	
CC	Custom Color

Accessory Type		Option	
MSC	Miscellaneous	**BIRD SPK**	Bird Spike

Current Control Solutions — Accessories (Sold Separately)

NX Lighting Controls

- ☐ **NXOFM-1R1D-UNV** — On-fixture Module (7-pin), On / Off / Dim, Daylight Sensor with NX Radio and Bluetooth® Radio, 120–480VAC

wiSCAPE® Lighting Control

- ☐ **WIR-RME-L** — On-fixture Module (7-pin or 5-pin), On / Off / Dim, Daylight Sensor with wiSCAPE Radio, 110–480VAC
- ☐ **SCP-REMOTE** — Remote Control for SCP/_F option. Order at least one per project to program and control the occupancy sensor

For additional information related to these accessories please visit currentlighting.com/beacon. Options provided for use with integrated sensor, please view specification sheet ordering information table for details.

CONTROLS

Control Option	Sensor	Networkable	Scheduling	Occupancy	Daylight Harvesting	On/Off Control	Programming	Pair with Sensor	Sensor Mounting Height
NXW	–	✔	✔	–	–	✔	✔	–	–
NXWS_F	NXSMP2	✔	✔	✔	✔	✔	✔	–	16ft, 40ft
BTSO12F	BTSMP-OMNI-O	–	–	✔	✔	✔	Bluetooth	–	12ft
BTS_F	BTSMP	–	–	✔	✔	✔	Bluetooth	–	14ft, 40ft
SCP_F	–	–	–	✔	–	✔	✔	–	–
ADD	–	–	✔	–	–	✔	–	✔	–
ADT	–	–	✔	–	–	✔	–	✔	–
7PR	–	Paired with external control	Paired with external control	–	Paired with external control	Paired with external control	–	✔	–
7PR-SC	–	–	–	–	–	–	–	✔	–
3PR	–	–	–	–	–	Paired with external control	–	✔	–
3PR-SC	–	–	–	–	–	–	–	✔	–
3PR-TL	–	–	–	–	✔	✔	–	✔	–
WIR	–	✔	✔	–	✔	✔	Gateway	–	–
WIRSC	BTSMP	✔	✔	✔	✔	✔	Gateway	–	14ft, 40ft

WHITEWAY

DATE: Plan C3	LOCATION: Gray Rd/Skillin Rd
TYPE:	PROJECT: Rusty Lantern Market
CATALOG #: VSH-30-4K7-UNV-WHG	

Vanish

PETROLEUM GAS CANOPY

VANISH EDGE-LIT

FEATURES

- Edge-Lit technology for even illumination
- Low profile 2.1" depth design virtually disappears into the canopy
- Illuminates without distraction and glare
- Pendant or surface mounted with ¾" conduit
- Universal retrofit solution for HID replacements for various sizes
- IP65 rating to keep water and insects out
- Cast Aluminum with integral heat sink to maintain optimal thermal performance for long LED life Cast aluminum

IP66 DLC LISTED DLC LISTED PREMIUM UL CERTIFIED

SPECIFICATIONS

CONSTRUCTION

- Die-cast aluminum, low profile housing
- New construction or retrofit solution
- Canopy and soffit applications
- Easy installation
- Driver and optical chamber serviceable from below canopy
- Powder coat finish
- Heat sink design to disperse heat away from fixture
- Suitable for wet locations

OPTICS

- Acrylic Lens
- Type V distribution
- Comfort lens for low glare
- Light Guide Edge-Lit technology

INSTALLATION

- Surface or pendant mounted
- Easy installation and serviceable below the canopy deck
- Hinge for hanging during service

ELECTRICAL

- Universal 120-277 , 347, 480 Input Voltage
- Power Factor > 0.9 at full load
- Total Harmonic Distortion < 20% at full load
- 10 kV Surge Protection
- 0-10 Volt Dimmable Driver
- Operating temperature: -40°C to +40°C

CERTIFICATIONS

- UL Certified
- DesignLights Consortium™ 5.1 qualified
- Wet Location Listed
- IP66
- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Please refer to the DLC website for specific product qualifications at www.designlights.org

WARRANTY

- 5 year warranty
- See HLI Standard Warranty for additional information

ORDERING GUIDE

Example: VSH-85-5K7-UNV-WHG

CATALOG # VSH-30-4K7-UNV-WHG

VSH		–		–		–	
Series	**Size**		**Color Temp**		**Voltage**		**Finish**
VSH Vanish	**30**[1]		**4K7**		**UNV** Universal		**WHG** Petroleum White
	55		**5K7**		**347** 347V		**DBS** Petroleum Dark Bronze
	85				**480** 480V		**BLS** Petroleum Black
	140						

Notes:

1 Only available in Universal Voltage

KEY DATA	
Lumen Range	4,500 – 20,200
Wattage Range	30 – 140 Watts
Efficacy Range (LPW)	138 – 157
Reported Life (Hours)	>60,000

HUBBELL Lighting

Vanish

PETROLEUM GAS CANOPY

STOCK ORDERING INFORMATION

Catalog Number	Stock Number	Wattage	Voltage	CCT/CRI	Finish
VSH-85-4K7	**93133024**	85W	UNV	5000K/70 CRI	Petroleum White
VSH-140-5K7	**93139554**	140W	UNV	5000K/70 CRI	Petroleum White

PERFORMANCE DATA

Product	Lumens	B	U	G	LPW	CRI	CCT
VSH-30-4K7	4564	2	0	1	150	70	4000K
VSH-30-5K7	4793	2	0	1	157	70	5000K
VSH-55-4K7	8846	3	0	2	153	70	4000K
VSH-55-5K7	9069	3	0	2	157	70	5000K
VSH-85-4K7	13296	3	0	2	152	70	4000K
VSH-85-5K7	13666	3	0	2	157	70	5000K
VSH-140-4K7	19649	4	0	3	138	70	4000K
VSH-140-5K7	20196	4	0	3	142	70	5000K

Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment application and inherent performance balances of the electrical components.

PROJECTED LUMEN MAINTENANCE

Ambient Temperature	OPERATING HOURS					
	0	25,000	50,000	TM-21-11[1] L96 60,000	100,000	L70 (Hours)
25°C / 77°F	1.00	0.94	0.92	0.90	0.81	>170,000
40°C / 104°F	0.99	0.94	0.92	0.89	0.80	>160,000

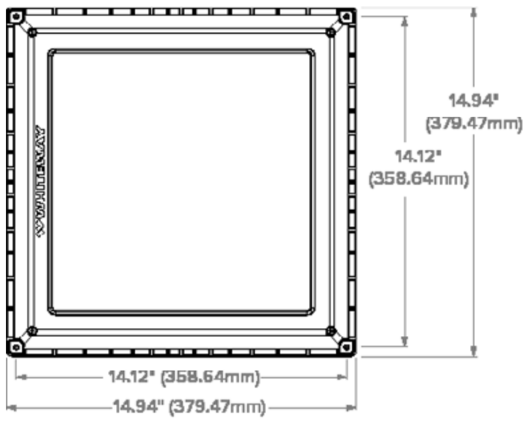
LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

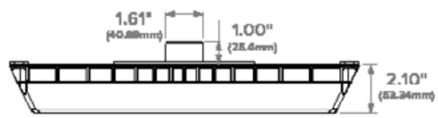
Ambient Temperature		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98
50°C	122°F	0.97

Vanish

PETROLEUM GAS CANOPY

DIMENSIONS



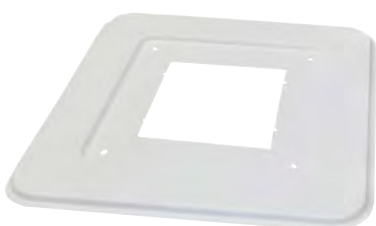


MOUNTING ACCESSORIES

Accessories (order separately)		
☐ **93133148**	WHITEWAY 15 IN CVR PLT WHT VSH/GSY	Retrofit cover plate for LSI Encore 15" square-replacement for 10" opening
☐ **93133149**	WHITEWAY DECORATIVE CVR PLT VSH/GSY	26" Decorative Beauty Plate for Canopy Retrofits
☐ **93133151**	WHITEWAY HID RETRFT KIT WHT VSH/GSY (fits any square HID housing between 21" & 23" square.)	Universal HID retrofit kit
☐ **93133177**	WHITEWAY STEM AND JUNCTION BOX	

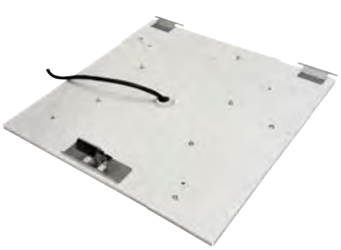
93133148

93133149



93133151

• Measure outside dimension of existing housing



93133177

701 Millennium Blvd • Greenville, SC 29607 / Tel (864)-678-1000 / Website www.whiteway-ltg.com

HUBBELL Lighting

Attachment I
Stormwater Management Report

The Stormwater Management Report has been enclosed for your reference. The backup information is not included in the copies provided to the Planning Board but were included in the submission to the Town Engineer.

STORMWATER MANAGEMENT PLAN

Rusty Lantern Market
181 Gray Road, Cumberland, Maine

Introduction

Cumberland Real Estate Group, LLC (herein referred to as Applicant) is proposing the construction of a single-story, 5,038 s.f. convenience store building, gasoline pumps, canopy, associated parking, infrastructure, and landscaping situated on a site with frontage on Gray Road (U.S. Route 26) and Skillin Road in Cumberland, Maine. The proposed development will result in approximately 67,548 s.f. (1.55 acres) of impervious area. The increased runoff from the paved areas of site will be directed to one of two Subsurface Soil Filters for water quality treatment and water quantity mitigation. Currently the site has approximately 94,592 s.f. (2.17 acres) of impervious area, comprised of the existing building and pavement, and extensive gravel surfaced area compacted from years of use. The proposed project will result in a reduction of 27,044 s.f. (0.62 acres) of impervious area.

Available historical photographs were reviewed to determine when the existing parcels were previously developed. Most of the development had occurred by 1997, which is before the implementation of the Stormwater Law. The amount of undeveloped area was estimated from the aerial photograph to be approximately 34656 s.f. (0.80 acres). Per Maine Department of Environmental Protection (DEP) rules, only the area developed since 1997 would be required to meet the requirements of Chapter 500; however, since it is less than 1-acre, it does not meet the criteria for a Stormwater Law application. As the project results in less than an acre of new impervious area, it does not require a Stormwater Law permit from the DEP; however, a Stormwater Law Permit-by-Rule will be filed.

In accordance with the Town’s ordinances, it is required to conform to Basic, General, and Flooding Standards in accordance with Chapter 500 of the DEP rules.

Study Methodology

Topographical data was obtained from an on-the-ground survey completed by Boundary Points, a division Main-Land. Hydrologic boundaries were generated using the topographic mapping, and the drainage patterns were verified by a site reconnaissance visit.

Surficial soils located in the vicinity of the site were obtained from the United States Department of Agriculture Natural Resources Conservation Service Soil Survey Geographic (SSURGO) Database. The Applicant’s parcel includes the soil classifications listed below. Soil units found in the development area are primarily Hinkley Loamy Sand. Flycatcher, LLC, observed test pits to evaluate the seasonal high groundwater table at locations where stormwater best management practices (BMPs) are proposed. The Flycatcher report confirmed the soils were similar to Hinkley; with the observation that some imported fill was evident.

SOIL TYPES IN LOCAL STUDY AREA

Soils Series	Symbol(s)	Hydrologic Group (HSG) **
Hinckley Loamy Sand	HlB	A

**Hydrologic Soils Group taken from SCS TR-55 Manual

Test pits were completed at the site by Summit Geoengineering. A copy of the geotechnical investigation has been enclosed with this submission.

Basic Standards
Erosion control BMPs are shown on the project drawings, and notes and details on implementing them are included on separate drawings in the set. The Contractor will be responsible for maintaining the BMPs throughout construction. After the site is stabilized and accepted by the owner, the owner will be responsible for maintaining the permanent BMPs.

Disturbed area will be minimized by clearing only the amount of land required for the construction of each building, which will not be constructed concurrently.

Major site work activities and their sequence follow:

1. Install a stabilized construction entrance.
2. Cut and remove trees around area of work, as necessary, leaving the duff layer in place.
3. Set sediment barrier and erosion control measures around the perimeter of the limits of work. Stumps shall be ground onsite and used for sediment barrier and/or mulch.
4. Clear and grub the work site as needed to execute plans using caution not to overexpose the site. Topsoil salvaged shall be stockpiled and protected against erosion.
5. Install storm drainage and infrastructure, including access.
6. Construct buildings.
7. Construct pavement.
8. Loam, seed, and mulch disturbed areas.
9. Monitor the site for signs of erosion monthly and after major storm events.
10. Removal of temporary erosion control measures. Ninety (90) days post-construction or upon satisfactory establishment of vegetation has been obtained.
11. Inspect the site semi-annually for any sign of erosion or area requiring additional seeding.

The contractor shall monitor the disturbed area for signs of erosion or sediment transport off-site and take corrective action immediately. Inspections shall be logged using the form supplied in the stormwater facilities maintenance plan and kept on file. Completed logs shall be maintained by the Applicant after construction.

Flooding Standard
The project area is located in Zone C (Areas of Minimal Flooding) of the Flood Insurance Rate Maps (FIRMs) for Cumberland County, Maine. The project area is located on Panel 18 of 25 (Community Panel 230162-0015-B, Effective May 19, 1981). An excerpt of the applicable FIRM is enclosed with the supporting graphics. There is no impact from flooding anticipated for this project.

Off-Site Watersheds
There are no off-site watersheds that were reviewed as part of the stormwater analysis. The project area has little variation in elevation and adjacent roads an developed areas serve as hydrologic boundaries.

On-Site Subcatchments
Pre-Development Conditions
The pre-development hydrologic analysis is based on the existing site condition, which is mostly undeveloped and comprised of paved and unpaved areas. The development area is relatively flat and drains from a high point near the middle to the perimeter of the graveled area. Runoff from the front portion of the site is conveyed into the existing storm drain system in Gray Road.

Subcatchment 1 represents the area immediately adjacent to the intersection of Gray and Skillin Roads. The area drains to existing catch basins connected to the storm drains in the ROW.

Subcatchment 2 represents 0.32 acres that drains internally to a catch basin connected to the storm drain in the Skillin Road ROW.

Subcatchment 3 represents approximately 0.31 acres that drains to the abutting land to the east.

Subcatchment 4 represents approximately 0.74 acres that drains toward Gray Road, where it is collected at a catch basin.

Subcatchment 5 represents a small area that drains to the abutting property.

Subcatchment 6 represents an approximately 0.27 acre area of gravel and woods that drains to the east.

Subcatchment 7 represents an approximately 0.39 acre area of gravel and woods that drains to the southeast.

Subcatchment 8 represents an approximately 0.48 acre area of gravel surface that drains to the parcel to the south of the site.

Subcatchment 9 represents an approximately 0.33 acre area of gravel surface that drains to the Gray Road ROW.

Post-Development Conditions
Under post-development conditions, the commercial buildings will be constructed with associated paved access, landscaping, and infrastructure. Stormwater runoff from the new impervious area will be directed to one of two Subsurface Soil Filters, with the exception of the roofs, which will drain an infiltration basin or stone drip edge. A summary of the subcatchments is provided below:

Subcatchment 1 represents the convenience store and lawn areas between it and the intersection of the roads. These areas drain to an infiltration gallery.

Subcatchment 2 represents the parking area, fueling pumps, and entrance from Gray Road. This area is collected by catch basins and conveyed to Subsurface Soil Filter #1 (SSSF#1).

Subcatchment 3 represents the parking area and drive-thru lanes for the bank. This area is collected by catch basins and conveyed to SSSF#2.

Subcatchment 4 represents the bank building, which will drain to a drip edge filter BMP.

Subcatchment 6 represents an approximately 0.27 acre area of gravel and woods that drains to the east.

Subcatchment 7 represents an approximately 0.39 acre area of gravel and woods that drains to the southeast.

Subcatchment 8 represents an approximately 0.48 acre area of gravel surface that drains to the parcel to the south of the site.

Subcatchment 9 represents an approximately 0.33 acre area of gravel surface that drains to the Gray Road ROW.

Subcatchment 10 represents an approximately 0.33 acre area of gravel surface that drains to the Gray Road ROW.

Subcatchment 11 represents an approximately 0.33 acre area of gravel surface that drains to the Gray Road ROW.

Results

A comparison of pre-development and post-development peak rates of stormwater runoff at the Analysis Points is presented in the following tables. Peak runoff rates were estimated for the 2-, 10-, 25, and 50-year 24-hour storm events.

Analysis Point 1 (POI#1)	Peak Runoff Rate (cfs)		
Design Storm	Pre-Development	Post-Development	Difference
2-Year	1.05	0.45	-0.60
10-Year	1.50	0.60	-0.90
25-Year	2.00	0.73	-1.27

Analysis Point 1 (POI#2)	Peak Runoff Rate (cfs)		
Design Storm	Pre-Development	Post-Development	Difference
2-Year	3.70	0.17	-3.53
10-Year	5.34	0.37	-4.97
25-Year	7.06	0.63	-6.43

As shown in the tables above, the total net peak rate of flow leaving the site is reduced for all storm events.

General Standard
An analysis of the pre-development and post-development areas shows that the runoff from 96% of the proposed impervious area and 81% of the proposed developed area on the parcel will be directed to the Subsurface Soil Filters for treatment and detention. The results are presented in the following table.

The proposed project will create approximately 67,548 (1.55 acres) of new impervious area. Runoff from approximately 53,323 s.f. (1.22 acres), or 95.1%, of the impervious area will be conveyed to the Subsurface Soil Filters for treatment and detention. In the post-development condition, the site will include approximately 30,829 s.f. (0.71 acres) of landscaped area, for a total of 85,825 s.f. (1.97 acres) of developed area. Runoff from approximately 18,355 s.f. (0.42 acres) of landscaped area will be conveyed to the Filter, resulting in 70,678 s.f. (1.62 acres), or 82.4%, of the developed areas directed to the SSF for treatment and detention.

Water Quality
The project is required to provide stormwater treatment for 95% of the impervious area and 80% of the developed area. This goal for water quality treatment is achieved using two (2) Subsurface Soil Filters for the paved areas, and infiltration system for the convenience store building, and drip-edge treatment BMPs for the bank building.

Subsurface Soil Filters
Two Subsurface Soil Filters with underdrains and liners are proposed for the treatment and detention of the runoff from the proposed paved areas, including the developed landscaped area, paved parking and access aisles. The filter has been sized so that the surface area of the filter is greater than 5% of the impervious tributary area plus 2% of the landscaped tributary area. The media is 18” thick and designed to store a treatment volume greater than 1.0 inch over the impervious area and 0.4 inches over the landscaped area, and filter at a rate of 2.41 inches per hour. Separation is provided between the bottom of the filter media and the high seasonal water table and liners are proposed for the bottoms of the systems. The maximum depth of stored runoff is less than 18 inches. Overflows have been included in the design to allow for detention within the subsurface soil filter footprint.

Conclusion
Through the implementation of erosion and sedimentation control measures and best management practices, the project complies with the requirements of the Basic Standard.

By collecting and treating runoff from new impervious area, 96% of the new impervious area will be treated in accordance with Chapter 500. Similarly, 81% of the developed area will be treated prior to discharge from the site. The runoff from the development will not adversely impact the existing storm drains in Route 26 or the adjacent parcels. By capturing and treating runoff from the impervious surfaces and developed areas the project likewise meets the applicable portions of the General Standard. The General Standard is met and exceeded. By providing detention in the proposed stormwater management BMPs, the peak runoff rates of the post-development condition are reduced to below the pre-development peak runoff rates; the project is not subject to the requirements of the Flooding Standard, but the development has been designed so that the project complies with the requirements of the Flooding Standard.

Attachment 1 – Pre-Development HydroCAD Report
Attachment 2 – Pre-Development Watershed Map
Attachment 3 – Post-Development HydroCAD Report
Attachment 4 – Post-Development Watershed Map

Rusty Lantern Market
181 Gray Road, Cumberland, Maine

STORMWATER MANAGEMENT INSPECTION AND MAINTENANCE PLAN

1.0 GENERAL

This stormwater management maintenance plan has been prepared in support of the Maine Department of Environmental Protection Site Law Permit amendment for the Lakeside Concrete Cutting and Abatement Professional commercial building and offices in Cumberland, Maine. The requirements of this plan shall be incorporated into the efforts associated with the development including construction and ongoing operations.

This plan was prepared by:

Curt Neufeld, P.E. #9779
Sitelines, PA
119 Purinton Road, Suite A
Brunswick, Maine 04011
207-725-1200 x18

2.0 BEST MANAGEMENT PRACTICES

2.1 Best Management Practices

During Construction, a stabilized construction entrance, sediment barrier, and/or erosion control mix, seeding, and mulching practices will be used in accordance with the Maine Department of Environmental Protection Best Management Practices (BMP) manual during construction and until a stabilized condition exists.

After Construction, stormwater BMPs will include housekeeping and physical measures described herein, including the grassed underdrained soil filters, sweeping of paved surfaces, and maintenance of storm drain pipes and outfalls.

The stormwater maintenance management for this project will be performed consistent with the two references listed below and as amended in this manual. Where standards are not consistent, the more stringent requirement shall apply.

2.2 References

The primary references for the maintenance of the BMPs were as follows:

1 “Stormwater Management for Maine”, Maine Department of Environmental Protection No. DEPLW0738, Volume 3, May 2016.
2 “Maine Erosion and Sedimentation Best Management Practices”, Maine Department of Environmental Protection, current edition on-line.
3 “Maine Erosion and Sediment Control Field Guide for Contractors”, Maine Department of Environmental Protection, 2014 Revision.

This information is provided as guidance if the Owner/would like to learn more about the BMPs. Also, maintenance for these BMPs may change over time. It is not expected the Owner will have the references readily available, however, they may be available through the DEP website.

3.0 MAINTENANCE OF STORMWATER FEATURES

3.1 General Responsibilities

The Contractor will be responsible for inspecting and maintaining the stormwater features until the construction phase of the project is complete. These efforts shall include maintenance of erosion and sedimentation control measures, temporary and permanent stormwater features, and addressing interim site conditions as necessary. After completion of construction, the Applicant will be responsible for inspecting and maintaining the permanent stormwater features as shown on the plan.

The Point of Contact for the Applicant is as follows:

Mr. James Howard
Cumberland Real Estate Holdings, LLC
2 Main Street
Topsham, Maine 04086
(207) 837-6198

3.2 General Requirements

The general requirements for this stormwater maintenance management manual will meet the standards of Reference No.1, specific to the water quality feature concerned. Additional maintenance requirements are identified in the following narratives.

3.3 Specific Maintenance Requirements

The following specific maintenance requirements apply to stormwater features as follows:

3.3.1 R-Tanks

- The maintenance of the R-Tanks shall be in accordance with the manufacturer's recommendations. A copy of the Operation and Maintenance Guidelines for the Separator Row and Stormwater Management System are attached.
- Maintenance shall be performed by an appropriate service company with equipment designed for the purpose.

3.3.2 Outlet Control Structures

- The maintenance of outlet control structures shall be performed bi-annually to ensure proper function.
- Debris and trash shall be removed from the structure sump when present.
- Sediment build-up in the sump should be removed when accumulation is within 1 foot of the invert of the outlet pipe and/or snout hood is observed.

3.3.3 Storm Drain Pipes & Drainage Manholes

- Piped drainage systems shall be inspected in spring and late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet. Sediment should be removed when its level exceeds 20% of the pipe diameter. Hydraulic flushing or any mechanical means may accomplish sediment removal. Care shall be taken to contain the sediment at the pipe outlet.

3.3.4 Paved Surfaces

- Accumulations of winter sand along impervious areas shall be cleared at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement vacuum sweeping, or mechanical sweeping (e.g. "street-sweeper"). Accumulations of sand along the edge of paved areas may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

3.3.5 Vegetative Surfaces

- For most vegetative surfaces, grass should be mowed on a regular basis so that grass height does not exceed 6 inches. Any erosion rills, gullies, or bare spots should be seeded or sodded to re-establish the turf cover.
- Buffer, screening, and decorative landscaping should be inspected for health on a regular basis. Pruning, weeding, feeding, and mulching.
- Fertilizers will only be applied once yearly, to occur in the spring, and at the lowest recommended concentration. Herbicides and pesticides will only be used in accordance with DEP recommendations.

3.3.6 Drainage Structures

- Inspect for sediment in traps/sump/bed of basin. Remove sediment if within 1 foot of outlet invert.
- Inspect frame and grate to verify grate is flush with finish grade.
- Inspect for damaged or missing pavement around frame and grate.
- Inspect structure for presence of trash or debris.
- Inspect for oil and oil adsorbent material if present.
- If applicable, inspect oil absorbent pad. Replace if necessary.

4.0 CONSTRUCTION INSPECTION AND MAINTENANCE

4.1 Maintenance Frequency

Inspections of the erosion and sedimentation control measures, and temporary and permanent stormwater features during the construction process shall be performed at least once per week and before and after each significant rainfall event. For the purposes of the inspection schedule, a significant rainfall event shall be any storm event that produces more than 0.5 inches of rainfall in a 24-hour period.

During winter construction, in the months from November to March, inspections shall be performed after each rainfall, snowstorm, or thawing, and at least once per week.

4.2 Inspection Scope

The scope of construction inspections shall include disturbed and impervious areas, material storage areas, and vehicle access points in addition to the erosion and sedimentation control measures, and temporary and permanent stormwater features.

4.3 Inspection and Maintenance Checklist

All inspection forms and documentation of corrective actions during construction shall be maintained for a minimum of three (3) years after permanent stabilization has been achieved.

4.4 Corrective Action Timeline

As part of the inspection and maintenance process, if any corrective action is warranted, it shall be started by the end of the next workday and completed within seven (7) days or before the next storm event, whichever comes first.

All required corrective actions shall be documented and maintained with the inspection forms.

4.5 Qualifications of Inspector

The person(s) responsible for inspection during construction and post-construction shall be conducted by someone with knowledge or erosion and stormwater control, including the standards and conditions of the approvals.

5.0 POST-CONSTRUCTION INSPECTION AND MAINTENANCE

5.1 Maintenance Frequency

Notwithstanding any other schedule noted, general inspections post-construction shall be conducted monthly during wet weather conditions from March to November. Inspections shall also be conducted following any significant storm events. For the purposes of the inspection schedule, a significant rainfall event shall be any storm event that produces more than 0.5 inches of rainfall in a 24-hour period. Specifically, inspections of the vegetated soil filters and pond shall be conducted following any significant storm event during the first year after construction to ensure that they drain dry within 24 to 48 hours.

5.2 Inspection and Maintenance Checklist

An inspection and maintenance log specific to this project is appended. All post-construction inspection forms and documentation of corrective actions shall be maintained for a minimum of five (5) years.

5.3 Corrective Action Timeline

As part of the inspection and maintenance process, if any corrective action is warranted, it shall be started by the end of the next workday and completed within seven (7) days or before the next storm event, whichever comes first.

All required corrective actions shall be documented and maintained with the inspection forms.

5.4 Qualifications of Inspector

The person(s) responsible for inspection during construction and post-construction shall be conducted by someone with knowledge or erosion and stormwater control, including the standards and conditions of the approvals.

6.0 RECERTIFICATION

6.1 Recertification requirement

Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the department.

1) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
2) All aspects of the stormwater control system are operating as approved, have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system, as necessary.
3) The stormwater maintenance plan for the site is being implemented as approved by the Department, and the maintenance log is being maintained.
4) All proprietary systems have been maintained according to the manufacturer's recommendations. Where required by the Department, the permittee shall execute a 5-year maintenance contract with a qualified professional for the coming 5-year interval. The maintenance contract must include provisions for routine inspections, cleaning and general maintenance.
5) The Department may waive some or all of these recertification requirements on a case-by-case basis for permittees subject to the Department's Multi-Sector General Permit ("MSGP") and/or Maine Pollutant Discharge Elimination System ("MEPDES") programs where it is demonstrated that these programs are providing stormwater control that is at least as effective as required pursuant to this Chapter.

General Site Inspection Maintenance & Housekeeping Form			
General Information			
Project Name:	Rusty Lantern Market	Inspection Date	
Project Location:	181 Gray Road	Current Weather	
	Cumberland ME 04021	Date / Amount Last Percip.	
BMP Owner:	Cumberland Real Estate Holdings, LLC	Company Inspection:	
Owner Mailining Address:	2 Main Street	Company Mailing Address:	
	Topsham, ME 04086		
Owner Phone #:		Company Phone #:	
Owner Email:		Inspector Name	
		Inspector Email	

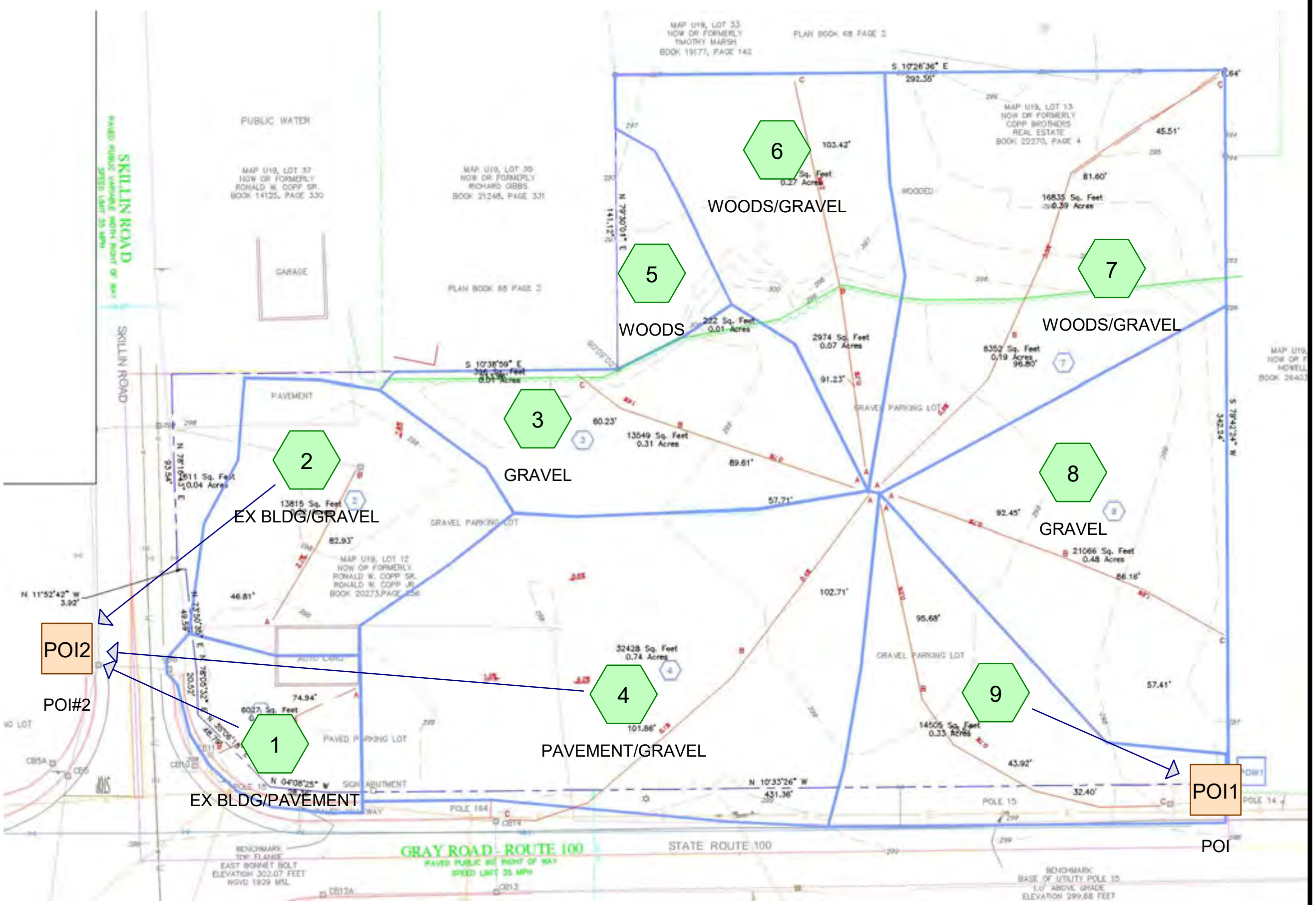
BMP Element	Suggested Maintenenace & Recommended	Observations	Inspection Notes/Recommended
Vegetated Areas	Inspect slopes/embankments for erosion (annually)		
	Replant bare areas or areas of sparse growth (annually)		
Paved Surfaces	Clear accumulated winter sand (annually)		
	Remove sediment along edges of parking and within low spots / pockets (annually)		
Ditches/Swales	Remove obstructions/debris/sediment (monthly)		
	Inspect for erosion/repair as needed (annually)		
	Mow vegetated ditches (annually)		
Catch Basins	Remove sediment/debris from sump (annually)		
Culverts	Remove sediment/debris from inlet/outlet aprons (annually)		
	Inspect inlet/outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Pipe Outlets	Remove sediment/debris from outlet aprons (annually)		
	Inspect outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for disloged/sparse coverage (annually)		

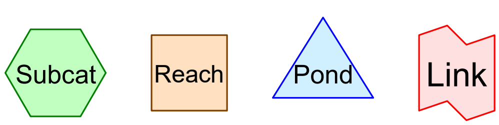
Additional Notes/Observations:

Subsurface Sand Filter Inspection Maintenance & Housekeeping Form			
General Information			
Project Name:	Rusty Lantern Market	Inspection Date	
Project Location:	181 Gray Road	Current Weather	
	Cumberland ME 04021	Date / Amount Last Percip.	
BMP Owner:	Cumberland Real Estate Holdings, LLC	Company Inspection:	
Owner Mailining Address:	2 Main Street	Company Mailing Address:	
	Topsham, ME 04086		
Owner Phone #:		Company Phone #:	
Owner Email:		Inspector Name	
		Inspector Email	

BMP Element	Suggested Maintenenace & Recommended Frequency	Observations	Inspection Notes/Recommended Action
Pre-Treatment Chamber Row	Inspect pre-treatment chamber row for presence of sediment via inspection port with a flashlight and stadia rod (annually)		
Subsurface Sand Filters	Inspect for evidence of excessive sediment deposits (annually)		
	Inspect overflow for presence of sediment and/or trash (annually)		
Catch Basins & Outlet Control Structures	Inspect for presence of sediemtn and/or trash (annually)		
	Inspect frame and grate to verify grate is flush with finish grade (annually)		
	Inspect for presence of trash and debris (annually)		
	Inspect oil adsorbent material (Smart Sponge). Replace per manufactures recommenations (annually)		

Additional Notes/Observations:





Routing Diagram for Cumberland PreDev
Prepared by Priority Real Estate Group LLC, Printed 1/30/2024
HydroCAD® 10.20-2g s/n 12568 © 2022 HydroCAD Software Solutions LLC

Project Notes

Copied 4 events from Cumberland 24-hr S1 storm
Rainfall events imported from "Atlas-14-Rain.txt" for 1365 ME Cumberland Nw

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Cumberland 24-hr S1	2-yr	Default	24.00	1	3.10	2
2	5-Year	Type III 24-hr		Default	24.00	1	3.66	2
3	10-Year	Type III 24-hr		Default	24.00	1	4.60	2
4	10-YR	Cumberland 24-hr S1	10-yr	Default	24.00	1	4.60	2
5	25-yr	Cumberland 24-hr S1	25-yr	Default	24.00	1	5.80	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.449	96	Gravel surface, HSG A (2, 3, 4, 6, 7, 8, 9)
0.138	98	Paved parking, HSG A (1)
0.743	30	Woods, Good, HSG A (5, 6, 7)
3.330	**81**	**TOTAL AREA**

Soil Listing (all nodes)

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

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
2.449	0.000	0.000	0.000	0.000	2.449	Gravel surface	2, 3, 4, 6, 7, 8, 9
0.138	0.000	0.000	0.000	0.000	0.138	Paved parking	1
0.743	0.000	0.000	0.000	0.000	0.743	Woods, Good	5, 6, 7
3.330	**0.000**	**0.000**	**0.000**	**0.000**	**3.330**	**TOTAL AREA**	

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: EX BLDG/PAVEMENT Runoff Area=6,027 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=75' Slope=0.0090 '/' Tc=5.0 min CN=98 Runoff=0.45 cfs 0.033 af

Subcatchment 2: EX BLDG/GRAVEL Runoff Area=13,815 sf 0.00% Impervious Runoff Depth=2.65"
Flow Length=83' Slope=0.0270 '/' Tc=5.0 min CN=96 Runoff=1.00 cfs 0.070 af

Subcatchment 3: GRAVEL Runoff Area=13,549 sf 0.00% Impervious Runoff Depth=2.65"
Flow Length=150' Tc=5.0 min CN=96 Runoff=0.98 cfs 0.069 af

Subcatchment 4: PAVEMENT/GRAVEL Runoff Area=32,428 sf 0.00% Impervious Runoff Depth=2.65"
Flow Length=202' Tc=5.7 min CN=96 Runoff=2.26 cfs 0.164 af

Subcatchment 5: WOODS Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: WOODS/GRAVEL Runoff Area=14,723 sf 0.00% Impervious Runoff Depth=0.01"
Flow Length=194' Tc=5.3 min CN=43 Runoff=0.00 cfs 0.000 af

Subcatchment 7: WOODS/GRAVEL Runoff Area=25,187 sf 0.00% Impervious Runoff Depth=0.15"
Flow Length=100' Slope=0.0080 '/' Tc=5.0 min CN=52 Runoff=0.01 cfs 0.007 af

Subcatchment 8: GRAVEL Runoff Area=21,066 sf 0.00% Impervious Runoff Depth=2.65"
Flow Length=186' Tc=5.0 min CN=96 Runoff=1.52 cfs 0.107 af

Subcatchment 9: Runoff Area=14,505 sf 0.00% Impervious Runoff Depth=2.65"
Flow Length=100' Slope=0.0020 '/' Tc=5.0 min CN=96 Runoff=1.05 cfs 0.074 af

Reach POI1: POI Inflow=1.05 cfs 0.074 af
Outflow=1.05 cfs 0.074 af

Reach POI2: POI#2 Inflow=3.70 cfs 0.268 af
Outflow=3.70 cfs 0.268 af

Total Runoff Area = 3.330 ac Runoff Volume = 0.524 af Average Runoff Depth = 1.89"
95.85% Pervious = 3.192 ac 4.15% Impervious = 0.138 ac

Summary for Subcatchment 1: EX BLDG/PAVEMENT

Runoff = 0.45 cfs @ 12.02 hrs, Volume= 0.033 af, Depth= 2.87"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
6,027	98	Paved parking, HSG A
6,027		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	75	0.0090	0.91		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.4	75	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 2: EX BLDG/GRAVEL

Runoff = 1.00 cfs @ 12.02 hrs, Volume= 0.070 af, Depth= 2.65"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
13,815	96	Gravel surface, HSG A
13,815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	83	0.0270	1.45		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.0	83	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 3: GRAVEL

Runoff = 0.98 cfs @ 12.02 hrs, Volume= 0.069 af, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
13,549	96	Gravel surface, HSG A
13,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	90	0.0070	0.86		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
0.5	60	0.0160	2.04		**Shallow Concentrated Flow, B-C**
					Unpaved Kv= 16.1 fps
2.3	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 4: PAVEMENT/GRAVEL

Runoff = 2.26 cfs @ 12.03 hrs, Volume= 0.164 af, Depth= 2.65"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
32,428	96	Gravel surface, HSG A
32,428		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	100	0.0040	0.70		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.3	102	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.7	202	Total			

Summary for Subcatchment 5: WOODS

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: WOODS/GRAVEL

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
11,749	30	Woods, Good, HSG A
2,974	96	Gravel surface, HSG A
14,723	43	Weighted Average
14,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: WOODS/GRAVEL

Runoff = 0.01 cfs @ 13.24 hrs, Volume= 0.007 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
16,835	30	Woods, Good, HSG A
8,352	96	Gravel surface, HSG A
25,187	52	Weighted Average
25,187		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.8	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 8: GRAVEL

Runoff = 1.52 cfs @ 12.02 hrs, Volume= 0.107 af, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
21,066	96	Gravel surface, HSG A
21,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C**
					Unpaved Kv= 16.1 fps
2.5	186	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 9:

Runoff = 1.05 cfs @ 12.02 hrs, Volume= 0.074 af, Depth= 2.65"
Routed to Reach POI1 : POI

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
14,505	96	Gravel surface, HSG A
14,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.1	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Reach POI1: POI

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

Inflow Area =	0.333 ac,	0.00% Impervious,	Inflow Depth = 2.65"	for 2-yr event
Inflow =	1.05 cfs @	12.02 hrs, Volume=	0.074 af	
Outflow =	1.05 cfs @	12.02 hrs, Volume=	0.074 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 1.200 ac, 11.53% Impervious, Inflow Depth = 2.68" for 2-yr event
Inflow = 3.70 cfs @ 12.03 hrs, Volume= 0.268 af
Outflow = 3.70 cfs @ 12.03 hrs, Volume= 0.268 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: EX BLDG/PAVEMENT Runoff Area=6,027 sf 100.00% Impervious Runoff Depth=3.43"
Flow Length=75' Slope=0.0090 '/' Tc=5.0 min CN=98 Runoff=0.50 cfs 0.040 af

Subcatchment 2: EX BLDG/GRAVEL Runoff Area=13,815 sf 0.00% Impervious Runoff Depth=3.20"
Flow Length=83' Slope=0.0270 '/' Tc=5.0 min CN=96 Runoff=1.12 cfs 0.085 af

Subcatchment 3: GRAVEL Runoff Area=13,549 sf 0.00% Impervious Runoff Depth=3.20"
Flow Length=150' Tc=5.0 min CN=96 Runoff=1.10 cfs 0.083 af

Subcatchment 4: PAVEMENT/GRAVEL Runoff Area=32,428 sf 0.00% Impervious Runoff Depth=3.20"
Flow Length=202' Tc=5.7 min CN=96 Runoff=2.58 cfs 0.199 af

Subcatchment 5: WOODS Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: WOODS/GRAVEL Runoff Area=14,723 sf 0.00% Impervious Runoff Depth=0.07"
Flow Length=194' Tc=5.3 min CN=43 Runoff=0.00 cfs 0.002 af

Subcatchment 7: WOODS/GRAVEL Runoff Area=25,187 sf 0.00% Impervious Runoff Depth=0.30"
Flow Length=100' Slope=0.0080 '/' Tc=5.0 min CN=52 Runoff=0.07 cfs 0.014 af

Subcatchment 8: GRAVEL Runoff Area=21,066 sf 0.00% Impervious Runoff Depth=3.20"
Flow Length=186' Tc=5.0 min CN=96 Runoff=1.71 cfs 0.129 af

Subcatchment 9: Runoff Area=14,505 sf 0.00% Impervious Runoff Depth=3.20"
Flow Length=100' Slope=0.0020 '/' Tc=5.0 min CN=96 Runoff=1.18 cfs 0.089 af

Reach POI1: POI Inflow=1.18 cfs 0.089 af
Outflow=1.18 cfs 0.089 af

Reach POI2: POI#2 Inflow=4.20 cfs 0.323 af
Outflow=4.20 cfs 0.323 af

Total Runoff Area = 3.330 ac Runoff Volume = 0.640 af Average Runoff Depth = 2.31"
95.85% Pervious = 3.192 ac 4.15% Impervious = 0.138 ac

Summary for Subcatchment 1: EX BLDG/PAVEMENT

Runoff = 0.50 cfs @ 12.07 hrs, Volume= 0.040 af, Depth= 3.43"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
6,027	98	Paved parking, HSG A
6,027		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	75	0.0090	0.91		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.4	75	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 2: EX BLDG/GRAVEL

Runoff = 1.12 cfs @ 12.07 hrs, Volume= 0.085 af, Depth= 3.20"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
13,815	96	Gravel surface, HSG A
13,815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	83	0.0270	1.45		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.0	83	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 3: GRAVEL

Runoff = 1.10 cfs @ 12.07 hrs, Volume= 0.083 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
13,549	96	Gravel surface, HSG A
13,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	90	0.0070	0.86		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	60	0.0160	2.04		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.3	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 4: PAVEMENT/GRAVEL

Runoff = 2.58 cfs @ 12.08 hrs, Volume= 0.199 af, Depth= 3.20"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
32,428	96	Gravel surface, HSG A
32,428		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	100	0.0040	0.70		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.3	102	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.7	202	Total			

Summary for Subcatchment 5: WOODS

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: WOODS/GRAVEL

Runoff = 0.00 cfs @ 14.96 hrs, Volume= 0.002 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
11,749	30	Woods, Good, HSG A
2,974	96	Gravel surface, HSG A
14,723	43	Weighted Average
14,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: WOODS/GRAVEL

Runoff = 0.07 cfs @ 12.31 hrs, Volume= 0.014 af, Depth= 0.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
16,835	30	Woods, Good, HSG A
8,352	96	Gravel surface, HSG A
25,187	52	Weighted Average
25,187		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.8	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 8: GRAVEL

Runoff = 1.71 cfs @ 12.07 hrs, Volume= 0.129 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
21,066	96	Gravel surface, HSG A
21,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 9:

Runoff = 1.18 cfs @ 12.07 hrs, Volume= 0.089 af, Depth= 3.20"
Routed to Reach POI1 : POI

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
14,505	96	Gravel surface, HSG A
14,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.1	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Reach POI1: POI

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

Inflow Area =	0.333 ac,	0.00% Impervious,	Inflow Depth = 3.20"	for 5-Year event	
Inflow =	1.18 cfs @	12.07 hrs,	Volume=	0.089 af	
Outflow =	1.18 cfs @	12.07 hrs,	Volume=	0.089 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 1.200 ac, 11.53% Impervious, Inflow Depth = 3.23" for 5-Year event
Inflow = 4.20 cfs @ 12.08 hrs, Volume= 0.323 af
Outflow = 4.20 cfs @ 12.08 hrs, Volume= 0.323 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: EX BLDG/PAVEMENT Runoff Area=6,027 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=75' Slope=0.0090 '/' Tc=5.0 min CN=98 Runoff=0.63 cfs 0.050 af

Subcatchment 2: EX BLDG/GRAVEL Runoff Area=13,815 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=83' Slope=0.0270 '/' Tc=5.0 min CN=96 Runoff=1.43 cfs 0.109 af

Subcatchment 3: GRAVEL Runoff Area=13,549 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=150' Tc=5.0 min CN=96 Runoff=1.40 cfs 0.107 af

Subcatchment 4: PAVEMENT/GRAVEL Runoff Area=32,428 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=202' Tc=5.7 min CN=96 Runoff=3.29 cfs 0.257 af

Subcatchment 5: WOODS Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: WOODS/GRAVEL Runoff Area=14,723 sf 0.00% Impervious Runoff Depth=0.25"
Flow Length=194' Tc=5.3 min CN=43 Runoff=0.03 cfs 0.007 af

Subcatchment 7: WOODS/GRAVEL Runoff Area=25,187 sf 0.00% Impervious Runoff Depth=0.63"
Flow Length=100' Slope=0.0080 '/' Tc=5.0 min CN=52 Runoff=0.27 cfs 0.030 af

Subcatchment 8: GRAVEL Runoff Area=21,066 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=186' Tc=5.0 min CN=96 Runoff=2.18 cfs 0.167 af

Subcatchment 9: Runoff Area=14,505 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=100' Slope=0.0020 '/' Tc=5.0 min CN=96 Runoff=1.50 cfs 0.115 af

Reach POI1: POI Inflow=1.50 cfs 0.115 af
Outflow=1.50 cfs 0.115 af

Reach POI2: POI#2 Inflow=5.34 cfs 0.416 af
Outflow=5.34 cfs 0.416 af

Total Runoff Area = 3.330 ac Runoff Volume = 0.842 af Average Runoff Depth = 3.03"
95.85% Pervious = 3.192 ac 4.15% Impervious = 0.138 ac

Summary for Subcatchment 1: EX BLDG/PAVEMENT

Runoff = 0.63 cfs @ 12.07 hrs, Volume= 0.050 af, Depth= 4.36"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
6,027	98	Paved parking, HSG A
6,027		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	75	0.0090	0.91		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.4	75	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 2: EX BLDG/GRAVEL

Runoff = 1.43 cfs @ 12.07 hrs, Volume= 0.109 af, Depth= 4.14"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
13,815	96	Gravel surface, HSG A
13,815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	83	0.0270	1.45		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.0	83	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 3: GRAVEL

Runoff = 1.40 cfs @ 12.07 hrs, Volume= 0.107 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
13,549	96	Gravel surface, HSG A
13,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	90	0.0070	0.86		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
0.5	60	0.0160	2.04		**Shallow Concentrated Flow, B-C**
					Unpaved Kv= 16.1 fps
2.3	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 4: PAVEMENT/GRAVEL

Runoff = 3.29 cfs @ 12.08 hrs, Volume= 0.257 af, Depth= 4.14"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
32,428	96	Gravel surface, HSG A
32,428		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	100	0.0040	0.70		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.3	102	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.7	202	Total			

Summary for Subcatchment 5: WOODS

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: WOODS/GRAVEL

Runoff = 0.03 cfs @ 12.40 hrs, Volume= 0.007 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
11,749	30	Woods, Good, HSG A
2,974	96	Gravel surface, HSG A
14,723	43	Weighted Average
14,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: WOODS/GRAVEL

Runoff = 0.27 cfs @ 12.11 hrs, Volume= 0.030 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
16,835	30	Woods, Good, HSG A
8,352	96	Gravel surface, HSG A
25,187	52	Weighted Average
25,187		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.8	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 8: GRAVEL

Runoff = 2.18 cfs @ 12.07 hrs, Volume= 0.167 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
21,066	96	Gravel surface, HSG A
21,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 9:

Runoff = 1.50 cfs @ 12.07 hrs, Volume= 0.115 af, Depth= 4.14"
Routed to Reach POI1 : POI

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
14,505	96	Gravel surface, HSG A
14,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.1	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Reach POI1: POI

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

Inflow Area =	0.333 ac,	0.00% Impervious,	Inflow Depth = 4.14"	for 10-Year event
Inflow =	1.50 cfs @	12.07 hrs, Volume=	0.115 af	
Outflow =	1.50 cfs @	12.07 hrs, Volume=	0.115 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 1.200 ac, 11.53% Impervious, Inflow Depth = 4.16" for 10-Year event
Inflow = 5.34 cfs @ 12.08 hrs, Volume= 0.416 af
Outflow = 5.34 cfs @ 12.08 hrs, Volume= 0.416 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: EX BLDG/PAVEMENT Runoff Area=6,027 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=75' Slope=0.0090 '/' Tc=5.0 min CN=98 Runoff=0.67 cfs 0.050 af

Subcatchment 2: EX BLDG/GRAVEL Runoff Area=13,815 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=83' Slope=0.0270 '/' Tc=5.0 min CN=96 Runoff=1.50 cfs 0.109 af

Subcatchment 3: GRAVEL Runoff Area=13,549 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=150' Tc=5.0 min CN=96 Runoff=1.47 cfs 0.107 af

Subcatchment 4: PAVEMENT/GRAVEL Runoff Area=32,428 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=202' Tc=5.7 min CN=96 Runoff=3.41 cfs 0.257 af

Subcatchment 5: WOODS Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: WOODS/GRAVEL Runoff Area=14,723 sf 0.00% Impervious Runoff Depth=0.25"
Flow Length=194' Tc=5.3 min CN=43 Runoff=0.01 cfs 0.007 af

Subcatchment 7: WOODS/GRAVEL Runoff Area=25,187 sf 0.00% Impervious Runoff Depth=0.63"
Flow Length=100' Slope=0.0080 '/' Tc=5.0 min CN=52 Runoff=0.26 cfs 0.030 af

Subcatchment 8: GRAVEL Runoff Area=21,066 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=186' Tc=5.0 min CN=96 Runoff=2.29 cfs 0.167 af

Subcatchment 9: Runoff Area=14,505 sf 0.00% Impervious Runoff Depth=4.14"
Flow Length=100' Slope=0.0020 '/' Tc=5.0 min CN=96 Runoff=1.58 cfs 0.115 af

Reach POI1: POI Inflow=1.58 cfs 0.115 af
Outflow=1.58 cfs 0.115 af

Reach POI2: POI#2 Inflow=5.57 cfs 0.416 af
Outflow=5.57 cfs 0.416 af

Total Runoff Area = 3.330 ac Runoff Volume = 0.842 af Average Runoff Depth = 3.03"
95.85% Pervious = 3.192 ac 4.15% Impervious = 0.138 ac

Summary for Subcatchment 1: EX BLDG/PAVEMENT

Runoff = 0.67 cfs @ 12.02 hrs, Volume= 0.050 af, Depth= 4.36"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 10-yr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
6,027	98	Paved parking, HSG A
6,027		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	75	0.0090	0.91		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.4	75	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 2: EX BLDG/GRAVEL

Runoff = 1.50 cfs @ 12.02 hrs, Volume= 0.109 af, Depth= 4.14"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 10-yr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
13,815	96	Gravel surface, HSG A
13,815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	83	0.0270	1.45		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.0	83	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 3: GRAVEL

Runoff = 1.47 cfs @ 12.02 hrs, Volume= 0.107 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 10-yr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
13,549	96	Gravel surface, HSG A
13,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	90	0.0070	0.86		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
0.5	60	0.0160	2.04		**Shallow Concentrated Flow, B-C**
					Unpaved Kv= 16.1 fps
2.3	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 4: PAVEMENT/GRAVEL

Runoff = 3.41 cfs @ 12.03 hrs, Volume= 0.257 af, Depth= 4.14"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 10-yr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
32,428	96	Gravel surface, HSG A
32,428		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	100	0.0040	0.70		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
3.3	102	0.0010	0.51		**Shallow Concentrated Flow, B-C**
					Unpaved Kv= 16.1 fps
5.7	202	Total			

Summary for Subcatchment 5: WOODS

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 10-yr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: WOODS/GRAVEL

Runoff = 0.01 cfs @ 12.53 hrs, Volume= 0.007 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 10-yr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
11,749	30	Woods, Good, HSG A
2,974	96	Gravel surface, HSG A
14,723	43	Weighted Average
14,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: WOODS/GRAVEL

Runoff = 0.26 cfs @ 12.05 hrs, Volume= 0.030 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 10-yr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
16,835	30	Woods, Good, HSG A
8,352	96	Gravel surface, HSG A
25,187	52	Weighted Average
25,187		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.8	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 8: GRAVEL

Runoff = 2.29 cfs @ 12.02 hrs, Volume= 0.167 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 10-yr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
21,066	96	Gravel surface, HSG A
21,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 9:

Runoff = 1.58 cfs @ 12.02 hrs, Volume= 0.115 af, Depth= 4.14"
Routed to Reach POI1 : POI

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 10-yr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
14,505	96	Gravel surface, HSG A
14,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.1	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Reach POI1: POI

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

Inflow Area =	0.333 ac,	0.00% Impervious,	Inflow Depth = 4.14"	for 10-YR event
Inflow =	1.58 cfs @	12.02 hrs, Volume=	0.115 af	
Outflow =	1.58 cfs @	12.02 hrs, Volume=	0.115 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area =	1.200 ac,	11.53% Impervious,	Inflow Depth = 4.16"	for 10-YR event
Inflow =	5.57 cfs @	12.03 hrs, Volume=	0.416 af	
Outflow =	5.57 cfs @	12.03 hrs, Volume=	0.416 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: EX BLDG/PAVEMENT Runoff Area=6,027 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=75' Slope=0.0090 '/' Tc=5.0 min CN=98 Runoff=0.84 cfs 0.064 af

Subcatchment 2: EX BLDG/GRAVEL Runoff Area=13,815 sf 0.00% Impervious Runoff Depth=5.33"
Flow Length=83' Slope=0.0270 '/' Tc=5.0 min CN=96 Runoff=1.91 cfs 0.141 af

Subcatchment 3: GRAVEL Runoff Area=13,549 sf 0.00% Impervious Runoff Depth=5.33"
Flow Length=150' Tc=5.0 min CN=96 Runoff=1.87 cfs 0.138 af

Subcatchment 4: PAVEMENT/GRAVEL Runoff Area=32,428 sf 0.00% Impervious Runoff Depth=5.33"
Flow Length=202' Tc=5.7 min CN=96 Runoff=4.33 cfs 0.331 af

Subcatchment 5: WOODS Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.05"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: WOODS/GRAVEL Runoff Area=14,723 sf 0.00% Impervious Runoff Depth=0.60"
Flow Length=194' Tc=5.3 min CN=43 Runoff=0.08 cfs 0.017 af

Subcatchment 7: WOODS/GRAVEL Runoff Area=25,187 sf 0.00% Impervious Runoff Depth=1.19"
Flow Length=100' Slope=0.0080 '/' Tc=5.0 min CN=52 Runoff=0.68 cfs 0.057 af

Subcatchment 8: GRAVEL Runoff Area=21,066 sf 0.00% Impervious Runoff Depth=5.33"
Flow Length=186' Tc=5.0 min CN=96 Runoff=2.91 cfs 0.215 af

Subcatchment 9: Runoff Area=14,505 sf 0.00% Impervious Runoff Depth=5.33"
Flow Length=100' Slope=0.0020 '/' Tc=5.0 min CN=96 Runoff=2.00 cfs 0.148 af

Reach POI1: POI Inflow=2.00 cfs 0.148 af
Outflow=2.00 cfs 0.148 af

Reach POI2: POI#2 Inflow=7.06 cfs 0.536 af
Outflow=7.06 cfs 0.536 af

Total Runoff Area = 3.330 ac Runoff Volume = 1.111 af Average Runoff Depth = 4.00"
95.85% Pervious = 3.192 ac 4.15% Impervious = 0.138 ac

Summary for Subcatchment 1: EX BLDG/PAVEMENT

Runoff = 0.84 cfs @ 12.02 hrs, Volume= 0.064 af, Depth= 5.56"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
6,027	98	Paved parking, HSG A
6,027		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	75	0.0090	0.91		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.4	75	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 2: EX BLDG/GRAVEL

Runoff = 1.91 cfs @ 12.02 hrs, Volume= 0.141 af, Depth= 5.33"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
13,815	96	Gravel surface, HSG A
13,815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	83	0.0270	1.45		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.0	83	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 3: GRAVEL

Runoff = 1.87 cfs @ 12.02 hrs, Volume= 0.138 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
13,549	96	Gravel surface, HSG A
13,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	90	0.0070	0.86		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	60	0.0160	2.04		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.3	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 4: PAVEMENT/GRAVEL

Runoff = 4.33 cfs @ 12.03 hrs, Volume= 0.331 af, Depth= 5.33"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
32,428	96	Gravel surface, HSG A
32,428		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	100	0.0040	0.70		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.3	102	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.7	202	Total			

Summary for Subcatchment 5: WOODS

Runoff = 0.00 cfs @ 23.96 hrs, Volume= 0.000 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: WOODS/GRAVEL

Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.017 af, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
11,749	30	Woods, Good, HSG A
2,974	96	Gravel surface, HSG A
14,723	43	Weighted Average
14,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: WOODS/GRAVEL

Runoff = 0.68 cfs @ 12.04 hrs, Volume= 0.057 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
16,835	30	Woods, Good, HSG A
8,352	96	Gravel surface, HSG A
25,187	52	Weighted Average
25,187		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
1.8	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 8: GRAVEL

Runoff = 2.91 cfs @ 12.02 hrs, Volume= 0.215 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
21,066	96	Gravel surface, HSG A
21,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 9:

Runoff = 2.00 cfs @ 12.02 hrs, Volume= 0.148 af, Depth= 5.33"
Routed to Reach POI1 : POI

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
14,505	96	Gravel surface, HSG A
14,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
3.1	100	Total, Increased to minimum Tc = 5.0 min			

Summary for Reach POI1: POI

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

Inflow Area = 0.333 ac, 0.00% Impervious, Inflow Depth = 5.33" for 25-yr event
Inflow = 2.00 cfs @ 12.02 hrs, Volume= 0.148 af
Outflow = 2.00 cfs @ 12.02 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min

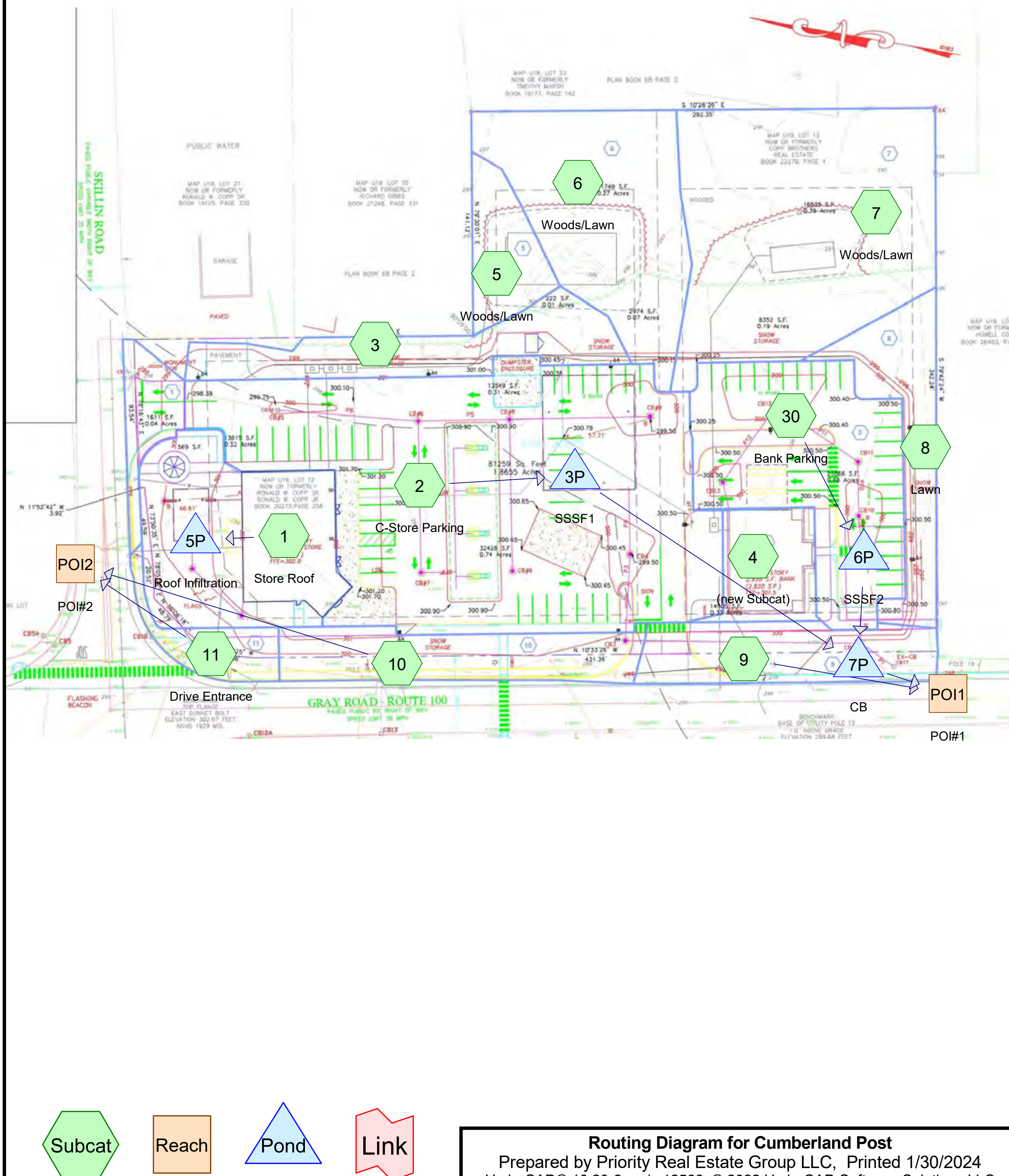
Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 1.200 ac, 11.53% Impervious, Inflow Depth = 5.36" for 25-yr event
Inflow = 7.06 cfs @ 12.03 hrs, Volume= 0.536 af
Outflow = 7.06 cfs @ 12.03 hrs, Volume= 0.536 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs



Routing Diagram for Cumberland Post
Prepared by Priority Real Estate Group LLC, Printed 1/30/2024
HydroCAD® 10.20-2g s/n 12568 © 2022 HydroCAD Software Solutions LLC

Project Notes

Copied 4 events from Cumberland 24-hr S1 storm
Rainfall events imported from "Atlas-14-Rain.txt" for 1365 ME Cumberland Nw

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Cumberland 24-hr S1	2-yr	Default	24.00	1	3.10	2
2	5-Year	Type III 24-hr		Default	24.00	1	3.66	2
3	10-Year	Type III 24-hr		Default	24.00	1	4.60	2
4	25-yr	Cumberland 24-hr S1	25-yr	Default	24.00	1	5.80	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.197	39	>75% Grass cover, Good, HSG A (1, 3, 6, 7, 8, 9, 10, 11, 30)
0.043	74	>75% Grass cover, Good, HSG C (2)
1.418	98	Paved parking, HSG A (1, 2, 3, 9, 10, 11, 30)
0.188	98	Roofs, HSG A (1, 4)
0.572	30	Woods, Good, HSG A (5, 6, 7)
3.419	**66**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
3.375	HSG A	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 30
0.000	HSG B	
0.043	HSG C	2
0.000	HSG D	
0.000	Other	
3.419		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.197	0.000	0.043	0.000	0.000	1.240	>75% Grass cover, Good	1, 2, 3, 6, 7, 8, 9, 10, 11, 30
1.418	0.000	0.000	0.000	0.000	1.418	Paved parking	1, 2, 3, 9, 10, 11, 30
0.188	0.000	0.000	0.000	0.000	0.188	Roofs	1, 4
0.572	0.000	0.000	0.000	0.000	0.572	Woods, Good	5, 6, 7
3.375	**0.000**	**0.043**	**0.000**	**0.000**	**3.419**	**TOTAL AREA**	

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Store Roof Runoff Area=13,303 sf 43.76% Impervious Runoff Depth=0.55"
Tc=5.0 min CN=65 Runoff=0.15 cfs 0.014 af

Subcatchment 2: C-Store Parking Runoff Area=42,253 sf 95.54% Impervious Runoff Depth=2.76"
Tc=5.0 min CN=97 Runoff=3.11 cfs 0.223 af

Subcatchment 3: Runoff Area=7,568 sf 8.39% Impervious Runoff Depth=0.02"
Tc=0.0 min CN=44 Runoff=0.00 cfs 0.000 af

Subcatchment 4: (new Subcat) Runoff Area=2,935 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=98 Runoff=0.22 cfs 0.016 af

Subcatchment 5: Woods/Lawn Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: Woods/Lawn Runoff Area=14,372 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=194' Tc=5.3 min CN=34 Runoff=0.00 cfs 0.000 af

Subcatchment 7: Woods/Lawn Runoff Area=23,678 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=100' Slope=0.0080 '/' Tc=1.8 min CN=34 Runoff=0.00 cfs 0.000 af

Subcatchment 8: Lawn Runoff Area=6,349 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=186' Tc=2.5 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment 9: Runoff Area=6,505 sf 28.90% Impervious Runoff Depth=0.25"
Flow Length=100' Slope=0.0020 '/' Tc=3.1 min CN=56 Runoff=0.01 cfs 0.003 af

Subcatchment 10: Runoff Area=6,660 sf 14.29% Impervious Runoff Depth=0.06"
Tc=5.0 min CN=47 Runoff=0.00 cfs 0.001 af

Subcatchment 11: Drive Entrance Runoff Area=6,048 sf 60.75% Impervious Runoff Depth=1.03"
Tc=5.0 min CN=75 Runoff=0.17 cfs 0.012 af

Subcatchment 30: Bank Parking Runoff Area=15,466 sf 88.46% Impervious Runoff Depth=2.16"
Tc=5.0 min CN=91 Runoff=0.96 cfs 0.064 af

Reach POI1: POI#1 Inflow=0.45 cfs 0.290 af
Outflow=0.45 cfs 0.290 af

Reach POI2: POI#2 Inflow=0.17 cfs 0.013 af
Outflow=0.17 cfs 0.013 af

Pond 3P: SSSF1 Peak Elev=10.76' Storage=2,303 cf Inflow=3.11 cfs 0.223 af
Outflow=0.32 cfs 0.223 af

Pond 5P: Roof Infiltration Peak Elev=295.23' Storage=66 cf Inflow=0.15 cfs 0.014 af
Outflow=0.04 cfs 0.014 af

Pond 6P: SSSF2 Peak Elev=294.42' Storage=561 cf Inflow=0.96 cfs 0.064 af
Outflow=0.13 cfs 0.064 af

Pond 7P: CB Inflow=0.45 cfs 0.287 af
Primary=0.45 cfs 0.287 af

Total Runoff Area = 3.419 ac Runoff Volume = 0.333 af Average Runoff Depth = 1.17"
53.03% Pervious = 1.813 ac 46.97% Impervious = 1.606 ac

Summary for Subcatchment 1: Store Roof

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.014 af, Depth= 0.55"
Routed to Pond 5P : Roof Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
5,262	98	Roofs, HSG A
784	39	>75% Grass cover, Good, HSG A
6,698	39	>75% Grass cover, Good, HSG A
559	98	Paved parking, HSG A
13,303	65	Weighted Average
7,482		56.24% Pervious Area
5,821		43.76% Impervious Area

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

Summary for Subcatchment 2: C-Store Parking

Runoff = 3.11 cfs @ 12.02 hrs, Volume= 0.223 af, Depth= 2.76"
Routed to Pond 3P : SSSF1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
40,368	98	Paved parking, HSG A
136	74	>75% Grass cover, Good, HSG C
1,560	74	>75% Grass cover, Good, HSG C
189	74	>75% Grass cover, Good, HSG C
42,253	97	Weighted Average
1,885		4.46% Pervious Area
40,368		95.54% Impervious Area

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

Summary for Subcatchment 3:

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.00 cfs @ 23.96 hrs, Volume= 0.000 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
281	39	>75% Grass cover, Good, HSG A
635	98	Paved parking, HSG A
6,652	39	>75% Grass cover, Good, HSG A
7,568	44	Weighted Average
6,933		91.61% Pervious Area
635		8.39% Impervious Area

Summary for Subcatchment 4: (new Subcat)

Runoff = 0.22 cfs @ 12.02 hrs, Volume= 0.016 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
2,935	98	Roofs, HSG A
2,935		100.00% Impervious Area

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

Summary for Subcatchment 5: Woods/Lawn

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: Woods/Lawn

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
8,326	30	Woods, Good, HSG A
6,046	39	>75% Grass cover, Good, HSG A
14,372	34	Weighted Average
14,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: Woods/Lawn

[49] Hint: Tc<2dt may require smaller dt
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
12,831	30	Woods, Good, HSG A
10,847	39	>75% Grass cover, Good, HSG A
23,678	34	Weighted Average
23,678		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 8: Lawn

[49] Hint: Tc<2dt may require smaller dt
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
6,349	39	>75% Grass cover, Good, HSG A
6,349		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total			

Summary for Subcatchment 9:

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

Runoff = 0.01 cfs @ 12.12 hrs, Volume= 0.003 af, Depth= 0.25"
Routed to Reach POI1 : POI#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
4,245	39	>75% Grass cover, Good, HSG A
1,652	98	Paved parking, HSG A
380	39	>75% Grass cover, Good, HSG A
228	98	Paved parking, HSG A
6,505	56	Weighted Average
4,625		71.10% Pervious Area
1,880		28.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 10:

Runoff = 0.00 cfs @ 23.24 hrs, Volume= 0.001 af, Depth= 0.06"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
3,751	39	>75% Grass cover, Good, HSG A
1,957	39	>75% Grass cover, Good, HSG A
444	98	Paved parking, HSG A
139	98	Paved parking, HSG A
369	98	Paved parking, HSG A
6,660	47	Weighted Average
5,708		85.71% Pervious Area
952		14.29% Impervious Area

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

Summary for Subcatchment 11: Drive Entrance

Runoff = 0.17 cfs @ 12.03 hrs, Volume= 0.012 af, Depth= 1.03"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
832	39	>75% Grass cover, Good, HSG A
1,321	39	>75% Grass cover, Good, HSG A
221	39	>75% Grass cover, Good, HSG A
3,674	98	Paved parking, HSG A
6,048	75	Weighted Average
2,374		39.25% Pervious Area
3,674		60.75% Impervious Area

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

Summary for Subcatchment 30: Bank Parking

Runoff = 0.96 cfs @ 12.03 hrs, Volume= 0.064 af, Depth= 2.16"
Routed to Pond 6P : SSSF2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 2-yr Rainfall=3.10"

Area (sf)	CN	Description
13,681	98	Paved parking, HSG A
969	39	>75% Grass cover, Good, HSG A
240	39	>75% Grass cover, Good, HSG A
380	39	>75% Grass cover, Good, HSG A
196	39	>75% Grass cover, Good, HSG A
15,466	91	Weighted Average
1,785		11.54% Pervious Area
13,681		88.46% Impervious Area

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

Summary for Reach POI1: POI#1

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

Inflow Area = 1.474 ac, 87.08% Impervious, Inflow Depth = 2.36" for 2-yr event
Inflow = 0.45 cfs @ 12.52 hrs, Volume= 0.290 af
Outflow = 0.45 cfs @ 12.52 hrs, Volume= 0.290 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 0.292 ac, 36.40% Impervious, Inflow Depth = 0.52" for 2-yr event
Inflow = 0.17 cfs @ 12.03 hrs, Volume= 0.013 af
Outflow = 0.17 cfs @ 12.03 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Pond 3P: SSSF1

Inflow Area = 0.970 ac, 95.54% Impervious, Inflow Depth = 2.76" for 2-yr event
Inflow = 3.11 cfs @ 12.02 hrs, Volume= 0.223 af
Outflow = 0.32 cfs @ 12.62 hrs, Volume= 0.223 af, Atten= 90%, Lag= 35.7 min
Primary = 0.32 cfs @ 12.62 hrs, Volume= 0.223 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 10.76' @ 12.62 hrs Surf.Area= 4,163 sf Storage= 2,303 cf

Plug-Flow detention time= 43.4 min calculated for 0.223 af (100% of inflow)
Center-of-Mass det. time= 43.4 min (816.0 - 772.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	2,374 cf	**74.87'W x 55.61'L x 2.69'H Field A** 11,214 cf Overall - 5,279 cf Embedded = 5,934 cf x 40.0% Voids
#2A	10.25'	5,015 cf	**ACF R-Tank HD 1** x 1188 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 1188 Chambers in 54 Rows
		7,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 8.00'

Primary OutFlow Max=0.32 cfs @ 12.62 hrs HW=10.76' (Free Discharge)
└─**1=Exfiltration** (Controls 0.32 cfs)

Pond 3P: SSSF1 - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

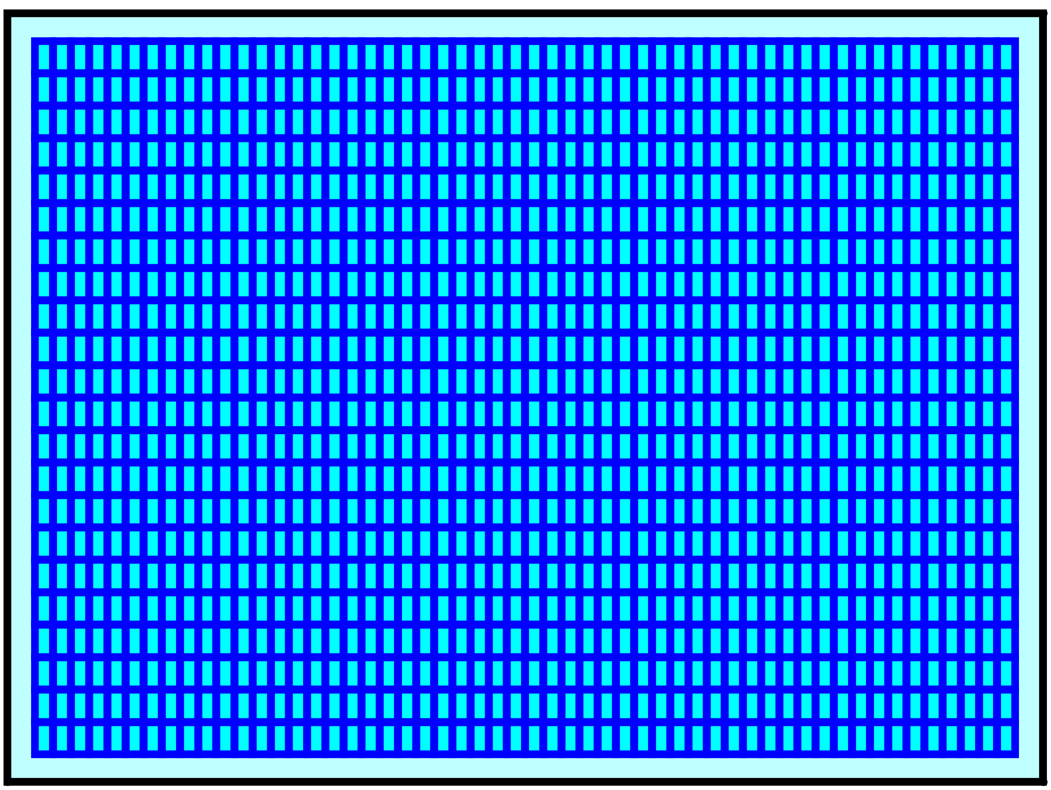
22 Chambers/Row x 2.35' Long = 51.61' Row Length +24.0" End Stone x 2 = 55.61' Base Length
54 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 74.87' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

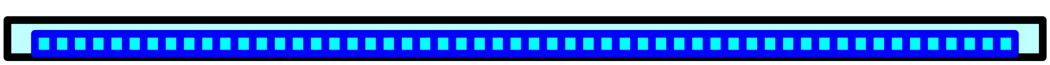
1,188 Chambers x 4.2 cf = 5,015.5 cf Chamber Storage
1,188 Chambers x 4.4 cf = 5,279.5 cf Displacement

11,213.7 cf Field - 5,279.5 cf Chambers = 5,934.2 cf Stone x 40.0% Voids = 2,373.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,389.2 cf = 0.170 af
Overall Storage Efficiency = 65.9%
Overall System Size = 55.61' x 74.87' x 2.69'

1,188 Chambers
415.3 cy Field
219.8 cy Stone





Summary for Pond 5P: Roof Infiltration

Inflow Area = 0.305 ac, 43.76% Impervious, Inflow Depth = 0.55" for 2-yr event
Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.014 af
Outflow = 0.04 cfs @ 12.00 hrs, Volume= 0.014 af, Atten= 74%, Lag= 0.0 min
Discarded = 0.04 cfs @ 12.00 hrs, Volume= 0.014 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 295.23' @ 12.38 hrs Surf.Area= 719 sf Storage= 66 cf

Plug-Flow detention time= 8.6 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 8.6 min (961.4 - 952.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	295.00'	476 cf	**22.37'W x 32.15'L x 2.69'H Field A** 1,937 cf Overall - 747 cf Embedded = 1,191 cf x 40.0% Voids
#2A	295.25'	709 cf	**ACF R-Tank HD 1** x 168 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 168 Chambers in 14 Rows
		1,186 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	295.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 12.00 hrs HW=295.05' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond 5P: Roof Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

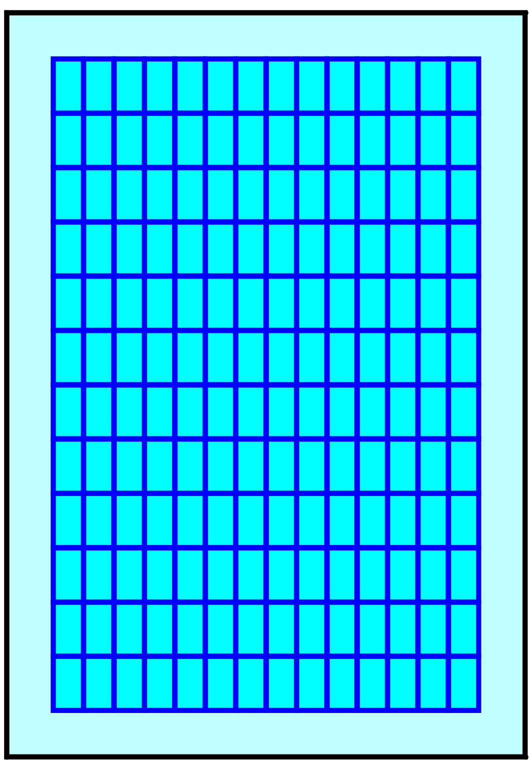
12 Chambers/Row x 2.35' Long = 28.15' Row Length +24.0" End Stone x 2 = 32.15' Base Length
14 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 22.37' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

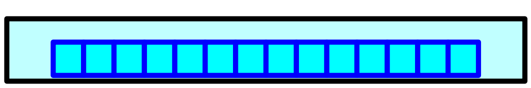
168 Chambers x 4.2 cf = 709.3 cf Chamber Storage
168 Chambers x 4.4 cf = 746.6 cf Displacement

1,937.4 cf Field - 746.6 cf Chambers = 1,190.8 cf Stone x 40.0% Voids = 476.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,185.6 cf = 0.027 af
Overall Storage Efficiency = 61.2%
Overall System Size = 32.15' x 22.37' x 2.69'

168 Chambers
71.8 cy Field
44.1 cy Stone





Summary for Pond 6P: SSSF2

Inflow Area = 0.355 ac, 88.46% Impervious, Inflow Depth = 2.16" for 2-yr event
Inflow = 0.96 cfs @ 12.03 hrs, Volume= 0.064 af
Outflow = 0.13 cfs @ 11.76 hrs, Volume= 0.064 af, Atten= 87%, Lag= 0.0 min
Primary = 0.13 cfs @ 11.76 hrs, Volume= 0.064 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 294.42' @ 12.51 hrs Surf.Area= 2,299 sf Storage= 561 cf

Plug-Flow detention time= 23.0 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 23.0 min (846.0 - 823.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	294.00'	1,268 cf	**38.12'W x 60.30'L x 2.04'H Field A** 4,683 cf Overall - 1,513 cf Embedded = 3,171 cf x 40.0% Voids
#2A	294.25'	1,437 cf	**ACF R-Tank SD 1** x 624 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 624 Chambers in 26 Rows
		2,705 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	294.00'	**2.410 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.13 cfs @ 11.76 hrs HW=294.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Pond 6P: SSSF2 - Chamber Wizard Field A

Chamber Model = ACF R-Tank SD 1 (ACF Environmental R-Tank SD)
Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf
Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf

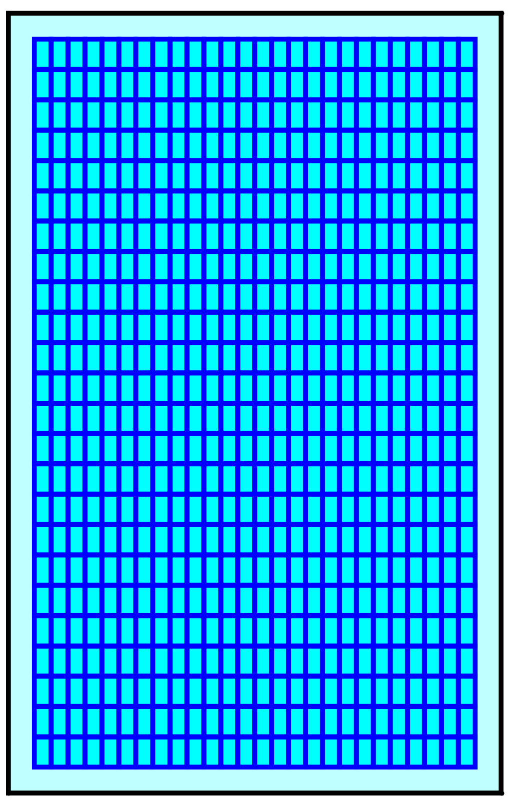
24 Chambers/Row x 2.35' Long = 56.30' Row Length +24.0" End Stone x 2 = 60.30' Base Length
26 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 38.12' Base Width
3.0" Stone Base + 9.4" Chamber Height + 12.0" Stone Cover = 2.04' Field Height

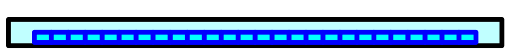
624 Chambers x 2.3 cf = 1,436.9 cf Chamber Storage
624 Chambers x 2.4 cf = 1,512.6 cf Displacement

4,683.3 cf Field - 1,512.6 cf Chambers = 3,170.7 cf Stone x 40.0% Voids = 1,268.3 cf Stone Storage

Chamber Storage + Stone Storage = 2,705.2 cf = 0.062 af
Overall Storage Efficiency = 57.8%
Overall System Size = 60.30' x 38.12' x 2.04'

624 Chambers
173.5 cy Field
117.4 cy Stone





Summary for Pond 7P: CB

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

Inflow Area = 1.325 ac, 93.64% Impervious, Inflow Depth = 2.60" for 2-yr event
Inflow = 0.45 cfs @ 12.62 hrs, Volume= 0.287 af
Primary = 0.45 cfs @ 12.62 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min
Routed to Reach POI1 : POI#1

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Store Roof Runoff Area=13,303 sf 43.76% Impervious Runoff Depth=0.84"
Tc=5.0 min CN=65 Runoff=0.26 cfs 0.021 af

Subcatchment 2: C-Store Parking Runoff Area=42,253 sf 95.54% Impervious Runoff Depth=3.31"
Tc=5.0 min CN=97 Runoff=3.49 cfs 0.268 af

Subcatchment 3: Runoff Area=7,568 sf 8.39% Impervious Runoff Depth=0.09"
Tc=0.0 min CN=44 Runoff=0.00 cfs 0.001 af

Subcatchment 4: (new Subcat) Runoff Area=2,935 sf 100.00% Impervious Runoff Depth=3.43"
Tc=5.0 min CN=98 Runoff=0.25 cfs 0.019 af

Subcatchment 5: Woods/Lawn Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: Woods/Lawn Runoff Area=14,372 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=194' Tc=5.3 min CN=34 Runoff=0.00 cfs 0.000 af

Subcatchment 7: Woods/Lawn Runoff Area=23,678 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=100' Slope=0.0080 '/' Tc=1.8 min CN=34 Runoff=0.00 cfs 0.000 af

Subcatchment 8: Lawn Runoff Area=6,349 sf 0.00% Impervious Runoff Depth=0.02"
Flow Length=186' Tc=2.5 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment 9: Runoff Area=6,505 sf 28.90% Impervious Runoff Depth=0.44"
Flow Length=100' Slope=0.0020 '/' Tc=3.1 min CN=56 Runoff=0.05 cfs 0.005 af

Subcatchment 10: Runoff Area=6,660 sf 14.29% Impervious Runoff Depth=0.16"
Tc=5.0 min CN=47 Runoff=0.01 cfs 0.002 af

Subcatchment 11: Drive Entrance Runoff Area=6,048 sf 60.75% Impervious Runoff Depth=1.42"
Tc=5.0 min CN=75 Runoff=0.23 cfs 0.016 af

Subcatchment 30: Bank Parking Runoff Area=15,466 sf 88.46% Impervious Runoff Depth=2.69"
Tc=5.0 min CN=91 Runoff=1.12 cfs 0.080 af

Reach POI1: POI#1 Inflow=0.53 cfs 0.353 af
Outflow=0.53 cfs 0.353 af

Reach POI2: POI#2 Inflow=0.23 cfs 0.018 af
Outflow=0.23 cfs 0.018 af

Pond 3P: SSSF1 Peak Elev=11.26' Storage=4,138 cf Inflow=3.49 cfs 0.268 af
Outflow=0.38 cfs 0.268 af

Pond 5P: Roof Infiltration Peak Elev=295.57' Storage=255 cf Inflow=0.26 cfs 0.021 af
Outflow=0.04 cfs 0.021 af

Pond 6P: SSSF2 Peak Elev=294.73' Storage=1,169 cf Inflow=1.12 cfs 0.080 af
Outflow=0.13 cfs 0.080 af

Pond 7P: CB Inflow=0.51 cfs 0.348 af
Primary=0.51 cfs 0.348 af

Total Runoff Area = 3.419 ac Runoff Volume = 0.413 af Average Runoff Depth = 1.45"
53.03% Pervious = 1.813 ac 46.97% Impervious = 1.606 ac

Summary for Subcatchment 1: Store Roof

Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth= 0.84"
Routed to Pond 5P : Roof Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
5,262	98	Roofs, HSG A
784	39	>75% Grass cover, Good, HSG A
6,698	39	>75% Grass cover, Good, HSG A
559	98	Paved parking, HSG A
13,303	65	Weighted Average
7,482		56.24% Pervious Area
5,821		43.76% Impervious Area

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

Summary for Subcatchment 2: C-Store Parking

Runoff = 3.49 cfs @ 12.07 hrs, Volume= 0.268 af, Depth= 3.31"
Routed to Pond 3P : SSSF1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
40,368	98	Paved parking, HSG A
136	74	>75% Grass cover, Good, HSG C
1,560	74	>75% Grass cover, Good, HSG C
189	74	>75% Grass cover, Good, HSG C
42,253	97	Weighted Average
1,885		4.46% Pervious Area
40,368		95.54% Impervious Area

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

Summary for Subcatchment 3:

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.00 cfs @ 14.62 hrs, Volume= 0.001 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
281	39	>75% Grass cover, Good, HSG A
635	98	Paved parking, HSG A
6,652	39	>75% Grass cover, Good, HSG A
7,568	44	Weighted Average
6,933		91.61% Pervious Area
635		8.39% Impervious Area

Summary for Subcatchment 4: (new Subcat)

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.019 af, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
2,935	98	Roofs, HSG A
2,935		100.00% Impervious Area

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

Summary for Subcatchment 5: Woods/Lawn

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: Woods/Lawn

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
8,326	30	Woods, Good, HSG A
6,046	39	>75% Grass cover, Good, HSG A
14,372	34	Weighted Average
14,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: Woods/Lawn

[49] Hint: Tc<2dt may require smaller dt
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
12,831	30	Woods, Good, HSG A
10,847	39	>75% Grass cover, Good, HSG A
23,678	34	Weighted Average
23,678		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 8: Lawn

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

Runoff = 0.00 cfs @ 21.20 hrs, Volume= 0.000 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
6,349	39	>75% Grass cover, Good, HSG A
6,349		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total			

Summary for Subcatchment 9:

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

Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.005 af, Depth= 0.44"
Routed to Reach POI1 : POI#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
4,245	39	>75% Grass cover, Good, HSG A
1,652	98	Paved parking, HSG A
380	39	>75% Grass cover, Good, HSG A
228	98	Paved parking, HSG A
6,505	56	Weighted Average
4,625		71.10% Pervious Area
1,880		28.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 10:

Runoff = 0.01 cfs @ 12.45 hrs, Volume= 0.002 af, Depth= 0.16"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
3,751	39	>75% Grass cover, Good, HSG A
1,957	39	>75% Grass cover, Good, HSG A
444	98	Paved parking, HSG A
139	98	Paved parking, HSG A
369	98	Paved parking, HSG A
6,660	47	Weighted Average
5,708		85.71% Pervious Area
952		14.29% Impervious Area

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

Summary for Subcatchment 11: Drive Entrance

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 1.42"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
832	39	>75% Grass cover, Good, HSG A
1,321	39	>75% Grass cover, Good, HSG A
221	39	>75% Grass cover, Good, HSG A
3,674	98	Paved parking, HSG A
6,048	75	Weighted Average
2,374		39.25% Pervious Area
3,674		60.75% Impervious Area

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

Summary for Subcatchment 30: Bank Parking

Runoff = 1.12 cfs @ 12.07 hrs, Volume= 0.080 af, Depth= 2.69"
Routed to Pond 6P : SSSF2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 5-Year Rainfall=3.66"

Area (sf)	CN	Description
13,681	98	Paved parking, HSG A
969	39	>75% Grass cover, Good, HSG A
240	39	>75% Grass cover, Good, HSG A
380	39	>75% Grass cover, Good, HSG A
196	39	>75% Grass cover, Good, HSG A
15,466	91	Weighted Average
1,785		11.54% Pervious Area
13,681		88.46% Impervious Area

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

Summary for Reach POI1: POI#1

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

Inflow Area =	1.474 ac,	87.08% Impervious,	Inflow Depth = 2.87"	for 5-Year event
Inflow =	0.53 cfs @	12.40 hrs,	Volume=	0.353 af
Outflow =	0.53 cfs @	12.40 hrs,	Volume=	0.353 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 0.292 ac, 36.40% Impervious, Inflow Depth = 0.76" for 5-Year event
Inflow = 0.23 cfs @ 12.08 hrs, Volume= 0.018 af
Outflow = 0.23 cfs @ 12.08 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Pond 3P: SSSF1

Inflow Area = 0.970 ac, 95.54% Impervious, Inflow Depth = 3.31" for 5-Year event
Inflow = 3.49 cfs @ 12.07 hrs, Volume= 0.268 af
Outflow = 0.38 cfs @ 12.71 hrs, Volume= 0.268 af, Atten= 89%, Lag= 38.2 min
Primary = 0.38 cfs @ 12.71 hrs, Volume= 0.268 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 11.26' @ 12.71 hrs Surf.Area= 4,163 sf Storage= 4,138 cf

Plug-Flow detention time= 85.4 min calculated for 0.268 af (100% of inflow)
Center-of-Mass det. time= 85.3 min (847.1 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	2,374 cf	**74.87'W x 55.61'L x 2.69'H Field A** 11,214 cf Overall - 5,279 cf Embedded = 5,934 cf x 40.0% Voids
#2A	10.25'	5,015 cf	**ACF R-Tank HD 1** x 1188 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 1188 Chambers in 54 Rows
		7,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 8.00'

Primary OutFlow Max=0.38 cfs @ 12.71 hrs HW=11.26' (Free Discharge)
1=Exfiltration (Controls 0.38 cfs)

Pond 3P: SSSF1 - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

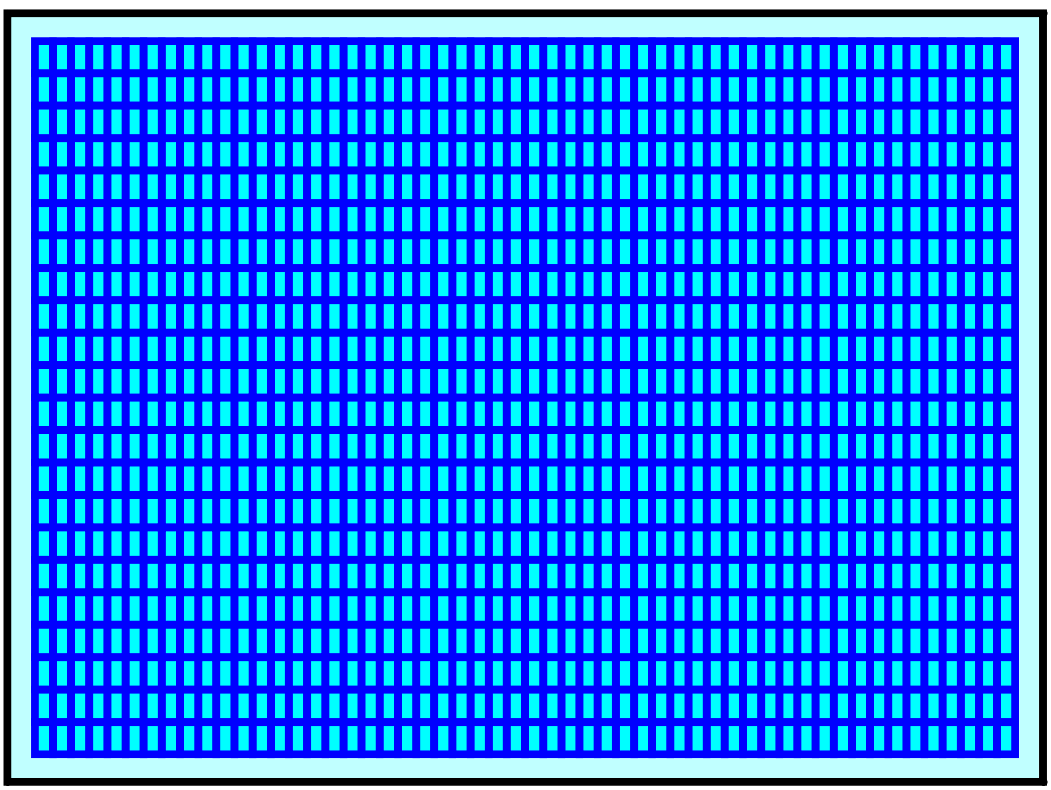
22 Chambers/Row x 2.35' Long = 51.61' Row Length +24.0" End Stone x 2 = 55.61' Base Length
54 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 74.87' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

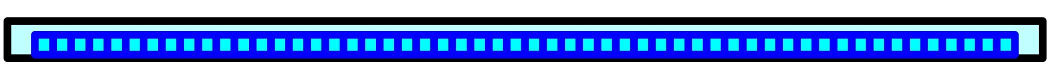
1,188 Chambers x 4.2 cf = 5,015.5 cf Chamber Storage
1,188 Chambers x 4.4 cf = 5,279.5 cf Displacement

11,213.7 cf Field - 5,279.5 cf Chambers = 5,934.2 cf Stone x 40.0% Voids = 2,373.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,389.2 cf = 0.170 af
Overall Storage Efficiency = 65.9%
Overall System Size = 55.61' x 74.87' x 2.69'

1,188 Chambers
415.3 cy Field
219.8 cy Stone





Summary for Pond 5P: Roof Infiltration

Inflow Area = 0.305 ac, 43.76% Impervious, Inflow Depth = 0.84" for 5-Year event
Inflow = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af
Outflow = 0.04 cfs @ 11.92 hrs, Volume= 0.021 af, Atten= 85%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.92 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 295.57' @ 12.93 hrs Surf.Area= 719 sf Storage= 255 cf

Plug-Flow detention time= 51.8 min calculated for 0.021 af (100% of inflow)
Center-of-Mass det. time= 51.8 min (934.0 - 882.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	295.00'	476 cf	**22.37'W x 32.15'L x 2.69'H Field A** 1,937 cf Overall - 747 cf Embedded = 1,191 cf x 40.0% Voids
#2A	295.25'	709 cf	**ACF R-Tank HD 1** x 168 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 168 Chambers in 14 Rows
		1,186 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	295.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 11.92 hrs HW=295.03' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond 5P: Roof Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

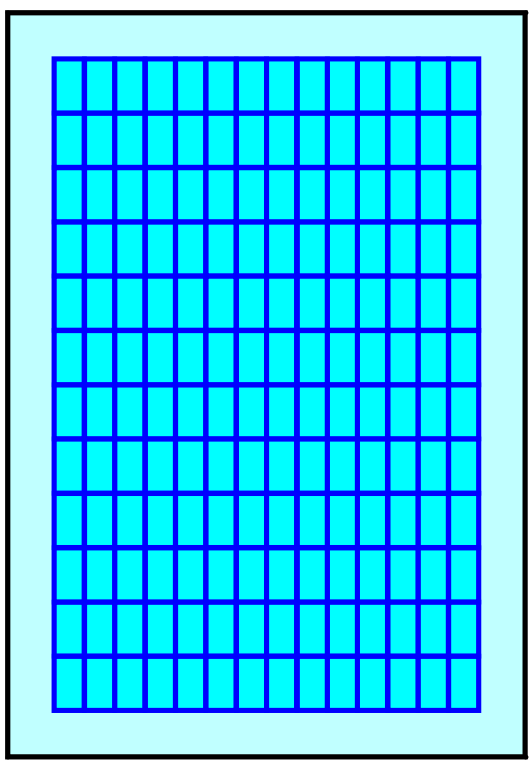
12 Chambers/Row x 2.35' Long = 28.15' Row Length +24.0" End Stone x 2 = 32.15' Base Length
14 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 22.37' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

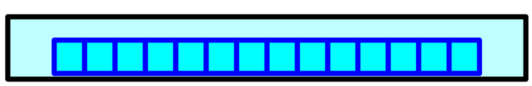
168 Chambers x 4.2 cf = 709.3 cf Chamber Storage
168 Chambers x 4.4 cf = 746.6 cf Displacement

1,937.4 cf Field - 746.6 cf Chambers = 1,190.8 cf Stone x 40.0% Voids = 476.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,185.6 cf = 0.027 af
Overall Storage Efficiency = 61.2%
Overall System Size = 32.15' x 22.37' x 2.69'

168 Chambers
71.8 cy Field
44.1 cy Stone





Summary for Pond 6P: SSSF2

Inflow Area = 0.355 ac, 88.46% Impervious, Inflow Depth = 2.69" for 5-Year event
Inflow = 1.12 cfs @ 12.07 hrs, Volume= 0.080 af
Outflow = 0.13 cfs @ 11.64 hrs, Volume= 0.080 af, Atten= 89%, Lag= 0.0 min
Primary = 0.13 cfs @ 11.64 hrs, Volume= 0.080 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 294.73' @ 12.71 hrs Surf.Area= 2,299 sf Storage= 1,169 cf

Plug-Flow detention time= 65.0 min calculated for 0.080 af (100% of inflow)
Center-of-Mass det. time= 65.0 min (861.6 - 796.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	294.00'	1,268 cf	**38.12'W x 60.30'L x 2.04'H Field A** 4,683 cf Overall - 1,513 cf Embedded = 3,171 cf x 40.0% Voids
#2A	294.25'	1,437 cf	**ACF R-Tank SD 1** x 624 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 624 Chambers in 26 Rows
		2,705 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	294.00'	**2.410 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.13 cfs @ 11.64 hrs HW=294.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Pond 6P: SSSF2 - Chamber Wizard Field A

Chamber Model = ACF R-Tank SD 1 (ACF Environmental R-Tank SD)
Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf
Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf

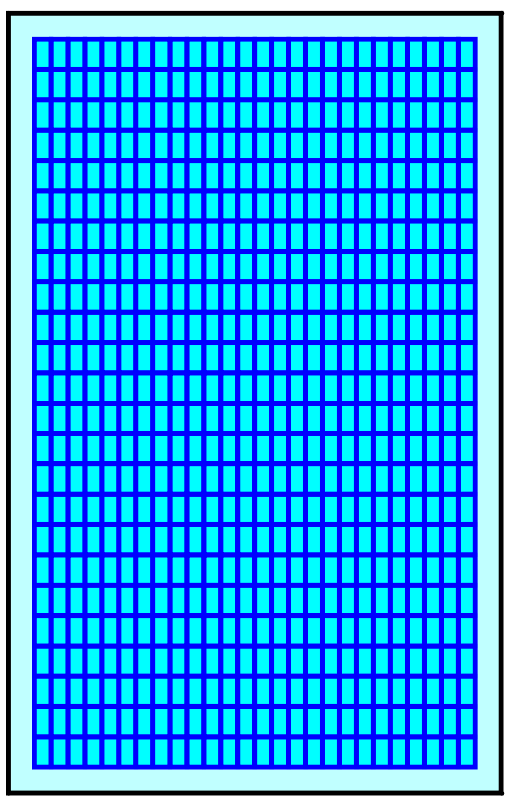
24 Chambers/Row x 2.35' Long = 56.30' Row Length +24.0" End Stone x 2 = 60.30' Base Length
26 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 38.12' Base Width
3.0" Stone Base + 9.4" Chamber Height + 12.0" Stone Cover = 2.04' Field Height

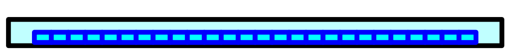
624 Chambers x 2.3 cf = 1,436.9 cf Chamber Storage
624 Chambers x 2.4 cf = 1,512.6 cf Displacement

4,683.3 cf Field - 1,512.6 cf Chambers = 3,170.7 cf Stone x 40.0% Voids = 1,268.3 cf Stone Storage

Chamber Storage + Stone Storage = 2,705.2 cf = 0.062 af
Overall Storage Efficiency = 57.8%
Overall System Size = 60.30' x 38.12' x 2.04'

624 Chambers
173.5 cy Field
117.4 cy Stone





Summary for Pond 7P: CB

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

Inflow Area = 1.325 ac, 93.64% Impervious, Inflow Depth = 3.15" for 5-Year event
Inflow = 0.51 cfs @ 12.71 hrs, Volume= 0.348 af
Primary = 0.51 cfs @ 12.71 hrs, Volume= 0.348 af, Atten= 0%, Lag= 0.0 min
Routed to Reach POI1 : POI#1

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Store Roof Runoff Area=13,303 sf 43.76% Impervious Runoff Depth=1.39"
Tc=5.0 min CN=65 Runoff=0.48 cfs 0.035 af

Subcatchment 2: C-Store Parking Runoff Area=42,253 sf 95.54% Impervious Runoff Depth=4.25"
Tc=5.0 min CN=97 Runoff=4.41 cfs 0.343 af

Subcatchment 3: Runoff Area=7,568 sf 8.39% Impervious Runoff Depth=0.29"
Tc=0.0 min CN=44 Runoff=0.02 cfs 0.004 af

Subcatchment 4: (new Subcat) Runoff Area=2,935 sf 100.00% Impervious Runoff Depth=4.36"
Tc=5.0 min CN=98 Runoff=0.31 cfs 0.025 af

Subcatchment 5: Woods/Lawn Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: Woods/Lawn Runoff Area=14,372 sf 0.00% Impervious Runoff Depth=0.03"
Flow Length=194' Tc=5.3 min CN=34 Runoff=0.00 cfs 0.001 af

Subcatchment 7: Woods/Lawn Runoff Area=23,678 sf 0.00% Impervious Runoff Depth=0.03"
Flow Length=100' Slope=0.0080 '/' Tc=1.8 min CN=34 Runoff=0.00 cfs 0.001 af

Subcatchment 8: Lawn Runoff Area=6,349 sf 0.00% Impervious Runoff Depth=0.13"
Flow Length=186' Tc=2.5 min CN=39 Runoff=0.00 cfs 0.002 af

Subcatchment 9: Runoff Area=6,505 sf 28.90% Impervious Runoff Depth=0.84"
Flow Length=100' Slope=0.0020 '/' Tc=3.1 min CN=56 Runoff=0.12 cfs 0.010 af

Subcatchment 10: Runoff Area=6,660 sf 14.29% Impervious Runoff Depth=0.40"
Tc=5.0 min CN=47 Runoff=0.03 cfs 0.005 af

Subcatchment 11: Drive Entrance Runoff Area=6,048 sf 60.75% Impervious Runoff Depth=2.13"
Tc=5.0 min CN=75 Runoff=0.35 cfs 0.025 af

Subcatchment 30: Bank Parking Runoff Area=15,466 sf 88.46% Impervious Runoff Depth=3.59"
Tc=5.0 min CN=91 Runoff=1.47 cfs 0.106 af

Reach POI1: POI#1 Inflow=0.60 cfs 0.460 af
Outflow=0.60 cfs 0.460 af

Reach POI2: POI#2 Inflow=0.37 cfs 0.030 af
Outflow=0.37 cfs 0.030 af

Pond 3P: SSSF1 Peak Elev=11.68' Storage=5,666 cf Inflow=4.41 cfs 0.343 af
Outflow=0.43 cfs 0.343 af

Pond 5P: Roof Infiltration Peak Elev=296.18' Storage=605 cf Inflow=0.48 cfs 0.035 af
Outflow=0.04 cfs 0.035 af

Pond 6P: SSSF2 Peak Elev=295.01' Storage=1,731 cf Inflow=1.47 cfs 0.106 af
Outflow=0.13 cfs 0.106 af

Pond 7P: CB Inflow=0.56 cfs 0.450 af
Primary=0.56 cfs 0.450 af

Total Runoff Area = 3.419 ac Runoff Volume = 0.558 af Average Runoff Depth = 1.96"
53.03% Pervious = 1.813 ac 46.97% Impervious = 1.606 ac

Summary for Subcatchment 1: Store Roof

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 1.39"
Routed to Pond 5P : Roof Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
5,262	98	Roofs, HSG A
784	39	>75% Grass cover, Good, HSG A
6,698	39	>75% Grass cover, Good, HSG A
559	98	Paved parking, HSG A
13,303	65	Weighted Average
7,482		56.24% Pervious Area
5,821		43.76% Impervious Area

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

Summary for Subcatchment 2: C-Store Parking

Runoff = 4.41 cfs @ 12.07 hrs, Volume= 0.343 af, Depth= 4.25"
Routed to Pond 3P : SSSF1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
40,368	98	Paved parking, HSG A
136	74	>75% Grass cover, Good, HSG C
1,560	74	>75% Grass cover, Good, HSG C
189	74	>75% Grass cover, Good, HSG C
42,253	97	Weighted Average
1,885		4.46% Pervious Area
40,368		95.54% Impervious Area

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

Summary for Subcatchment 3:

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.02 cfs @ 12.29 hrs, Volume= 0.004 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
281	39	>75% Grass cover, Good, HSG A
635	98	Paved parking, HSG A
6,652	39	>75% Grass cover, Good, HSG A
7,568	44	Weighted Average
6,933		91.61% Pervious Area
635		8.39% Impervious Area

Summary for Subcatchment 4: (new Subcat)

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
2,935	98	Roofs, HSG A
2,935		100.00% Impervious Area

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

Summary for Subcatchment 5: Woods/Lawn

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: Woods/Lawn

Runoff = 0.00 cfs @ 20.90 hrs, Volume= 0.001 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
8,326	30	Woods, Good, HSG A
6,046	39	>75% Grass cover, Good, HSG A
14,372	34	Weighted Average
14,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: Woods/Lawn

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

Runoff = 0.00 cfs @ 20.87 hrs, Volume= 0.001 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
12,831	30	Woods, Good, HSG A
10,847	39	>75% Grass cover, Good, HSG A
23,678	34	Weighted Average
23,678		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 8: Lawn

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

Runoff = 0.00 cfs @ 14.53 hrs, Volume= 0.002 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
6,349	39	>75% Grass cover, Good, HSG A
6,349		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total			

Summary for Subcatchment 9:

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

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.010 af, Depth= 0.84"
Routed to Reach POI1 : POI#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
4,245	39	>75% Grass cover, Good, HSG A
1,652	98	Paved parking, HSG A
380	39	>75% Grass cover, Good, HSG A
228	98	Paved parking, HSG A
6,505	56	Weighted Average
4,625		71.10% Pervious Area
1,880		28.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 10:

Runoff = 0.03 cfs @ 12.29 hrs, Volume= 0.005 af, Depth= 0.40"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
3,751	39	>75% Grass cover, Good, HSG A
1,957	39	>75% Grass cover, Good, HSG A
444	98	Paved parking, HSG A
139	98	Paved parking, HSG A
369	98	Paved parking, HSG A
6,660	47	Weighted Average
5,708		85.71% Pervious Area
952		14.29% Impervious Area

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

Summary for Subcatchment 11: Drive Entrance

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 2.13"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
832	39	>75% Grass cover, Good, HSG A
1,321	39	>75% Grass cover, Good, HSG A
221	39	>75% Grass cover, Good, HSG A
3,674	98	Paved parking, HSG A
6,048	75	Weighted Average
2,374		39.25% Pervious Area
3,674		60.75% Impervious Area

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

Summary for Subcatchment 30: Bank Parking

Runoff = 1.47 cfs @ 12.07 hrs, Volume= 0.106 af, Depth= 3.59"
Routed to Pond 6P : SSSF2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
13,681	98	Paved parking, HSG A
969	39	>75% Grass cover, Good, HSG A
240	39	>75% Grass cover, Good, HSG A
380	39	>75% Grass cover, Good, HSG A
196	39	>75% Grass cover, Good, HSG A
15,466	91	Weighted Average
1,785		11.54% Pervious Area
13,681		88.46% Impervious Area

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

Summary for Reach POI1: POI#1

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

Inflow Area = 1.474 ac, 87.08% Impervious, Inflow Depth = 3.75" for 10-Year event
Inflow = 0.60 cfs @ 12.09 hrs, Volume= 0.460 af
Outflow = 0.60 cfs @ 12.09 hrs, Volume= 0.460 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 0.292 ac, 36.40% Impervious, Inflow Depth = 1.22" for 10-Year event
Inflow = 0.37 cfs @ 12.08 hrs, Volume= 0.030 af
Outflow = 0.37 cfs @ 12.08 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Pond 3P: SSSF1

Inflow Area = 0.970 ac, 95.54% Impervious, Inflow Depth = 4.25" for 10-Year event
Inflow = 4.41 cfs @ 12.07 hrs, Volume= 0.343 af
Outflow = 0.43 cfs @ 12.83 hrs, Volume= 0.343 af, Atten= 90%, Lag= 45.5 min
Primary = 0.43 cfs @ 12.83 hrs, Volume= 0.343 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 11.68' @ 12.83 hrs Surf.Area= 4,163 sf Storage= 5,666 cf

Plug-Flow detention time= 111.4 min calculated for 0.343 af (100% of inflow)
Center-of-Mass det. time= 111.3 min (867.9 - 756.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	2,374 cf	**74.87'W x 55.61'L x 2.69'H Field A** 11,214 cf Overall - 5,279 cf Embedded = 5,934 cf x 40.0% Voids
#2A	10.25'	5,015 cf	**ACF R-Tank HD 1** x 1188 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 1188 Chambers in 54 Rows
		7,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 8.00'

Primary OutFlow Max=0.43 cfs @ 12.83 hrs HW=11.68' (Free Discharge)
└─**1=Exfiltration** (Controls 0.43 cfs)

Pond 3P: SSSF1 - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

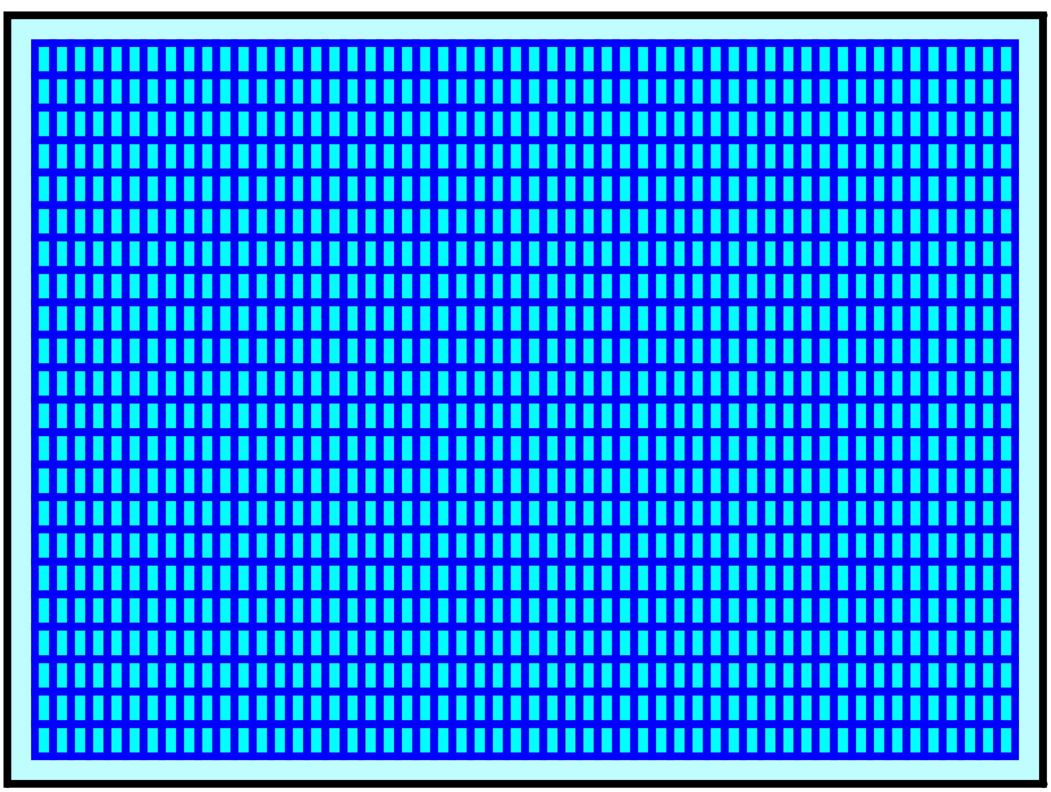
22 Chambers/Row x 2.35' Long = 51.61' Row Length +24.0" End Stone x 2 = 55.61' Base Length
54 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 74.87' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

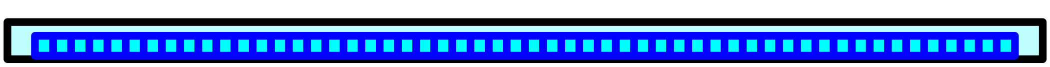
1,188 Chambers x 4.2 cf = 5,015.5 cf Chamber Storage
1,188 Chambers x 4.4 cf = 5,279.5 cf Displacement

11,213.7 cf Field - 5,279.5 cf Chambers = 5,934.2 cf Stone x 40.0% Voids = 2,373.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,389.2 cf = 0.170 af
Overall Storage Efficiency = 65.9%
Overall System Size = 55.61' x 74.87' x 2.69'

1,188 Chambers
415.3 cy Field
219.8 cy Stone





Summary for Pond 5P: Roof Infiltration

Inflow Area = 0.305 ac, 43.76% Impervious, Inflow Depth = 1.39" for 10-Year event
Inflow = 0.48 cfs @ 12.09 hrs, Volume= 0.035 af
Outflow = 0.04 cfs @ 11.76 hrs, Volume= 0.035 af, Atten= 92%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.76 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 296.18' @ 13.97 hrs Surf.Area= 719 sf Storage= 605 cf

Plug-Flow detention time= 150.4 min calculated for 0.035 af (100% of inflow)
Center-of-Mass det. time= 150.4 min (1,015.7 - 865.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	295.00'	476 cf	**22.37'W x 32.15'L x 2.69'H Field A**
			1,937 cf Overall - 747 cf Embedded = 1,191 cf x 40.0% Voids
#2A	295.25'	709 cf	**ACF R-Tank HD 1** x 168 Inside #1
			Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
			Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf
			168 Chambers in 14 Rows
		1,186 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	295.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 11.76 hrs HW=295.03' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond 5P: Roof Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

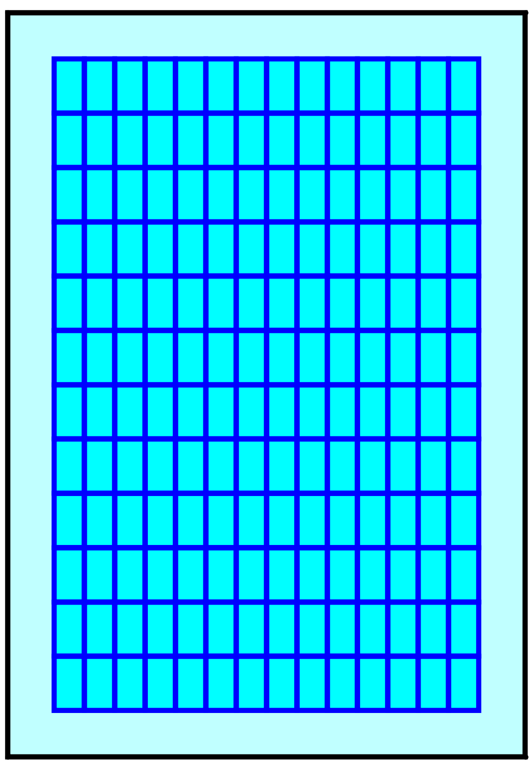
12 Chambers/Row x 2.35' Long = 28.15' Row Length +24.0" End Stone x 2 = 32.15' Base Length
14 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 22.37' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

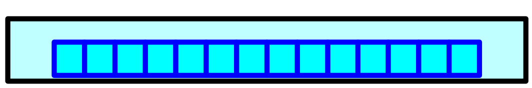
168 Chambers x 4.2 cf = 709.3 cf Chamber Storage
168 Chambers x 4.4 cf = 746.6 cf Displacement

1,937.4 cf Field - 746.6 cf Chambers = 1,190.8 cf Stone x 40.0% Voids = 476.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,185.6 cf = 0.027 af
Overall Storage Efficiency = 61.2%
Overall System Size = 32.15' x 22.37' x 2.69'

168 Chambers
71.8 cy Field
44.1 cy Stone





Summary for Pond 6P: SSSF2

Inflow Area = 0.355 ac, 88.46% Impervious, Inflow Depth = 3.59" for 10-Year event
Inflow = 1.47 cfs @ 12.07 hrs, Volume= 0.106 af
Outflow = 0.13 cfs @ 11.44 hrs, Volume= 0.106 af, Atten= 91%, Lag= 0.0 min
Primary = 0.13 cfs @ 11.44 hrs, Volume= 0.106 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 295.01' @ 12.97 hrs Surf.Area= 2,299 sf Storage= 1,731 cf

Plug-Flow detention time= 103.5 min calculated for 0.106 af (100% of inflow)
Center-of-Mass det. time= 103.5 min (892.2 - 788.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	294.00'	1,268 cf	**38.12'W x 60.30'L x 2.04'H Field A** 4,683 cf Overall - 1,513 cf Embedded = 3,171 cf x 40.0% Voids
#2A	294.25'	1,437 cf	**ACF R-Tank SD 1** x 624 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 624 Chambers in 26 Rows
		2,705 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	294.00'	**2.410 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.13 cfs @ 11.44 hrs HW=294.02' (Free Discharge)
└—**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Pond 6P: SSSF2 - Chamber Wizard Field A

Chamber Model = ACF R-Tank SD 1 (ACF Environmental R-Tank SD)
Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf
Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf

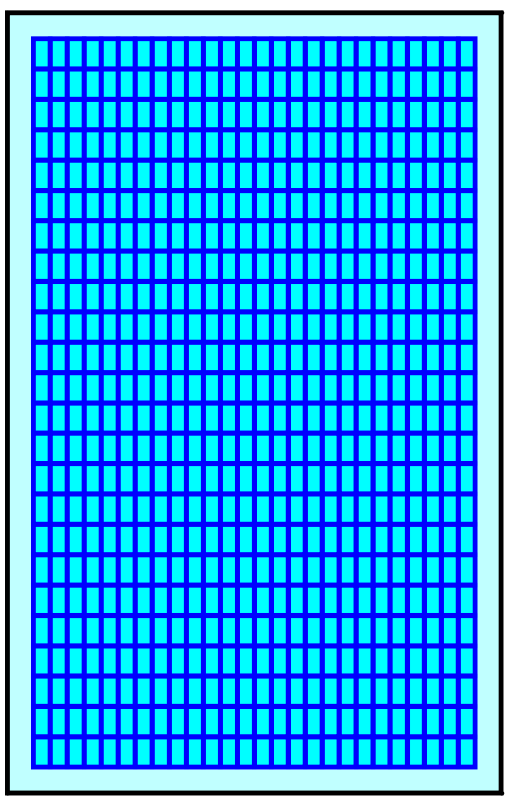
24 Chambers/Row x 2.35' Long = 56.30' Row Length +24.0" End Stone x 2 = 60.30' Base Length
26 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 38.12' Base Width
3.0" Stone Base + 9.4" Chamber Height + 12.0" Stone Cover = 2.04' Field Height

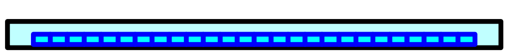
624 Chambers x 2.3 cf = 1,436.9 cf Chamber Storage
624 Chambers x 2.4 cf = 1,512.6 cf Displacement

4,683.3 cf Field - 1,512.6 cf Chambers = 3,170.7 cf Stone x 40.0% Voids = 1,268.3 cf Stone Storage

Chamber Storage + Stone Storage = 2,705.2 cf = 0.062 af
Overall Storage Efficiency = 57.8%
Overall System Size = 60.30' x 38.12' x 2.04'

624 Chambers
173.5 cy Field
117.4 cy Stone





Summary for Pond 7P: CB

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

Inflow Area = 1.325 ac, 93.64% Impervious, Inflow Depth = 4.07" for 10-Year event
Inflow = 0.56 cfs @ 12.83 hrs, Volume= 0.450 af
Primary = 0.56 cfs @ 12.83 hrs, Volume= 0.450 af, Atten= 0%, Lag= 0.0 min
Routed to Reach POI1 : POI#1

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Store Roof Runoff Area=13,303 sf 43.76% Impervious Runoff Depth=2.21"
Tc=5.0 min CN=65 Runoff=0.81 cfs 0.056 af

Subcatchment 2: C-Store Parking Runoff Area=42,253 sf 95.54% Impervious Runoff Depth=5.44"
Tc=5.0 min CN=97 Runoff=5.87 cfs 0.440 af

Subcatchment 3: Runoff Area=7,568 sf 8.39% Impervious Runoff Depth=0.66"
Tc=0.0 min CN=44 Runoff=0.07 cfs 0.010 af

Subcatchment 4: (new Subcat) Runoff Area=2,935 sf 100.00% Impervious Runoff Depth=5.56"
Tc=5.0 min CN=98 Runoff=0.41 cfs 0.031 af

Subcatchment 5: Woods/Lawn Runoff Area=3,776 sf 0.00% Impervious Runoff Depth=0.05"
Tc=5.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 6: Woods/Lawn Runoff Area=14,372 sf 0.00% Impervious Runoff Depth=0.17"
Flow Length=194' Tc=5.3 min CN=34 Runoff=0.01 cfs 0.005 af

Subcatchment 7: Woods/Lawn Runoff Area=23,678 sf 0.00% Impervious Runoff Depth=0.17"
Flow Length=100' Slope=0.0080 '/' Tc=1.8 min CN=34 Runoff=0.01 cfs 0.008 af

Subcatchment 8: Lawn Runoff Area=6,349 sf 0.00% Impervious Runoff Depth=0.39"
Flow Length=186' Tc=2.5 min CN=39 Runoff=0.01 cfs 0.005 af

Subcatchment 9: Runoff Area=6,505 sf 28.90% Impervious Runoff Depth=1.48"
Flow Length=100' Slope=0.0020 '/' Tc=3.1 min CN=56 Runoff=0.26 cfs 0.018 af

Subcatchment 10: Runoff Area=6,660 sf 14.29% Impervious Runoff Depth=0.85"
Tc=5.0 min CN=47 Runoff=0.10 cfs 0.011 af

Subcatchment 11: Drive Entrance Runoff Area=6,048 sf 60.75% Impervious Runoff Depth=3.11"
Tc=5.0 min CN=75 Runoff=0.54 cfs 0.036 af

Subcatchment 30: Bank Parking Runoff Area=15,466 sf 88.46% Impervious Runoff Depth=4.76"
Tc=5.0 min CN=91 Runoff=2.01 cfs 0.141 af

Reach POI1: POI#1 Inflow=0.73 cfs 0.599 af
Outflow=0.73 cfs 0.599 af

Reach POI2: POI#2 Inflow=0.63 cfs 0.047 af
Outflow=0.63 cfs 0.047 af

Pond 3P: SSSF1 Peak Elev=11.75' Storage=5,820 cf Inflow=5.87 cfs 0.440 af
Outflow=0.44 cfs 0.440 af

Pond 5P: Roof Infiltration Peak Elev=296.77' Storage=920 cf Inflow=0.81 cfs 0.056 af
Outflow=0.04 cfs 0.056 af

Pond 6P: SSSF2 Peak Elev=295.08' Storage=1,829 cf Inflow=2.01 cfs 0.141 af
Outflow=0.13 cfs 0.141 af

Pond 7P: CB Inflow=0.56 cfs 0.581 af
Primary=0.56 cfs 0.581 af

Total Runoff Area = 3.419 ac Runoff Volume = 0.761 af Average Runoff Depth = 2.67"
53.03% Pervious = 1.813 ac 46.97% Impervious = 1.606 ac

Summary for Subcatchment 1: Store Roof

Runoff = 0.81 cfs @ 12.03 hrs, Volume= 0.056 af, Depth= 2.21"
Routed to Pond 5P : Roof Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
5,262	98	Roofs, HSG A
784	39	>75% Grass cover, Good, HSG A
6,698	39	>75% Grass cover, Good, HSG A
559	98	Paved parking, HSG A
13,303	65	Weighted Average
7,482		56.24% Pervious Area
5,821		43.76% Impervious Area

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

Summary for Subcatchment 2: C-Store Parking

Runoff = 5.87 cfs @ 12.02 hrs, Volume= 0.440 af, Depth= 5.44"
Routed to Pond 3P : SSSF1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
40,368	98	Paved parking, HSG A
136	74	>75% Grass cover, Good, HSG C
1,560	74	>75% Grass cover, Good, HSG C
189	74	>75% Grass cover, Good, HSG C
42,253	97	Weighted Average
1,885		4.46% Pervious Area
40,368		95.54% Impervious Area

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

Summary for Subcatchment 3:

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.07 cfs @ 11.99 hrs, Volume= 0.010 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
281	39	>75% Grass cover, Good, HSG A
635	98	Paved parking, HSG A
6,652	39	>75% Grass cover, Good, HSG A
7,568	44	Weighted Average
6,933		91.61% Pervious Area
635		8.39% Impervious Area

Summary for Subcatchment 4: (new Subcat)

Runoff = 0.41 cfs @ 12.02 hrs, Volume= 0.031 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
2,935	98	Roofs, HSG A
2,935		100.00% Impervious Area

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

Summary for Subcatchment 5: Woods/Lawn

Runoff = 0.00 cfs @ 23.96 hrs, Volume= 0.000 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
3,776	30	Woods, Good, HSG A
3,776		100.00% Pervious Area

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

Summary for Subcatchment 6: Woods/Lawn

Runoff = 0.01 cfs @ 17.44 hrs, Volume= 0.005 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
8,326	30	Woods, Good, HSG A
6,046	39	>75% Grass cover, Good, HSG A
14,372	34	Weighted Average
14,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	91	0.0020	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.4	103	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
5.3	194	Total			

Summary for Subcatchment 7: Woods/Lawn

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

Runoff = 0.01 cfs @ 17.40 hrs, Volume= 0.008 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
12,831	30	Woods, Good, HSG A
10,847	39	>75% Grass cover, Good, HSG A
23,678	34	Weighted Average
23,678		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0080	0.92		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 8: Lawn

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

Runoff = 0.01 cfs @ 12.32 hrs, Volume= 0.005 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
6,349	39	>75% Grass cover, Good, HSG A
6,349		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0070	0.88		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	86	0.0190	2.22		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.5	186	Total			

Summary for Subcatchment 9:

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

Runoff = 0.26 cfs @ 12.01 hrs, Volume= 0.018 af, Depth= 1.48"
Routed to Reach POI1 : POI#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
4,245	39	>75% Grass cover, Good, HSG A
1,652	98	Paved parking, HSG A
380	39	>75% Grass cover, Good, HSG A
228	98	Paved parking, HSG A
6,505	56	Weighted Average
4,625		71.10% Pervious Area
1,880		28.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	100	0.0020	0.53		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 10:

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.011 af, Depth= 0.85"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
3,751	39	>75% Grass cover, Good, HSG A
1,957	39	>75% Grass cover, Good, HSG A
444	98	Paved parking, HSG A
139	98	Paved parking, HSG A
369	98	Paved parking, HSG A
6,660	47	Weighted Average
5,708		85.71% Pervious Area
952		14.29% Impervious Area

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

Summary for Subcatchment 11: Drive Entrance

Runoff = 0.54 cfs @ 12.03 hrs, Volume= 0.036 af, Depth= 3.11"
Routed to Reach POI2 : POI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
832	39	>75% Grass cover, Good, HSG A
1,321	39	>75% Grass cover, Good, HSG A
221	39	>75% Grass cover, Good, HSG A
3,674	98	Paved parking, HSG A
6,048	75	Weighted Average
2,374		39.25% Pervious Area
3,674		60.75% Impervious Area

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

Summary for Subcatchment 30: Bank Parking

Runoff = 2.01 cfs @ 12.02 hrs, Volume= 0.141 af, Depth= 4.76"
Routed to Pond 6P : SSSF2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Cumberland 24-hr S1 25-yr Rainfall=5.80"

Area (sf)	CN	Description
13,681	98	Paved parking, HSG A
969	39	>75% Grass cover, Good, HSG A
240	39	>75% Grass cover, Good, HSG A
380	39	>75% Grass cover, Good, HSG A
196	39	>75% Grass cover, Good, HSG A
15,466	91	Weighted Average
1,785		11.54% Pervious Area
13,681		88.46% Impervious Area

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

Summary for Reach POI1: POI#1

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

Inflow Area = 1.474 ac, 87.08% Impervious, Inflow Depth = 4.88" for 25-yr event
Inflow = 0.73 cfs @ 12.01 hrs, Volume= 0.599 af
Outflow = 0.73 cfs @ 12.01 hrs, Volume= 0.599 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Reach POI2: POI#2

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

Inflow Area = 0.292 ac, 36.40% Impervious, Inflow Depth = 1.93" for 25-yr event
Inflow = 0.63 cfs @ 12.03 hrs, Volume= 0.047 af
Outflow = 0.63 cfs @ 12.03 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Pond 3P: SSSF1

Inflow Area = 0.970 ac, 95.54% Impervious, Inflow Depth = 5.44" for 25-yr event
Inflow = 5.87 cfs @ 12.02 hrs, Volume= 0.440 af
Outflow = 0.44 cfs @ 12.98 hrs, Volume= 0.440 af, Atten= 93%, Lag= 57.7 min
Primary = 0.44 cfs @ 12.98 hrs, Volume= 0.440 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 11.75' @ 12.98 hrs Surf.Area= 4,163 sf Storage= 5,820 cf

Plug-Flow detention time= 107.6 min calculated for 0.440 af (100% of inflow)
Center-of-Mass det. time= 107.5 min (862.2 - 754.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.00'	2,374 cf	**74.87'W x 55.61'L x 2.69'H Field A** 11,214 cf Overall - 5,279 cf Embedded = 5,934 cf x 40.0% Voids
#2A	10.25'	5,015 cf	**ACF R-Tank HD 1** x 1188 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 1188 Chambers in 54 Rows
		7,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 8.00'

Primary OutFlow Max=0.44 cfs @ 12.98 hrs HW=11.75' (Free Discharge)
1=Exfiltration (Controls 0.44 cfs)

Pond 3P: SSSF1 - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

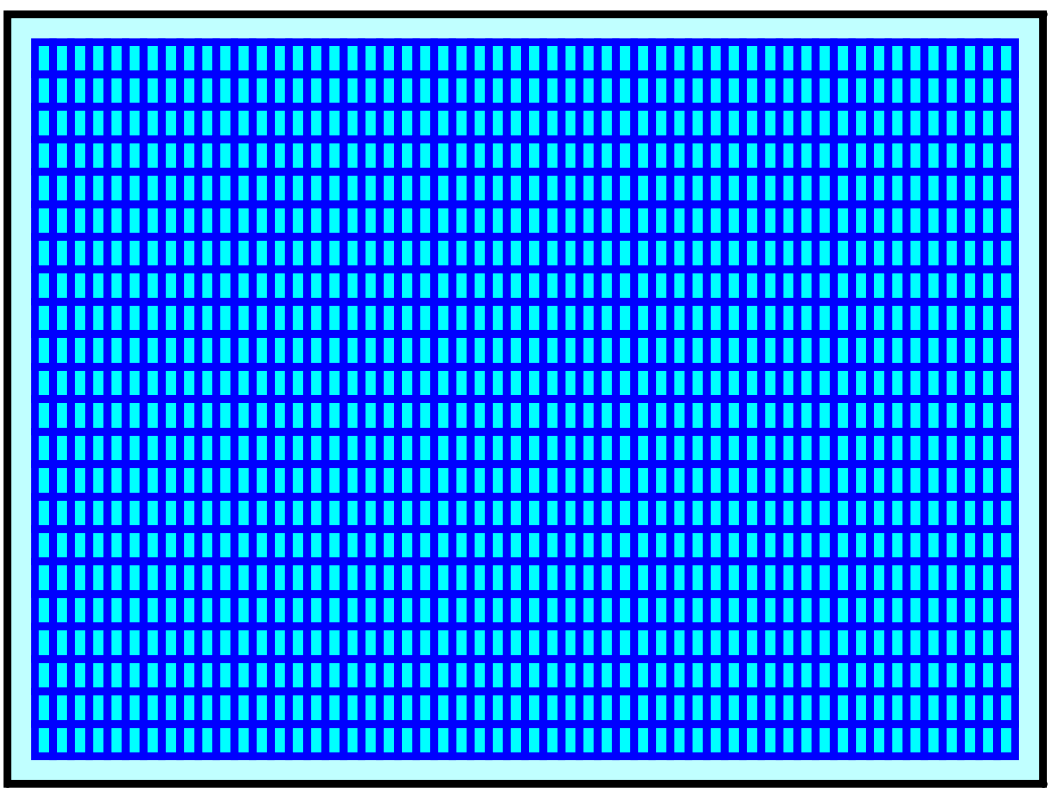
22 Chambers/Row x 2.35' Long = 51.61' Row Length +24.0" End Stone x 2 = 55.61' Base Length
54 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 74.87' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

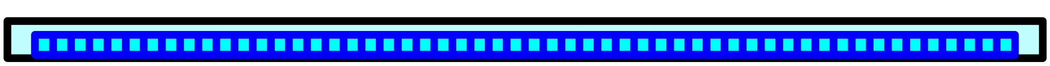
1,188 Chambers x 4.2 cf = 5,015.5 cf Chamber Storage
1,188 Chambers x 4.4 cf = 5,279.5 cf Displacement

11,213.7 cf Field - 5,279.5 cf Chambers = 5,934.2 cf Stone x 40.0% Voids = 2,373.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,389.2 cf = 0.170 af
Overall Storage Efficiency = 65.9%
Overall System Size = 55.61' x 74.87' x 2.69'

1,188 Chambers
415.3 cy Field
219.8 cy Stone





Summary for Pond 5P: Roof Infiltration

Inflow Area = 0.305 ac, 43.76% Impervious, Inflow Depth = 2.21" for 25-yr event
Inflow = 0.81 cfs @ 12.03 hrs, Volume= 0.056 af
Outflow = 0.04 cfs @ 11.40 hrs, Volume= 0.056 af, Atten= 95%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.40 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 296.77' @ 15.34 hrs Surf.Area= 719 sf Storage= 920 cf

Plug-Flow detention time= 250.9 min calculated for 0.056 af (100% of inflow)
Center-of-Mass det. time= 250.9 min (1,142.1 - 891.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	295.00'	476 cf	**22.37'W x 32.15'L x 2.69'H Field A** 1,937 cf Overall - 747 cf Embedded = 1,191 cf x 40.0% Voids
#2A	295.25'	709 cf	**ACF R-Tank HD 1** x 168 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 168 Chambers in 14 Rows
		1,186 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	295.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 11.40 hrs HW=295.03' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond 5P: Roof Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

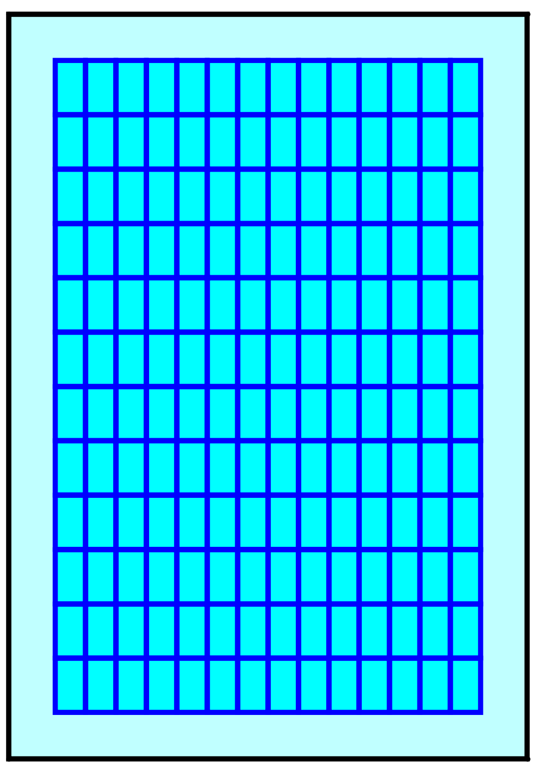
12 Chambers/Row x 2.35' Long = 28.15' Row Length +24.0" End Stone x 2 = 32.15' Base Length
14 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 22.37' Base Width
3.0" Stone Base + 17.3" Chamber Height + 12.0" Stone Cover = 2.69' Field Height

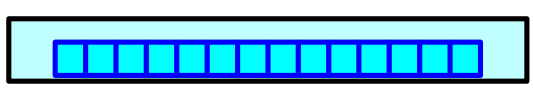
168 Chambers x 4.2 cf = 709.3 cf Chamber Storage
168 Chambers x 4.4 cf = 746.6 cf Displacement

1,937.4 cf Field - 746.6 cf Chambers = 1,190.8 cf Stone x 40.0% Voids = 476.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,185.6 cf = 0.027 af
Overall Storage Efficiency = 61.2%
Overall System Size = 32.15' x 22.37' x 2.69'

168 Chambers
71.8 cy Field
44.1 cy Stone





Summary for Pond 6P: SSSF2

Inflow Area = 0.355 ac, 88.46% Impervious, Inflow Depth = 4.76" for 25-yr event
Inflow = 2.01 cfs @ 12.02 hrs, Volume= 0.141 af
Outflow = 0.13 cfs @ 11.08 hrs, Volume= 0.141 af, Atten= 94%, Lag= 0.0 min
Primary = 0.13 cfs @ 11.08 hrs, Volume= 0.141 af
Routed to Pond 7P : CB

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 295.08' @ 13.30 hrs Surf.Area= 2,299 sf Storage= 1,829 cf

Plug-Flow detention time= 102.4 min calculated for 0.141 af (100% of inflow)
Center-of-Mass det. time= 102.3 min (895.3 - 793.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	294.00'	1,268 cf	**38.12'W x 60.30'L x 2.04'H Field A** 4,683 cf Overall - 1,513 cf Embedded = 3,171 cf x 40.0% Voids
#2A	294.25'	1,437 cf	**ACF R-Tank SD 1** x 624 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 624 Chambers in 26 Rows
		2,705 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	294.00'	**2.410 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.13 cfs @ 11.08 hrs HW=294.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Pond 6P: SSSF2 - Chamber Wizard Field A

Chamber Model = ACF R-Tank SD 1 (ACF Environmental R-Tank SD)
Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf
Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf

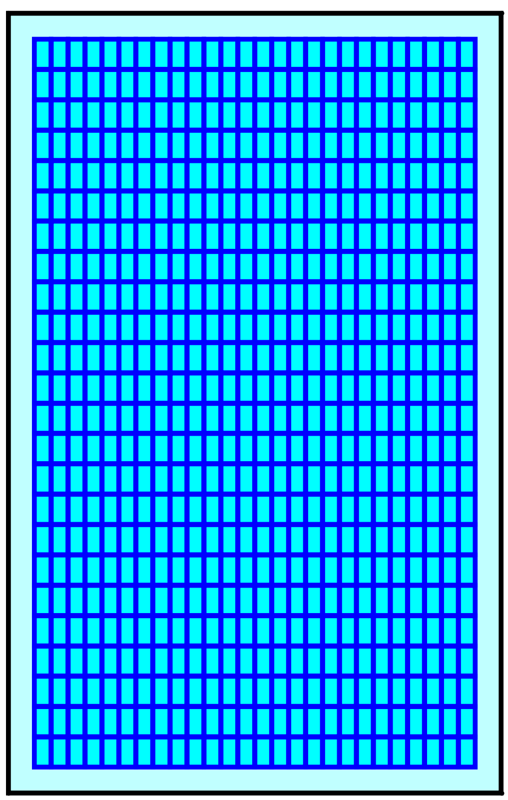
24 Chambers/Row x 2.35' Long = 56.30' Row Length +24.0" End Stone x 2 = 60.30' Base Length
26 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 38.12' Base Width
3.0" Stone Base + 9.4" Chamber Height + 12.0" Stone Cover = 2.04' Field Height

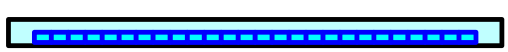
624 Chambers x 2.3 cf = 1,436.9 cf Chamber Storage
624 Chambers x 2.4 cf = 1,512.6 cf Displacement

4,683.3 cf Field - 1,512.6 cf Chambers = 3,170.7 cf Stone x 40.0% Voids = 1,268.3 cf Stone Storage

Chamber Storage + Stone Storage = 2,705.2 cf = 0.062 af
Overall Storage Efficiency = 57.8%
Overall System Size = 60.30' x 38.12' x 2.04'

624 Chambers
173.5 cy Field
117.4 cy Stone





Summary for Pond 7P: CB

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

Inflow Area = 1.325 ac, 93.64% Impervious, Inflow Depth = 5.26" for 25-yr event
Inflow = 0.56 cfs @ 12.98 hrs, Volume= 0.581 af
Primary = 0.56 cfs @ 12.98 hrs, Volume= 0.581 af, Atten= 0%, Lag= 0.0 min
Routed to Reach POI1 : POI#1

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Attachment J
Geotechnical Report

J

Geotechnical Report

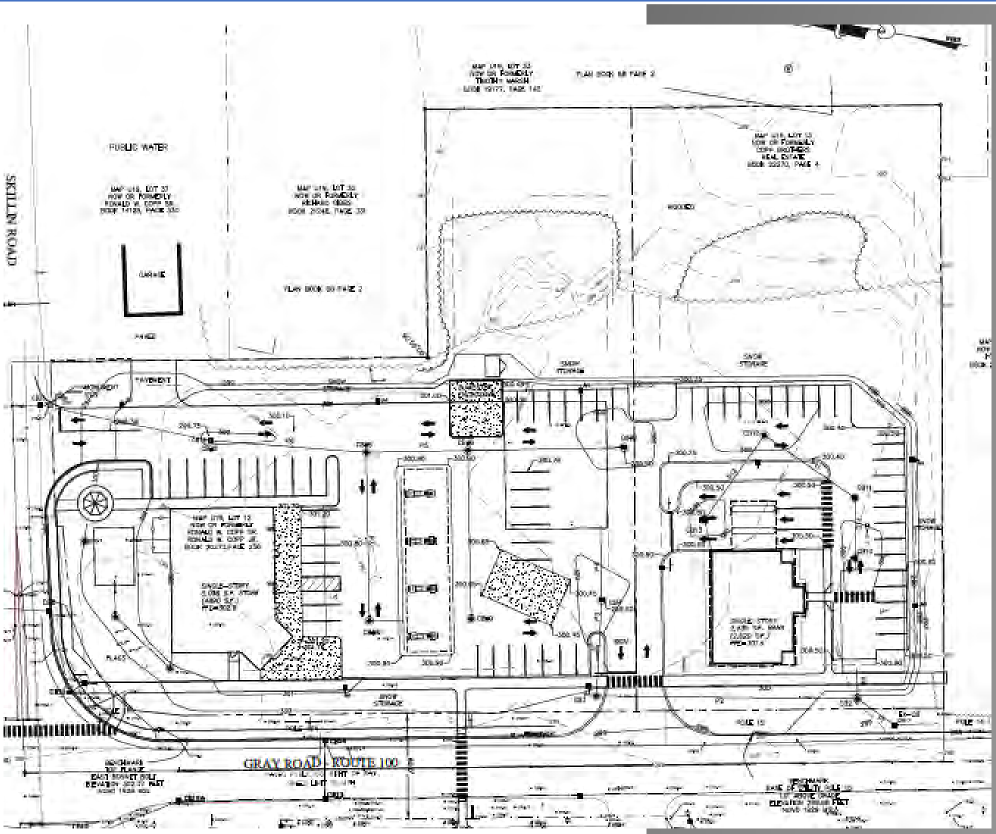
A copy of the Geotechnical Report is included for reference.

The key to success starts with a solid foundation.
ENGINEERING | EXPLORATION | EXPERIENCE

Geotechnical Report

Proposed Buildings

186 Gray Road, Cumberland, ME



SUMMIT GEOENGINEERING SERVICES

Client

Priority Real Estate Group
2 Main Street
Topsham, ME 04086

Project #: 23241
Date: 12/14/2023

Office: 210 Maine Avenue | Farmingdale, ME 04344
Mail: P.O. Box 515 | Gardiner, ME 04345

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December 14, 2023
SGS Project #: 23241

Priority Real Estate Group
2 Main Street
Topsham, ME 04086
Attn: Curtis Y. Neufeld

Reference: Geotechnical Report – Proposed Buildings
186 Gray Road, Cumberland, ME

Dear Curt,

Summit Geoengineering Services, Inc. (SGS) has completed a geotechnical investigation for the construction of the proposed buildings at the site referenced above. Our scope of services included the completion of borings, the installation of one observation well, laboratory testing, and the preparation of this geotechnical report summarizing our findings and providing geotechnical recommendations.

Our scope of services for this project did not include an environmental site assessment or further investigation for the presence or absence of hazardous or toxic material on, below, or around the site. Any statements in this report, or on the exploration logs, regarding odors or unusual and suspicious conditions observed are for informational purposes and are not intended to constitute an environmental assessment.

1.0 Project Description

The project consists of the construction of a new store and a new bank. The store will be single-story structure with an approximate footprint area of 5,038 square feet. The store will have a finished floor elevation of 302.0 feet. Parking lots will append the store to the east and south. A gas pump canopy will be constructed to the south of the store. The bank will be a single-story structure with an approximate footprint area of 2,935 square feet. The bank will have a finished floor elevation of 301.5 feet. Parking lots will append the bank to the east and south. An access road with a drive thru will append the building directly to the east. A shared parking lot will be present to the south of the store and to the north of the bank. Underground storage tanks will be constructed about 16 feet below the ground surface in the shared parking lot area.

The existing site is an open parking lot with an existing building to the north side of the site. Existing grades within the store range from elevation 298 to 299 feet. Based on this, up to 4 feet of fill will be required in the store footprint. Existing grades within the bank range from elevation 298.5 to 299 feet. Based on this, up to 3 feet of fill will be required in the bank footprint.

This information was referenced from a plan entitled *Grading Plan – C5* by Priority Real Estate Group, LLC dated November 22, 2023.

No structural loading was available as of the writing of this report. For our analysis, we assumed a maximum column load of 100 kips.

2.0 Explorations

Summit Geoengineering Services (SGS) observed the subsurface conditions on September 20, 2023 with the drilling of 5 borings and the installation of 1 observation well. The exploration locations were determined by SGS and marked out by others prior to drilling.

The borings were completed by SGS using a rubber tracked AMS PowerProbe 9580 VTR drill rig. The borings were drilled to depths ranging from 17.0 feet (no refusal) to 26.6 feet (refusal on dense stratum). Bottom of boring elevations ranged from approximately 271.4 to 282 feet. The borings were completed using 2 ¼-inch hollow stem augers. Standard Penetration Tests (SPT) were performed at the ground surface and in increments of 5 feet. Soils were visually classified (ASTM D2488) using SPT split spoon sampling (ASTM D1586).

One observation well was installed in B-3 (O.W.) after completion. The well was installed to 17 feet and contained 12 feet of 1-inch PVC riser overlying 5 feet of 1-inch screened PVC. Bentonite was placed near the ground surface and a road box was placed at the ground surface after the well was installed.

An exploration location plan and the exploration logs are included in *Appendix A* and *Appendix B*, respectively.

3.0 Laboratory Testing

Two grain size analyses were performed in B-3 (O.W.) from 5 to 7 feet and from 10 to 12 feet to estimate the infiltration rate of the granular material underneath the pump stations. The following table summarizes the constituents of the granular material:

GRAIN SIZE ANALYSES RESULTS					
Location	**Depth (ft)**	**Gravel (%)**	**Sand (%)**	**Fines (%)**	**Moisture Content (%)**
B-3 (O.W.)	5 to 7	7	90	3	6.2
B-3 (O.W.)	10 to 12	0	83.7	16.3	12.3

Detailed results of the laboratory testing can be found in *Appendix C.*

4.0 Subsurface Conditions

4.1 Soil

From the explorations, the soil at this site generally consists of the following:

- **Pavement** (encountered in B-2; 6 inches thick)
- **Fill** (1 to 5 feet thick)
- **Marine Ice Delta** (14.5 to 19.5 feet thick)

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- **Glacial Marine** (1.5 to 6 feet thick)
- **Glacial Till** (very dense in every exploration; less than 1 foot of thickness explored)

The pavement is bituminous and generally less than 6 inches thick overlying a base course of sand and gravel.

The **fill** generally consists of sand with varying amounts of gravel and silt. It is generally loose to compact and humid to damp. It is 1 to 5 feet thick and is visually classified as either SP or SP-SM in accordance with the Unified Soil Classification System (USCS). SPT N-values range from 6 blows per foot (bpf) to 27 bpf and average 18 bpf.

The **marine ice delta** generally consists of various colored sands with little to trace gravel and varying amounts of silt. It is generally very loose to compact and damp to saturated. It is 14.5 to 19.5 feet thick and is visually classified as either SP, SP-SM, or SM in accordance with the USCS. SPT N-values range from 2 bpf to 16 bpf and average 10 bpf.

The **glacial marine** generally consists of silt or clay with varying amounts of sand. It is generally very soft to very firm and wet to saturated. It is 1.5 to 6 feet thick and is visually classified as either ML or CL in accordance with the USCS. SPT N-values range from 1 bpf to 22 bpf and average 8 bpf.

The **glacial till**, sampled in B-2 and B-4, generally consists of gray or tan sand with some to little silt, little gravel, and trace clay. It is generally compact to very dense and wet. The glacial till, where explored, was less than 1 foot thick before it became very dense after penetration into the layer.

Detailed descriptions of the soil can be found in the exploration logs in *Appendix B*.

4.2 Groundwater

Groundwater was measured or estimated at the following depths and approximate elevations:

GROUNDWATER DEPTHS AND ELEVATIONS				
Location	**Date**	**Depth (ft)**	**Elevation (ft +/-)**	**Reference**
B-1	9/20/2023	15.0	283.0	Estimated in spoon samples
B-2	9/20/2023	15.0	284.0	Estimated in spoon samples
B-3 (O.W.)	9/20/2023	14.9	284.1	Measured in observation well
	9/28/2023	15.0	284.0	
	12/6/2023	15.0	284.0	
B-4	9/20/2023	15.0	284.0	Estimated in spoon samples
B-5	9/20/2023	15.0	283.5	Estimated in spoon samples

Note: O.W. = Observation Well

Groundwater was generally encountered within the marine ice delta formation at or near 15 feet with elevations ranging from 283 to 284 feet. Based on readings from the observation well in the middle of the site, the permanent groundwater should remain consistent near this elevation, however, slight fluctuation is anticipated seasonally and with precipitation levels.

4.3 Bedrock

Refusal on dense stratums were encountered in B-1 at 26.6 feet (elevation 271.4 feet), B-4 at 25.8 feet (elevation 273.2 feet), and B-5 at 22.9 feet (elevation 275.6 feet). B-4 contained weathered rock in the spoon tip after the glacial till was sampled. It cannot be determined based on the collected data if the refusal for these borings was on a dense portion of glacial till, a cobble/boulder, or on hard bedrock. Bedrock will not be encountered during construction.

5.0 Geotechnical Recommendations

5.1 Bearing Capacity and Subgrade Preparation

Based on the results of our subsurface explorations, foundations can be supported on conventional continuous or spread footing foundations. We recommend that the bottom of the footings for the proposed buildings be constructed on a minimum of 6 inches of ¾-inch crushed stone (CS) placed over proofrolled native soil. Assuming that the recommendations below are followed, footings on soil can be proportioned using a maximum allowable bearing pressure of **3,000 pounds per square foot (psf)**. The allowable bearing pressure for both buildings is based on the following construction sequences:

- After grubbing the building footprint, proofroll the exposed soil by making a minimum of 4 passes in each of two perpendicular directions using a vibratory compactor with a minimum operating weight of 8 tons.

- Excavate to 6 inches below the proposed bottom of footing elevation. Proofroll the exposed soil by making a minimum of 4 passes using a plate compactor. Soft, wet, or unstable areas should be removed and replaced with CS.

- Place a minimum of 6 inches of CS directly on the proofrolled soil. CS should be compacted to lock the particles together. The footings can be constructed directly on the compacted CS. In no case shall footings be constructed in standing water or frozen soil.

- SGS should observe the footing subgrade conditions after proofrolling and prior to the placement of the CS.

5.2 Frost Protection

The design air freezing index for the Cumberland, Maine area is approximately 1,190-degree F days (10-year, 90% probability). Based on this, exterior footings and other footings exposed to freezing temperatures should be placed at a minimum depth of **4 feet** in order to provide adequate frost protection. We recommend that all foundations exposed to freezing temperatures be backfilled with Granular Borrow (GB).

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5.3 Seismic Design

Based on the discovered soils, this site can be classified as **Seismic Site Class D** in accordance with ASCE 7-10 and 7-16. The following seismic design coefficients should be used:

SUBGRADE SITE SEISMIC DESIGN COEFFICIENTS – ASCE 7		
Seismic Coefficient	**ASCE 7-10 (Class D)**	**ASCE 7-16 (Class D)**
S_S	0.248	0.290
S_1	0.080	0.073
S_{MS}	0.396	0.454
S_{M1}	0.192	0.176
S_{DS}	0.264	0.303
S_{D1}	0.128	0.118
PGA_m	0.206 g	0.251 g

No liquefiable soils were encountered in our explorations.

5.4 Underdrains and Exterior Grading

Groundwater was encountered within the middle portions of the marine ice delta formation. Groundwater is anticipated to be below the proposed bottom of footing elevations. Based on these conditions, underdrains are not strictly necessary, however, it is generally good practice to install underdrains along the exterior and interior foundations of the building to account for any local or regional changes in the hydrogeology and to control infiltration of rainfall adjacent to the foundation walls.

Underdrains, if used, should consist of 4-inch rigid PVC or flexible ADS pipe surrounded by 6 inches of ¾-inch crushed stone (CS) which is then surrounded by Mirafi 140N or equivalent. Underdrains should be outlet to a free draining location. Where exposed at the ground surface, a screen or other device should be placed over the outlet to prevent the migration of animals into the underdrain system.

In addition, we recommend all exterior grades slope away from the building footprint to reduce runoff water from infiltrating the foundation backfill soils.

5.5 Slabs-on-Grade

All fill should be compacted to a minimum of 95% of ASTM D1557. The gradation requirements for Granular Borrow (GB), ¾-inch crushed stone (CS), and Structural Fill (SF) can be found in *Section 6.2*.

5.5.1 Interior Slabs

All interior slabs should be constructed on either a minimum of 12 inches of SF compacted to a minimum of 95% of ASTM D1557 or 8 inches of CS compacted to lock the particles together.

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Fill required to raise the grade to the bottom of the slab elevation should consist of GB or SF, placed and compacted to a minimum of 95% of ASTM D1557.

5.5.2 Exterior Slabs

For slabs in unheated entry areas, the following options should be considered for frost protection:

- Construct slab on frost wall foundation, in accordance with *Section 5.1 and 5.2*
- 6-inch slab (minimum thickness) over 2 inches of rigid insulation over 12 inches CS or SF (compacted)
- 6-inch slab (minimum thickness) over 36 inches CS or SF (compacted)

We recommend that insulation, if used, be extended 2 feet beyond the edge of the slabs and that it consist of a rigid polystyrene product.

5.6 Pavement Section Recommendations

The mean annual freezing index for the Cumberland, Maine area is estimated at 890-degree F days (2-year, 50% probability). Based on the explorations, the subgrade for the pavement sections will consist of either imported fill or existing fill soils. Based on the mean annual freezing index, the anticipated mean annual frost penetration depth is 36 inches.

For the parking lots and access road, we recommend a minimum total section thickness of **18 inches**. We further recommend that the pavement section consist of the following materials:

PAVEMENT SECTION MATERIALS AND THICKNESSES		
Material	**Thickness (in)**	**Specifications**
Asphalt Surface Course	1 1/4	MDOT 703.09 Type 9.5 mm (Light Duty) or 12.5 mm (Heavy Duty)
Asphalt Binder Course	1 3/4	MDOT 703.09 Type 19 mm
Base Soil	3	MDOT 703.06 Type A
Subbase Soil	12	MDOT 703.06 Type D

Reference: *MDOT Standard Specifications, 2014*

Fill beneath the subbase soil should consist of Common Borrow (CB), see *Section 6.2*, compacted to a minimum of 95% of ASTM D1557. Underdrains are not necessary beneath paved areas.

5.7 Underground Storage Tanks

Underground storage tanks are proposed to be constructed about 16 feet below the ground surface within the proposed shared parking lot. We anticipate that the underground storage tanks will bear on a concrete anchor slab. We recommend the anchor slab be constructed on a minimum of 12 inches of CS placed above the proofrolled native soil. The CS should extend a minimum of 2 feet outside the edge of the tank and should be compacted to lock the particles together.

Excavations this deep likely create unstable sidewalls. To mitigate the effects of these sidewalls potentially collapsing during construction, we recommend temporary shoring be constructed or the excavated slopes not exceed 1.5H:1V.

SGS anticipates groundwater to be encountered near the bottom of the excavations for the underground storage tanks. Dewatering techniques may be required for construction. Dewatering can be perfomed using shallow sumps and pumps or equivalent methods. It should be assumed that groundwater is at a minimum elevation of 285 ft (14 ft BGS) for buoyancy computations. SGS recommends excavation sidewalls that are within the limits of the groundwater table do not exceed slopes of 1.5H:1V. Backfill for the underground tanks can consist of SF or GB placed and compacted to a minimum of 95% of ASTM D1557.

6.0 Earthwork Considerations

6.1 Earthwork for Construction

All soils, existing and imported, should have an OSHA temporary excavation stability soil classification of Type C. Side slopes should not exceed 1.5H:1V. This permissible slope is for excavations less than 20 feet deep. Excavations deeper than this should be designed by a professional engineer.

De-watering in the excavations may be required if water begins to pond in the excavations. We anticipate that dewatering, if necessary, can be accomplished using shallow sump and pumps.

Adequate proof rolling of the subgrade soil is important to the success of any fill as a uniform bearing material, especially if the subgrade soil is loose in isolated areas. All foundations should be constructed on a minimum of 6 inches of compacted CS.

To the extent possible, construction should occur during periods of dry weather to minimize disturbance to excavated subgrade areas. If excavations and construction occur during wet periods, the contractor should employ the necessary measures to eliminate disturbance to the subgrade from heavy rainfall, surface water runoff, freeze/thaw softening, or any other potential weather-related cause of subgrade disturbance.

Once excavation for the footings is initiated, SGS should be contacted to observe the subgrade conditions after proofrolling and prior to the placement of the CS.

6.2 Materials

The gradation requirements reflect the portion of soil passing the 3-inch sieve size. The following table presents the recommended grain sizes for the materials to be used at the site:

Office: 210 Maine Avenue | Farmingdale, ME 04344
Mail: P.O. Box 515 | Gardiner, ME 04345

GRADATION REQUIREMENTS FOR SITE MATERIALS			
Sieve Size	**[1] Structural Fill (SF)**	**[2] Crushed Stone (CS)**	**[3] Granular Borrow (GB)**
3 Inch	100	---	100
2 Inch	---	---	---
1 Inch	---	100	---
¾ Inch	---	90 – 100	---
½ Inch	35 – 80	20 – 55	---
⅜ Inch	---	0 – 15	---
¼ Inch	25 – 65	---	---
No. 4	---	0 – 5	---
No. 40	0 – 30	---	0 – 70
No. 200	0 – 7	---	0 – 7
Maximum Particle Size	6”	1”	6”
[4] Minimum Compaction Requirement	95%	---	95%

[1]Maine DOT Specification 703.06, 2014, Type D
[2]Maine DOT Specification 703.13, 2020, Crushed Stone ¾-Inch
[3]Maine DOT Specification 703.19, 2020, Granular Borrow
[4]Per ASTM D1557

CS should be placed in 12-inch maximum lifts and compacted with a minimum of 4 passes with a vibratory compactor. GB should consist of a free draining, granular soil. **The upper portions of the marine ice delta <10 feet BGS will meet the requirements for GB**. Grain size analyses should be performed during construction to ensure the marine ice delta formation will meet the requirements for GB.

Common Borrow (CB) used at the site should consist of earth, suitable for embankment construction. It shall be free from frozen material, perishable rubbish, peat, and other unsuitable material including material currently or previously contaminated by chemical, radiological, or biological agents and should be able to be placed and compacted to a stable state.

6.3 Summary of Site Fill

The following table provides a summary of the proposed fill materials for the site and the requirements for use during construction:

SUMMARY OF SITE FILL			
Category	**Use for Fill**	**Materials**	**Requirements/Notes**
Footings	Footing Bearing Material	CS	- Minimum 6-inch thickness - Compacted to lock the particles together
	Underneath Footing Bearing Material	GB, SF, or Marine Ice Delta	- Compacted to a minimum of 95% of ASTM D1557 - Maximum particle size of 6 inches
	Exterior Backfill for Foundation Walls	GB	- Compacted to a minimum of 95% of ASTM D1557
Slabs	Slab Bearing Material	CS or SF	- 8 inches of CS compacted to lock the particles together **OR** - 12 inches of SF compacted to a minimum of 95% of ASTM D1557
	Underneath Slab Bearing Material	GB, SF, or Marine Ice Delta	- Compacted to a minimum of 95% of ASTM D1557 - Maximum particle size of 6 inches
Pavement	Underneath Pavement Subbase	CB	- Compacted to a minimum of 95% of ASTM D1557
Underground Storage Tanks	Anchor Slab Bearing Material	CS	- Minimum 6-inch thickness - Compacted to lock the particles together
	Backfill for Tanks	GB, SF, or Marine Ice Delta	- Compacted to a minimum of 95% of ASTM D1557 - Maximum particle size of 6 inches
Landscape Areas		CB	- Compacted to a minimum of 90% of ASTM D1557

7.0 Closure

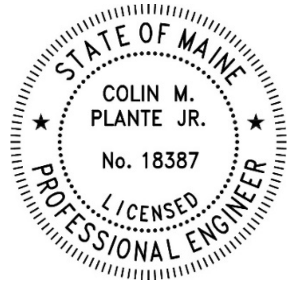
Our recommendations are based on professional judgment, generally accepted principles of geotechnical engineering and project information provided by others. No other warranty is expressed or implied. Some changes in subsurface conditions from those presented in this report may occur. Should the subsurface conditions, finish grades, or foundation loadings differ materially from those described in this report, SGS should be notified so that we can re-evaluate our recommendations.

We recommend that a qualified third-party testing agency be retained to provide QA/QC services during construction.

SGS should be contacted to observe the footing subgrade after compaction and before the placement of the CS to ensure the subgrade conditions are sufficient to support the proposed foundations.

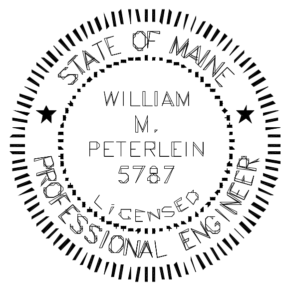
We appreciate the opportunity to serve you during this phase of your project. If there are any questions or if additional information is required, please do not hesitate to call.

Sincerely,
Summit Geoengineering Services, Inc.



Colin M. Plante, P.E.
Geotechnical Engineer

William M. Peterlein, P.E.
President & Principal Engineer

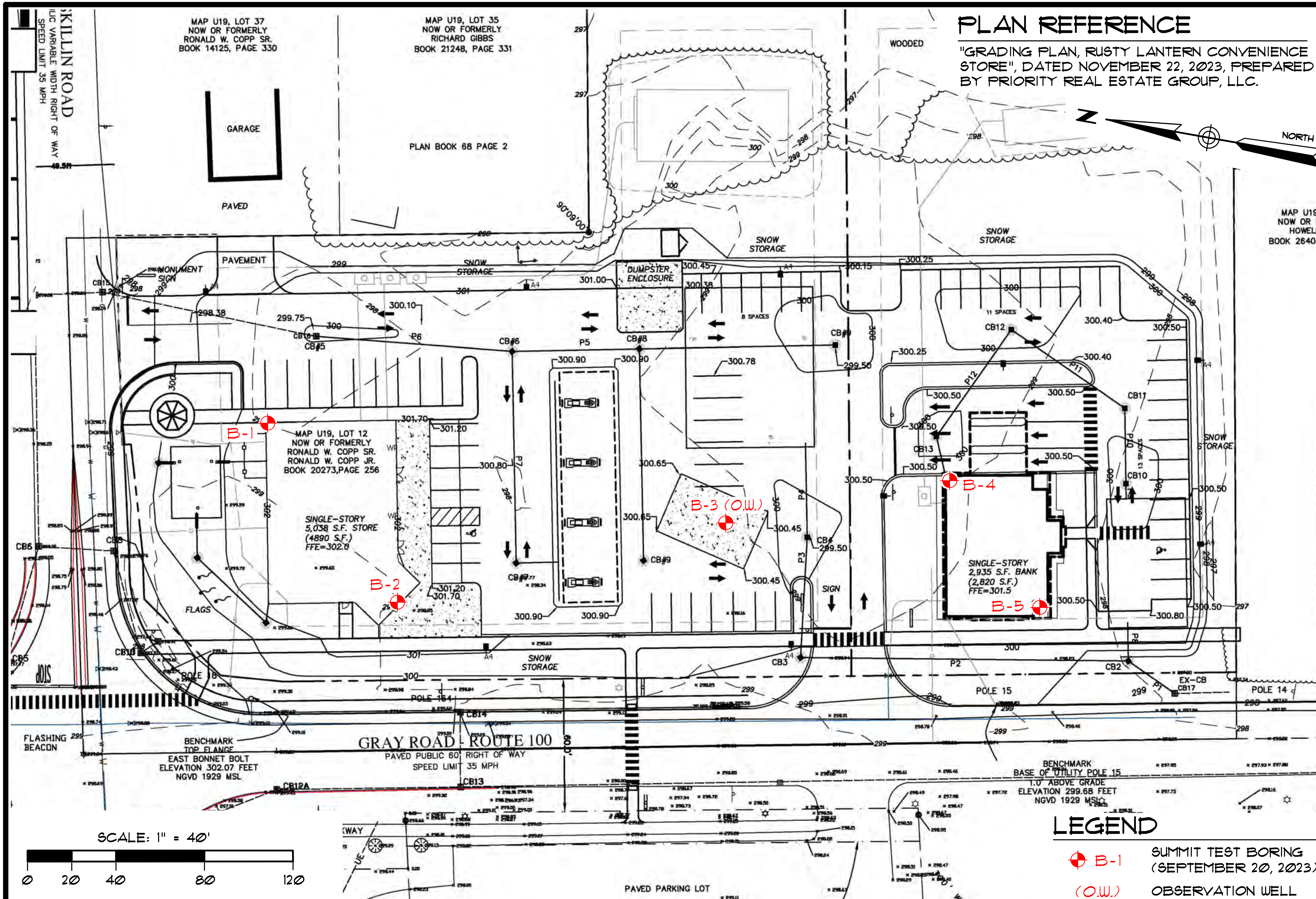


Office: 210 Maine Avenue | Farmingdale, ME 04344
Mail: P.O. Box 515 | Gardiner, ME 04345

Appendix A

Figures

Office: 210 Maine Avenue | Farmingdale, ME 04344
Mail: P.O. Box 515 | Gardiner, ME 04345



PLAN REFERENCE

"GRADING PLAN, RUSTY LANTERN CONVENIENCE STORE", DATED NOVEMBER 22, 2023, PREPARED BY PRIORITY REAL ESTATE GROUP, LLC.

SCALE: 1" = 40'

0 20 40 80 120

LEGEND

B-1 SUMMIT TEST BORING (SEPTEMBER 20, 2023)

(O.W.) OBSERVATION WELL

PROJECT: CONVENIENCE STORE & BANK
181 GRAY ROAD - CUMBERLAND, MAINE

CLIENT: PRIORITY REAL ESTATE GROUP

TITLE: TEST BORING LOCATION PLAN

DRAWN BY: KRF

APPR. BY: CMP

SCALE: 1" = 40'

DATE: SEPT. 25, 2023

MAIL: P.O. BOX 515
GARDINER, ME 04345
OFFICE: 210 MAINE AVENUE
FARMINGDALE, MAINE
TEL.: (207) 446-3360
SUMMIT
GEOENGINEERING SERVICES

PROJ.#: 23241

FIGURE: 1

Appendix B

Exploration Logs

Office: 210 Maine Avenue | Farmingdale, ME 04344
Mail: P.O. Box 515 | Gardiner, ME 04345

SOIL BORING LOG		Boring #:	B-1
Project:	Proposed Store and Bank	Project #:	23241
Location:	181 Gray Road	Sheet:	1 of 2
City, State:	Cumberland, ME	Chkd by:	WMP

Drilling Co:	Summit Geoengineering Services, Inc.	Boring Elevation	298 ft +/-
Driller:	S. Floyd	Reference:	Grading Plan - C5, Priority Real Estate Group, 11/22/2023
Summit Staff:	C. Plante, EI	Date started:	9/20/2023 Date Completed: 9/20/2023

DRILLING METHOD		SAMPLER	
Vehicle:	AMS PP	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2 1/4" HSA	Hammer:	140 lb
Hammer Style:	Automatic	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
9/20/2023	15 ft	283.0 ft +/-	Estimated in spoon samples

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/11	0 to 2	15		Black Gravelly SAND, trace Silt, compact, humid, SP		FILL
1				8		Light brown SAND, little Gravel, SP		
				6		Brown SAND, little Silt, trace Gravel, SP-SM		
2				3				MARINE ICE DELTA
3								
4								
5								
	S-2	24/14	5 to 7	4		Light brown SAND, trace Gravel and Silt, SP		
6				6		Tan SAND, compact, damp to moist, SP		
				6		White weathered rock from 5.4 to 5.5 ft		
7				6				
8								
9								
10								
	S-3	24/19	10 to 12	3		Tan SAND, little to trace Silt, loose, moist, SP		
11				4		Some to little Silt in seams		
				4				
12				5				
13								
14								
15					▽			
	S-4	24/17	15 to 17	2		Light brown SAND, little to trace Silt, loose, saturated, SP		
16				4				
				4				
17				5				
18						Running Sands at 18 ft		
						Switch to casing		
19								
20								
	S-5	24/20	20 to 22	1		Gray brown SAND, trace Silt, very loose, saturated, SP		
21				1		Brownish gray Clayey SILT, some fine Sand, slightly	PP = 1.5 tsf	
				2		mottled, soft, saturated, ML		GLACIAL MARINE
22				3		Occasional fine Sandy SILT seams		

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Bedrock Joints Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT GEOENGINEERING SERVICES	SOIL BORING LOG	Boring #:	B-1
	Project: Proposed Store and Bank	Project #:	23241
	Location: 181 Gray Road	Sheet:	2 of 2
	City, State: Cumberland, ME	Chkd by:	WMP

Drilling Co:	Summit Geoengineering Services, Inc.	Boring Elevation	298 ft +/-
Driller:	S. Floyd	Reference:	Grading Plan - C5, Priority Real Estate Group, 11/22/2023
Summit Staff:	C. Plante, EI	Date started: 9/20/2023	Date Completed: 9/20/2023

DRILLING METHOD		SAMPLER	
Vehicle:	AMS PP	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2 1/4" HSA	Hammer:	140 lb
Hammer Style:	Automatic	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
9/20/2023	15 ft	283.0 ft +/-	Estimated in spoon samples

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
						Brownish gray Clayey SILT, some fine Sand, slightly		
23						mottled, soft, saturated, ML		GLACIAL MARINE
24								
25								
	S-6	24/24	25 to 27	WH		Gray Silty CLAY, little Sand, very soft, saturated, CL		
26				WH				
				5		Gray fine Sandy SILT, some Clay, firm, saturated, ML		
27				7				GLACIAL TILL
				50/7.5"		Probe with spear tip and SPT hammer		
28						End of Boring at 26.6 ft - Refusal on dense stratum		
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Bedrock Joints Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT GEOENGINEERING SERVICES	**SOIL BORING LOG**	Boring #:	**B-2**
	Project: Proposed Store and Bank	Project #:	23241
	Location: 181 Gray Road	Sheet:	1 of 1
	City, State: Cumberland, ME	Chkd by:	WMP

Drilling Co:	Summit Geoengineering Services, Inc.	Boring Elevation	299 ft +/-
Driller:	S. Floyd	Reference:	Grading Plan - C5, Priority Real Estate Group, 11/22/2023
Summit Staff:	C. Plante, EI	Date started: 9/20/2023	Date Completed: 9/20/2023

DRILLING METHOD		SAMPLER	
Vehicle:	AMS PP	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2 1/4" HSA	Hammer:	140 lb
Hammer Style:	Automatic	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
9/20/2023	15 ft	284.0 ft +/-	Estimated in spoon samples

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
						6" Pavement		PAVEMENT
1						Brown SAND, little to trace Gravel, trace Silt, loose, damp, SP		
	S-1	24/13	0 to 2	4				FILL
2				3				
				3				
3				1				
4								
5								
	S-2	24/16	5 to 7	1		Light brown SAND, trace Gravel, very loose, damp to moist, SP		
6				1				MARINE ICE DELTA
				1				
7				2				
8								
9								
10								
	S-3	24/20	10 to 12	3		Tan fine SAND, little to trace Silt, loose, damp, SP		
11				3				
				3				
12				4				
13								
14								
15					▽			
	S-4	24/17	15 to 17	2		Tan SAND, compact, saturated, SP		
16				3		Olive tan SAND, some to little Silt, slightly mottled, compact, wet, SM-SP		
				10				
17				10				
18								
19								
20								
	S-5	24/24	20 to 22	3		Grayish brown fine Sandy SILT, some Clay, stiff, saturated, ML	PP = 1.3 - 3.0 tsf	
21				3				GLACIAL MARINE
				6				
22				29		Brownish gray SAND, some to little Silt, little Gravel, trace Clay, compact, wet, SM-SP		GLACIAL TILL
						End of Boring at 22 ft - No refusal		

Granular Soils		Cohesive Soils		% Composition	NOTES:	Soil Moisture Condition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487	PP = Pocket Penetrometer, MC = Moisture Content	
					LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test	Dry: S = 0%
0-4	V. Loose	<2	V. soft		Bedrock Joints — Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength	Humid: S = 1 to 25%
5-10	Loose	2-4	Soft	< 5% Trace	Shallow = 0 to 35 degrees	Damp: S = 26 to 50%
11-30	Compact	5-8	Firm	5-15% Little	Dipping = 35 to 55 degrees	Moist: S = 51 to 75%
31-50	Dense	9-15	Stiff	15-30% Some	Steep = 55 to 90 degrees	Wet: S = 76 to 99%
>50	V. Dense	16-30	V. Stiff	> 30% With		Saturated: S = 100%
		>30	Hard		Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches	
					Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200	

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	Proposed Store and Bank	Boring #:	B-3 (O.W.)
Location:	181 Gray Road	Project #:	23241
City, State:	Cumberland, ME	Sheet:	1 of 1
		Chkd by:	WMP

Drilling Co:	Summit Geoengineering Services, Inc.	Boring Elevation	299 ft +/-
Driller:	S. Floyd	Reference:	Grading Plan - C5, Priority Real Estate Group, 11/22/2023
Summit Staff:	C. Plante, EI	Date started:	9/20/2023 Date Completed: 9/20/2023

DRILLING METHOD		SAMPLER	
Vehicle:	AMS PP	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2 1/4" HSA	Hammer:	140 lb
Hammer Style:	Automatic	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
9/20/2023	14.9 ft	284.1 ft +/-	Measured in well
9/28/2023	15.0 ft	284.0 ft +/-	Measured in well
12/6/2023	15.0 ft	284.0 ft +/-	Measured in well

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/10	0 to 2	10		Brown Gravelly SAND, trace Silt, SP		
1				14		White weathered rock in tip (Probable Cobble)		FILL
				13				
2				8				
3								
4								
5								
	S-2	24/20	5 to 7	4		Light brown SAND, trace Silt and Gravel, loose, damp,	7% GRAVEL	
6				5		SP	90% SAND	MARINE ICE DELTA
				5			3% SILT	
7				6			MC = 6.2%	
8								
9								
10								
	S-3	24/21	10 to 12	6		Tan SAND, little to trace Silt, slightly mottled in seams,	0% GRAVEL	
11				8		compact, damp to moist, SP	84% SAND	
				8			16% SILT	
12				7		Trace Silt in tip	MC = 12.3%	
13								
14								
15					▽			
	S-4	24/18	15 to 17	3		Grayish tan SAND, some to little Silt, loose, saturated,		
16				5		SP-SM		
				5		Occasional Silty Sand seams		
17				4				
						End of Boring at 17 ft - No refusal		
18								
						Well Description		
19						0-10' RISER		
						10-15' SCREEN		
20								
						0-0.8' ROAD BOX		
21						0.8-1.5' BENTONITE		
						1.5-15' BACKFILL (SAND)		
22								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Bedrock Joints Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	Proposed Store and Bank	Boring #:	**B-4**
Location:	181 Gray Road	Project #:	23241
City, State:	Cumberland, ME	Sheet:	1 of 2
		Chkd by:	WMP

Drilling Co:	Summit Geoengineering Services, Inc.	Boring Elevation	299 ft +/-
Driller:	S. Floyd	Reference:	Grading Plan - C5, Priority Real Estate Group, 11/22/2023
Summit Staff:	C. Plante, EI	Date started:	9/20/2023 Date Completed: 9/20/2023

DRILLING METHOD		SAMPLER	
Vehicle:	AMS PP	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2 1/4" HSA	Hammer:	140 lb
Hammer Style:	Automatic	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
9/20/2023	15 ft	284.0 ft +/-	Estimated in spoon samples

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/15	0 to 2	8		Brown SAND, some to little Gravel, little to trace Silt,		
1				11		compact, damp, SP-SM		FILL
				4				
2				3		Dark brown SAND, some Silt, little Gravel, SM		
								MARINE ICE DELTA
3								
4								
5								
	S-2	24/16	5 to 7	5		Tan SAND, trace Gravel, compact, damp, SP		
6				6				
				7				
7				7				
8								
9								
10								
	S-3	24/22	10 to 12	3		Tan fine SAND, trace Silt, loose, damp, SP		
11				5				
				5				
12				6				
13								
14								
15					▽			
	S-4	24/18	15 to 17	2		Tan SAND, little Silt, loose, saturated, SP-SM		
16				2		Silty in seams		
				3				
17				6				
18								
19								
20								
	S-5	24/24	20 to 22	6		Brown SAND, some Silt, loose, saturated, SM		
21				4		Brownish gray fine Sandy SILT, some Clay, slightly	PP = 1.0 - 2.3 tsf	
				4		mottled, firm, wet, ML		GLACIAL MARINE
22				4				

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Bedrock Joints Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SOIL BORING LOG		Boring #:	B-4
Project:	Proposed Store and Bank	Project #:	23241
Location:	181 Gray Road	Sheet:	2 of 2
City, State:	Cumberland, ME	Chkd by:	WMP

Drilling Co:	Summit Geoengineering Services, Inc.	Boring Elevation	299 ft +/-
Driller:	S. Floyd	Reference:	Grading Plan - C5, Priority Real Estate Group, 11/22/2023
Summit Staff:	C. Plante, EI	Date started:	9/20/2023 Date Completed: 9/20/2023

DRILLING METHOD		SAMPLER	
Vehicle:	AMS PP	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2 1/4" HSA	Hammer:	140 lb
Hammer Style:	Automatic	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
9/20/2023	15 ft	284.0 ft +/-	Estimated in spoon samples

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
23						Brownish gray fine Sandy SILT, some Clay, slightly mottled, firm, wet, ML		GLACIAL MARINE
24								
25								
	S-6	24/18	25 to 27	11		Lt brn SAND, some to little Silt, compact, saturated, SM		
26				50/3"		Tan SAND, some to little Silt, little Gravel, trace Clay, compact, wet, SM		GLACIAL TILL
27						Black weathered rock in spoon tip		
						End of Boring at 25.8 ft - Refusal on dense stratum		
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #:	B-5		
Project:	Proposed Store and Bank	Project #:	23241
Location:	181 Gray Road	Sheet:	1 of 1
City, State:	Cumberland, ME	Chkd by:	WMP

Drilling Co:	Summit Geoengineering Services, Inc.	Boring Elevation	298.5 ft +/-
Driller:	S. Floyd	Reference:	Grading Plan - C5, Priority Real Estate Group, 11/22/2023
Summit Staff:	C. Plante, EI	Date started: 9/20/2023	Date Completed: 9/20/2023

DRILLING METHOD		SAMPLER	
Vehicle:	AMS PP	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2 1/4" HSA	Hammer:	140 lb
Hammer Style:	Automatic	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
9/20/2023	15 ft	283.5 ft +/-	Estimated in spoon samples

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/17	0 to 2	10		Grayish brown SAND, some to little Gravel, trace Silt,		
1				10		compact, damp, SP		FILL
				10		Black SAND, SP		
2				5		Reddish brown SAND, some to little Silt, SM-SP		
								MARINE ICE DELTA
3								
4								
5								
	S-2	24/15	5 to 7	5		Tan SAND, trace Gravel, compact, damp, SP		
6				7				
				6				
7				6				
8								
9								
10								
	S-3	24/18	10 to 12	3		Tan SAND, loose, damp to moist, SP		
11				5				
				5				
12				5				
13								
14								
15					▽			
	S-4	24/19	15 to 17	4		Tan SAND, compact, saturated, SP		
16				9				
				12		Light gray fine Sandy SILT, some Clay, very stiff, wet,		
17				10		ML		GLACIAL MARINE
18								
19								
20								
	S-5	24/24	20 to 22	2		Grayish brown fine Sandy SILT, some Clay, firm,		
21				3		saturated, ML		
				4		Few Clayey SILT seams		
22				4				
				66		Probe with spear tip and SPT hammer		GLACIAL TILL
						End of Boring at 22.9 ft - Refusal in dense stratum		

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

Appendix C

Laboratory Testing

Office: 210 Maine Avenue | Farmingdale, ME 04344
Mail: P.O. Box 515 | Gardiner, ME 04345

GEOENGINEERING SERVICES

GRAIN SIZE ANALYSIS - ASTM D6913

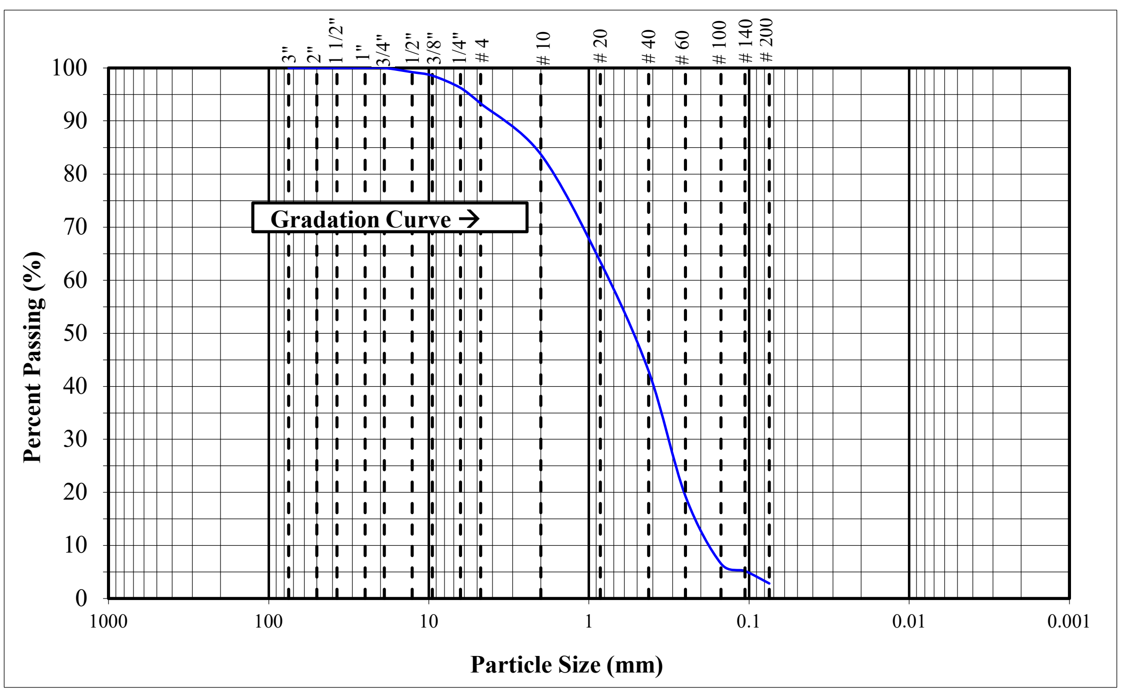
PROJECT NAME:	Proposed Gas Station and Bank	PROJECT #:	23241
PROJECT LOCATION:	181 Gray Road, Cumberland, ME	EXPLORATION #:	B-3
CLIENT:	Priority Real Estate Group	SAMPLE #:	S-2
TECHNICIAN:	C. Plante, EI	SAMPLE DEPTH:	5' to 7'
SOIL DESCRIPTION:	Fine-medium SAND, little Gravel, trace Silt, SP	TEST DATE:	9/25/2023

TEST PROCEDURE

Sample Source: Split Spoon	**Sieve Stack:** Composite	**Specimen Procedure:** Moist
Test Method: Method A	**Separating Sieve(s):** 3/8 Inch	**Dispersion Type:** Tap Water

DATA

STANDARD SIEVE DESIGNATION (mm)	ALTERNATIVE SIEVE DESIGNATION (in)	PERCENT PASSING (%)
75	(3 in)	100
50	(2 in)	100
37.5	(1-1/2 in)	100
25.0	(1 in)	100
19.0	(3/4 in)	100
12.7	(1/2 in)	99
9.5	(3/8 in)	99
6.35	(1/4 in)	96
4.75	(No. 4)	93
2.00	(No. 10)	84
0.850	(No. 20)	64
0.425	(No. 40)	43
0.250	(No. 60)	19
0.150	(No. 100)	7
0.106	(No. 140)	5
0.075	(No. 200)	3



REMARKS: Moisture Content = 6.2%

Reviewed By: ELS

Mailing: PO Box 515, Gardiner, ME 04345
Office: 210 Maine Avenue, Farmingdale, ME 04344

GEOENGINEERING SERVICES

GRAIN SIZE ANALYSIS - ASTM D6913

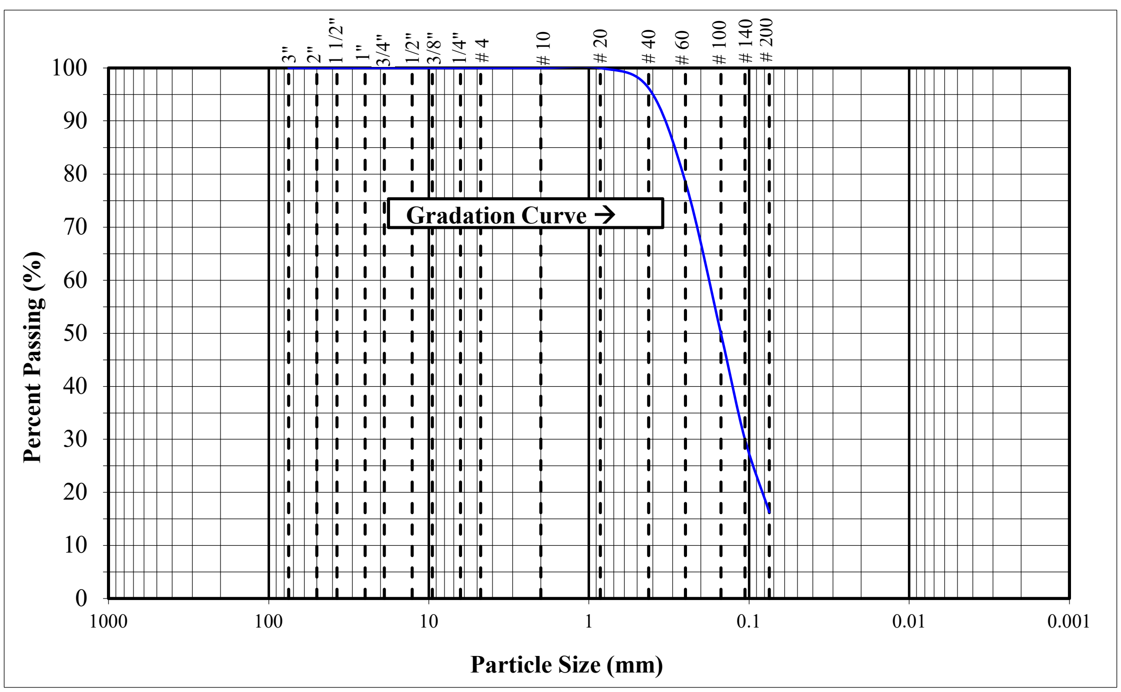
PROJECT NAME:	Proposed Gas Station and Bank	PROJECT #:	23241
PROJECT LOCATION:	181 Gray Road, Cumberland, ME	EXPLORATION #:	B-3
CLIENT:	Priority Real Estate Group	SAMPLE #:	S-3
TECHNICIAN:	C. Plante, EI	SAMPLE DEPTH:	10' to 12'
SOIL DESCRIPTION:	Fine SAND, some Silt, SM	TEST DATE:	9/25/2023

TEST PROCEDURE

Sample Source: Split Spoon	**Sieve Stack:** Single	**Specimen Procedure:** Moist
Test Method: Method B	**Separating Sieve(s):** 3/8 Inch	**Dispersion Type:** Tap Water

DATA

STANDARD SIEVE DESIGNATION (mm)	ALTERNATIVE SIEVE DESIGNATION (in)	PERCENT PASSING (%)
75	(3 in)	100.0
50	(2 in)	100.0
37.5	(1-1/2 in)	100.0
25.0	(1 in)	100.0
19.0	(3/4 in)	100.0
12.7	(1/2 in)	100.0
9.5	(3/8 in)	100.0
6.35	(1/4 in)	100.0
4.75	(No. 4)	100.0
2.00	(No. 10)	100.0
0.850	(No. 20)	100.0
0.425	(No. 40)	96.2
0.250	(No. 60)	78.5
0.150	(No. 100)	49.9
0.106	(No. 140)	30.0
0.075	(No. 200)	16.3



REMARKS: Moisture Content = 12.3%

Reviewed By: ELS

Mailing: PO Box 515, Gardiner, ME 04345
Office: 210 Maine Avenue, Farmingdale, ME 04344

Memorandum of Findings

Date: October 26, 2023

To: Curtis Neufeld, PE (Priority Real Estate Group)

From: Rodney Kelshaw, LSS, CPSS, CPESC, LSE, PWS, CWB (Flycatcher LLC)

Subject: Stormwater Test Pits: Proposed Convenience Store: Cumberland, Maine

Curtis,

This memorandum provides results and findings from a soil investigation conducted to inform siting and design of stormwater best management practices for a proposed convenience store (Project) in Cumberland. Test pits were excavated in the locations requested by Priority Real Estate Group (PREG) (Figure 1).

Figure 1. Test Pit Locations (black and white, numbered boxes).

<u>Methods:</u> A Maine Licensed Soil Scientist (LSS) and excavator operator from Flycatcher performed test pit observations on October 10, 2023. It should be noted that the summer and early fall of 2023 have been exceptionally wet. Three pits (TP02 – TP04) were excavated to a depth of at least 96 inches and wide enough for entrance to observe and document the soil features. Observations within the pits included color, texture, presence of redoximorphic features, presence of or depth to bedrock, firm horizons, saturation, and free water. During excavation of test pit TP01, the excavator hit an unmarked water line which flooded the pit. The excavation extended to a depth of approximately 54-inches, at which point the water line was located.

Findings: Based on aerial photograph review, the gravel area surrounding the test pit locations was filled and regraded over a period of time, beginning in the early 1990s. The elevation is at approximately 298 feet (above sea level) with a 0-3% slope across the site.

Prior to conducting the test pits, the USDA Natural Resource Conservation Service (NRCS) county soil mapping was consulted. The NRCS map for the area depicts one map unit: Hinckley loamy sand. The Hinckley series consists of very deep, excessively drained soils formed in glaciofluvial materials. Slope ranges from 0 to 6 percent. Texture in the B and C horizons ranges from sand, coarse sand, loamy sand, or loamy coarse sand.

Onsite soil observations generally indicated parent materials similar to the Hinckley series as mapped by the NRCS; however, the area has had between seven and 27 inches of sandy fill imported over the native soil surface.

A summary list of accompanying observations from the test pits is provided below.

- TP01 was in a layer of pavement. There was approximately seven inches of fill below the pavement and then the soil horizons were somewhat mixed, apparently from the installation of the water line at a depth of 54 inches.
- TP02 and TP03 had variable fill materials ranging from 17 to 27 inches thick, with textures ranging from fine sandy loam to gravelly loamy sand. Additionally, debris including bottles and old apparent electrical lines were noted within the fill materials. Both pits were excavated to 96-inches with no evidence of a water table observed in either, resulting in a hydrologic soil group (HSG) classification of A.
- TP04 found evidence of the water table (redoximorphic features and soil moisture) at 80 inches.
- TP01 and TP04 have firm layers within 10-inches of the surface, due to pavement and compaction of the fill materials, resulting in a HSG classification of D. If these horizons are removed throughout the stormwater treatment area, then a HSG A classification can be substituted.

Flycatcher mapped the test pits with a mapping grade GPS unit and the locations were provided to PREG in a georeferenced CAD drawing. Please see the attached Soil Conditions Summary Table (Form E) and Soil Profile Classification Information (Form F) for detailed soil data.

Please contact me with questions and thanks again reaching out.

Rodney D. Kelshaw

Rodney Kelshaw (CPSS, LSS, CPESC, LSE, PWS, CWB)
Managing Partner/Senior Scientist
C: (207) 944-6776

FORM E Rev. 7/21

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Convenience Store	Priority Real Estate Group	Cumberland

Lot No.	Exploration Symbol *(TP 1, B 2, etc.)*	✘ if at SSWD Field	Description of subsurface materials by: ● Soil profile/condition *(if by S.E.)*, ● Soil series name *(if by S.S.)*, or by ● Geologic unit *(if by C.G.)*	Depths to *(inches)*: Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
	TP01e	☐	HAHT	N.O.	N.O.	7	54	0-3	298
	TP02e	☐	HAHT	N.O.	N.O.	N.O.	96	0-3	298
	TP03e	☐	HAHT	N.O.	N.O.	N.O.	96	0-3	298
	TP04e	☐	HAHT	80	N.O.	0	96	0-3	298
		☐							
		☐							
		☐							
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		☐							
		☐							
		☐	N.O. = Not Observed						

LICENSED SOIL SCIENTIST
RODNEY D. KELSHAW
SS552
STATE OF MAINE

INVESTIGATOR INFORMATION AND SIGNATURE

Rodney Kelshaw
Signature

Rodney Kelshaw
Name Printed

☐ Site Evaluator
☒ Soil Scientist
☐ Geologist
☐ Professional Engineer

2023-10-10
Date

552
License No.

affix professional seal

FORM F (SS2) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Convenience Store	Priority Real Estate Group	Cumberland

Exploration Symbol # TP01c ☒ Test Pit ☐ Boring ☐ Probe

Ø " Organic horizon thickness Ground surface elev. 298

54 " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Depth	Horizon	Color	Texture	Structure	Consistence	Redox
0–2	PAVEMENT					
	A1	dk yl br		sbk	VFR	NONE OBSERVED
	A2	vdk br	grsl	pl	FI	
10	Bw1		grls	sbk	VFR	
	Bw2	dk yl br	cobls	pl	FR/FIP	
30	B/C	lt ol br	ls	sg	L	
50	C/B	pl ol	s			

LOI 54 INCHES

WATERLINE

Soil Series/Phase Name:	Limiting Factor	Depth
HAHT	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock	0 "

Drainage Class	Slope	Hydric Soil	Hydrologic Soil Group
☒ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD	0-3 Percent	☒ No ☐ Yes	D

Exploration Symbol # TP02e ☒ Test Pit ☐ Boring ☐ Probe

Ø " Organic horizon thickness Ground surface elev. 298

96 " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Depth	Horizon	Color	Texture	Structure	Consistence	Redox
0–18	A1	vdk br	fill cobls	SG/GR	L	NONE OBSERVED
18–30	A2	dk yl br	fill grls			
30–38	Ab	blk	fsl			
38–50	Bs	dk br	sl	sbk	FR	
50–60	B/C	yl br				
60–70	C/B	lt ol br				
70–96	C	pl ol	cos	SG	L	

LOI 96 INCHES

Soil Series/Phase Name:	Limiting Factor	Depth
HAHT	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock	N.O. "

Drainage Class	Slope	Hydric Soil	Hydrologic Soil Group
☒ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD	0-3 Percent	☒ No ☐ Yes	A

LICENSED SOIL SCIENTIST
RODNEY D. KELSHAW
SS552
STATE OF MAINE

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature: [signature]

Date: 2023-10-10

Name Printed: Rodney Kelshaw

SS License No.: 552

affix professional seal

FORM F (SS2) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name: Convenience Store | Applicant Name: Priority Real Estate Group | Project Location (municipality): Cumberland

Exploration Symbol # TP03e

☒ Test Pit ☐ Boring ☐ Probe

Ø " Organic horizon thickness — Ground surface elev. 298

96 " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)	Horizon	Color	Texture	Structure	Consistence	Redox
0–12	A	dk yl br	fill ls		FR/FIP	NONE OBSERVED
12–30	Ab / Eb / Bhs	blk / dk rd br	fsl	sbk		
30–50	Bs	dk br	lfs	sg/sbk	VFR	
50–58	B/C	lt ol br	s			
58–96	C	pl ol	cos	GR	L	
96	LOI 96 INCHES					

Soil Series/Phase Name: HAHT

Limiting Factor: N.O. " Depth ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Drainage Class: ☒ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope: 0-3 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic Soil Group: A

Exploration Symbol # TP04e

☒ Test Pit ☐ Boring ☐ Probe

Ø " Organic horizon thickness — Ground surface elev. 298

96 " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)	Horizon	Color	Texture	Structure	Consistence	Redox
0–10	Ap	blk	vgrls	m	FI	NONE OBSERVED
10–20	Bs	br	cols	sbk	FR	
20–32	Bw	yl br				
32–62	B/C	lt ol br	cos	GR	L	
62–80	C/B	pl yl	s			
80–96	C	pl ol	fs			st br 15%

Soil Series/Phase Name: HAHT

Limiting Factor: 0 " Depth ☐ Groundwater ☒ Restrictive Layer ☐ Bedrock

Drainage Class: ☒ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope: 0-3 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic Soil Group: D

LICENSED SOIL SCIENTIST RODNEY D. KELSHAW SS552 STATE OF MAINE

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature

Rodney Kelshaw

Name Printed

2023-10-10

Date

552

SS License No.

affix professional seal

Attachment K
Hydrogeologic Report

The report from Sevee & Mahar is included here for reference.

HYDROGEOLOGIC EVALUATION FOR PROPOSED RUSTY LANTERN MARKET 181 GRAY ROAD, CUMBERLAND, MAINE

Prepared for

CUMBERLAND REAL ESTATE GROUP
2 MAIN STREET
TOPSHAM, MAINE

STATE OF MAINE
LISA J. JACOB
GE603
GEOLOGIST

January 2024

4 Blanchard Road
P.O. Box 85A
Cumberland, Maine 04021
Phone: 207.829.5016 smemaine.com

ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

SME
SEVEE & MAHER ENGINEERS

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HYDROGEOLOGIC EVALUATION FOR
PROPOSED RUSTY LANTERN MARKET
181 GRAY ROAD, CUMBERLAND, MAINE

1.0 INTRODUCTION

Rusty Lantern Markets proposes to develop the properties at 173 and 181 Gray Road in Cumberland, Maine as a new Rusty Lantern Market and gas station site (hereinafter called the Site). The Site location is shown on Figure 1-1. Cumberland Real Estate Group (CREG) of Topsham, Maine are the lead engineers for the project. CREG has retained Sevee & Maher Engineers, Inc. (SME) to assist with hydrogeologic evaluation services to characterize the geology and groundwater flow conditions at and surrounding the Site.

The Site is located in an area designated by the Town of Cumberland, Maine (Town) as an Aquifer Protection Zone.[1] Section § 315-36, Regulations of Article V, Aquifer Protection from the Town's Code indicates that storage of petroleum or other refined petroleum products (not including storage of petroleum products for residential purposes) shall only be allowed based upon a positive finding by the Town Planning Board that the proposed use, with any conditions imposed by the Board, will not adversely affect the quality of groundwater.[2] SME's hydrogeologic evaluation for the Site is intended to provide information to the Town Planning Board, supplemental to the Site design and protective engineering controls provided by others, to make a determination for the suitability of the Site for installation of an Underground Oil Storage Tank (UST) for the gas station proposed for the Site.

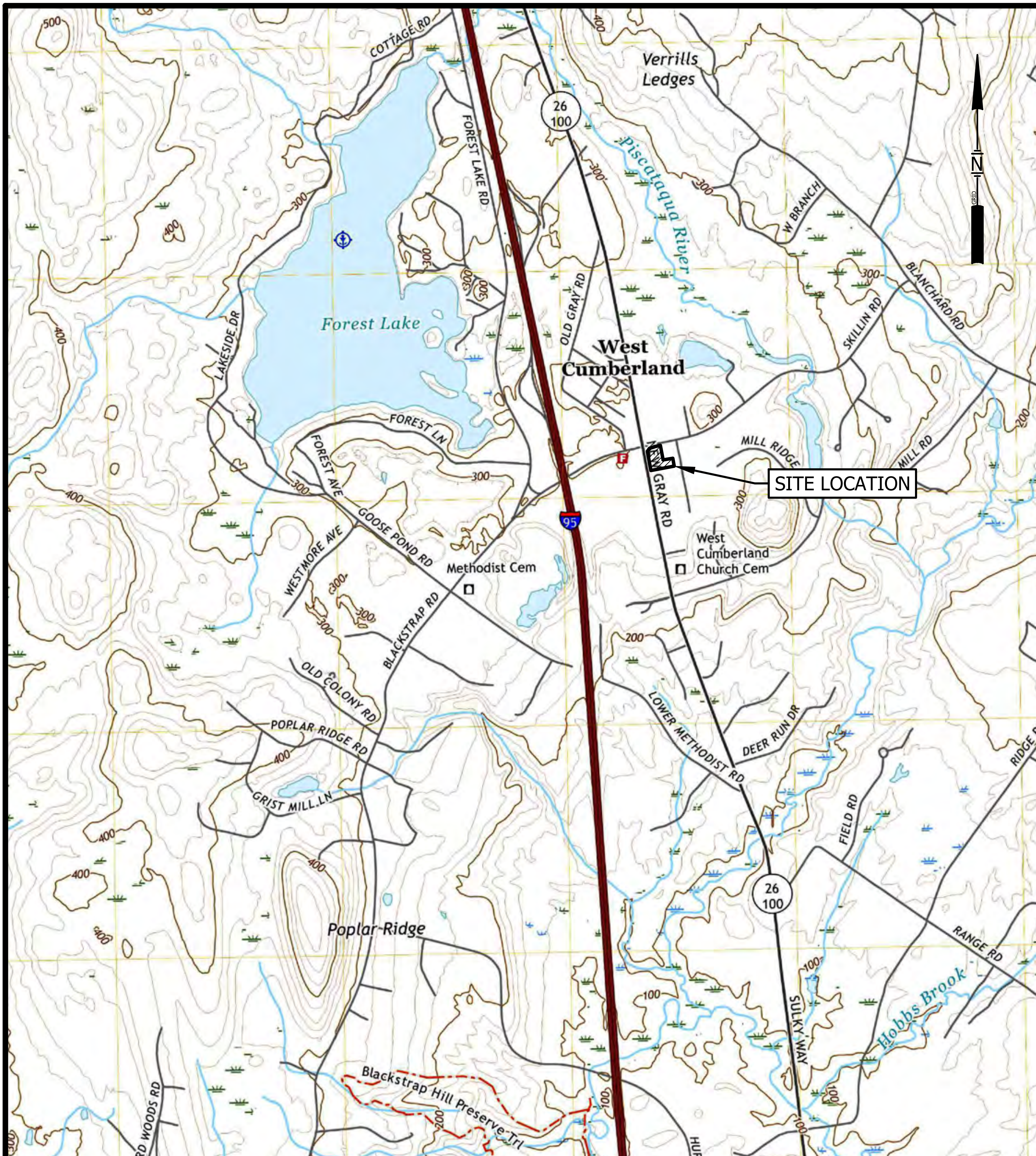
Based on the information provided in this report, it is SME's opinion that, with the Site's commercial zoning and existing hydrogeologic setting, and the stringent UST design standards imposed for Site development by the Maine Department of Environmental Protection (MEDEP) for a proposed UST site located in a significant sand and gravel aquifer, the Site is suitable for the proposed storage of refined petroleum products.

Background information for the Site is described in Section 2.0. As discussed in Section 2.5, SME submitted a work plan for a proposed hydrogeologic evaluation for the Site to MEDEP in November 2023 to support a variance for the prohibition of UST facilities located on significant sand and gravel aquifers with moderate yield. Based on the Site background information provided in the work plan, the MEDEP waived the requirement of the hydrogeologic evaluation and stated that the project can be transitioned into the purview of engineering for the Site to ensure compliance with design standards.

---

[1] Website: https://www.cumberlandmaine.com/sites/g/files/vyhlif9216/f/uploads/aquifer_map.pdf

[2] Town of Cumberland, Maine Code. Chapter 315, Zoning. Article V, Aquifer Protection. § Section 315-36, Regulations.



BASE MAP ADAPTED FROM 7.5 MIN USGS TOPO QUADS
CUMBERLAND CENTER, ME - 2021

1000 0 2000 FEET

FIGURE 1-1
SITE LOCATION MAP
PROPOSED RUSTY LANTERN MARKET
181 GRAY ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER ENGINEERS

DWG: SITELOC LMN: SITELOC CTB: SME-STD REV: 1/23/2024

\\NSERVER\cfs\Cumberland Real Estate Group\Rusty Lantern_Cumberland\Acad\Figures\FIGURES.dwg, FIG 1-1 SITELOC, 1/23/2024 12:27:41 PM, jrl

SME's hydrogeologic evaluation for the Site, which was completed in December 2023 and January 2024 to provide Site specific hydrogeologic information to CREG, Rusty Lantern Market, and the Town Planning Board, is described in Section 3.0.

2.0 BACKGROUND INFORMATION

2.1 Site Location

The Site is proposed to be located at 181 Gray Road in Cumberland, Maine and a portion of 173 Gray Road in Cumberland, Maine. The existing site conditions are illustrated on Figure 2-1. The property at 181 Gray Road in Cumberland Maine is identified as Lot 12 on Tax Map U19 and is hereinafter referred to as Lot 12. Lot 12 is reported to have a size of 0.93 acres. The property at 173 Gray Road in Cumberland, Maine is identified as Lot 13 on Tax Map U19 and is hereinafter referred to as Lot 13. A reconfiguration of the common property boundary for Lots 12 and 13 is proposed to accommodate the 1.27-acre area proposed for Site development (see Figure 2-1).

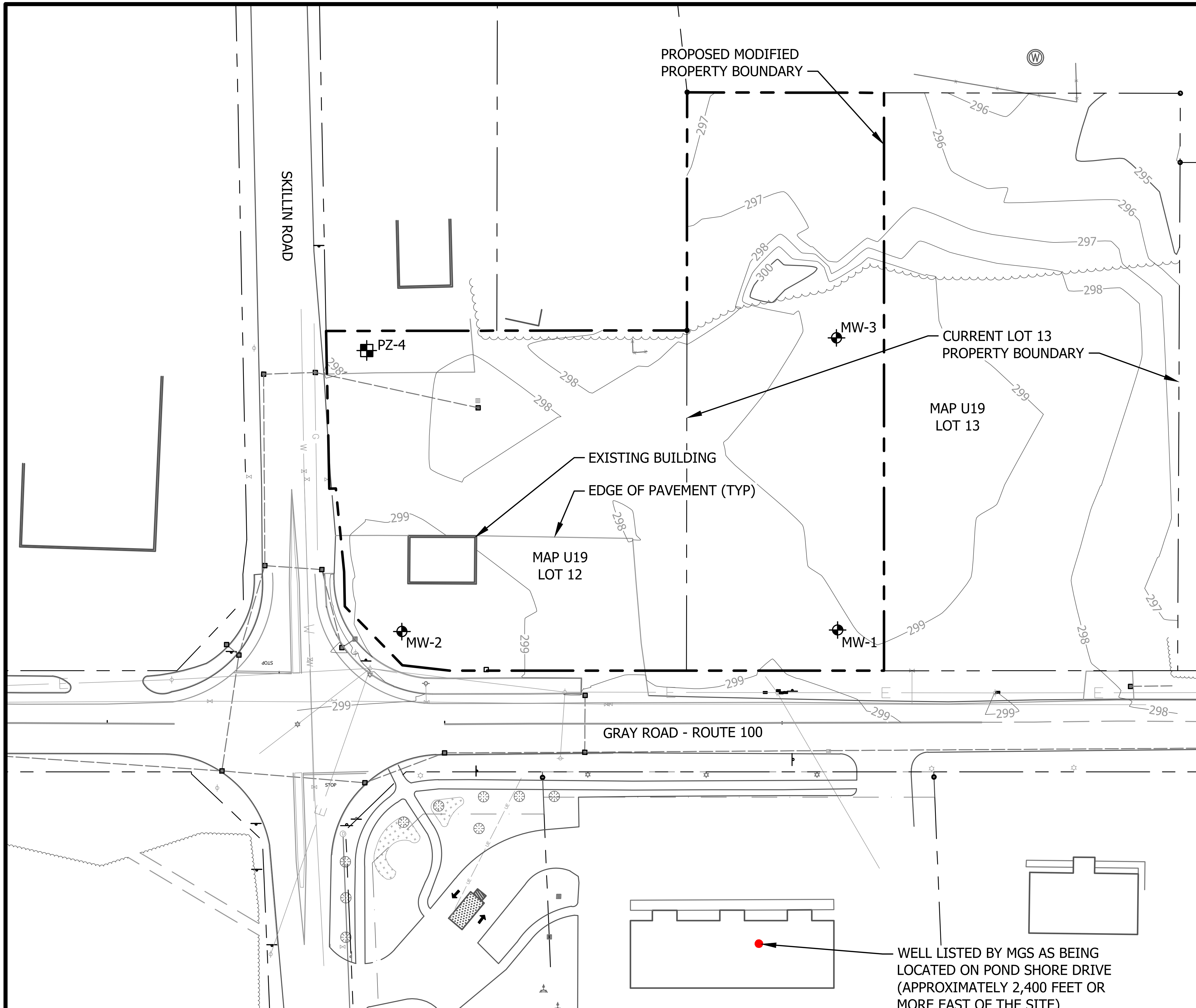
There is one building located on the northwest corner of Lot 12, which is currently used as an auto sales and service business. The area surrounding the existing building is paved and there is also a small, paved area on the northeast corner of the Site. The unpaved portion of this parcel consists of a compacted gravel driving surface. There are no buildings currently located on the property located at Lot 13. The majority of the Site has an unpaved gravel surface which appears to be used for temporary truck and trailer parking.

The Site is located at the south side of the intersection of Route 100 (Gray Road) and Skillin Road. Among other utilities, water and natural gas utilities are accessible to the Site. The existing building at Lot 12 currently uses the water utility but is heated using No. 2 oil rather than using the natural gas utility. The existing building at the Site uses a private subsurface wastewater disposal system.

The Site is located within the Town's *Village Center Commercial* zone.[3] The Site is abutted to the north, south, and west by commercial properties. The east side of the Site (i.e., the rear side of the property) abuts homes located along Skillin Road and Kathy Lane that are zoned as *Rural Residential 2*. As will be discussed in Section 3.3, the residential area homes along Kathy Lane are located in a direction that is hydraulically upgradient from the Site.

SME directed the drilling and installation of three groundwater monitoring wells and one temporary groundwater piezometer at the Site by New England Boring Contractors of Derry, New Hampshire (NEBC) on December 14 and 15, 2023. These monitoring locations are included as part of the existing Site conditions on Figure 2-1.

[3] Website: https://www.cumberlandmaine.com/sites/g/files/vyhlif9216/f/uploads/official_zoning_map_11x17_june_2022.pdf



LEGEND

GROUNDWATER MONITORING WELL

TEMPORARY GROUNDWATER PIEZOMETER

PRIVATE WATER SUPPLY WELL

MAINE GEOLOGICAL SURVEY MAPPED WATER SUPPLY WELL

NOTES:

1. THIS PLAN SHOWS EXISTING SITE CONDITIONS AND GROUNDWATER MONITORING LOCATIONS FOR PROPOSED NEW UST FACILITY.
2. MAINE GEOLOGICAL SURVEY (MGS) MAPPED WATER SUPPLY WELL DATABASE IS UNDERSTOOD TO SHOW APPROXIMATE LOCATIONS AND NOT TO INCLUDE ALL WATER SUPPLY WELLS.
3. EXISTING AND PROPOSED PROPERTY BOUNDARIES SHOWN ARE APPROXIMATE.

30 0 60 FEET

FIGURE 2-1
EXISTING SITE CONDITIONS
PROPOSED RUSTY LANTERN MARKET
181 GRAY ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER
ENGINEERS

DWG: BASE LMN: BORING CTB: SME-STD.CTB REV: 1/25/2024

\\NSERVER\cfs\Cumberland Real Estate Group\Rusty Lantern_Cumberland\Acad\Plans\BASE.dwg, FIG 2-1 - EXCON, 1/25/2024 9:44:30 AM, jrl

2.2 Historical Site Use

As discussed further in Section 3.2, SME observed signs of historical Site petroleum-product-related contamination near the northwest corner of Lot 12 on December 14, 2023 during our hydrogeologic investigation. During soil drilling, a petroleum odor was observed in soils above the water table and in soil and groundwater at the water table. SME discussed these observations with CREG. Our observations prompted discussion between CREG and the current owner of the parcel. Based on anecdotal information provided by the current owner of Lot 12, the property was developed as a gas station in 1957 and operated as a gas station under different owners until 1989, at which time the tanks were removed. The property is also understood to have been used for an auto maintenance garage for several years prior to the current auto sales and service business located at the Site.

SME has been retained by CREG to provide a Phase 1 investigation for the Site, which is underway at the time of this reporting. Preliminary findings of the Phase 1 investigation include a UST facility registration for the former gas station located at Lot 12 and two spill reports. The UST facility registration indicates that there were previously four 4,000-gallon unleaded gasoline USTs, one 250-gallon kerosene UST, one 1,000-gallon diesel UST, and one 250-gallon waste oil UST located at the Site. All USTs are reported to have been removed from the Site. Significant soil contamination was reported to have been observed when at least two of the USTs were removed in 1989.

SME has been retained by CREG to characterize the baseline groundwater quality at the Site with respect to concentrations of volatile organic compounds (VOCs) and volatile petroleum hydrocarbons (VPH) at monitoring well MW-2, where apparent soil and groundwater contamination occurred. Groundwater samples will also be obtained hydraulically upgradient from MW-2 at monitoring well MW-3. SME is currently scheduled to sample the wells in early February 2024. The samples will be delivered to Alpha Analytical of Westborough, Massachusetts for laboratory analyses.

Based on information provided to SME by CREG, Lot 13 is not known to historically have had a permanent structure and has been used in the past for pre-manufactured cabins and sheds.

2.3 Area Groundwater Uses

The Site is located within a Town designated Aquifer Protection Zone for an aquifer with a yield of 10 to 50 gallons per minute (gpm). There are no Maine Department of Heath and Human Services (MEDHHS) Drinking Water Program public drinking water supply wells mapped within the extents of the subject aquifer. The nearest public drinking water supply well to the Site is located approximately 2 miles to the north.

Area groundwater supply uses were assessed using the Maine Geological Survey (MGS) water well database. It is important to note that the MGS water well database is understood to provide approximations of well locations and to not be a complete representation of existing groundwater wells in the vicinity of the Site. In some cases, as discussed in more detail below, the locations of wells from the database appear to be incorrect.

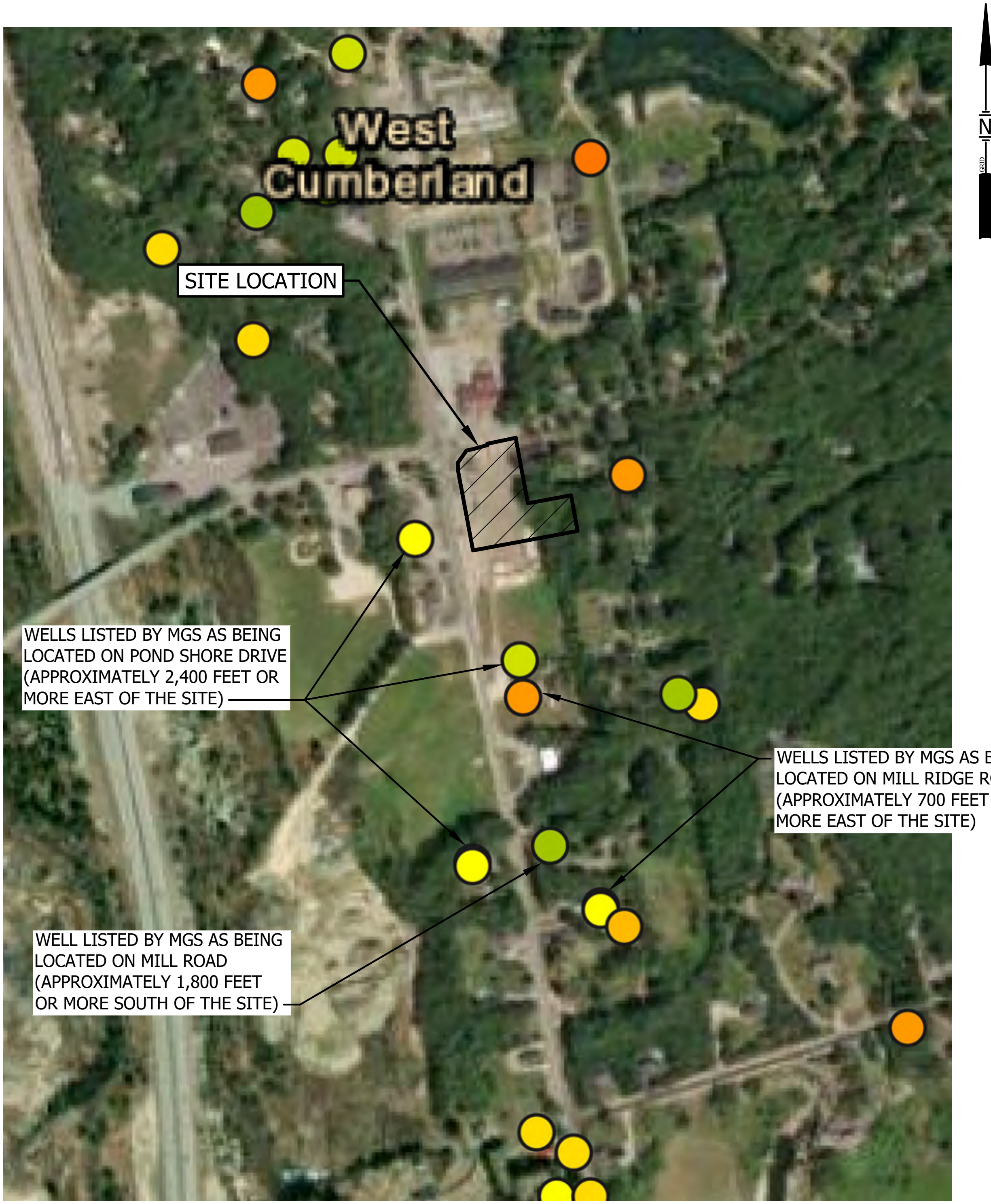
Figure 2-2 shows well locations in the vicinity of the Site that are included in the MGS water well database. Review of the database information for the wells included on Figure 2-2 indicate that multiple wells are located incorrectly based on the reported addresses for wells. Specifically, there are eight wells included on Figure 2-2 that are shown to be located along Route 100, south of the intersections with Skillin Road and Blackstrap Road, that appear to be located incorrectly. Four of these wells have addresses listed along Pond Shore Drive, which is located approximately 2,400 feet or more east of the Site. Three wells have address listed along Mill Ridge Road, which is located approximately 700 feet or more east of the Site. One of the wells has an address listed along Mill Road, which is located approximately 1,800 feet or more south of the Site. Route 100 (Gray Road) has a water utility line in the areas of these apparently mislocated wells.

It is probable that additional groundwater drinking water supply wells are located in the vicinity of the Site that are not included in the MGS water well database. The MEDEP rules for siting of oil storage facilities specifies wellhead protection zones of: (1) 300 feet from USTs for private drinking water wells; and (2) the greater of 1,000 feet from USTs to a public drinking water well or outside of the source water protection area of the well if mapped by the Maine Department of Health and Human Services.[4]

As discussed earlier in this section, the nearest public drinking water supply well is located approximately 2 miles north of the Site and the proposed UST is not located within a source water protection area designated by the MEDHHS drinking water program.

Based on information provided to SME by CREG, there are no private drinking water supply wells located on the subject properties (i.e., Lots 12 and 13). The nearest verified drinking water supply well location based on Site plan information provided to SME by CREG is located at 15 Kathy Lane (Tax Map U19, Lot 33). The drinking water supply well at 15 Kathy Lane is located more than 314 feet from the proposed UST location. SME recommends that locations of all potential drinking water supply wells on parcels located within 300 feet of the proposed UST location be verified with their respective property owners. This appears to include 7 Kathy Lane (Tax Map U19, Lot 35), 15 Kathy Lane (Tax Map U19, Lot 33), 5 Skillin Road (Tax Map U19, Lot 37), 169 Gray Road (Tax Map U19, Lot 14), 172 Gray Road (Tax Map U19, Lot 9), 176 Gray Road (Tax Map U19, Lot 10), 121 Blackstrap Road (Tax Map U19, Lot 11), and 115 Blackstrap

[4] Maine Department of Environmental Protection. 06-096 CMR Chapter 692. Siting of Oil Storage Facilities. Effective Date: August 7, 2019 – filing 2019-116.



BASE MAP ADAPTED FROM MAINE GEOLOGICAL SURVEY (MGS) WATER WELL DATABASE

NOTE:

1. MAINE GEOLOGICAL SURVEY (MGS) MAPPED WATER SUPPLY WELL DATABASE IS UNDERSTOOD TO SHOW APPROXIMATE LOCATIONS AND NOT TO INCLUDE ALL WATER SUPPLY WELLS.

250 0 500 FEET

FIGURE 2-2
MAINE GEOLOGICAL SURVEY
WATER WELL DATABASE
PROPOSED RUSTY LANTERN MARKET
181 GRAY ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER
ENGINEERS

DWG: FIGURES LMN: SOILS CTB: SME-STD REV: 1/23/2024

\\NSERVER\cfs\Cumberland Real Estate Group\Rusty Lantern_Cumberland\Acad\Figures\FIGURES.dwg, FIG 2-2 WELL, 1/25/2024 9:46:03 AM, jrl

Road (Map R07, Lot 34A). It is possible that several of these properties do not have private drinking water wells since they have access to a water supply utility.

2.4 Area USTs

Based on the MEDHHS Drinking Water Program database, there are currently two sites within the same aquifer of the Site with active registered USTs. Budd's Gulf is located approximately 700 feet south of the Site at 161 Gray Road, Cumberland, Maine. There are currently two active registered USTs at Budd's Gulf, which have capacities of 8,000 gallons and 10,000 gallons. There are four 10,000-gallon active registered USTs located approximately 1,700 feet northwest of the Site at the Maine Turnpike southbound Mile 56 Service Area. Figure 2-3 shows the approximate locations of the USTs located at Budd's Gulf and at the Maine Turnpike southbound Mile 56 Service Area.

2.5 MEDEP UST Permitting

The MEDEP rules for the siting of oil storage facilities, Section 4, specifies a prohibition on facilities located on significant sand and gravel aquifers mapped by the MGS. As further discussed in Section 3.1, the Site is located in an area mapped by the MGS to be a moderate yield significant sand and gravel aquifer (i.e., generally yielding 10 or more gpm but no more than 50 gpm). The MEDEP rules for the siting of oil storage facilities, Section 4.D., indicates that a variance may be granted by MEDEP from the prohibition of USTs proposed in areas mapped as moderate yield significant sand and gravel aquifers provided that: (1) a MEDEP approved hydrogeologic evaluation demonstrates that the aquifer at the proposed facility generally yields 10 or more gpm but no more than 50 gpm; and (2) the proposed UST facility meets the design standards of Section 5 of the MEDEP rules for siting of oil facilities.

SME submitted a work plan to MEDEP in November 2023 for a hydrogeologic evaluation to assess the yield of the aquifer. Based on the Site background information provided in the work plan, the MEDEP waived the requirement of the hydrogeologic evaluation and stated that the project can be transitioned into the purview of engineering for the Site to ensure compliance with design standards. The December 6, 2023 correspondence between SME and MEDEP indicating the waiver for the requirement of the hydrogeologic evaluation is included in Appendix A.

BASE MAP ADAPTED FROM 7.5 MIN USGS TOPO QUADS
CUMBERLAND CENTER, ME - 2021

U APPROXIMATE LOCATION OF ACTIVE REGISTERED UNDERGROUND OIL STORAGE TANK (MODIFIED FROM MAINE DRINKING WATER DATABASE FOR ILLUSTRATIVE PURPOSES)

250 0 500 FEET

DWG: SITELOC LMN: UST CTB: SME-STD REV: 1/24/2024

FIGURE 2-3
AREA USTs
PROPOSED RUSTY LANTERN MARKET
181 GRAY ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER
ENGINEERS

\\NSERVER\cfs\Cumberland Real Estate Group\Rusty Lantern_Cumberland\Acad\Figures\FIGURES.dwg, FIG 2-3 AREA USTs, 1/24/2024 12:53:38 PM, jrl

3.0 HYDROGEOLOGIC EVALUATION

SME's hydrogeologic evaluation for the Site is based on: (1) review of available data from literature and mapping in the vicinity of the Site; (2) a subsurface exploration program that included soil boring observations and well installations at four locations at the Site; and (3) measurements of groundwater levels and characteristics of the Site hydrogeology (e.g., hydraulic conductivity, saturated thickness of soils, groundwater flow direction, etc.). The general purpose of the evaluation is to provide Site specific information to develop an understanding of the volumetric rate, speed, and direction of groundwater flowing toward and away from the Site's proposed UST. The location proposed for the UST for the Site is shown on Figure 3-1.

3.1 MGS and USDA Mapping

Soils in the area of the proposed UST are classified as Hinkley loamy sand by the United States Department of Agriculture (USDA), as shown on Figure 3-2. Hinkley soils consist of deep, excessively drained, moderately coarse to coarse textured soils that form in glacial outwash deposits.[5] The Maine Geological Survey (MGS) classifies the soils in the vicinity of the proposed UST as marine ice-contact delta deposits, which consist primarily of sorted and stratified sand and gravel, as shown on Figure 3-3.[6] The proposed UST is located within an MGS mapped moderate yield significant sand and gravel aquifer, as shown on Figure 3-4.[7]

The bedrock underlying the Site and its vicinity are mapped by MGS as fine-grained to medium-grained biotite-quartz granofels. The MGS bedrock mapping at and in the vicinity of the Site is illustrated on Figure 3-5.[8] There were no bedrock outcrops identified at the site.

3.2 Subsurface Explorations and Well Installations

Soil borings and well installations were completed at the Site at four locations by NEBC under the direction of SME on December 14 and 15, 2023. Groundwater monitoring wells MW-1, MW-2, and MW-3 were installed at three of the soil boring locations and temporary groundwater piezometer PZ-4 was installed at one of the soil boring locations. The locations of MW-1, MW-2, MW-3, and PZ-4 are shown on Figure 3-1. The locations of the soils borings and well installations are near the four corners of the cleared (i.e., deforested) portion of the proposed modified property boundaries (as approximately shown on Figure 3-1).

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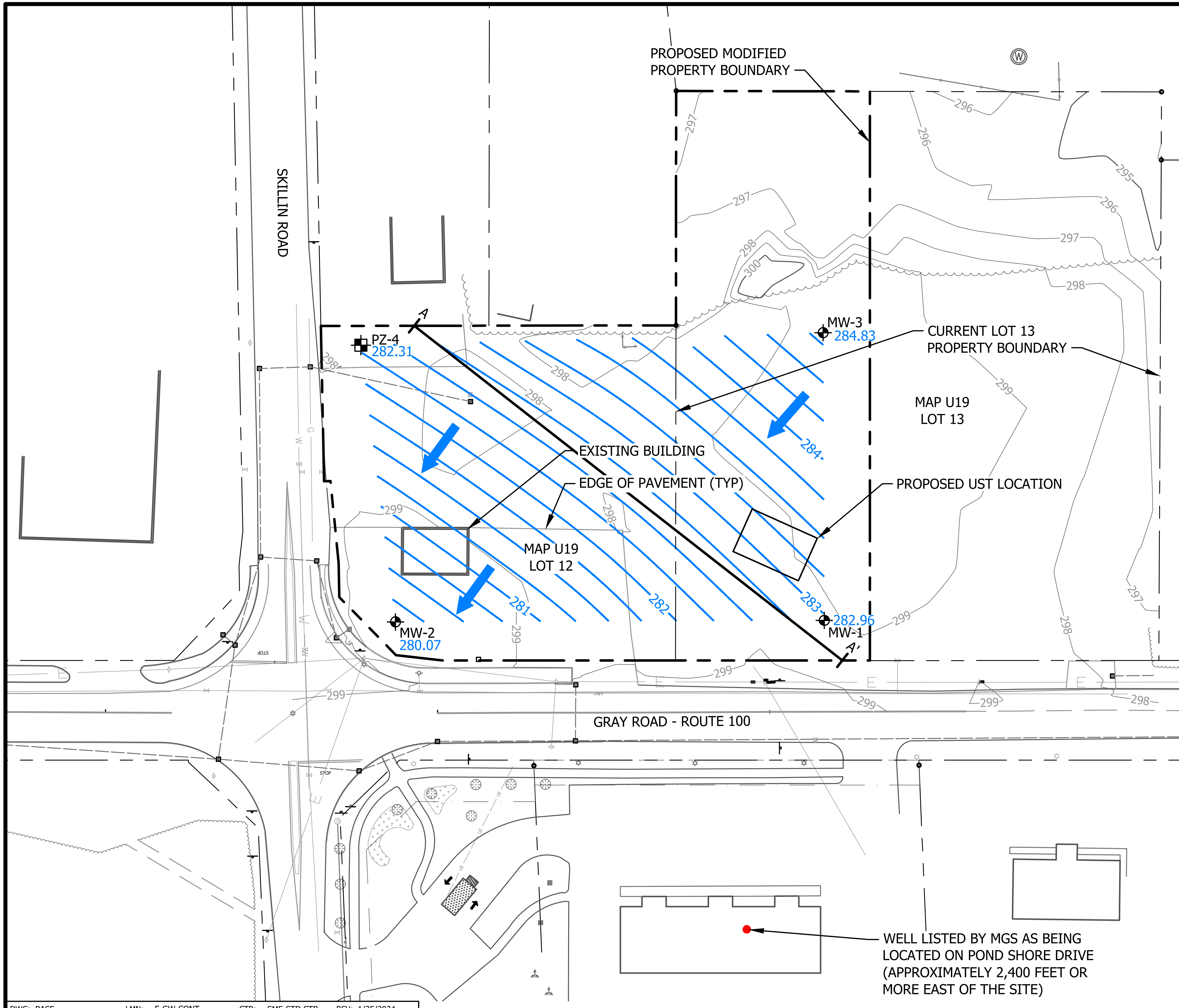
[5] USDA, et. al. 1974. Soil Survey of Cumberland County, Maine.

[6] Retelle, Michael J. et. al., 1999. Surficial geology of the Cumberland Center quadrangle, Maine: Maine Geological Survey, Open-File Map 99-81, map, scale 1:24,000.

[7] Neil, Craig D., et. al., 1999. Significant sand and gravel aquifers in the Cumberland Center quadrangle, Maine: Maine Geological Survey, Open-File Map 99-27, map, scale 1:24,000.

[8] Engelman, Matthew R., Creasy, John W., and Berry, Henry N., IV, 2023. Bedrock geology of the Cumberland Center quadrangle, Maine: Maine Geological Survey, Open-File Map 23-14, map, scale 1:24,000.



N

LEGEND

GROUNDWATER MONITORING WELL

TEMPORARY GROUNDWATER PIEZOMETER

284.83 JANUARY 9, 2024 GROUNDWATER TABLE ELEVATION (FEET - NAVD88)

PRIVATE WATER SUPPLY WELL

MAINE GEOLOGICAL SURVEY MAPPED WATER SUPPLY WELL

282 JANUARY 9, 2024 GROUNDWATER TABLE ELEVATION CONTOUR (FEET - NAVD88)

GROUNDWATER FLOW DIRECTION

A A' CROSS-SECTIONAL LENGTH ACROSS SITE PERPENDICULAR TO THE DIRECTION OF GROUNDWATER FLOW

NOTES:

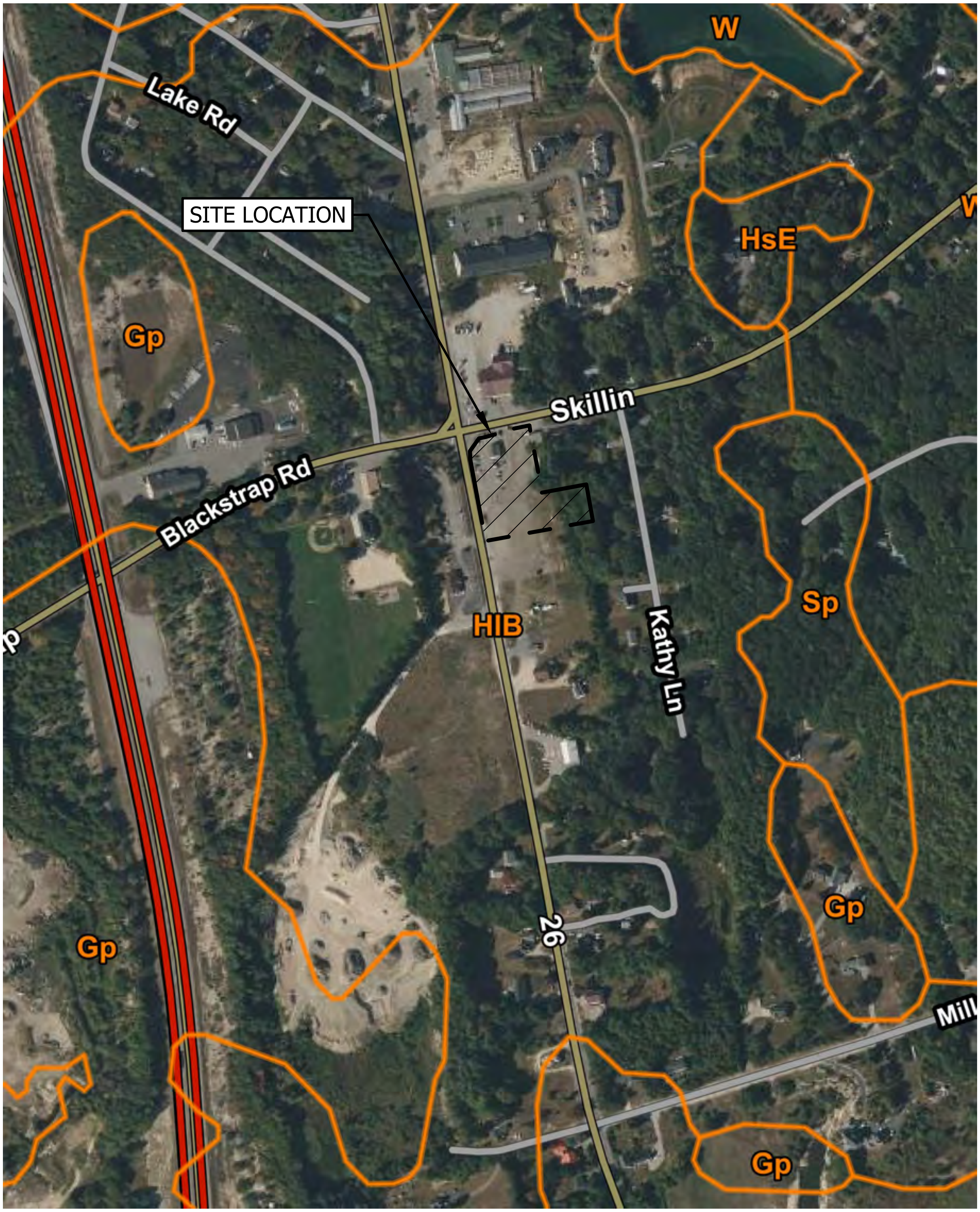
1. THIS PLAN SHOWS EXISTING SITE CONDITIONS AND GROUNDWATER MONITORING LOCATIONS FOR PROPOSED NEW UST FACILITY.
2. MAINE GEOLOGICAL SURVEY (MGS) MAPPED WATER SUPPLY WELL DATABASE IS UNDERSTOOD TO SHOW APPROXIMATE LOCATIONS AND NOT TO INCLUDE ALL WATER SUPPLY WELLS.
3. EXISTING AND PROPOSED PROPERTY BOUNDARIES SHOWN ARE APPROXIMATE.

30 0 60 FEET

FIGURE 3-1
HYDROGEOLOGIC CONDITIONS
PROPOSED RUSTY LANTERN MARKET
181 GRAY ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER ENGINEERS

\\Nserver\cfs\Cumberland Real Estate Group\Rusty Lantern_Cumberland\Acad\Plans\BASE.dwg, FIG 3-1 - GW CONT, 1/25/2024 12:58:51 PM, jrl



BASE MAP ADAPTED FROM WEB SOIL SURVEY SOILS MAPS

Gp - GRAVEL PITS
HIB - HINKLEY LOAMY SAND (8-15% SLOPES)
HsE - LYMAN-ABRAM COMPLEX (15-35% SLOPES, VERY ROCKY)
SP - SEBAGO MUCKY PEAT
W - WATER

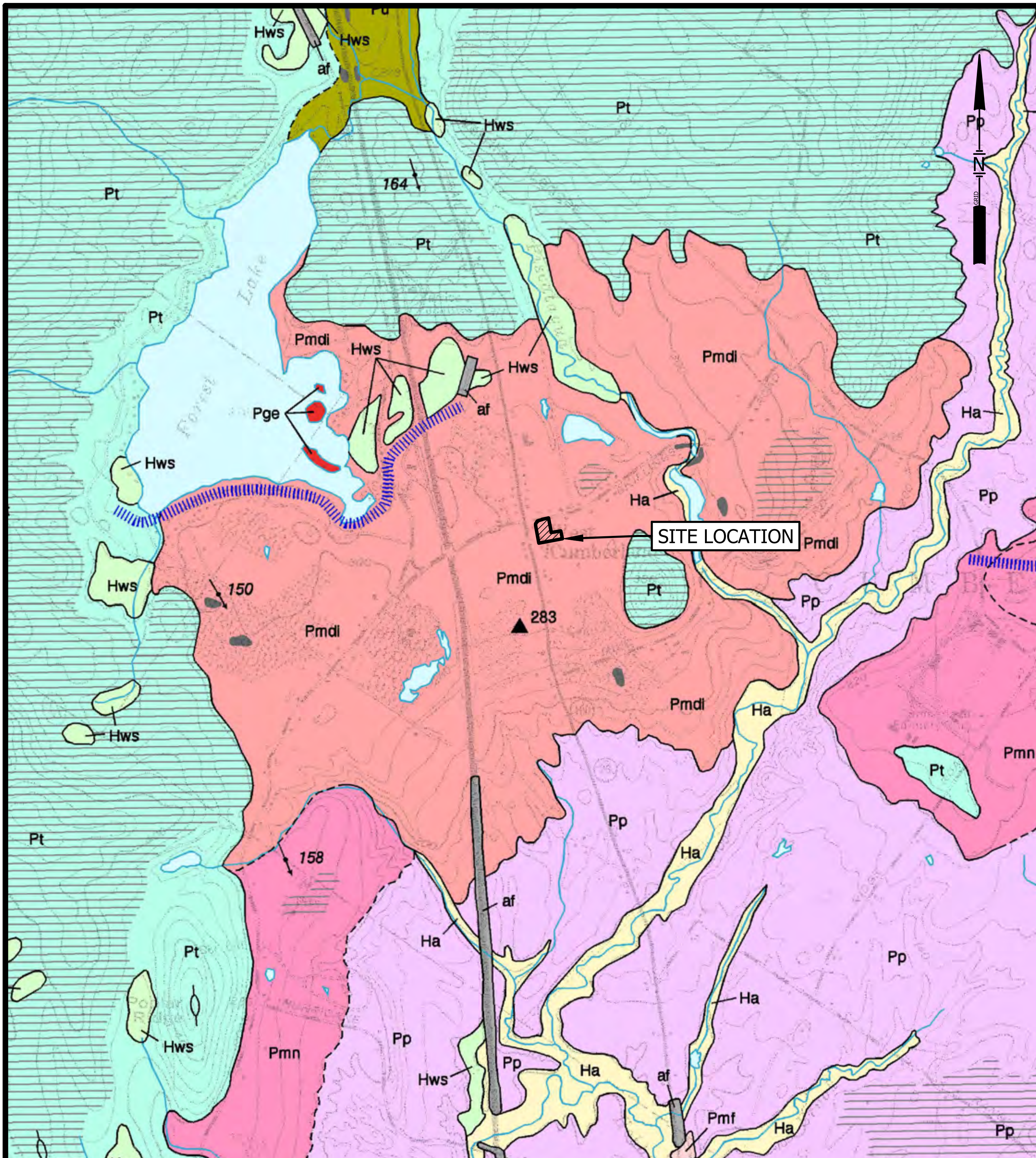
250 0 500 FEET

FIGURE 3-2
USDA SOIL MAP
PROPOSED RUSTY LANTERN MARKET
181 GRAY ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER
ENGINEERS

DWG: FIGURES LMN: SOILS CTB: SME-STD REV: 1/23/2024

\\NSERVER\cfs\Cumberland Real Estate Group\Rusty Lantern_Cumberland\Acad\Figures\FIGURES.dwg, FIG 3-2 SOILS, 1/23/2024 12:47:24 PM, jrl



Pmdl	**Marine ice-contact delta** - Ice-contact delta composed primarily of sorted and stratified sand and gravel. Deposit was graded to surface of late-glacial sea and is distinguished by flat top and foreset and topset beds.

FIGURE 3-3
MAINE GEOLOGICAL SURVEY SURFICIAL GEOLOGY
PROPOSED RUSTY LANTERN MARKET
181 GRAY ROAD
CUMBERLAND, MAINE

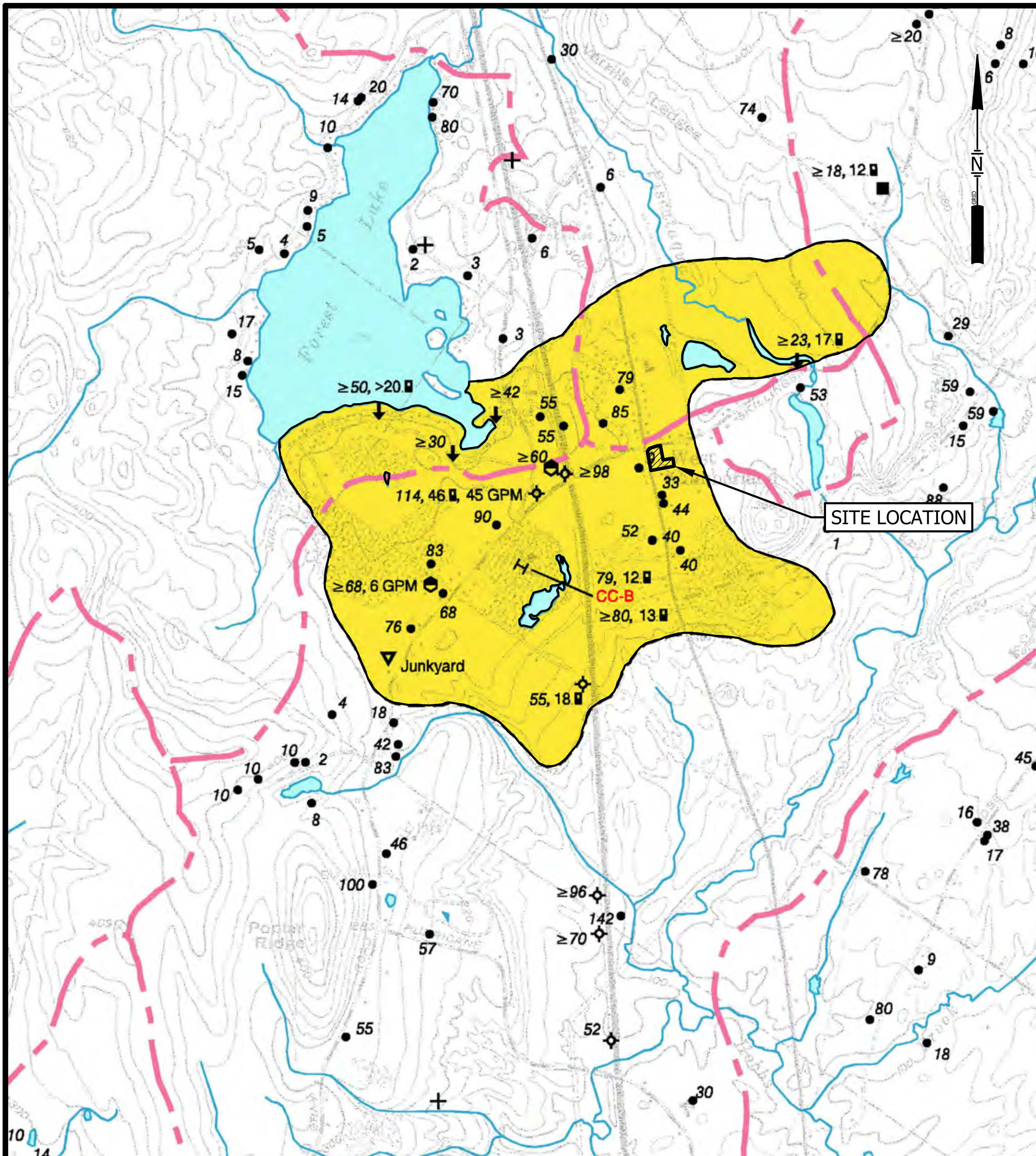
BASE MAP ADAPTED FROM 7.5 MIN MGS SURFICIAL GEOLOGY QUAD
CUMBERLAND CENTER, ME - 1999

1000 0 2000 FEET

SME
SEVEE & MAHER ENGINEERS

DWG: FIGURES LMN: GEOLOGY CTB: SME-STD REV: 1/23/2024

\\NSERVER\cfs\Cumberland Real Estate Group\Rusty Lantern_Cumberland\Acad\Figures\FIGURES.dwg, FIG 3-3 - GEOLOGY, 1/23/2024 12:47:45 PM, jrl



Surficial deposits with moderate to good potential ground-water yield; yields generally greater than 10 gallons per minute to a properly constructed well. Deposits consist primarily of glacial sand and gravel, but can include areas of sandy till and alluvium; yields may exceed 50 gallons per minute in deposits hydraulically connected with surface-water bodies, or in extensive deposits where subsurface data are available.

BASE MAP ADAPTED FROM 7.5 MIN MGS SIGNIFICANT SAND AND GRAVEL AQUIFERS QUAD
CUMBERLAND CENTER, ME - 1999

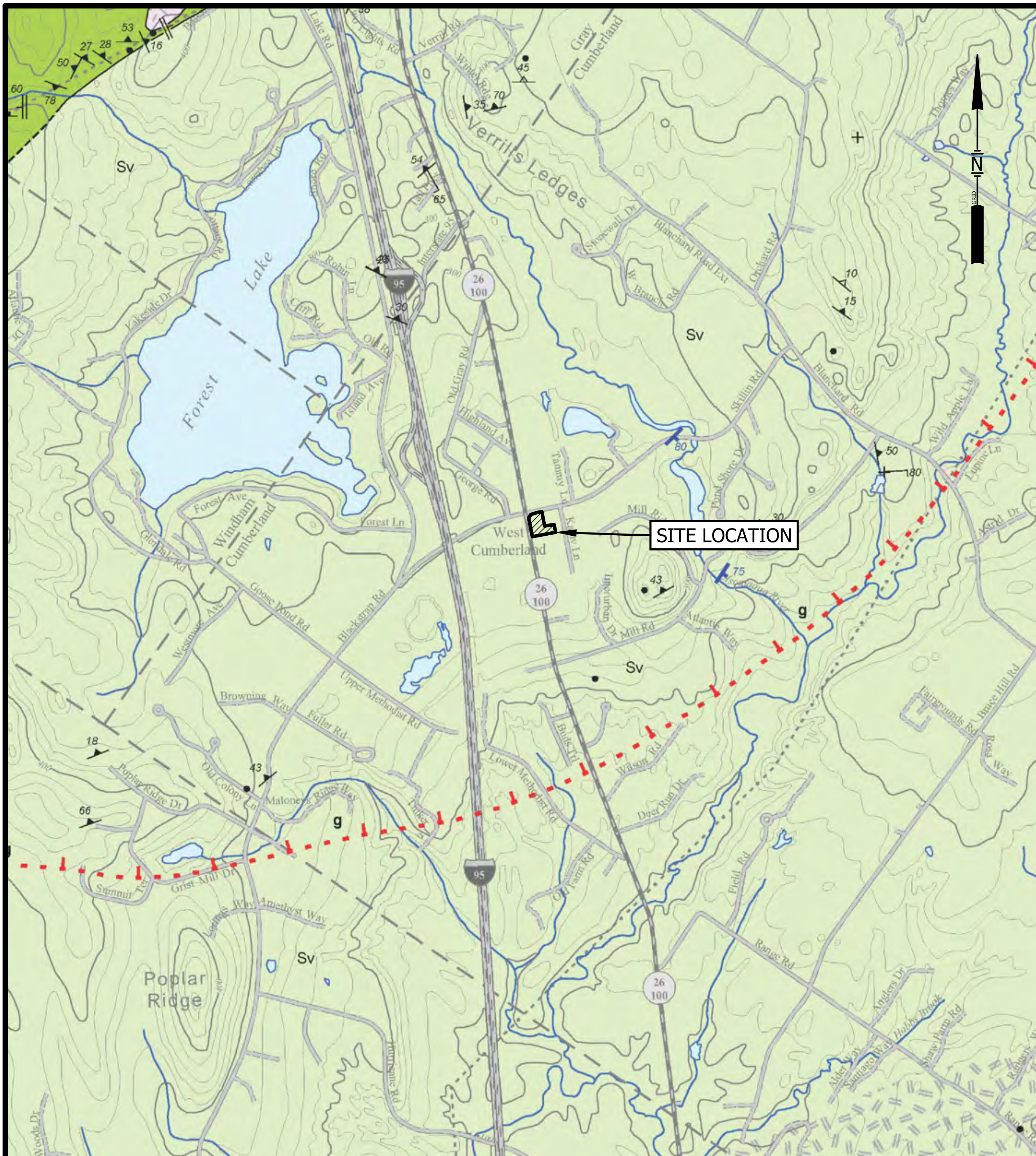
1000 0 2000 FEET

FIGURE 3-4
MAINE GEOLOGICAL SURVEY
SIGNIFICANT SAND AND GRAVEL AQUIFERS
PROPOSED RUSTY LANTERN MARKET
181 GRAY ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER
ENGINEERS

DWG: FIGURES LMN: AQUIFER CTB: SME-STD REV: 1/23/2024

\\NSERVER\cfs\Cumberland Real Estate Group\Rusty Lantern_Cumberland\Acad\Figures\FIGURES.dwg, FIG 3-4 - AQUIFER, 1/23/2024 12:48:01 PM, jrl



STRATIFIED ROCKS

Silurian(?) [S]

Sv — **Granofels, undifferentiated.** Dark gray to medium gray, bluish gray or purplish gray, fine-grained to medium-grained biotite-quartz-feldspar granofels, interlayered with subordinate thin layers of light green to dark greenish-gray diopside calc-silicate granofels and dark gray, medium-grained biotite schist. The proportion of biotite schist is variable, from absent up to several meters in thickness. Layering in the granofels is generally well developed in thin to medium beds 3-20 centimeters (cm) thick. Where the rock is more highly migmatitic, and especially in the region of gneissic structure, the granofels is coarser grained.

BASE MAP ADAPTED FROM 7.5 MIN MGS BEDROCK QUAD
CUMBERLAND CENTER, ME - 2023

1000 0 2000 FEET

FIGURE 3-5
MAINE GEOLOGICAL SURVEY BEDROCK GEOLOGY
PROPOSED RUSTY LANTERN MARKET
181 GRAY ROAD
CUMBERLAND, MAINE

SEVEE & MAHER ENGINEERS

DWG: FIGURES LMN: BEDROCK CTB: SME-STD REV: 1/23/2024

\\NSERVER\cfs\Cumberland Real Estate Group\Rusty Lantern_Cumberland\Acad\Figures\FIGURES.dwg, FIG 3-5 - BEDROCK, 1/23/2024 12:57:38 PM, jrl

The soil borings were advanced using the drive and wash method with 4-inch diameter steel casing. Standard penetration test (SPT) sampling was completed generally at a frequency of every five feet.[9] The soil observations across the Site were generally consistent with a compact gravelly sand surficial fill overlying loose sand and gravel soils. Silty clay lenses were observed in the saturated portion of the soil borings.

Explorations were completed to a depth of 27 feet below ground surface (ft-bgs) at MW-2 and MW-3 and 25 ft-bgs at PZ-4 without encountering bedrock refusal. Bedrock refusal was encountered at MW-1 at a depth of 22 ft-bgs.

Groundwater monitoring wells were installed in the borings that were completed for MW-1, MW-2, and MW-3 using 2-inch-diameter PVC screen and riser pipes. Filter sand was placed surrounding the well screens and bentonite seals were placed above the well screens. The tops of the monitoring wells were completed below ground surface and protected by the installation of road boxes. A temporary groundwater piezometer was installed for the boring complete for PZ-4 using 1-inch diameter PVC screen and riser pipe. Filter sand was placed surrounding the temporary groundwater piezometer and native gravelly sand backfill was placed surrounding the riser pipe.

The soil boring and well installation logs for MW-1, MW-2, MW-3, and PZ-4 are included as Appendix B.

SME surveyed the locations, ground surface elevations, and monitoring point (i.e., top of PVC riser pipe) elevations of the monitoring locations on December 20, 2023.

Table 3-1 provides a summary of the well installations.

TABLE 3-1

SUMMARY OF WELL INSTALLATIONS

ID	Easting (ft-NAD83)	Northing (ft-NAD83)	Ground Surface Elevation (ft-NAVD88)	Monitoring Point Elevation (ft-NAVD88)	Screen Bottom Depth (ft-bgs)	Screen Length (feet)	Screen Bottom Elevation (ft-NAVD88)	Screen Top Elevation (ft-NAVD88)
MW-1	2914057.68	357716.38	298.60	298.26	21.95	15	276.65	291.65
MW-2	2914009.44	357970.09	299.00	298.78	25.00	15	274.00	289.00
MW-3	2914227.8	357748.74	299.39	299.19	24.87	15	274.52	289.52
PZ-4	2914169.44	358021.13	297.77	297.63	22.62	10	275.15	285.15

Notes:
ft-NAD83 – Maine State Plane Coordinate System West 1802 Zone NAD A121983
ft-NAVD88 – elevation in feet relative to the North American Vertical Datum of 1988
ft-bgs – feet below ground surface

[9] SPT sampling at MW-1 and MW-3 was started at a depth interval of 15 to 17 feet below ground surface since the Site groundwater table is at a depth of approximately 15 feet or more below ground surface.

As discussed earlier in Section 2.2, SME observed signs of Site petroleum product related contamination near the northwest corner of Lot 12 in the boring for MW-2 on December 14, 2023. During soil drilling, a petroleum odor was observed in soil from the SPT sample collected at 15 to 17 ft-bgs in the boring associated with MW-2. The odor was also observed in the drilling wash water. Upon making these observations, SME coordinated the delivery of soil and water containers and a photoionization detector (PID) for screening soil samples for the potential presence of VOCs in the airspace surrounding soil samples.

The airspace surrounding the soil samples collected at MW-2 were screened using the PID and the results included a detection of 1,268 parts per million (ppm) of compounds that are likely associated with the petroleum-like odor observed while drilling. The PID results for MW-2, as well as screening completed for MW-1, MW-3, and PZ-4, are included on the soil boring and well installation logs included in Appendix B. There were no PID detections observed in the airspace surrounding the soil samples from MW-1, MW-3, and PZ-4 (as discussed in Section 3.3, MW-2 is located at a corner of the property that is the most hydraulically downgradient of soil boring locations).

Soil cuttings and drilling wash water from the monitoring well MW-2 boring were contained in 55-gallon steel drums that are Department of Transportation (DOT) approved for transportation. The drums are labeled and are currently stored at the Site awaiting sampling and characterization by laboratory analyses, after which time they be properly disposed.

The source of the soil and groundwater contamination at monitoring well MW-2 appears to be from historical use of USTs at the Site for a gas station between 1957 and 1989. As discussed in Section 2.2, additional investigation into the Site's historical use and characterization of existing groundwater quality at the Site is in progress.

3.3 Groundwater Table Surface and Saturated Soil Summary

Static groundwater levels were measured by SME at groundwater monitoring wells MW-1, MW-2, and MW-3 and temporary groundwater piezometer PZ-4 on January 9, 2024. Table 3-2 provides a summary of the measured groundwater levels as well as the saturated soil conditions on January 9, 2024.

TABLE 3-2

SUMMARY OF JANUARY 9, 2024 GROUNDWATER ELEVATIONS AND SATURATED SOILS

ID	Depth to Groundwater from Monitoring Point (feet)	Depth of Groundwater Below Ground (ft-bgs)	Groundwater Elevation (ft-NAVD88)	Monitoring Point Elevation (ft-NAVD88)	Saturated Thickness of Screened Soil (feet)	Approximate Thickness of Saturated Silty Clay (feet)	Approximate Thickness of Saturated Sand & Gravel (feet)
MW-1	15.30	15.64	282.96	298.26	6.31	2.0	4.3
MW-2	18.71	18.93	280.07	298.78	6.07	0.9	5.2
MW-3	14.36	14.56	284.83	299.19	10.31	5.8	4.5
PZ-4	15.32	15.46	282.31	297.63	7.16	3.0	4.2

Notes:
ft-NAVD88 – elevation in feet relative to the North American Vertical Datum of 1988
ft-bgs – feet below ground surface

The groundwater elevations at monitoring locations MW-1, MW-2, MW-3, and PZ-4 were used to develop an interpreted groundwater table elevation contour map, which is shown on Figure 3-1. The groundwater is interpreted to flow across the Site from the southeast to the northwest. The hydraulic gradient (i.e., the slope of the groundwater table surface) is measured to be approximately 1.67 percent.

Based on the interpreted groundwater table elevation contours, the residences along Kathy Lane are in a direction that is hydraulically upgradient from the proposed UST location. Based on the MGS water well database mapping (see Figure 2-2) and our interpreted groundwater table elevation contours, the nearest residential wells in a down- or cross-gradient direction appear to be located northwest of the Site in an area zoned as Village Medium Density Residential by the Town. The nearest drinking water well in this area mapped on the MGS water well database is roughly 1,900 feet from the proposed UST location; however, it is important to remember that the MGS water well database is understood to be incomplete and there may be closer wells located hydraulically downgradient from the proposed UST.

The information from this hydrogeologic evaluation that was used to interpret the groundwater flow direction is limited to on-Site groundwater level measurements. It is probable that groundwater continues to flow sway from the Site to the northwest proximate to the Site. Review of the MGS mapped surface water drainage divides (shown as dashed pink lines on Figure 3-4) suggest that the groundwater flow direction might shift to the northeast with greater distance from the Site since surface water drainage divides generally correlate with groundwater flow divides. If the groundwater flow direction does shift to the northeast with greater distance from the Site, then the groundwater discharge location would likely be to the Piscataqua River at some location northeast of the intersection of Gray Road and Skillin Road. Addition exploration would be required to verify groundwater flow directions at greater distances from the Site.

3.4 Hydraulic Conductivity Testing (Slug Tests)

On January 9, 2024, SME conducted three rising head slug tests each at MW-1, MW-2, MW-3, and PZ-4. The groundwater level recoveries were measured at one-second to half-second intervals using pressure transducers. The slug test data were analyzed using the Bouwer & Rice method.[10] The slug test groundwater level recovery data and analysis results are included in Appendix C. The slug test results are summarized in Table 3-3.

TABLE 3-3

SUMMARY OF SLUG TEST ANALYSES RESULTS

Well ID	Hydraulic Conductivity (ft/day)			
	Test 1	Test 2	Test 3	Average
MW-1	41.3	45.4	43.0	43.2
MW-2	32.8	32.2	32.0	32.3
MW-3	13.1	13.4	13.8	13.4
PZ-4	57.2	60.4	51.0	56.2
Average of All Results = 36.3 ft/day				

Notes:
ft/day – feet per day

The estimated hydraulic conductivity measurements in the area of investigation range from an average of 13.4 feet per day (ft/day) at MW-3 to 56.2 ft/day at PZ-4. The average hydraulic conductivity on a Site-wide basis is 36.3 ft/day.

3.5 Groundwater Flow

The average groundwater flow across the Site under static groundwater level conditions on January 9, 2024 is estimated using Darcy's law, which is an equation that describes the flow of a fluid through a porous medium.[11] Darcy's law is expressed as follows:

$$Q = KiA$$

where,

[10] Bouwer, H. and Rice, P.C., 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, vol. 12, no. 3, pp. 423-428.
[11] Fetter, 1994. Applied Hydrogeology, 3rd Edition. *Prentice Hall*. p. 142

Q = volume of groundwater flow (cubic length per time)
K = hydraulic conductivity (length per time)
i = hydraulic gradient (length per length)
A = cross-sectional area of flow (square length)

As described in Section 3.4, the average estimated hydraulic conductivity across the Site, as determined from the results of slug test analyses, is 36.3 ft/day. The hydraulic gradient across the Site is 1.67 percent (0.0167 feet/feet), as described in Section 3.3.

The cross-sectional area of flow is estimated based on the length across the Site in a direction perpendicular to groundwater flow and the saturated thicknesses of the sand and gravel soil deposits observed at the borings associated with monitoring locations MW-1, MW-2, MW-3, and PZ-4. The length across the Site in a direction perpendicular to groundwater flow is illustrated on Figure 3-1 to be 327 feet along cross-sectional profile A-A'. The average of saturated thicknesses of sand and gravel deposits (excluding thicknesses of silt and clay lenses) at these monitoring locations is approximately 4.6 feet see Table 3-2). Thus, the estimated cross-sectional area of flow across the Site is estimated to be approximately 1,500 square feet (ft^2).

Based on the observations and measurements from SME's hydrogeologic evaluation for the Site, the average groundwater flow across the Site under the static groundwater level conditions on January 9, 2024 is estimated using Darcy's law as follows:

Q = 36.3 ft/day * 0.0167 feet/feet * 1,500 ft^2 = 909 cubic feet per day (ft^3/day) or 6,800 gallons per day (gpd)

The average linear velocity of groundwater moving across the Site under the static groundwater level conditions observed on January 9, 2024 is estimated using the following equation:[12]

$v = Ki/n_e$

where,

v = average linear velocity (length per time)
K = hydraulic conductivity (length per time)
i = hydraulic gradient (length per length)
n_e = effective porosity (cubic length per cubic length)

[12] Fetter, 1994. Applied Hydrogeology, 3rd Edition. *Prentice Hall*. p. 142

The average estimated hydraulic conductivity and estimated hydraulic gradient across the Site are described above. The average effective porosity of the Site's sand and gravel deposits is estimated to be 0.25 (i.e., 25 percent).[13] The average linear velocity of groundwater moving across the Site under the static groundwater level conditions on January 9, 2024 is estimated as follows:

v = (36.3 ft/day * 0.0167 feet/feet) / (0.25) = 2.4 ft/day

Baseline knowledge of the volumetric flow rate and average linear velocity of groundwater movement in the area of the proposed UST is of value for current and/or future planning for protection of groundwater users located hydraulically downgradient from the proposed UST. An estimate of the average linear groundwater velocity in the area of the proposed UST can be used for establishing an appropriate frequency for detection groundwater quality monitoring that is protective of hydraulically downgradient groundwater users.

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[13] Fetter, 1994. Applied Hydrogeology, 3rd Edition. *Prentice Hall*. p. 91

4.0 SUMMARY, RECOMMENDATIONS, AND CONCLUSION

4.1 Summary

A summary of key points presented in this hydrogeologic evaluation for the proposed UST at the Site is provided below:

- MEDEP has waived the requirement for a hydrogeologic evaluation for a proposed UST located in a moderate yield significant sand and gravel aquifer and stated that the project can be transitioned into the purview of engineering for the Site to ensure compliance with design standards. The waiver was based on Site background information provided in a work plan for a hydrogeologic evaluation submitted to MEDEP in November 2023. The design standards required by MEDEP (from the MEDEP rules for siting an oil storage facility) for a variance from the prohibition of USTs located in a moderate yield significant sand and gravel aquifer require that the facility must be designed, installed, operated, and monitored with a combination of leak detection and spill prevention equipment, discharge monitoring equipment, or other engineering, operational and monitoring measurements that collectively are more stringent than state and federal requirements to minimize the risk of oil discharges and future groundwater contamination.
- There are existing USTs located within the subject aquifer northwest of the Site at the Maine Turnpike southbound Mile 56 Service Area and south of the Site at 161 Gray Road in Cumberland, Maine. Additionally, the proposed UST is in a location that is reportedly very close to a former gas station that used seven USTs that have since been removed. The existing presence of USTs in this area, as well as the historical use of USTs at the Site, suggest a low potential for this area of the aquifer as a public drinking water supply source area.
- SME's hydrogeologic evaluation provides a baseline understanding of the volumetric flow rate, average linear velocity, and direction of groundwater movement in the area of the UST, which is of value for current and/or future planning for protection of groundwater users located hydraulically downgradient from the proposed UST. The evaluation has indicated that groundwater moves away from the proposed UST location to the northwest at an average linear velocity of 2.4 ft/day. An estimate of the average linear groundwater velocity in the area of the proposed UST can be used for establishing an appropriate frequency for detection groundwater quality monitoring that is protective of hydraulically downgradient groundwater users.
- The MEDEP rules for siting of oil storage facilities specifies wellhead protection zones of: (1) 300 feet from USTs for private drinking water wells; and (2) the greater of 1,000 feet from USTs to a public drinking water well or outside of the source water protection area of the well if mapped by the Maine Department of Health and Human Services. The nearest public drinking water supply well is located approximately 2 miles north of the Site and the proposed UST is not located within a source water protection area designated by the MEDHHS drinking water program. The nearest

verified drinking water supply well location based on Site plan information provided to SME by CREG is located at 15 Kathy Lane (Tax Map U19, Lot 33). The drinking water supply well at 15 Kathy Lane is located more than 314 feet from the proposed UST location in a hydraulically upgradient direction.

4.2 Recommendations

SME recommends that locations of all potential drinking water supply wells on parcels located within 300 feet of the proposed UST location be verified with their respective property owners.

Based on the MGS water well database mapping (see Figure 2-2) and our interpreted groundwater table elevation contours, the nearest residential wells in a down- or cross-gradient direction appear to be located northwest of the Site in an area zoned as Village Medium Density Residential by the Town. The nearest drinking water well in this area mapped on the MGS water well database is roughly 1,900 feet from the proposed UST location; however, it is important to remember that the MGS water well database is understood to be incomplete and there may be closer wells located hydraulically downgradient from the proposed UST. SME recommends verification of the actual nearest hydraulically downgradient private drinking water supply well, which is likely to be located in the vicinity of the intersection of George and Blackstrap Roads.

4.3 Conclusion

Based on the information provided in this report, it is SME's opinion that, with the Site's commercial zoning and existing hydrogeologic setting, and the stringent UST design standards imposed for Site development by the Maine Department of Environmental Protection (MEDEP) for a proposed UST site located in a significant sand and gravel aquifer, the Site is suitable for the proposed storage of refined petroleum products.

APPENDIX A

MEDEP CORRESPONDENCE

SME
SEVEE & MAHER
ENGINEERS

Andrew Gobeil

From: Wehr, Daniel J <Daniel.J.Wehr@maine.gov>
Sent: Wednesday, December 6, 2023 4:30 PM
To: Lisa Jacob
Subject: FW: Scope of work for hydrogeologic evaluation

Hi Lisa,

Below is our evalua. on of the scope of work you provided last Wednesday. Please let us know what course SME decides to take.

Respectfully,

Dan J. Wehr, USCG Ret.
Environmental Specialist II
Maine Department of Environmental Protection
Bureau of Remediation and Waste Management
Marquardt Building 3rd floor
17 State House Station
Augusta, ME 04333
Office: 207-287-3547
https://www.maine.gov/dep/

From: Rodda, Charles I <Charles.I.Rodda@maine.gov>
Sent: Wednesday, December 6, 2023 1:51 PM
To: Wehr, Daniel J <Daniel.J.Wehr@maine.gov>; Dougherty, Sean <Sean.Dougherty@maine.gov>
Cc: Smith, Autumn G <Autumn.G.Smith@maine.gov>
Subject: RE: Scope of work for hydrogeologic evaluation

Good Afternoon, Dan.

I've reviewed the SME plan for work in support of a variance for UST installation over a sand and gravel aquifer at 161 Gray Rd. in Cumberland, ME. That area is currently mapped as a moderate yield aquifer and I see no reason to suspect that the current mapping is incorrect.

I see two options forward. First, the client can accept the moderate-yield-aquifer mapping, and agree to build the facility in a manner that meets design standards in Maine Chapter 692, Section 5. In that case, the proposed hydrogeologic evaluation scheduled for next week would be unnecessary, and this project can transition into the purview of engineering to ensure Section 5 compliance.

In the second option, the client may elect to go ahead with the hydrogeologic evaluation. If they do this, three outcomes are possible.

1. The evaluation indicates less-than-moderate potential yield. In that case, the Section 5 standards would not apply, and normal design standards could be used.
2. The evaluation indicates moderate yield, as mapped. In that case, they would need to use the Section 5 design standards, as mentioned above.
3. The evaluation indicates high potential yield. In that case, the variance they are requesting would be denied.

Please let me know if you want this evaluation submitted in a letter, if this email is sufficient for your needs, or something else. I wanted to put these thoughts in front of you quickly so that the client has time to cancel drilling, or make some other decision in a timely manner.

Feel free to reach out, or direct any of those involved in the project my way if anyone has further questions.

Cheers,
-Charles

From: Lisa Jacob <LJJ@smemaine.com>
Sent: Wednesday, November 29, 2023 5:14 PM
To: Wehr, Daniel J <Daniel.J.Wehr@maine.gov>
Cc: cneufeld@priorityrealestategroup.com; Andrew Gobeil <apg@smemaine.com>
Subject: Scope of work for hydrogeologic evaluation

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.
Hello Dan,

As discussed, we are providing the attached scope of work for a hydrogeological evaluation at the site of a proposed gasoline station in Cumberland, Maine. The proposed business is located within a significant sand and gravel aquifer as mapped by the Maine Geological Survey. The scope of work is intended to provide information to support a variance application for a new UST facility located over sand and gravel aquifers.

We understand that you will provide a review of this scope of work and we look forward to hearing from you. If we can answer any questions, please don't hesitate to contact me or Andrew Gobeil.

Thank you very much.

Regards,
Lisa

Lisa J. Jacob, L.G.
Principal/Senior Geologist

SME
SEVEE & MAHER
ENGINEERS
Sevee & Maher Engineers, Inc.
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Office: 207.829.5016
Cell: 207.272.2275
Fax: 207.829.5692

APPENDIX B

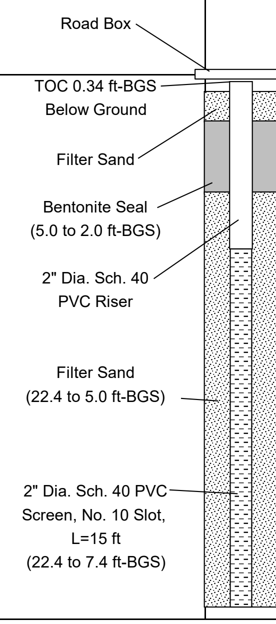
SOIL BORING AND WELL INSTALLATION LOGS

SME
SEVEE & MAHER
ENGINEERS

PROJECT: Proposed Rusty Lantern Market, Cumberland, Maine		**JOB NO.:** 231411	**BORING NO. MW-1**
DATE STARTED: 12/15/2023	**DATE FINISHED:** 12/15/2023	**DRILLING METHOD:** Drive & Wash w/4" Casing (HSA to 15 feet BGS)	
GROUND SURFACE ELEVATION (FT): 298.60 ft-NAVD88	**DRILLING CONTRACTOR:** NE Boring Contractors		**LOGGED BY:** Sevee & Maher (APG)
BOREHOLE DIA.: 4-inch	**WELL SCREEN/RISER DIA.:** 2-inch		**SHEET 1 OF 1**

DEPTH (FT)	SAMPLE NO./PID	MATERIAL DESCRIPTION	Blows per 0.5 feet on Sampler	Recovery (ft/ft)	DEPTH (FT)
0					0
	0-5 feet BGS Auger Cuttings 0.0 ppm	0.0 to 2.0 feet: dark brown, loose, well sorted, fine to coarse sand (Fill) 2.0 to 5.0 feet: yellowish brown, loose, well sorted, fine to coarse sand			
	5-10 feet BGS Auger Cuttings 0.0 ppm	5.0 to 10.0 feet: dull yellowish brown, loose, well sorted, fine to coarse sand			
10					10
	10-15 feet BGS Auger Cuttings 0.0 ppm	10.0 to 15.0 feet: light grayish brown, loose, well sorted, fine sand, some medium sand, little silt			
	1D 0.0 ppm	15.0 to 17.0 feet: light grayish brown, loose, well sorted, fine sand	3-3-4-9	1.6/2.0	
20		Clay in wash water at 19 feet BGS			20
	2D 0.0 ppm	20.0 to 22.0 feet: top 0.7 feet gray, medium stiff, silty clay; bottom 0.7 feet brown, medium dense, poorly sorted, gravelly medium to coarse sand	4-12-16-36	1.4/2.0	
		Rollercone from 22.0 to 22.4 feet into granofels bedrock			
		End of Exploration at 22.4 feet			
30					30
40					40
50					50

WELL LOG



NOTES:

Monitoring point elevation for MW-1 = 298.26 feet NAVD88 (top of PVC casing)

Water level measured on 1/9/2024 at 12:24 PM: MW-1 = 15.30 feet below top PVC, 282.96 feet NAVD88 elevation

Soil Key

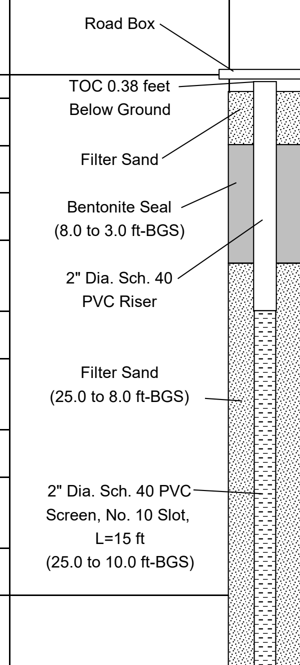
- Fill
- Stratified Sand and Gravel Deposits
- Marine Silt and Clay
- Bedrock

\\Nserver\cfs\Cumberland Real Estate Group\Rusty Lantern_Cumberland\SSI\Well Logs

PROJECT: Proposed Rusty Lantern Market, Cumberland, Maine		**JOB NO.:** 231411	**BORING NO. MW-2**
DATE STARTED: 12/14/2023	**DATE FINISHED:** 12/14/2023	**DRILLING METHOD:** Drive & Wash w/4" Casing	
GROUND SURFACE ELEVATION (FT): 299.00 ft-NAVD88	**DRILLING CONTRACTOR:** NE Boring Contractors		**LOGGED BY:** Sevee & Maher (JAP)
BOREHOLE DIA.: 4-inch	**WELL SCREEN/RISER DIA.:** 2-inch		**SHEET 1 OF 1**

DEPTH (FT)	SAMPLE NO./PID	MATERIAL DESCRIPTION	Blows per 0.5 feet on Sampler	Recovery (ft/ft)	DEPTH (FT)
0		0.0-1.0 feet: auger through asphalt and base gravel			0
	1D 0.1ppm	1.0-3.0 feet: brown to light brown, loose, poorly sorted, fine to medium sand, some gravel, trace silt	4-4-4-6	1.6/2.0	
	2D 0.1ppm	5.0-7.0 feet: top 0.2 feet same as above; bottom 1.6 feet loose, light yellowish born, well sorted, fine to medium sand	5-6-8-8	1.8/2.0	
10	3D 0.2ppm	10.0-12.0 feet: top 0.2 feet light brown, loose, well sorted, coarse sand; bottom 0.8 feet light yellowish brown, loose, well sorted, very fine sand	4-5-7-8	1.0/2.0	10
	4D 1268ppm	15.0-17.0 feet: light brown-yellow orange, loose, well ported, very fine sand, thinly stratified, petroleum odor	6-7-8-11	1.4/2.0	
20	5D 309ppm	20.0 to 22.0 feet: light brown-yellow orange, loose, well sorted, very fine sand, petroleum odor	8-10-13-12	1.2/2.0	20
	6D 5.9ppm	25.0-27.0 feet: top 0.8 feet gray, medium dense, poorly sorted, very fine sand, silt, and clay; mid 0.9 feet greenish gray clay; bottom 0.1 feet light brown, loose, well sorted, fine sand	8-9-4-11	1.8/2.0	
		End of Exploration at 27 feet			
30					30
40					40
50					50

WELL LOG



NOTES:

Monitoring point elevation for MW-2 = 298.78 feet NAVD88 (top of PVC casing)

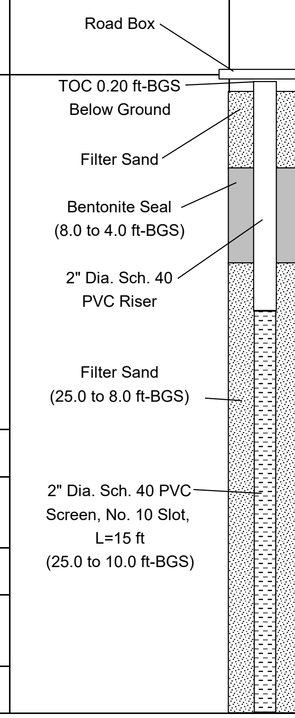
Water level measured on 1/9/2024 at 12:32 PM: MW-2 = 18.71 feet below top PVC, 280.07 feet NAVD88 elevation

Soil Key

- Fill
- Stratified Sand and Gravel Deposits
- Marine Silt and Clay
- Bedrock

PROJECT: Proposed Rusty Lantern Market, Cumberland, Maine		**JOB NO.:** 231411	**BORING NO. MW-3**
DATE STARTED: 12/15/2023	**DATE FINISHED:** 12/15/2023	**DRILLING METHOD:** Drive & Wash w/4" Casing (HSA to 15 feet BGS)	
GROUND SURFACE ELEVATION (FT): 299.39 ft-NAVD88	**DRILLING CONTRACTOR:** NE Boring Contractors		**LOGGED BY:** Sevee & Maher (APG)
BOREHOLE DIA.: 4-inch	**WELL SCREEN/RISER DIA.:** 2-inch		**SHEET 1 OF 1**

DEPTH (FT)	SAMPLE NO./PID	MATERIAL DESCRIPTION	Blows per 0.5 feet on Sampler	Recovery (ft/ft)	WELL LOG	DEPTH (FT)
0						0
	0-5 feet BGS Auger Cuttings 0.0 ppm	0.0 to 2.3 feet: dark brown, loose, well sorted, fine to coarse sand (Fill) 2.3 to 5.0 feet: brown, loose, well sorted, fine to medium sand				
	5-10 feet BGS Auger Cuttings 0.0 ppm	5.0 to 10.0 feet: light brown, loose, well sorted, fine sand				
10						10
	10-15 feet BGS Auger Cuttings 0.0 ppm	10.0 to 15.0 feet: light brown, loose, well sorted, fine sand				
	1D 0.0 ppm	15.0 to 17.0 feet: light grayish brown, loose, well sorted, fine sand	3-3-3-4	1.4/2.0		
20						20
	2D 0.0 ppm	20.0 to 22.0 feet: top 0.8 feet light grayish brown, loose, well sorted, fine to medium sand; bottom 0.5 feet brownish gray, medium stiff, silty clay	3-4-4-5	1.3/2.0		
	3D 0.0 ppm	25.0 to 27.0 feet: gray, soft, silty clay	2-2-2-7	2.0/2.0		
		End of Exploration at 27.0 feet				
30						30
40						40
50						50



NOTES:

Monitoring point elevation for MW-3 = 299.19 feet NAVD88 (top of PVC casing)

Water level measured on 1/9/2024 at 12:02 PM: MW-2 = 14.56 feet below top PVC, 284.83 feet NAVD88 elevation

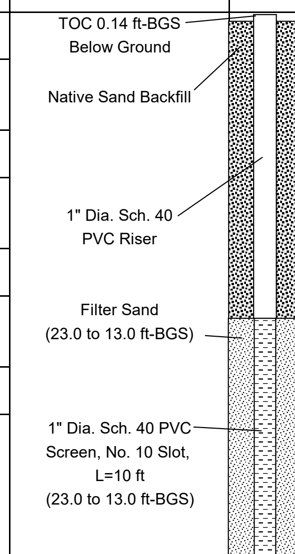
Soil Key

- Fill
- Stratified Sand and Gravel Deposits
- Marine Silt and Clay
- Bedrock

PROJECT: Proposed Rusty Lantern Market, Cumberland, Maine		**JOB NO.:** 231411	**BORING NO. PZ-4**
DATE STARTED: 12/15/2023	**DATE FINISHED:** 12/15/2023	**DRILLING METHOD:** Drive & Wash w/4" Casing	
GROUND SURFACE ELEVATION (FT): 297.77 ft-NAVD88	**DRILLING CONTRACTOR:** NE Boring Contractors		**LOGGED BY:** Sevee & Maher (APG)
BOREHOLE DIA.: 4-inch	**WELL SCREEN/RISER DIA.:** 1-inch		**SHEET 1 OF 1**

DEPTH (FT)	SAMPLE NO./PID	MATERIAL DESCRIPTION	Blows per 0.5 feet on Sampler	Recovery (ft/ft)	DEPTH (FT)
0					0
	1D 0.0 ppm	0.0 to 2.0 feet: top 0.8 feet dark brown, compact, well sorted, loamy sand (Fill); bottom 0.2 feet reddish brown, loose, poorly sorted, gravelly sandy loam	5-4-8-8	1.0/2.0	
	2D 0.0 ppm	5.0 to 7.0 feet: light brown, loose, poorly sorted, medium to coarse gravelly sand	5-5-4-4	1.1/2.0	
10					10
	3D 0.0 ppm	10.0 to 12.0 feet: top 0.5 feet brown, loose, well sorted, fine sand; bottom 1.5 feet light brown, loose, well sorted, very fine sand, little silt	4-4-4-5	1.8/2.0	
	4D 0.0 ppm	15.0 to 17.0 feet: top 0.5 feet light brown, loose, well sorted, silty sand; bottom 1.2 feet light brown, loose, well sorted, fine to medium sand	4-8-8-10	1.7/2.0	
20		Clay in wash water at 20 feet			20
	5D 0.0 ppm	23.0 to 25.0 feet: gray, soft, silty clay	3-2-5-5	1.6/2.0	
		End of Exploration at 25.0 feet			
30					30
40					40
50					50

WELL LOG



NOTES:

Monitoring point elevation for PZ-4 = 297.63 feet NAVD88 (top of PVC casing)

Water level measured on 1/9/2024 at 11:56 AM: PZ-4 = 15.46 feet below top PVC, 282.31 feet NAVD88 elevation

Soil Key

- Fill
- Stratified Sand and Gravel Deposits
- Marine Silt and Clay
- Bedrock

APPENDIX C

SLUG TEST ALANYSES RESULTS

SME
SEVEE & MAHER
ENGINEERS

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-1 Test 1	Test Well: MW-1
Test Conducted by: APG	Test Date: 1/9/2024	
Water level at t=0 [ft]: 1.64	Static Water Level [ft]: 0.00	Water level change at t=0 [ft]: 1.64

	Time [s]	Water Level [ft]	WL Change [ft]
1	0.744	1.6424	1.6424
2	1	0.7785	0.7785
3	1.747	1.3144	1.3144
4	2	1.2243	1.2243
5	2.748	0.9748	0.9748
6	3	0.9101	0.9101
7	3.779	0.7277	0.7277
8	4	0.6838	0.6838
9	4.792	0.5521	0.5521
10	5	0.5151	0.5151
11	5.794	0.4274	0.4274
12	6	0.4042	0.4042
13	6.812	0.3326	0.3326
14	7	0.3188	0.3188
15	7.5	0.2864	0.2864
16	8	0.2495	0.2495
17	8.5	0.2287	0.2287
18	9	0.2056	0.2056
19	9.5	0.1894	0.1894
20	10	0.1732	0.1732
21	10.5	0.1663	0.1663
22	11	0.1525	0.1525
23	11.5	0.1478	0.1478
24	12	0.1386	0.1386
25	12.5	0.134	0.134
26	13	0.1247	0.1247
27	13.5	0.1201	0.1201
28	14	0.1132	0.1132
29	14.5	0.1086	0.1086
30	15	0.104	0.104
31	15.5	0.1016	0.1016
32	16	0.0947	0.0947
33	16.5	0.0901	0.0901
34	17	0.0901	0.0901
35	17.5	0.0855	0.0855
36	18.028	0.0809	0.0809
37	18.5	0.0809	0.0809
38	19	0.0762	0.0762
39	19.5	0.0716	0.0716
40	20	0.067	0.067
41	20.5	0.067	0.067
42	21	0.0647	0.0647
43	21.5	0.0601	0.0601
44	22	0.0578	0.0578
45	22.5	0.0578	0.0578
46	23	0.0531	0.0531
47	23.5	0.0554	0.0554
48	24	0.0508	0.0508
49	24.5	0.0485	0.0485
50	25	0.0462	0.0462
51	25.5	0.0462	0.0462
52	26	0.0439	0.0439
53	26.5	0.0439	0.0439

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

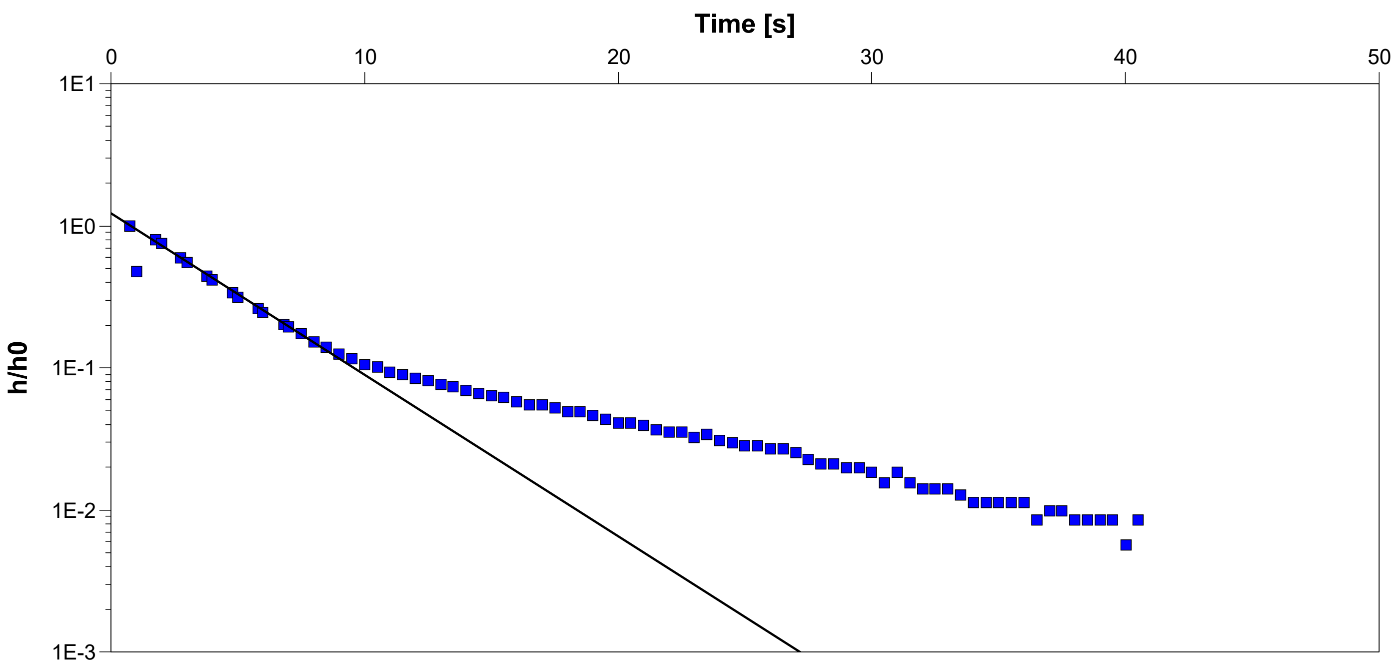
Number: 231411

Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
54	27	0.0416	0.0416
55	27.5	0.037	0.037
56	28	0.0347	0.0347
57	28.5	0.0347	0.0347
58	29	0.0323	0.0323
59	29.5	0.0323	0.0323
60	30	0.03	0.03
61	30.5	0.0254	0.0254
62	31	0.03	0.03
63	31.5	0.0254	0.0254
64	32	0.0231	0.0231
65	32.5	0.0231	0.0231
66	33	0.0231	0.0231
67	33.5	0.0208	0.0208
68	34	0.0185	0.0185
69	34.5	0.0185	0.0185
70	35.002	0.0185	0.0185
71	35.5	0.0185	0.0185
72	36.005	0.0185	0.0185
73	36.5	0.0139	0.0139
74	37.008	0.0162	0.0162
75	37.5	0.0162	0.0162
76	38.011	0.0139	0.0139
77	38.5	0.0139	0.0139
78	39.014	0.0139	0.0139
79	39.5	0.0139	0.0139
80	40.032	0.0092	0.0092
81	40.5	0.0139	0.0139

Sevee & Maher Engineers, Inc. 4 Blanchard Road Cumberland, Maine	**Slug Test Analysis Report**
	Project: Rusty Lantern Market
	Number: 231411
	Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-1 Test 1	Test Well: MW-1
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	MW-1 Test 1	Analysis Date: 1/21/2024
Aquifer Thickness: 6.31 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
MW-1	4.13×10^{1}	

Waterloo HYDROGEOLOGIC	**Sevee & Maher Engineers, Inc.** **4 Blanchard Road** **Cumberland, Maine**

Slug Test - Water Level Data	
Project: Rusty Lantern Market	
Number: 231411	
Client: Cumberland Real Estate Group	

Location: 181 Gray Road, Cumberland	Slug Test: MW-1 Test 2	Test Well: MW-1
Test Conducted by: APG	Test Date: 1/9/2024	
Water level at t=0 [ft]: 1.29	Static Water Level [ft]: 0.00	Water level change at t=0 [ft]: 1.29

	Time [s]	Water Level [ft]	WL Change [ft]
1	0.341	1.2913	1.2913
2	1.005	1.0349	1.0349
3	1.341	0.9309	0.9309
4	1.998	0.7623	0.7623
5	2.341	0.6768	0.6768
6	3.001	0.5683	0.5683
7	3.341	0.5151	0.5151
8	4.003	0.432	0.432
9	4.341	0.3927	0.3927
10	5.022	0.3303	0.3303
11	5.341	0.3119	0.3119
12	6.04	0.2587	0.2587
13	6.341	0.2449	0.2449
14	7.043	0.2171	0.2171
15	7.341	0.2056	0.2056
16	8.045	0.1871	0.1871
17	8.341	0.1825	0.1825
18	9.049	0.1686	0.1686
19	9.341	0.164	0.164
20	10.05	0.1502	0.1502
21	10.341	0.1502	0.1502
22	11.069	0.1409	0.1409
23	11.341	0.1363	0.1363
24	12.09	0.1317	0.1317
25	12.341	0.1271	0.1271
26	13.103	0.1224	0.1224
27	13.341	0.1201	0.1201
28	14.106	0.1132	0.1132
29	14.341	0.1109	0.1109
30	15.116	0.1063	0.1063
31	15.341	0.1063	0.1063
32	16.132	0.0993	0.0993
33	16.341	0.0993	0.0993
34	17.156	0.0924	0.0924
35	17.341	0.0924	0.0924
36	18.159	0.0878	0.0878
37	18.341	0.0855	0.0855
38	19.162	0.0832	0.0832
39	19.341	0.0832	0.0832
40	20.165	0.0785	0.0785
41	20.341	0.0762	0.0762
42	20.841	0.0785	0.0785
43	21.341	0.0716	0.0716
44	21.841	0.067	0.067
45	22.341	0.067	0.067
46	22.841	0.067	0.067
47	23.341	0.067	0.067
48	23.841	0.0624	0.0624
49	24.341	0.0624	0.0624
50	24.841	0.0578	0.0578
51	25.341	0.0578	0.0578
52	25.841	0.0554	0.0554
53	26.341	0.0554	0.0554

	Time [s]	Water Level [ft]	WL Change [ft]
54	26.841	0.0554	0.0554
55	27.341	0.0554	0.0554
56	27.841	0.0485	0.0485
57	28.341	0.0508	0.0508
58	28.841	0.0462	0.0462
59	29.341	0.0462	0.0462
60	29.841	0.0462	0.0462
61	30.341	0.0462	0.0462
62	30.841	0.0462	0.0462
63	31.341	0.0416	0.0416
64	31.841	0.0416	0.0416
65	32.341	0.0416	0.0416
66	32.841	0.0416	0.0416
67	33.341	0.0416	0.0416
68	33.841	0.037	0.037
69	34.341	0.0416	0.0416
70	34.841	0.037	0.037
71	35.341	0.0347	0.0347
72	35.841	0.037	0.037
73	36.341	0.03	0.03
74	36.841	0.0323	0.0323
75	37.341	0.0347	0.0347
76	37.841	0.0323	0.0323
77	38.341	0.0323	0.0323
78	38.841	0.03	0.03
79	39.341	0.03	0.03
80	39.841	0.0323	0.0323
81	40.341	0.03	0.03
82	40.841	0.0277	0.0277
83	41.341	0.0277	0.0277
84	41.841	0.0254	0.0254
85	42.341	0.0254	0.0254
86	42.841	0.0277	0.0277
87	43.341	0.0231	0.0231
88	43.841	0.0277	0.0277
89	44.341	0.0231	0.0231
90	44.841	0.0231	0.0231
91	45.341	0.0254	0.0254
92	45.841	0.0254	0.0254
93	46.341	0.0231	0.0231
94	46.841	0.0231	0.0231
95	47.341	0.0231	0.0231
96	47.841	0.0231	0.0231
97	48.341	0.0231	0.0231
98	48.841	0.0208	0.0208
99	49.341	0.0208	0.0208
100	49.841	0.0208	0.0208
101	50.341	0.0185	0.0185
102	50.841	0.0231	0.0231
103	51.341	0.0162	0.0162
104	51.841	0.0162	0.0162
105	52.341	0.0185	0.0185
106	52.841	0.0162	0.0162
107	53.347	0.0139	0.0139
108	53.841	0.0185	0.0185
109	54.366	0.0162	0.0162
110	54.841	0.0185	0.0185
111	55.368	0.0185	0.0185

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

Client: Cumberland Real Estate Group

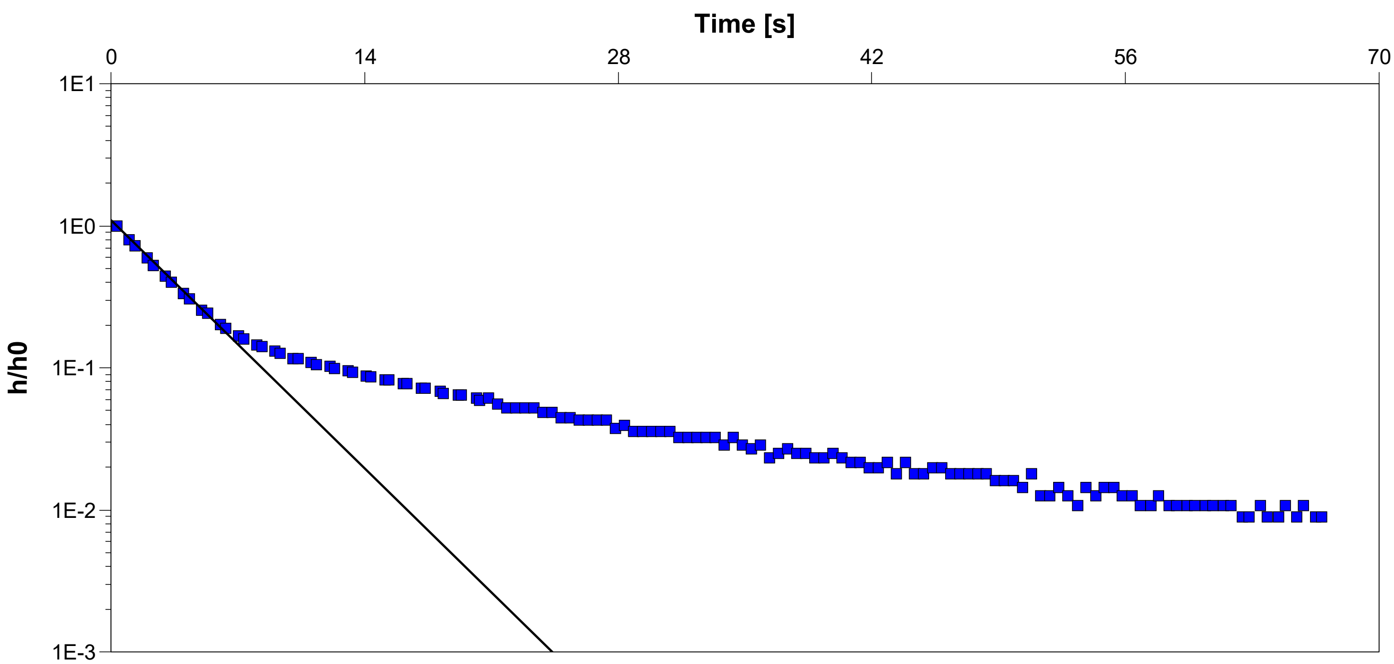
	Time [s]	Water Level [ft]	WL Change [ft]
112	55.841	0.0162	0.0162
113	56.378	0.0162	0.0162
114	56.841	0.0139	0.0139
115	57.397	0.0139	0.0139
116	57.841	0.0162	0.0162
117	58.399	0.0139	0.0139
118	58.841	0.0139	0.0139
119	59.402	0.0139	0.0139
120	59.841	0.0139	0.0139
121	60.405	0.0139	0.0139
122	60.841	0.0139	0.0139
123	61.429	0.0139	0.0139
124	61.841	0.0139	0.0139
125	62.448	0.0116	0.0116
126	62.841	0.0116	0.0116
127	63.45	0.0139	0.0139
128	63.841	0.0116	0.0116
129	64.453	0.0116	0.0116
130	64.841	0.0139	0.0139
131	65.472	0.0116	0.0116
132	65.841	0.0139	0.0139
133	66.491	0.0116	0.0116
134	66.841	0.0116	0.0116

Waterloo HYDROGEOLOGIC

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test Analysis Report
Project: Rusty Lantern Market
Number: 231411
Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-1 Test 2	Test Well: MW-1
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	MW-1 Test 2	Analysis Date: 1/21/2024
Aquifer Thickness: 6.31 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
MW-1	4.54×10^1	

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland | Slug Test: MW-1 Test 3 | Test Well: MW-1

Test Conducted by: APG | Test Date: 1/9/2024

Water level at t=0 [ft]: 2.24 | Static Water Level [ft]: 0.00 | Water level change at t=0 [ft]: 2.24

	Time [s]	Water Level [ft]	WL Change [ft]
1	0.282	2.2384	2.2384
2	1.002	1.2451	1.2451
3	1.282	1.1296	1.1296
4	2.021	0.9009	0.9009
5	2.282	0.827	0.827
6	3.026	0.6607	0.6607
7	3.282	0.6168	0.6168
8	4.029	0.5013	0.5013
9	4.282	0.4666	0.4666
10	5.03	0.3742	0.3742
11	5.282	0.3534	0.3534
12	6.032	0.298	0.298
13	6.282	0.2795	0.2795
14	7.036	0.2402	0.2402
15	7.282	0.2287	0.2287
16	8.039	0.2033	0.2033
17	8.282	0.201	0.201
18	9.058	0.1802	0.1802
19	9.282	0.1779	0.1779
20	10.06	0.1594	0.1594
21	10.282	0.1571	0.1571
22	11.062	0.1478	0.1478
23	11.282	0.1432	0.1432
24	12.065	0.1363	0.1363
25	12.282	0.1317	0.1317
26	13.084	0.1247	0.1247
27	13.282	0.1224	0.1224
28	14.087	0.1132	0.1132
29	14.282	0.1132	0.1132
30	15.089	0.1063	0.1063
31	15.282	0.104	0.104
32	16.1	0.0993	0.0993
33	16.282	0.0947	0.0947
34	16.782	0.0947	0.0947
35	17.282	0.0901	0.0901
36	18.095	0.0855	0.0855
37	18.282	0.0878	0.0878
38	18.782	0.0832	0.0832
39	19.282	0.0832	0.0832
40	19.782	0.0762	0.0762
41	20.282	0.0762	0.0762
42	20.782	0.0739	0.0739
43	21.282	0.0693	0.0693
44	21.782	0.0693	0.0693
45	22.282	0.0647	0.0647
46	22.782	0.0624	0.0624
47	23.282	0.0624	0.0624
48	23.783	0.0624	0.0624
49	24.282	0.0554	0.0554
50	24.782	0.0554	0.0554
51	25.282	0.0578	0.0578
52	25.782	0.0531	0.0531
53	26.282	0.0508	0.0508

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
54	26.782	0.0485	0.0485
55	27.282	0.0485	0.0485
56	27.782	0.0508	0.0508
57	28.282	0.0485	0.0485
58	28.782	0.0462	0.0462
59	29.282	0.0462	0.0462
60	29.782	0.0439	0.0439
61	30.282	0.0439	0.0439
62	30.782	0.0416	0.0416
63	31.282	0.037	0.037
64	31.782	0.0393	0.0393
65	32.282	0.0393	0.0393
66	32.782	0.0347	0.0347
67	33.282	0.037	0.037
68	33.782	0.0393	0.0393
69	34.282	0.0347	0.0347
70	34.782	0.0323	0.0323
71	35.282	0.0323	0.0323
72	35.782	0.0347	0.0347
73	36.282	0.03	0.03
74	36.782	0.0347	0.0347
75	37.282	0.0323	0.0323
76	37.782	0.03	0.03
77	38.282	0.03	0.03
78	38.782	0.03	0.03
79	39.282	0.03	0.03
80	39.782	0.03	0.03
81	40.282	0.0254	0.0254
82	40.782	0.0231	0.0231
83	41.282	0.0254	0.0254
84	41.782	0.0254	0.0254
85	42.282	0.0208	0.0208
86	42.782	0.0254	0.0254
87	43.282	0.0254	0.0254
88	43.782	0.0277	0.0277
89	44.282	0.0254	0.0254
90	44.782	0.0208	0.0208
91	45.282	0.0208	0.0208
92	45.782	0.0231	0.0231
93	46.282	0.0185	0.0185
94	46.782	0.0208	0.0208
95	47.282	0.0185	0.0185
96	47.782	0.0185	0.0185
97	48.282	0.0185	0.0185
98	48.782	0.0208	0.0208
99	49.282	0.0185	0.0185
100	49.782	0.0162	0.0162
101	50.282	0.0162	0.0162
102	50.782	0.0162	0.0162
103	51.282	0.0185	0.0185
104	51.782	0.0162	0.0162
105	52.282	0.0185	0.0185
106	52.782	0.0162	0.0162
107	53.282	0.0185	0.0185
108	53.782	0.0162	0.0162
109	54.282	0.0162	0.0162
110	54.782	0.0139	0.0139
111	55.282	0.0185	0.0185

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

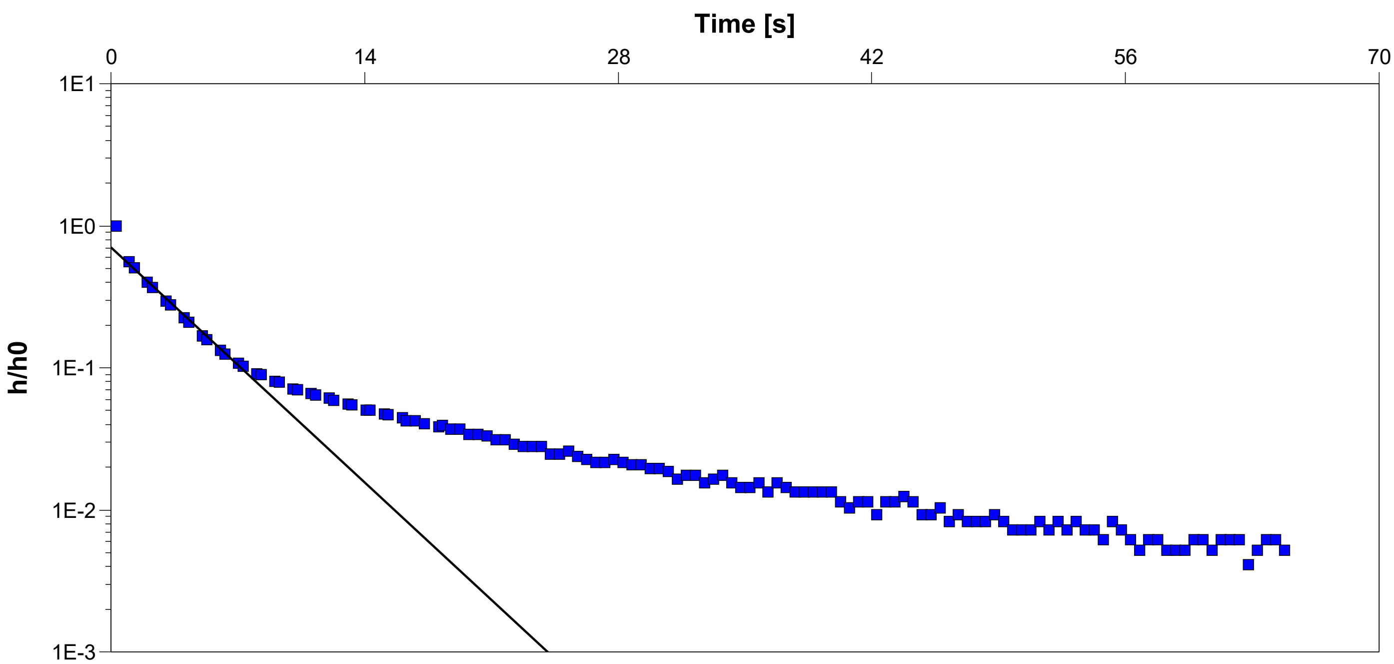
Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
112	55.782	0.0162	0.0162
113	56.282	0.0139	0.0139
114	56.782	0.0116	0.0116
115	57.282	0.0139	0.0139
116	57.782	0.0139	0.0139
117	58.282	0.0116	0.0116
118	58.782	0.0116	0.0116
119	59.282	0.0116	0.0116
120	59.782	0.0139	0.0139
121	60.282	0.0139	0.0139
122	60.782	0.0116	0.0116
123	61.282	0.0139	0.0139
124	61.782	0.0139	0.0139
125	62.282	0.0139	0.0139
126	62.782	0.0092	0.0092
127	63.282	0.0116	0.0116
128	63.782	0.0139	0.0139
129	64.282	0.0139	0.0139
130	64.782	0.0116	0.0116

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test Analysis Report
Project: Rusty Lantern Market
Number: 231411
Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-1 Test 3	Test Well: MW-1
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	MW-1 Test 3	Analysis Date: 1/21/2024
Aquifer Thickness: 6.31 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
MW-1	4.30×10^{1}	

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-2 Test 1	Test Well: MW-2
Test Conducted by: APG	Test Date: 1/9/2024	
Water level at t=0 [ft]: 0.77	Static Water Level [ft]: 0.00	Water level change at t=0 [ft]: 0.77

	Time [s]	Water Level [ft]	WL Change [ft]
1	0.5	0.766	0.766
2	1	0.648	0.648
3	1.5	0.582	0.582
4	2	0.517	0.517
5	2.5	0.468	0.468
6	3	0.419	0.419
7	3.5	0.379	0.379
8	4	0.357	0.357
9	4.5	0.313	0.313
10	5	0.284	0.284
11	5.5	0.256	0.256
12	6	0.237	0.237
13	6.5	0.219	0.219
14	7	0.201	0.201
15	7.5	0.187	0.187
16	8	0.174	0.174
17	8.5	0.162	0.162
18	9	0.153	0.153
19	9.5	0.145	0.145
20	10	0.136	0.136
21	10.5	0.13	0.13
22	11	0.124	0.124
23	11.5	0.119	0.119
24	12	0.114	0.114
25	12.5	0.11	0.11
26	13	0.105	0.105
27	13.5	0.101	0.101
28	14	0.097	0.097
29	14.5	0.094	0.094
30	15.017	0.09	0.09
31	15.5	0.087	0.087
32	16.019	0.084	0.084
33	16.5	0.083	0.083
34	17.02	0.079	0.079
35	17.5	0.075	0.075
36	18.039	0.072	0.072
37	18.5	0.07	0.07
38	19.058	0.068	0.068
39	19.5	0.067	0.067
40	20.061	0.063	0.063
41	20.5	0.063	0.063
42	21.075	0.058	0.058
43	21.5	0.056	0.056
44	22.095	0.053	0.053
45	22.5	0.051	0.051
46	23.097	0.047	0.047
47	23.5	0.047	0.047
48	24.1	0.043	0.043
49	24.5	0.043	0.043
50	25.119	0.039	0.039
51	25.5	0.039	0.039
52	26.122	0.037	0.037
53	26.5	0.035	0.035

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

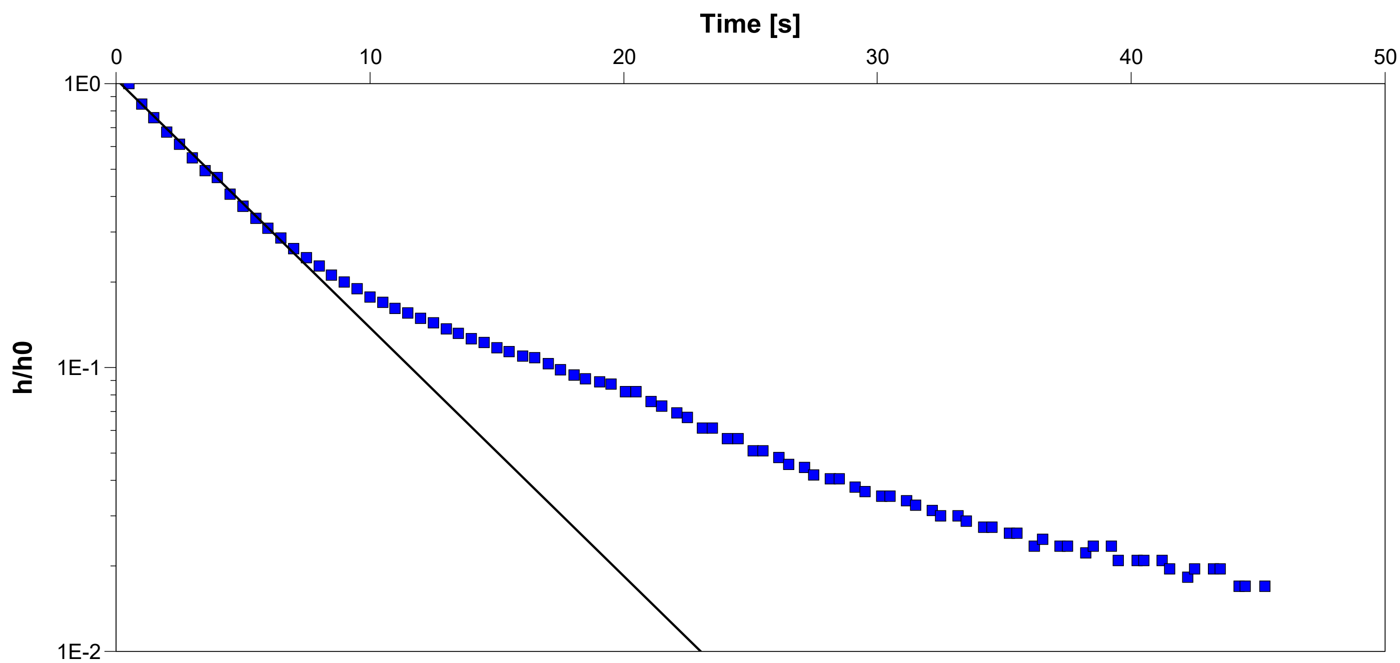
Number: 231411

Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
54	27.125	0.034	0.034
55	27.5	0.032	0.032
56	28.129	0.031	0.031
57	28.5	0.031	0.031
58	29.131	0.029	0.029
59	29.5	0.028	0.028
60	30.152	0.027	0.027
61	30.5	0.027	0.027
62	31.155	0.026	0.026
63	31.5	0.025	0.025
64	32.153	0.024	0.024
65	32.5	0.023	0.023
66	33.164	0.023	0.023
67	33.5	0.022	0.022
68	34.184	0.021	0.021
69	34.5	0.021	0.021
70	35.186	0.02	0.02
71	35.5	0.02	0.02
72	36.189	0.018	0.018
73	36.5	0.019	0.019
74	37.192	0.018	0.018
75	37.5	0.018	0.018
76	38.218	0.017	0.017
77	38.5	0.018	0.018
78	39.221	0.018	0.018
79	39.5	0.016	0.016
80	40.223	0.016	0.016
81	40.5	0.016	0.016
82	41.225	0.016	0.016
83	41.5	0.015	0.015
84	42.229	0.014	0.014
85	42.5	0.015	0.015
86	43.233	0.015	0.015
87	43.5	0.015	0.015
88	44.25	0.013	0.013
89	44.5	0.013	0.013
90	45.252	0.013	0.013

Sevee & Maher Engineers, Inc. **4 Blanchard Road** **Cumberland, Maine**	**Slug Test Analysis Report**
	Project: Rusty Lantern Market
	Number: 231411
	Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-2 Test 1	Test Well: MW-2
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	MW-2 Test 1	Analysis Date: 1/21/2024
Aquifer Thickness: 6.07 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
MW-2	3.28×10^{1}	

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-2 Test 2	Test Well: MW-2
Test Conducted by: APG	Test Date: 1/9/2024	
Water level at t=0 [ft]: 0.96	Static Water Level [ft]: 0.00	Water level change at t=0 [ft]: 0.96

	Time [s]	Water Level [ft]	WL Change [ft]
1	0.5	0.955	0.955
2	1	0.74	0.74
3	1.5	0.619	0.619
4	2	0.553	0.553
5	2.5	0.495	0.495
6	3	0.451	0.451
7	3.5	0.402	0.402
8	4	0.36	0.36
9	4.5	0.325	0.325
10	5	0.29	0.29
11	5.5	0.266	0.266
12	6	0.24	0.24
13	6.5	0.225	0.225
14	7	0.205	0.205
15	7.5	0.19	0.19
16	8	0.176	0.176
17	8.506	0.168	0.168
18	9	0.157	0.157
19	9.5	0.145	0.145
20	10	0.139	0.139
21	10.503	0.13	0.13
22	11	0.123	0.123
23	11.505	0.12	0.12
24	12	0.113	0.113
25	12.508	0.11	0.11
26	13	0.105	0.105
27	13.527	0.102	0.102
28	14	0.10	0.10
29	14.529	0.095	0.095
30	15	0.092	0.092
31	15.533	0.088	0.088
32	16	0.087	0.087
33	16.528	0.083	0.083
34	17	0.079	0.079
35	17.542	0.076	0.076
36	18	0.075	0.075
37	18.544	0.07	0.07
38	19	0.068	0.068
39	19.563	0.065	0.065
40	20	0.062	0.062
41	20.555	0.058	0.058
42	21	0.055	0.055
43	21.574	0.053	0.053
44	22	0.052	0.052
45	22.576	0.048	0.048
46	23	0.047	0.047
47	23.58	0.044	0.044
48	24	0.043	0.043
49	24.583	0.041	0.041
50	25	0.039	0.039
51	25.608	0.039	0.039
52	26	0.037	0.037
53	26.627	0.036	0.036

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

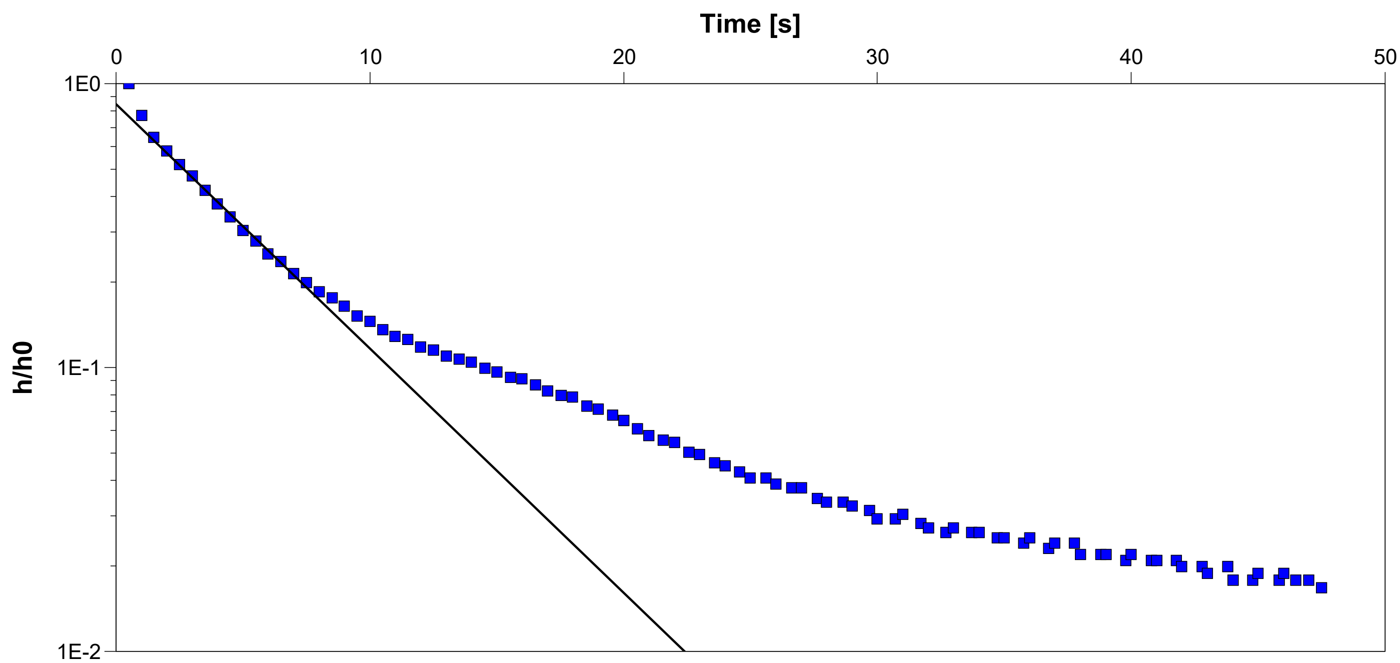
Number: 231411

Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
54	27	0.036	0.036
55	27.63	0.033	0.033
56	28	0.032	0.032
57	28.649	0.032	0.032
58	29	0.031	0.031
59	29.677	0.03	0.03
60	30	0.028	0.028
61	30.698	0.028	0.028
62	31	0.029	0.029
63	31.701	0.027	0.027
64	32	0.026	0.026
65	32.704	0.025	0.025
66	33	0.026	0.026
67	33.707	0.025	0.025
68	34	0.025	0.025
69	34.732	0.024	0.024
70	35	0.024	0.024
71	35.751	0.023	0.023
72	36	0.024	0.024
73	36.754	0.022	0.022
74	37	0.023	0.023
75	37.771	0.023	0.023
76	38	0.021	0.021
77	38.789	0.021	0.021
78	39	0.021	0.021
79	39.793	0.02	0.02
80	40	0.021	0.021
81	40.797	0.02	0.02
82	41	0.02	0.02
83	41.794	0.02	0.02
84	42	0.019	0.019
85	42.797	0.019	0.019
86	43	0.018	0.018
87	43.8	0.019	0.019
88	44	0.017	0.017
89	44.802	0.017	0.017
90	45	0.018	0.018
91	45.821	0.017	0.017
92	46	0.018	0.018
93	46.5	0.017	0.017
94	47	0.017	0.017
95	47.5	0.016	0.016

Sevee & Maher Engineers, Inc. 4 Blanchard Road Cumberland, Maine	Slug Test Analysis Report
	Project: Rusty Lantern Market
	Number: 231411
	Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-2 Test 2	Test Well: MW-2
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	MW-2 Test 2	Analysis Date: 1/21/2024
Aquifer Thickness: 6.07 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
MW-2	3.22×10^{1}	

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-2 Test 3	Test Well: MW-2
Test Conducted by: APG	Test Date: 1/9/2024	
Water level at t=0 [ft]: 0.89	Static Water Level [ft]: 0.00	Water level change at t=0 [ft]: 0.89

	Time [s]	Water Level [ft]	WL Change [ft]
1	0.5	0.886	0.886
2	1	0.763	0.763
3	1.5	0.632	0.632
4	2	0.561	0.561
5	2.5	0.504	0.504
6	3	0.451	0.451
7	3.5	0.402	0.402
8	4.001	0.36	0.36
9	4.5	0.325	0.325
10	5	0.297	0.297
11	5.5	0.273	0.273
12	6.016	0.248	0.248
13	6.5	0.224	0.224
14	7.05	0.205	0.205
15	7.5	0.193	0.193
16	8.067	0.178	0.178
17	8.5	0.17	0.17
18	9.069	0.155	0.155
19	9.5	0.146	0.146
20	10.073	0.137	0.137
21	10.5	0.132	0.132
22	11.076	0.123	0.123
23	11.5	0.119	0.119
24	12.101	0.113	0.113
25	12.5	0.109	0.109
26	13.137	0.105	0.105
27	13.5	0.102	0.102
28	14.141	0.098	0.098
29	14.5	0.095	0.095
30	15.159	0.091	0.091
31	15.5	0.089	0.089
32	16.162	0.084	0.084
33	16.5	0.081	0.081
34	17.164	0.077	0.077
35	17.5	0.075	0.075
36	18.18	0.071	0.071
37	18.5	0.069	0.069
38	19.177	0.065	0.065
39	19.5	0.064	0.064
40	20.18	0.057	0.057
41	20.5	0.057	0.057
42	21.184	0.053	0.053
43	21.5	0.053	0.053
44	22.202	0.05	0.05
45	22.5	0.048	0.048
46	23.22	0.045	0.045
47	23.5	0.045	0.045
48	24.223	0.042	0.042
49	24.5	0.041	0.041
50	25.225	0.039	0.039
51	25.5	0.039	0.039
52	26.228	0.037	0.037
53	26.5	0.036	0.036

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Project: Rusty Lantern Market

Number: 231411

Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
54	27.232	0.034	0.034
55	27.5	0.035	0.035
56	28.251	0.032	0.032
57	28.5	0.033	0.033
58	29.254	0.031	0.031
59	29.5	0.032	0.032
60	30.273	0.03	0.03
61	30.5	0.03	0.03
62	31.295	0.028	0.028
63	31.5	0.028	0.028
64	32.295	0.028	0.028
65	32.5	0.028	0.028
66	33.298	0.027	0.027
67	33.5	0.026	0.026
68	34.31	0.025	0.025
69	34.5	0.025	0.025
70	35	0.025	0.025
71	35.5	0.026	0.026
72	36	0.024	0.024
73	36.5	0.025	0.025
74	37	0.023	0.023
75	37.5	0.024	0.024
76	38	0.023	0.023
77	38.5	0.023	0.023
78	39	0.022	0.022
79	39.5	0.022	0.022
80	40	0.022	0.022
81	40.5	0.021	0.021
82	41	0.022	0.022
83	41.5	0.02	0.02
84	42	0.02	0.02
85	42.5	0.02	0.02
86	43	0.021	0.021
87	43.5	0.02	0.02
88	44	0.02	0.02
89	44.5	0.019	0.019
90	45	0.019	0.019
91	45.5	0.019	0.019
92	46	0.019	0.019
93	46.5	0.018	0.018
94	47	0.019	0.019
95	47.5	0.018	0.018
96	48	0.018	0.018
97	48.5	0.019	0.019
98	49	0.018	0.018
99	49.5	0.018	0.018
100	50	0.018	0.018
101	50.5	0.017	0.017
102	51	0.018	0.018
103	51.5	0.017	0.017
104	52	0.017	0.017
105	52.5	0.017	0.017
106	53	0.015	0.015
107	53.5	0.017	0.017
108	54	0.016	0.016
109	54.5	0.016	0.016
110	55	0.017	0.017
111	55.5	0.017	0.017

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

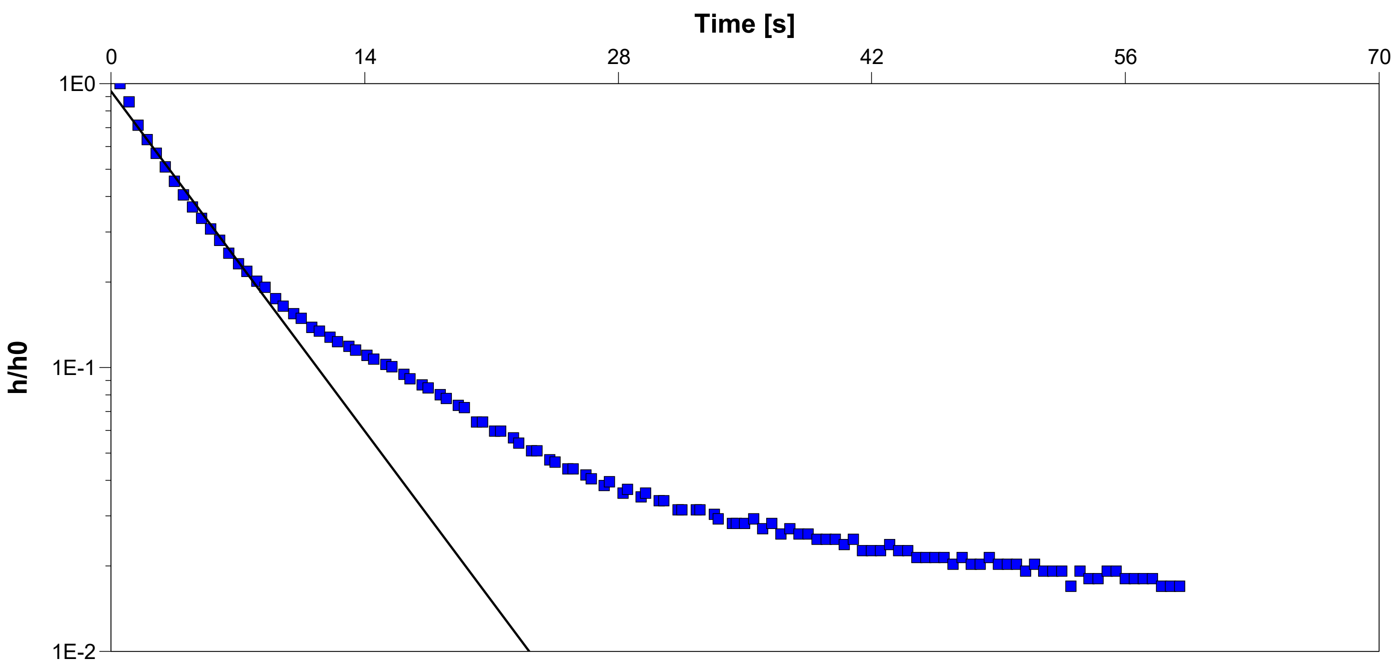
Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
112	56	0.016	0.016
113	56.5	0.016	0.016
114	57	0.016	0.016
115	57.501	0.016	0.016
116	58	0.015	0.015
117	58.5	0.015	0.015
118	59	0.015	0.015

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test Analysis Report
Project: Rusty Lantern Market
Number: 231411
Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-2 Test 3	Test Well: MW-2
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	MW-2 Test 3	Analysis Date: 1/21/2024
Aquifer Thickness: 6.07 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
MW-2	3.20×10^{1}	

Waterloo HYDROGEOLOGIC

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-3 Test 1	Test Well: MW-3
Test Conducted by: APG	Test Date: 1/9/2024	
Water level at t=0 [ft]: 0.68	Static Water Level [ft]: 0.00	Water level change at t=0 [ft]: 0.68

	Time [s]	Water Level [ft]	WL Change [ft]
1	0.667	0.68	0.68
2	1	0.663	0.663
3	1.667	0.614	0.614
4	2	0.584	0.584
5	2.686	0.539	0.539
6	3	0.519	0.519
7	3.69	0.472	0.472
8	4	0.459	0.459
9	4.693	0.42	0.42
10	5	0.404	0.404
11	5.697	0.373	0.373
12	6	0.353	0.353
13	6.7	0.335	0.335
14	7	0.317	0.317
15	7.718	0.295	0.295
16	8	0.285	0.285
17	8.72	0.265	0.265
18	9	0.257	0.257
19	9.723	0.241	0.241
20	10	0.234	0.234
21	10.727	0.219	0.219
22	11	0.214	0.214
23	11.729	0.203	0.203
24	12	0.198	0.198
25	12.748	0.189	0.189
26	13	0.185	0.185
27	13.774	0.177	0.177
28	14	0.174	0.174
29	14.777	0.167	0.167
30	15	0.164	0.164
31	15.779	0.157	0.157
32	16	0.155	0.155
33	16.781	0.149	0.149
34	17	0.148	0.148
35	17.801	0.143	0.143
36	18	0.141	0.141
37	18.804	0.137	0.137
38	19	0.137	0.137
39	19.807	0.131	0.131
40	20	0.131	0.131
41	20.5	0.128	0.128
42	21	0.126	0.126
43	21.5	0.124	0.124
44	22	0.122	0.122
45	22.5	0.121	0.121
46	23	0.117	0.117
47	23.5	0.116	0.116
48	24	0.114	0.114
49	24.5	0.112	0.112
50	25	0.111	0.111
51	25.5	0.109	0.109
52	26	0.107	0.107
53	26.5	0.106	0.106

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
54	27	0.104	0.104
55	27.5	0.104	0.104
56	28	0.102	0.102
57	28.5	0.10	0.10
58	29	0.10	0.10
59	29.5	0.097	0.097
60	30	0.096	0.096
61	30.5	0.096	0.096
62	31	0.094	0.094
63	31.5	0.093	0.093
64	32	0.092	0.092
65	32.5	0.091	0.091
66	33	0.091	0.091
67	33.5	0.089	0.089
68	34	0.088	0.088
69	34.5	0.088	0.088
70	35	0.086	0.086
71	35.5	0.085	0.085
72	36	0.084	0.084
73	36.5	0.084	0.084
74	37	0.082	0.082
75	37.5	0.081	0.081
76	38	0.082	0.082
77	38.5	0.081	0.081
78	39	0.08	0.08
79	39.5	0.078	0.078
80	40	0.078	0.078
81	40.5	0.078	0.078
82	41	0.076	0.076
83	41.5	0.075	0.075
84	42	0.074	0.074
85	42.5	0.075	0.075
86	43	0.073	0.073
87	43.5	0.074	0.074
88	44	0.072	0.072
89	44.5	0.071	0.071
90	45	0.072	0.072
91	45.5	0.071	0.071
92	46	0.07	0.07
93	46.5	0.07	0.07
94	47	0.07	0.07
95	47.5	0.069	0.069
96	48	0.068	0.068
97	48.5	0.068	0.068
98	49	0.067	0.067
99	49.5	0.067	0.067
100	50	0.066	0.066
101	50.5	0.065	0.065
102	51	0.066	0.066
103	51.5	0.065	0.065
104	52	0.065	0.065
105	52.5	0.065	0.065
106	53.038	0.062	0.062
107	53.5	0.063	0.063
108	54	0.063	0.063
109	54.5	0.063	0.063
110	55	0.062	0.062
111	55.5	0.063	0.063

Waterloo HYDROGEOLOGIC

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

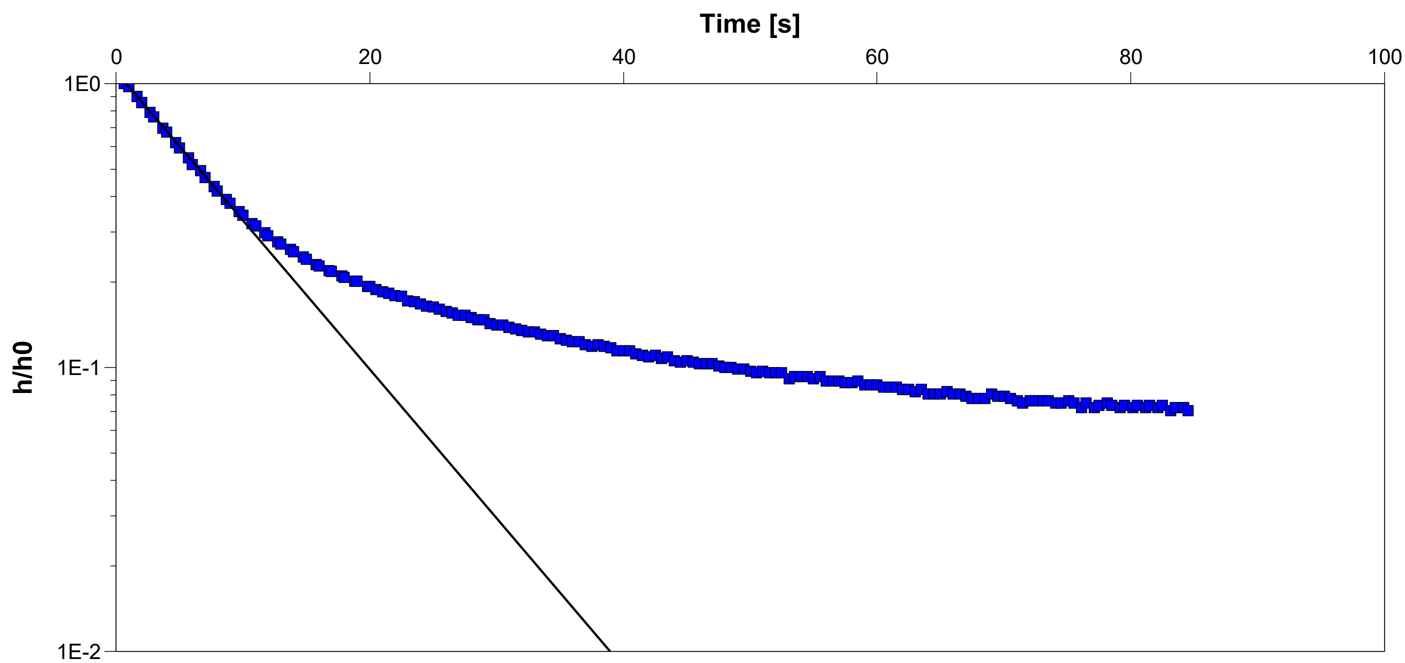
Number: 231411

Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
112	56	0.061	0.061
113	56.5	0.061	0.061
114	57	0.061	0.061
115	57.5	0.06	0.06
116	58	0.06	0.06
117	58.5	0.061	0.061
118	59	0.059	0.059
119	59.5	0.059	0.059
120	60	0.059	0.059
121	60.5	0.058	0.058
122	61	0.058	0.058
123	61.5	0.058	0.058
124	62	0.057	0.057
125	62.5	0.057	0.057
126	63.002	0.056	0.056
127	63.5	0.057	0.057
128	64	0.055	0.055
129	64.5	0.055	0.055
130	65	0.055	0.055
131	65.5	0.056	0.056
132	66	0.055	0.055
133	66.5	0.055	0.055
134	67.01	0.054	0.054
135	67.5	0.053	0.053
136	68.028	0.053	0.053
137	68.5	0.053	0.053
138	69.047	0.055	0.055
139	69.5	0.054	0.054
140	70.051	0.054	0.054
141	70.5	0.053	0.053
142	71.054	0.052	0.052
143	71.5	0.051	0.051
144	72.073	0.052	0.052
145	72.5	0.052	0.052
146	73.075	0.052	0.052
147	73.5	0.052	0.052
148	74.079	0.051	0.051
149	74.5	0.051	0.051
150	75.083	0.052	0.052
151	75.5	0.051	0.051
152	76.102	0.049	0.049
153	76.5	0.051	0.051
154	77.12	0.049	0.049
155	77.5	0.05	0.05
156	78.115	0.051	0.051
157	78.5	0.05	0.05
158	79.134	0.049	0.049
159	79.5	0.05	0.05
160	80.152	0.049	0.049
161	80.5	0.05	0.05
162	81.155	0.049	0.049
163	81.5	0.05	0.05
164	82.158	0.049	0.049
165	82.5	0.05	0.05
166	83.161	0.048	0.048
167	83.5	0.049	0.049
168	84.179	0.049	0.049
169	84.5	0.048	0.048

Sevee & Maher Engineers, Inc. 4 Blanchard Road Cumberland, Maine	**Slug Test Analysis Report**
	Project: Rusty Lantern Market
	Number: 231411
	Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-3 Test 1	Test Well: MW-3
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	MW-3 Test 1	Analysis Date: 1/22/2024
Aquifer Thickness: 10.31 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
MW-3	1.31×10^{1}	

Sevee & Maher Engineers, Inc. 4 Blanchard Road Cumberland, Maine	Slug Test - Water Level Data	
	Project: Rusty Lantern Market	
	Number: 231411	
	Client: Cumberland Real Estate Group	

Location: 181 Gray Road, Cumberland	Slug Test: MW-3 Test 2	Test Well: MW-3
Test Conducted by: APG	Test Date: 1/9/2024	
Water level at t=0 [ft]: 0.69	Static Water Level [ft]: 0.00	Water level change at t=0 [ft]: 0.69

	Time [s]	Water Level [ft]	WL Change [ft]
1	0.288	0.688	0.688
2	1.003	0.631	0.631
3	1.288	0.608	0.608
4	2.005	0.555	0.555
5	2.288	0.527	0.527
6	3.009	0.485	0.485
7	3.288	0.47	0.47
8	4.027	0.426	0.426
9	4.288	0.415	0.415
10	5.046	0.377	0.377
11	5.288	0.365	0.365
12	6.048	0.33	0.33
13	6.288	0.322	0.322
14	7.05	0.294	0.294
15	7.288	0.285	0.285
16	8.067	0.261	0.261
17	8.288	0.256	0.256
18	9.076	0.236	0.236
19	9.288	0.231	0.231
20	10.094	0.214	0.214
21	10.288	0.21	0.21
22	11.096	0.196	0.196
23	11.288	0.192	0.192
24	12.098	0.181	0.181
25	12.288	0.178	0.178
26	13.103	0.168	0.168
27	13.288	0.165	0.165
28	13.788	0.162	0.162
29	14.288	0.156	0.156
30	14.788	0.152	0.152
31	15.288	0.147	0.147
32	15.788	0.142	0.142
33	16.288	0.139	0.139
34	16.788	0.137	0.137
35	17.288	0.132	0.132
36	17.788	0.13	0.13
37	18.288	0.127	0.127
38	18.788	0.125	0.125
39	19.288	0.119	0.119
40	19.788	0.118	0.118
41	20.288	0.116	0.116
42	20.788	0.114	0.114
43	21.288	0.11	0.11
44	21.788	0.109	0.109
45	22.288	0.107	0.107
46	22.788	0.103	0.103
47	23.288	0.102	0.102
48	23.788	0.10	0.10
49	24.288	0.098	0.098
50	24.788	0.098	0.098
51	25.288	0.093	0.093
52	25.788	0.092	0.092
53	26.288	0.091	0.091

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Project: Rusty Lantern Market

Number: 231411

Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
54	26.788	0.09	0.09
55	27.288	0.089	0.089
56	27.788	0.085	0.085
57	28.288	0.084	0.084
58	28.788	0.08	0.08
59	29.288	0.081	0.081
60	29.788	0.081	0.081
61	30.288	0.079	0.079
62	30.788	0.078	0.078
63	31.288	0.076	0.076
64	31.788	0.074	0.074
65	32.288	0.073	0.073
66	32.788	0.073	0.073
67	33.288	0.072	0.072
68	33.788	0.069	0.069
69	34.288	0.07	0.07
70	34.788	0.069	0.069
71	35.288	0.067	0.067
72	35.788	0.066	0.066
73	36.288	0.065	0.065
74	36.788	0.064	0.064
75	37.288	0.064	0.064
76	37.788	0.062	0.062
77	38.288	0.061	0.061
78	38.788	0.06	0.06
79	39.288	0.06	0.06
80	39.788	0.058	0.058
81	40.288	0.059	0.059
82	40.788	0.058	0.058
83	41.288	0.058	0.058
84	41.788	0.057	0.057
85	42.288	0.055	0.055
86	42.788	0.054	0.054
87	43.288	0.053	0.053
88	43.788	0.054	0.054
89	44.288	0.05	0.05
90	44.788	0.052	0.052
91	45.288	0.051	0.051
92	45.788	0.05	0.05
93	46.288	0.049	0.049
94	46.788	0.05	0.05
95	47.288	0.048	0.048
96	47.788	0.048	0.048
97	48.291	0.046	0.046
98	48.788	0.046	0.046
99	49.294	0.046	0.046
100	49.788	0.046	0.046
101	50.297	0.044	0.044
102	50.788	0.045	0.045
103	51.315	0.044	0.044
104	51.788	0.044	0.044
105	52.317	0.042	0.042
106	52.788	0.042	0.042
107	53.342	0.042	0.042
108	53.788	0.042	0.042
109	54.354	0.04	0.04
110	54.788	0.041	0.041
111	55.356	0.04	0.04

Waterloo HYDROGEOLOGIC

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

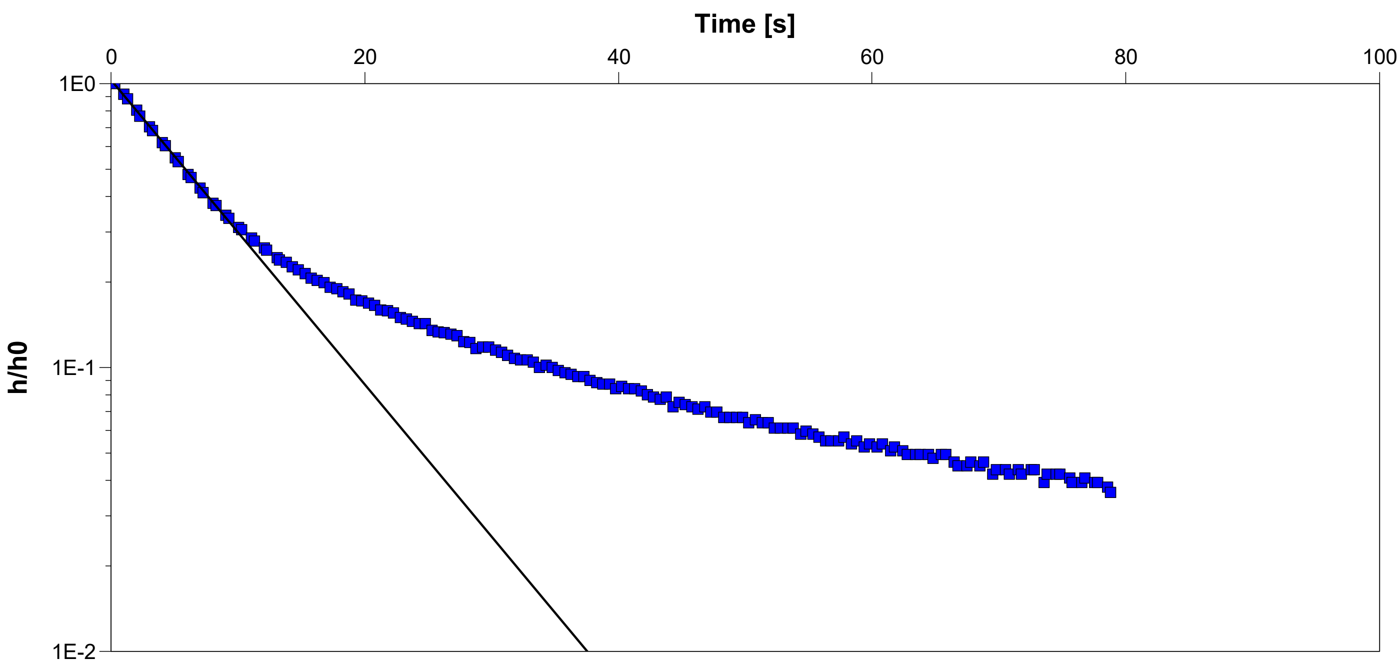
Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
112	55.788	0.039	0.039
113	56.36	0.038	0.038
114	56.788	0.038	0.038
115	57.362	0.038	0.038
116	57.788	0.039	0.039
117	58.38	0.037	0.037
118	58.788	0.038	0.038
119	59.4	0.036	0.036
120	59.788	0.037	0.037
121	60.411	0.036	0.036
122	60.788	0.037	0.037
123	61.437	0.035	0.035
124	61.788	0.036	0.036
125	62.439	0.035	0.035
126	62.788	0.034	0.034
127	63.441	0.034	0.034
128	63.788	0.034	0.034
129	64.438	0.034	0.034
130	64.788	0.033	0.033
131	65.437	0.034	0.034
132	65.788	0.034	0.034
133	66.441	0.032	0.032
134	66.788	0.031	0.031
135	67.459	0.031	0.031
136	67.788	0.032	0.032
137	68.485	0.031	0.031
138	68.788	0.032	0.032
139	69.487	0.029	0.029
140	69.788	0.03	0.03
141	70.489	0.03	0.03
142	70.788	0.029	0.029
143	71.501	0.03	0.03
144	71.788	0.029	0.029
145	72.528	0.03	0.03
146	72.788	0.03	0.03
147	73.531	0.027	0.027
148	73.788	0.029	0.029
149	74.533	0.029	0.029
150	74.788	0.029	0.029
151	75.563	0.028	0.028
152	75.788	0.027	0.027
153	76.563	0.027	0.027
154	76.788	0.028	0.028
155	77.566	0.027	0.027
156	77.788	0.027	0.027
157	78.583	0.026	0.026
158	78.788	0.025	0.025

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test Analysis Report
Project: Rusty Lantern Market
Number: 231411
Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-3 Test 2	Test Well: MW-3
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	MW-3 Test 2	Analysis Date: 1/22/2024
Aquifer Thickness: 10.31 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
MW-3	1.34×10^{1}	

Sevee & Maher Engineers, Inc. 4 Blanchard Road Cumberland, Maine	**Slug Test - Water Level Data**
	Project: Rusty Lantern Market
	Number: 231411
	Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-3 Test 3	Test Well: MW-3
Test Conducted by: APG	Test Date: 1/9/2024	
Water level at t=0 [ft]: 0.83	Static Water Level [ft]: 0.00	Water level change at t=0 [ft]: 0.83

	Time [s]	Water Level [ft]	WL Change [ft]
1	0.424	0.831	0.831
2	1.003	0.667	0.667
3	1.424	0.628	0.628
4	2.006	0.581	0.581
5	2.424	0.553	0.553
6	3.008	0.509	0.509
7	3.424	0.491	0.491
8	4.034	0.449	0.449
9	4.424	0.432	0.432
10	5.052	0.397	0.397
11	5.424	0.378	0.378
12	6.055	0.346	0.346
13	6.424	0.33	0.33
14	7.084	0.304	0.304
15	7.424	0.293	0.293
16	8.087	0.269	0.269
17	8.424	0.26	0.26
18	9.089	0.242	0.242
19	9.424	0.235	0.235
20	10.091	0.216	0.216
21	10.424	0.21	0.21
22	11.094	0.196	0.196
23	11.424	0.192	0.192
24	12.114	0.181	0.181
25	12.424	0.176	0.176
26	13.116	0.167	0.167
27	13.424	0.164	0.164
28	14.119	0.155	0.155
29	14.424	0.151	0.151
30	15.138	0.144	0.144
31	15.424	0.142	0.142
32	16.148	0.136	0.136
33	16.424	0.135	0.135
34	17.142	0.128	0.128
35	17.424	0.128	0.128
36	18.146	0.121	0.121
37	18.424	0.12	0.12
38	19.149	0.116	0.116
39	19.424	0.114	0.114
40	20.167	0.11	0.11
41	20.424	0.11	0.11
42	21.185	0.105	0.105
43	21.424	0.104	0.104
44	22.188	0.101	0.101
45	22.424	0.099	0.099
46	23.193	0.097	0.097
47	23.424	0.096	0.096
48	24.196	0.092	0.092
49	24.424	0.091	0.091
50	25.214	0.088	0.088
51	25.424	0.088	0.088
52	26.217	0.083	0.083
53	26.424	0.083	0.083

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

Number: 231411

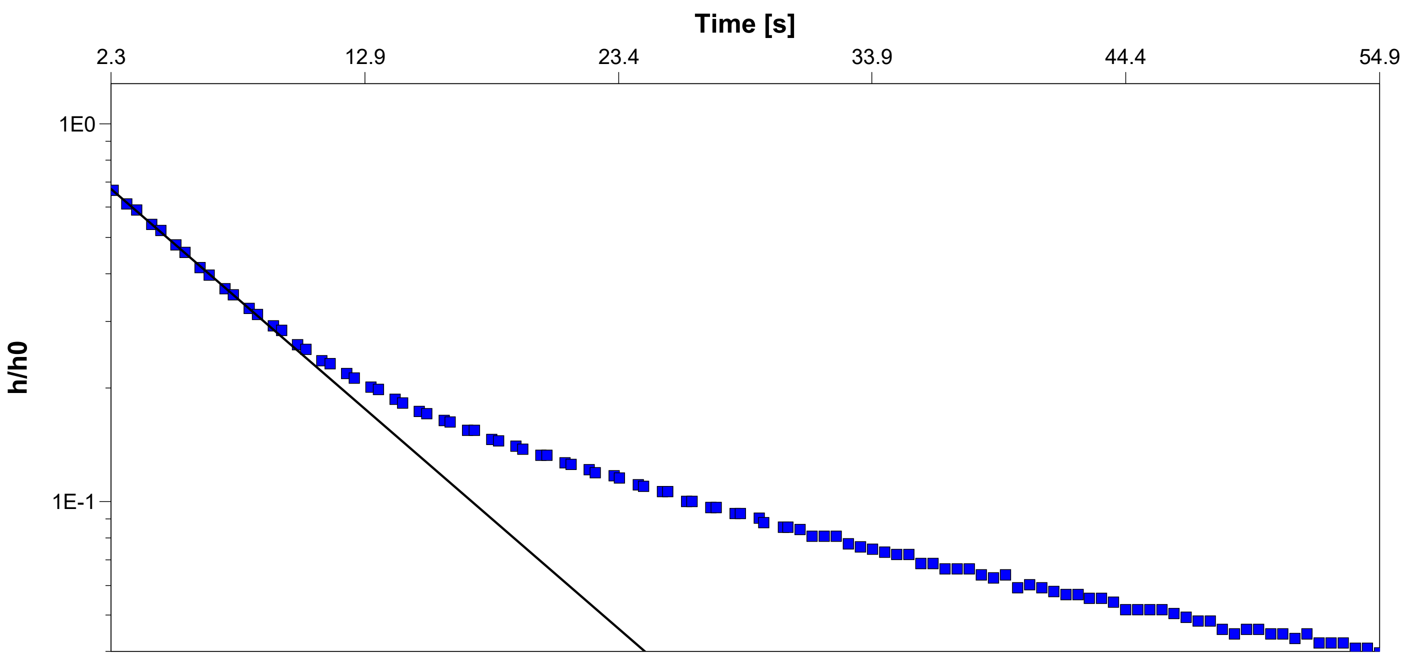
Client: Cumberland Real Estate Group

	Time [s]	Water Level [ft]	WL Change [ft]
54	27.22	0.08	0.08
55	27.424	0.08	0.08
56	28.224	0.077	0.077
57	28.424	0.077	0.077
58	29.222	0.075	0.075
59	29.424	0.073	0.073
60	30.229	0.071	0.071
61	30.424	0.071	0.071
62	30.924	0.07	0.07
63	31.424	0.067	0.067
64	31.924	0.067	0.067
65	32.424	0.067	0.067
66	32.924	0.064	0.064
67	33.424	0.063	0.063
68	33.924	0.062	0.062
69	34.424	0.061	0.061
70	34.924	0.06	0.06
71	35.424	0.06	0.06
72	35.924	0.057	0.057
73	36.424	0.057	0.057
74	36.924	0.055	0.055
75	37.424	0.055	0.055
76	37.924	0.055	0.055
77	38.424	0.053	0.053
78	38.924	0.052	0.052
79	39.424	0.053	0.053
80	39.924	0.049	0.049
81	40.424	0.05	0.05
82	40.924	0.049	0.049
83	41.424	0.048	0.048
84	41.924	0.047	0.047
85	42.424	0.047	0.047
86	42.924	0.046	0.046
87	43.424	0.046	0.046
88	43.924	0.045	0.045
89	44.424	0.043	0.043
90	44.924	0.043	0.043
91	45.424	0.043	0.043
92	45.924	0.043	0.043
93	46.424	0.042	0.042
94	46.924	0.041	0.041
95	47.424	0.04	0.04
96	47.924	0.04	0.04
97	48.424	0.038	0.038
98	48.924	0.037	0.037
99	49.424	0.038	0.038
100	49.924	0.038	0.038
101	50.424	0.037	0.037
102	50.924	0.037	0.037
103	51.424	0.036	0.036
104	51.924	0.037	0.037
105	52.424	0.035	0.035
106	52.924	0.035	0.035
107	53.424	0.035	0.035
108	53.924	0.034	0.034
109	54.424	0.034	0.034
110	54.924	0.033	0.033
111	55.424	0.033	0.033

	Time [s]	Water Level [ft]	WL Change [ft]
112	55.924	0.034	0.034
113	56.424	0.033	0.033
114	56.924	0.032	0.032
115	57.424	0.03	0.03
116	57.924	0.03	0.03
117	58.424	0.031	0.031
118	58.924	0.029	0.029
119	59.424	0.029	0.029
120	59.924	0.03	0.03
121	60.424	0.03	0.03
122	60.924	0.029	0.029
123	61.424	0.027	0.027
124	61.924	0.028	0.028
125	62.424	0.028	0.028
126	62.924	0.028	0.028
127	63.424	0.026	0.026
128	63.924	0.026	0.026
129	64.424	0.025	0.025
130	64.924	0.026	0.026
131	65.424	0.025	0.025
132	65.924	0.026	0.026
133	66.438	0.026	0.026

Sevee & Maher Engineers, Inc. 4 Blanchard Road Cumberland, Maine	**Slug Test Analysis Report** Project: Rusty Lantern Market Number: 231411 Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: MW-3 Test 3	Test Well: MW-3
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	MW-3 Test 3	Analysis Date: 1/22/2024
Aquifer Thickness: 10.31 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
MW-3	1.38×10^{1}	

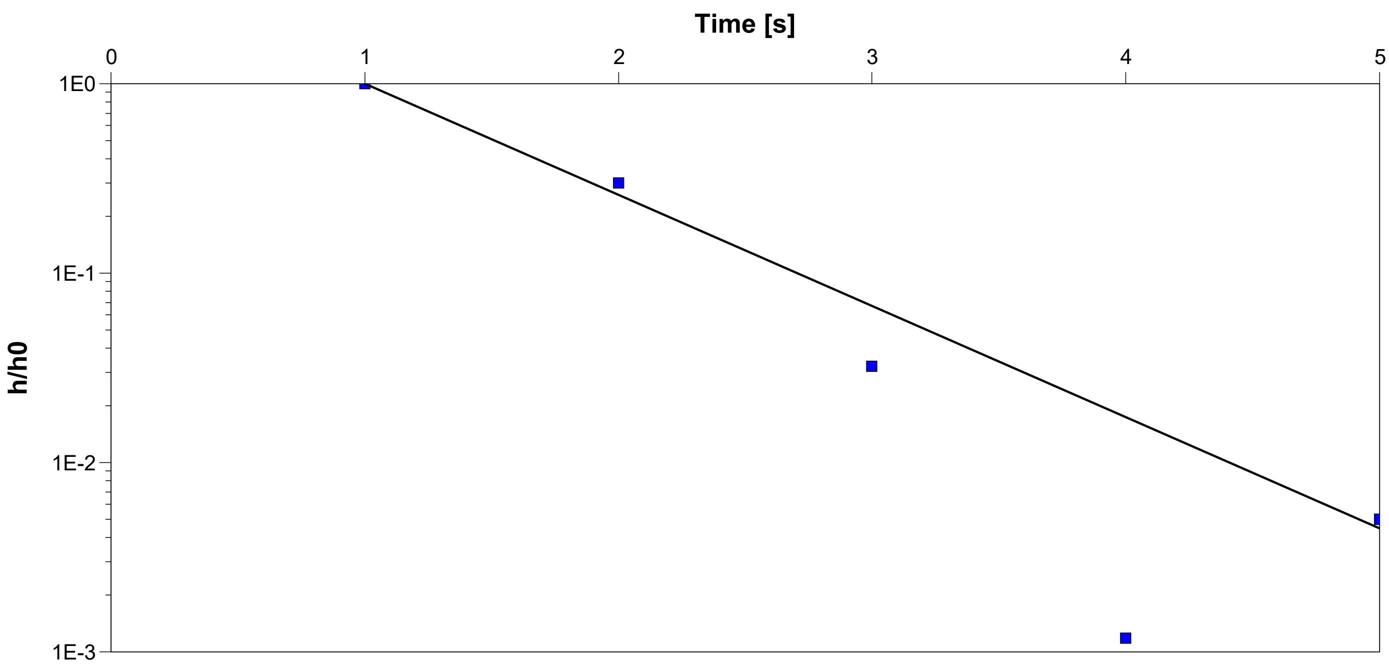
Waterloo Hydrogeologic **Sevee & Maher Engineers, Inc.** **4 Blanchard Road** **Cumberland, Maine**	**Slug Test - Water Level Data**	Page 1 of 1
	Project: Rusty Lantern Market	
	Number: 231411	
	Client: Cumberland Real Estate Group	

Location: 181 Gray Road, Cumberland	Slug Test: PZ-4 Test 1	Test Well: PZ-4
Test Conducted by: APG	Test Date: 1/9/2024	
Water level at t=0 [ft]: 0.68	Static Water Level [ft]: 0.00	Water level change at t=0 [ft]: 0.68

	Time [s]	Water Level [ft]	WL Change [ft]
1	1	0.6771	0.6771
2	2	0.2026	0.2026
3	3	0.0218	0.0218
4	4	0.0008	0.0008
5	5	0.0034	0.0034

Sevee & Maher Engineers, Inc. 4 Blanchard Road Cumberland, Maine	**Slug Test Analysis Report**
	Project: Rusty Lantern Market
	Number: 231411
	Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: PZ-4 Test 1	Test Well: PZ-4
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	PZ-4 Test 1	Analysis Date: 1/22/2024
Aquifer Thickness: 7.16 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
PZ-4	5.72×10^{1}	

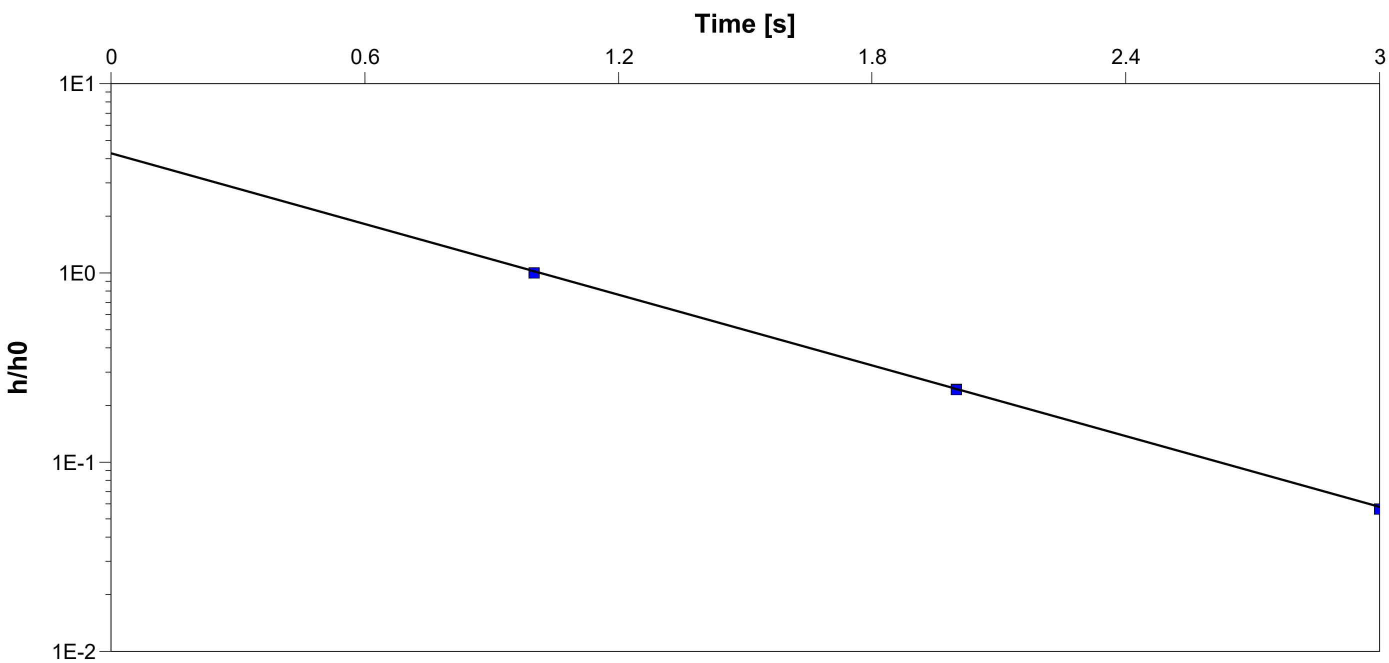
Waterloo Hydrogeologic	Sevee & Maher Engineers, Inc. 4 Blanchard Road Cumberland, Maine	**Slug Test - Water Level Data**	Page 1 of 1
		Project: Rusty Lantern Market	
		Number: 231411	
		Client: Cumberland Real Estate Group	

Location: 181 Gray Road, Cumberland	Slug Test: PZ-4 Test 2	Test Well: PZ-4
Test Conducted by: APG	Test Date: 1/9/2024	
Water level at t=0 [ft]: 1.73	Static Water Level [ft]: 0.00	Water level change at t=0 [ft]: 1.73

	Time [s]	Water Level [ft]	WL Change [ft]
1	1	1.7309	1.7309
2	2	0.4184	0.4184
3	3	0.0981	0.0981

Sevee & Maher Engineers, Inc. 4 Blanchard Road Cumberland, Maine	**Slug Test Analysis Report**
	Project: Rusty Lantern Market
	Number: 231411
	Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: PZ-4 Test 2	Test Well: PZ-4
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	PZ-4 Test 2	Analysis Date: 1/22/2024
Aquifer Thickness: 7.16 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
PZ-4	6.06×10^{1}	

Waterloo HYDROGEOLOGIC

Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine

Slug Test - Water Level Data

Project: Rusty Lantern Market

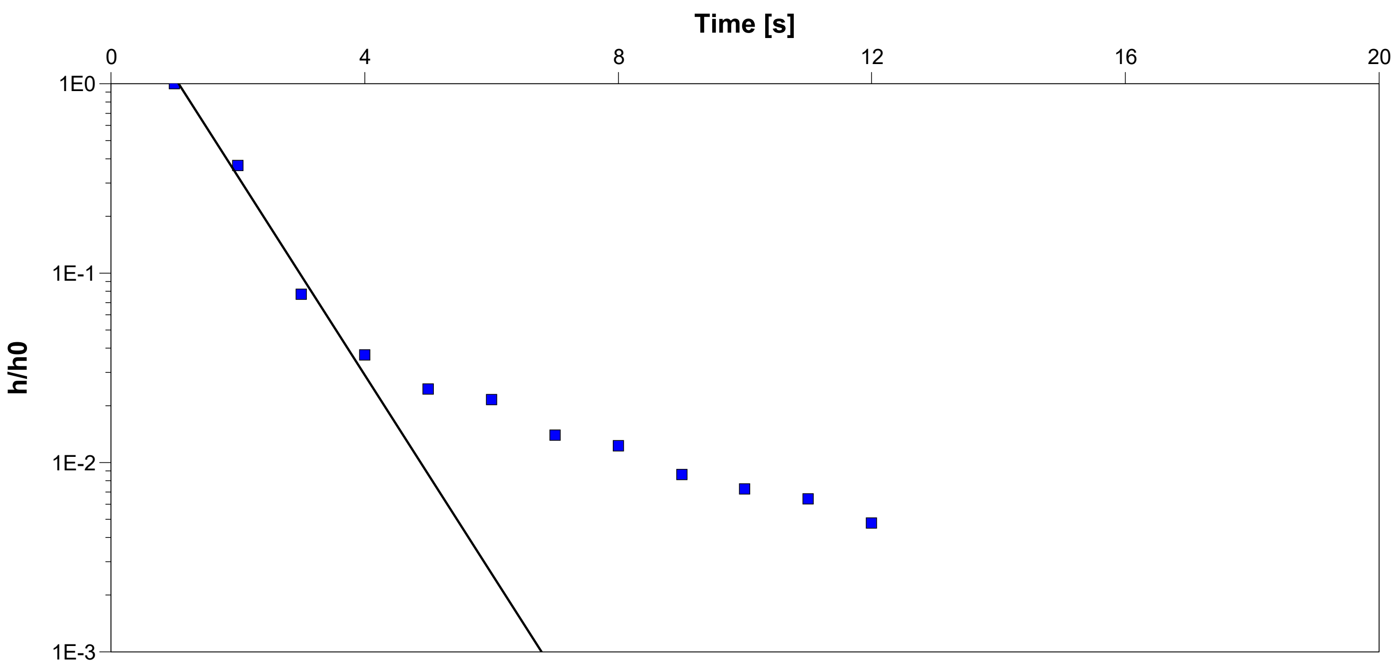
Number: 231411

Client: Cumberland Real Estate Group

Location: 181 Gray Road, Cumberland	Slug Test: PZ-4 Test 3	Test Well: PZ-4
Test Conducted by: APG	Test Date: 1/9/2024	
Water level at t=0 [ft]: 0.61	Static Water Level [ft]: 0.00	Water level change at t=0 [ft]: 0.61

	Time [s]	Water Level [ft]	WL Change [ft]
1	1	0.6051	0.6051
2	2	0.2239	0.2239
3	3	0.0466	0.0466
4	4	0.0224	0.0224
5	5	0.0148	0.0148
6	6	0.013	0.013
7	7	0.0084	0.0084
8	8	0.0074	0.0074
9	9	0.0052	0.0052
10	10	0.0044	0.0044
11	11	0.0039	0.0039
12	12	0.0029	0.0029

Sevee & Maher Engineers, Inc. 4 Blanchard Road Cumberland, Maine		**Slug Test Analysis Report**
		Project: Rusty Lantern Market
		Number: 231411
		Client: Cumberland Real Estate Group
Location: 181 Gray Road, Cumberland	Slug Test: PZ-4 Test 3	Test Well: PZ-4
Test Conducted by: APG		Test Date: 1/9/2024
Analysis Performed by: APG	PZ-4 Test 3	Analysis Date: 1/22/2024
Aquifer Thickness: 7.16 ft		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
PZ-4	5.10×10^{1}	

Attachment L
Architecture

The project site plans are included for review as a separate plan set of full site documents.

Rusty Lantern Market Architectural Renderings

Rendering 1: Store Entrance

Rendering 2: Store Entrance

Renderings Prepared by Pepperchrome, Portland, Maine

Rendering 3: Store Entrance

Rendering 4: Store from Skillin Road Entrance

Rendering 5 Store from Skillin Road Entrance

Rendering 6: Rear Façade of Store from Skillin Road

Rendering 7 Rear Façade of Store from Skillin Road

Rendering 8: Rear Façade of Store from Skillin Road and Gray Road

Rendering 9: Gazebo

Rendering 10: Side Façade of Store from Skillin Road and Gray Road

Rendering 11: Rear Façade of Store from Skillin Road and Gray Road

Rendering 12: Gazebo

Rendering 13: Entrance to Site from Skillin Road

Rendering 14: Aerial Perspective View

Rendering 15 Aerial Perspective View

Rendering 16: Site Entrance from Gray Road

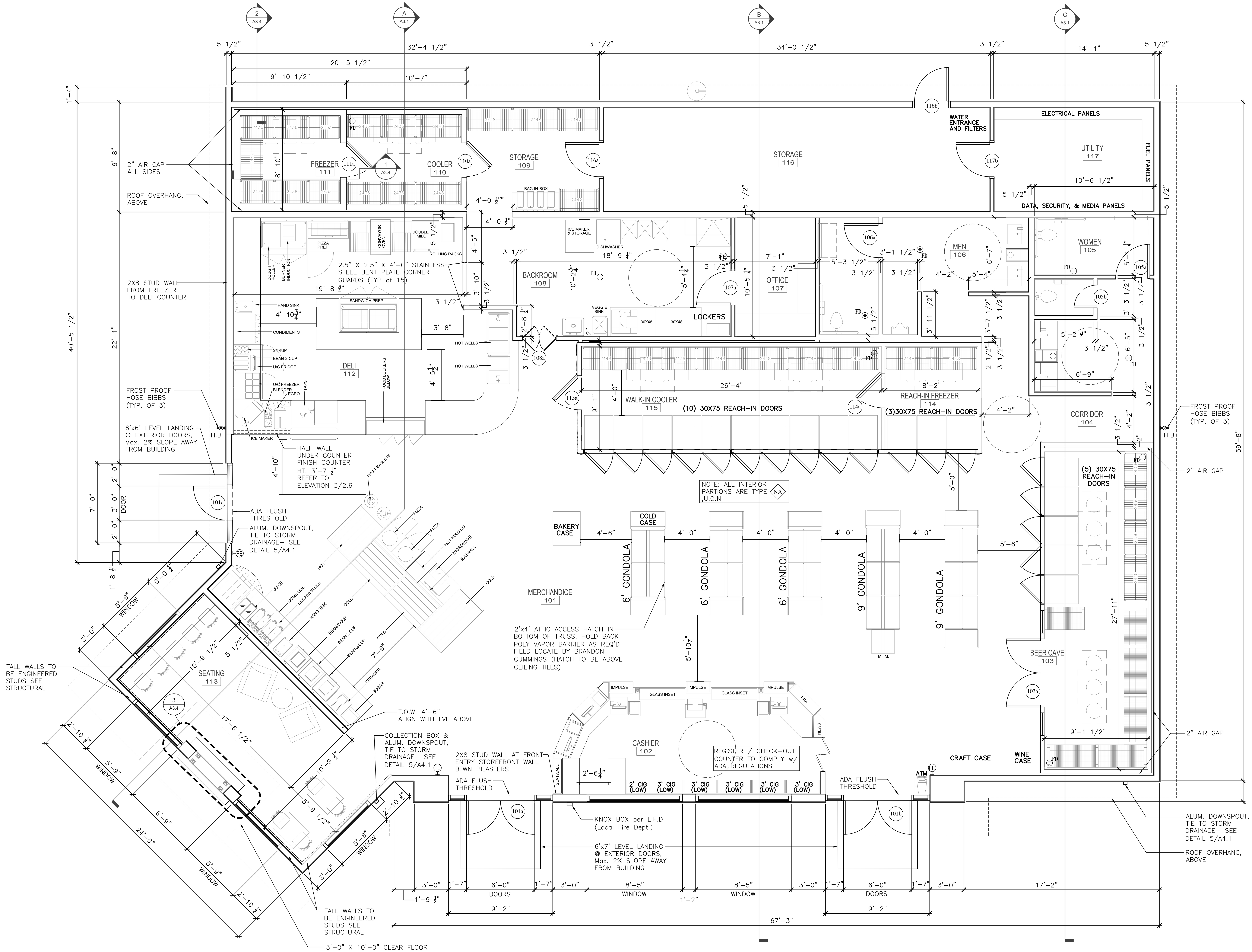
Rendering 17: View from South End of Store Parcel

Rendering 18: View from South End of Store Parcel

Rendering 19: View from Blackstrap Road

Rendering 20: View from Blackstrap Road

Rendering 21: View from Southbound Gray Road



FLOOR PLAN
1/4" = 1'-0"

NOTE:
ALL INTERIOR PARTITIONS TO NA U.O.N.

PROGRESS PRINT
01.25.24

TAC Architectural Group Inc.
40 Summer St., Suite 4 Bangor, ME 04401

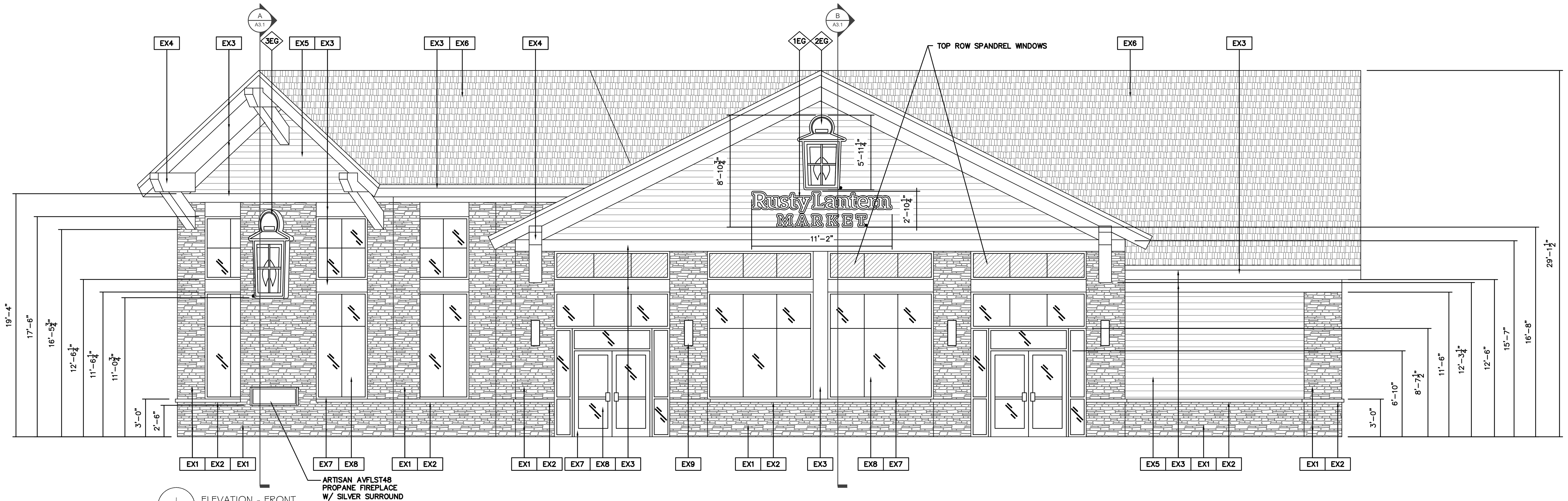
RUSTY LANTERN - GEN 2
181 GRAY ROAD / ROUTE 26!

PROJECT NO:	24-002
CAD DWG FILE:	A1.1 FLOOR PLAN.DWG
DRAWN BY:	####
CHK'D BY:	####
COPYRIGHT:	2024

FLOOR PLAN

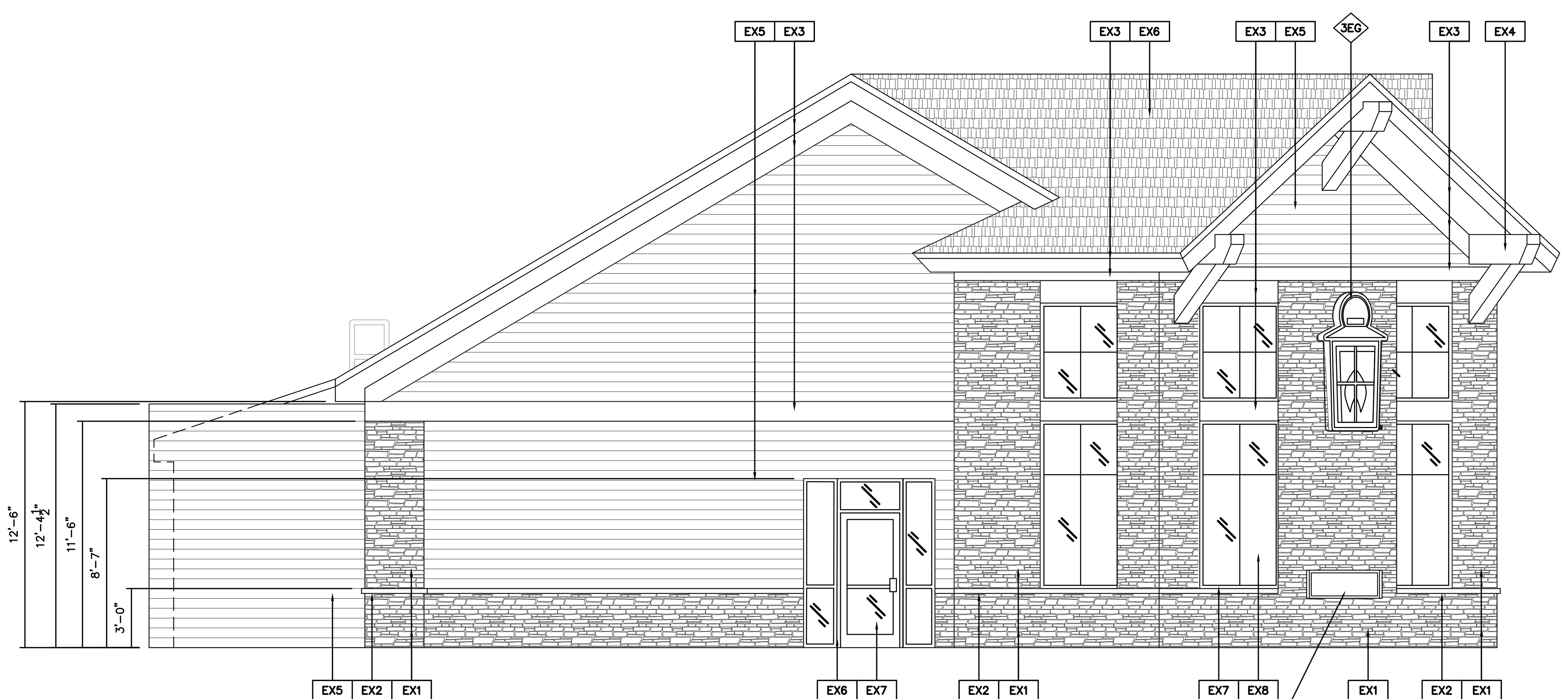
A1.1

RUSTY LANTERN MARKET

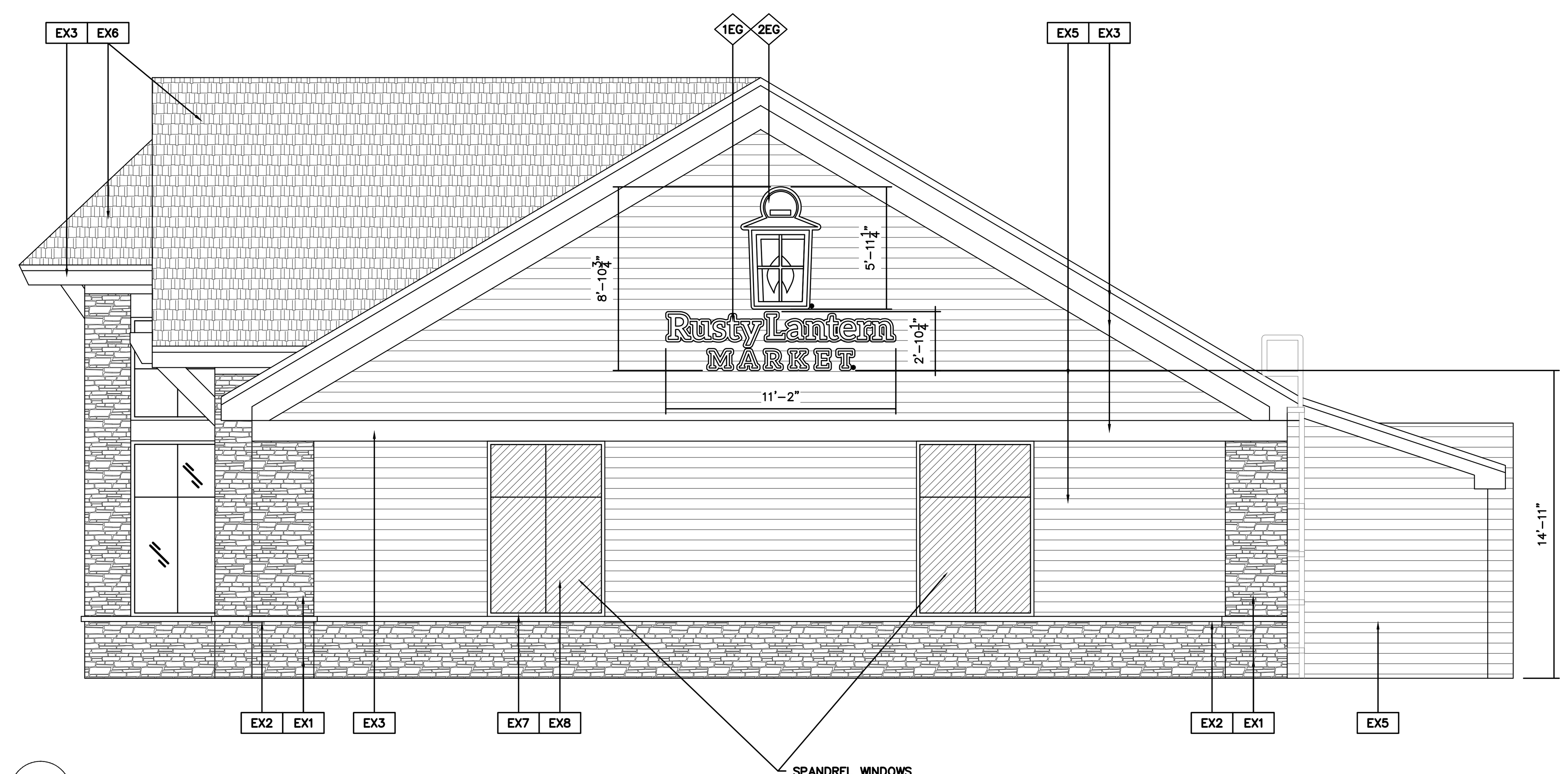


1 ELEVATION - FRONT
2.1 3/16" = 1'-0"

SEE A2.2 FOR
EXTERIOR GRAPHICS SCHEDULE AND
EXTERIOR FINISH SCHEDULE



2 ELEVATION - LEFT
2.1 3/16" = 1'-0"



3 ELEVATION - RIGHT
2.1 3/16" = 1'-0"

1-29-24

ALPHAarchitects
55 STROUDWATER ROAD
PORTLAND, ME 04102
PHONE: 207.671.4110

Mark@ALPHAarchitects.com

RUSTY LANTERN MARKET - GEN 2
181 GRAY ROAD
CUMBERLAND, MAINE

JOB: 23102

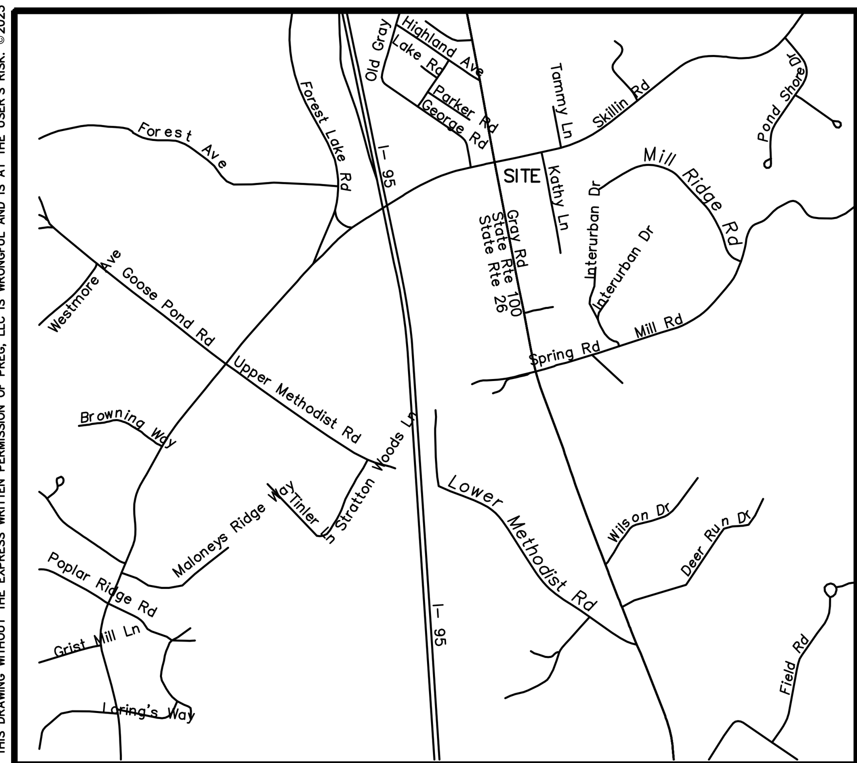
ISSUE DATE	
PRELIM	04-20-2023
SFMO	06-30-2023
CD's	-
REV. 1	-
REV. 2	-
REV. 3	-

EXTERIOR ELEVATIONS

A2.1

Attachment M
Site Plans

The project site plans are included for review as a separate plan set of full site documents.



LOCATION MAP
NOT TO SCALE

RUSTY LANTERN MARKET CONVENIENCE STORE

181 GRAY ROAD, CUMBERLAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

GENERAL NOTES:

1. DRAWINGS ARE BASED ON BOUNDARY AND TOPOGRAPHIC SURVEY INFORMATION FROM MULTIPLE SOURCES BY MAIN-LAND.

2. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION HAS NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES AND IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE (1-800-DIG-SAFE) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IN AREAS OF POTENTIAL CONFLICTS TEST PITS SHALL BE REQUIRED TO VERIFY EXISTING UTILITY LOCATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

3. RIM ELEVATIONS OF PROPOSED SANITARY SEWER MANHOLES AND ASSOCIATED STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH AND CONSISTENT WITH THE GRADING PLANS. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE WITHIN LIMITS OF WORK.

4. THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY THE RESPECTIVE UTILITY COMPANY (GAS, TELEPHONE, ELECTRIC, CABLE AND FIRE ALARM). FINAL DESIGN LOADS AND LOCATIONS TO BE COORDINATED WITH CONSTRUCTION MANAGER AND ARCHITECT.

5. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION, SIZE, INVERTS AND TYPES OF EXISTING PIPES AT ALL PROPOSED POINTS OF CONNECTION PRIOR TO ORDERING MATERIALS. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATIONS, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE CONSTRUCTION MANAGER REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT.

6. THE CONTRACTOR SHALL VERIFY ALL CRITICAL DIMENSIONS AND GRADES BEFORE WORK BEGINS. CONTRACTOR SHALL CONFIRM LOCATION AND DEPTH ALL UTILITY LINE CROSSINGS WITH TEST PITS PRIOR TO BEGINNING WORK. CONFLICTS SHALL BE REPORTED IN WRITING TO CONSTRUCTION MANAGER FOR RESOLUTION OF THE CONFLICT.

7. ALL AREAS OUTSIDE THE LIMIT OF WORK THAT ARE DISTURBED SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. ALL AREAS DISTURBED DURING CONSTRUCTION NOT COVERED WITH BUILDINGS, STRUCTURES, OR PAVEMENT SHALL RECEIVE 4 INCHES OF LOAM AND SEED.

8. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS AND SHALL BE RESPONSIBLE FOR PAYING ANY FEES FOR ANY POLE RELOCATION AND FOR THE ALTERATION OR ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, CABLE, FIRE ALARM AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.

9. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY PERMITS, PAY ALL FEES AND POST ALL BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS AND AS SPECIFIED.

10. ALL PROPERTY MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE RESET TO THEIR ORIGINAL LOCATION BY A MAINE REGISTERED LICENSED PROFESSIONAL LAND SURVEYOR (PLS) AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL PREPARE AN AS-BUILT PLAN SURVEY SHOWING LOCATIONS OF ALL SURFACE FEATURES AND SUBSURFACE UTILITY SYSTEMS INCLUDING THE LOCATION TYPE, SIZE AND INVERTS.

11. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES PRIOR TO EARTHWORK OPERATION AND MAINTAIN ALL EROSION CONTROL MEASURES AND SEEDED EMBANKMENTS DURING CONSTRUCTION. EROSION CONTROL SHALL BE REMOVED ONLY UPON THE ESTABLISHMENT OF ALL LANDSCAPED AREAS. ALL WORK SHALL BE IN COMPLIANCE WITH THE ENVIRONMENTAL QUALITY HANDBOOK FOR EROSION AND SEDIMENT CONTROL, LATEST EDITION, AS ADOPTED BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

12. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. ALL CONSTRUCTION ACTIVITY SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.

13. ALL MATERIALS AND CONSTRUCTION METHODS USED WITHIN THE PUBLIC RIGHT-OF-WAY SHALL CONFORM TO ALL LOCAL MUNICIPAL STANDARDS AND MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

14. THE CONTRACTOR IS REQUIRED TO CONTROL DUST DURING CONSTRUCTION. EXPOSED SOIL AREAS SHALL BE SPRAYED WITH WATER AS NEEDED TO CONTROL DUST EMISSIONS. COVER EXPOSED SOIL AREAS AS QUICKLY AS PRACTICAL TO PREVENT WINDS FROM GENERATING DUST.

15. ALL HANDICAP ACCESSIBLE PARKING SPACES, RAMPS AND SIDEWALKS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).

16. ALL SITE SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

17. THE CONTRACTOR SHALL ANTICIPATE THAT GROUNDWATER WILL BE ENCOUNTERED DURING CONSTRUCTION AND SHALL INCLUDE SUFFICIENT COSTS WITHIN THEIR BID TO PROVIDE DEWATERING AS NECESSARY. NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR DEWATERING.

18. ALL MATERIALS SHALL BE NEW AND PROVIDED BY THE CONTRACTOR.

LAYOUT NOTES:

1. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB OR FOUNDATION.

2. OFFSETS TO CATCH BASINS AND MANHOLES ARE TO THE CENTER OF THE FRAME.

3. PIPE LENGTH EQUALS THE CENTER TO CENTER DISTANCES BETWEEN CATCH BASINS AND/OR MANHOLES MINUS ONE HALF THE DIAMETER OF EACH CATCH BASIN OR MANHOLE.

4. BOUNDARY INFORMATION ON LAYOUT PLAN IS FOR REFERENCE ONLY, REFER TO CERTIFIED BOUNDARY PLANS FOR BOUNDARY INFORMATION.

GRADING AND DRAINAGE NOTES:

1. UNLESS OTHERWISE NOTED, ALL STORM DRAIN PIPE SHALL BE IN ACCORDANCE WITH MDOT SPECIFICATIONS SECTION 603. PIPE CULVERTS AND STORM DRAINS, LATEST REVISION WITH THE EXCEPTION THAT THE ONLY ACCEPTABLE TYPES OF PIPE ARE AS FOLLOWS:

    POLYVINYL CHLORIDE PIPE (PVC) SDR 35
    SMOOTH BORE POLYETHYLENE PIPE – HDPE N-12 ADS OR SDR 35

2. TOPSOIL STRIPPED IN AREAS OF CONSTRUCTION THAT IS SUITABLE FOR REUSE AS LOAM SHALL BE STOCKPILED ON SITE AT A LOCATION TO BE DESIGNATED BY OWNER. UNSUITABLE SOIL SHALL BE SEPARATED, REMOVED AND DISPOSED OF AT AN APPROVED DISPOSAL LOCATION OFF SITE.

CONTACTS

CODE ENFORCEMENT
WILLIAM LONGLEY
TOWN OF CUMBERLAND
290 TUTTLE ROAD
CUMBERLAND, MAINE 04021
207-829-2207

ELECTRIC SERVICE
CENTRAL MAINE POWER
280 BATH ROAD
BRUNSWICK, MAINE 04011
207-721-8054

TELEPHONE SERVICE
FAIRPOINT
BATH ROAD (P.O. BOX 360)
BRUNSWICK, MAINE 04011
207-442-8018

CABLE SERVICE
COMCAST CONSTRUCTION OFFICE
336 BATH ROAD
BRUNSWICK, MAINE, 04011
207-729-6660

WATER SERVICE
PORTLAND WATER DISTRICT
225 DOUGLASS STREET
PO BOX 3553
PORTLAND, MAINE 04104

SANITARY SEWER
TOWN OF CUMBERLAND
WILLIAM SHANE, P.E., TOWN MANAGER
290 TUTTLE ROAD
CUMBERLAND, MAINE 04021
207-829-2205

PUBLIC WORKS DEPARTMENT
CHRISTOPHER BOLDUC, PUBLIC SERVICES DIRECTOR
290 TUTLE ROAD
CUMBERLAND, MAINE 04021
207-829-2220

CUMBERLAND FIRE DEPARTMENT
DANIEL SMALL, FIRE CHIEF
366 TUTTLE ROAD
CUMBERLAND, MAINE 04021
207-829-5421

PERMITTING REQUIREMENTS:

AGENCY:	*PERMIT:*	*STATUS:*
TOWN OF CUMBERLAND	SITE PLAN APPROVAL BUILDING PERMIT	PENDING (BY CONTRACTOR)
MAINE DEPARTMENT OF TRANSPORTATION	TRAFFIC MOVEMENT PERMIT	PENDING

SHEET INDEX

SHEET #	SHEET TITLE:	SCALE:
C1	COVER SHEET	NTS
C2	EXISTING CONDITIONS AND DEMOLITION PLAN	1"=20'
C3	SITE PLAN	1"=20'
C4	GRADING PLAN	1"=20'
C5	UTILITY PLAN	NTS
C6	EROSON CONTROL PLAN	NTS
C7	CIVIL DETAILS	NTS
C8	CIVIL DETAILS	NTS
C9	LANDSCAPE DETAILS	NTS
C10	EROSION CONTROL NOTES AND DETAILS	NTS
L1	LANDSCAPE PLAN	1"=20'
L2	LIGHTING PLAN	1"=30'
	AERIAL VICINITY PLAN	1"=30'
	SURVEY PLAN	1"=30'
	SIDEWALK CONCEPT PLAN	1"=30'

LEGEND

EXISTING — PROPOSED

IRON MARKER FOUND
5/8" REBAR TOPPED WITH AN ALUMINUM CAP READING "BRUCE W. MARTINSON – PLS 2137" TO BE SET
GRANITE MONUMENT SET
CATCH BASIN
SEWER MANHOLE
FIRE HYDRANT (HYD)
WATER GATE VALVE (WV)
WATER SHUT-OFF
BLOW-OFF/CLEAN-OUT
UTILITY POLE (CMP #13)
UTILITY LINE — OHE (OVERHEAD UTILITY LINE) / UGE (OVERHEAD UTILITY LINE)
PROPERTY LINE
EASEMENTS
SETBACK/BUFFER
SOILS BOUNDARY (WmB / Au)
WETLAND BOUNDARY
STREAM
CULVERT
CURB
EDGE OF PAVEMENT
ROAD CENTERLINE
BUILDING
STORM DRAIN(SEE PLAN FOR SIZE) — 12"SD
SEWER LINE(SEE PLAN FOR SIZE) — 6"S
WATER LINE(SEE PLAN FOR SIZE) — 8"W
UNDERDRAIN(SEE PLAN FOR SIZE)
SLOPE ARROW — -1.5%
CONTOURS — 100
TEMPORARY INLET PROTECTION
CLEARING LIMIT
TREE LINE
SEDIMENT BARRIER — SB
RIPRAP
CONSTRUCTION ENTRANCE
PROPOSED PAVEMENT
SPOT GRADE — T100.50 / B100.00

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

FIELD WK:	SCALE:
DRN BY: CYN	JOB #: 22-RLM-004
CH'D BY: CYN	MAP/LOT: U-19 12&13
DATE: 11-22-23	FILE: COV-DET

SHEET: C1

TITLE: **COVER SHEET**

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

OWNER: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED PROFESSIONAL ENGINEER
06-01-23

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION
THIS PLAN IS ISSUED FOR REVIEW AND INFORMATION PURPOSES ONLY. THIS PLAN WILL CHANGE AND IS NOT INTENDED FOR PRICING OR CONSTRUCTION.

PRICING BASED ON THIS PLAN SHALL BE CONSIDERED PRELIMINARY AND MUST BE UPDATED PRIOR TO FINAL CONSTRUCTION DRAWINGS.

C:\USERS\CURT NEUFELD\ONEDRIVE\DOCUMENTS\PROJECTS\22-RLM-004 CUMBERLAND\DWG\22-RLM-004 COV-DET.DWG, C1 COVER, 1/22/2024 3:53:11 PM, CURT NEUFELD

DEMOLITION NOTES

1) A DEMOLITION PERMIT MUST BE OBTAINED FROM THE TOWN OF BRUNSWICK PRIOR TO COMMENCEMENT OF WORK. ALL EXISTING UTILITY DISCONNECTIONS MUST BE COORDINATED WITH RESPECTIVE UTILITY COMPANIES.

2) ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN STRICT ADHERENCE TO ALL FEDERAL, STATE AND LOCAL REGULATIONS. CONTRACTOR TO INSTALL EROSION CONTROL DEVICES IN ACCORDANCE WITH GRADING & DRAINAGE PLAN PRIOR TO BEGINNING DEMOLITION ACTIVITIES.

3) PROCEED WITH DEMOLITION IN A SYSTEMATIC MANNER. FROM THE TOP OF THE STRUCTURE(S) TO THE GROUND.

4) DEMOLISH CONCRETE IN ALL SECTIONS.

5) BREAK UP CONCRETE SLABS–ON–GRADE UNLESS OTHERWISE DIRECTED BY THE CONSTRUCTION MANAGER.

6) CONDUCT ALL DEMOLITION OPERATIONS IN A MANNER THAT WILL PREVENT INJURY, DAMAGE TO STRUCTURES, ADJACENT BUILDINGS AND ALL PERSONS.

7) REFRAIN FROM USING EXPLOSIVES WITHOUT PRIOR WRITTEN CONSENT OF THE DEVELOPER AND APPLICABLE GOVERNMENTAL AUTHORITIES.

8) CONDUCT DEMOLITION SERVICES IN SUCH A MANNER TO INSURE MINIMUM INTERFERENCE WITH ROADS. STREETS. WALKS AND OTHER ADJACENT FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS. WALKS OR OTHER OCCUPIED FACILITIES WITHOUT PRIOR WRITTEN PERMISSION OF THE DEVELOPER AND APPLICABLE GOVERNMENTAL AUTHORITIES. PROVIDE ALTERNATIVE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY APPLICABLE GOVERNMENTAL REGULATIONS.

9) USE WATERING, TEMPORARY ENCLOSURES AND OTHER SUITABLE METHODS, AS NECESSARY, TO LIMIT THE AMOUNT OF DUST AND DIRT RISING AND SCATTERING IN THE AIR. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. RETURN ALL ADJACENT AREAS TO THE CONDITIONS EXISTING PRIOR TO THE START OF WORK.

10) ACCOMPLISH AND PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS AT ANY TIME.

11) COMPLETELY FILL BELOW GRADE AREAS AND VOIDS RESULTING FROM THE DEMOLITION OF STRUCTURES AND FOUNDATIONS WITH SOIL MATERIALS CONSISTING OF STONE. GRAVEL AND SAND, FREE FROM DEBRIS, TRASH, FROZEN MATERIALS, ROOTS AND OTHER ORGANIC MATTER. STONES USED WILL NOT BE LARGER THAT 6 INCHES IN DIMENSION. MATERIAL FROM DEMOLITION MAY NOT BE USED AS FILL PRIOR TO PLACEMENT OF FILL MATERIALS. UNDERTAKE ALL NECESSARY ACTION IN ORDER TO INSURE THAT AREAS TO BE FILLED ARE FREE OF STANDING WATER. FROZEN MATERIAL, TRASH, DEBRIS, PLACE FILL MATERIALS LAYERS NOT EXCEEDING 6 INCHES IN LOOSE DEPTH AND COMPACT EACH LAYER AT PLACEMENT TO 95% OPTIMUM DENSITY. GRADE SURFACE TO MEET ADJACENT CONTOURS AND TO PROVIDE SURFACE DRAINAGE.

12) REMOVE FROM THE DESIGNATED SITE, AT THE EARLIEST P05SIBLE TIME, ALL DEBRIS RUBBISH, SALVAGEABLE ITEMS. HAZARDOUS AND COMBUSTIBLE SERVICES. REMOVED MATERIALS MAY NOT BE STORED, SOLD OR BURNED ON SITE. REMOVAL OF HAZARDOUS AND COMBUSTIBLE MATERIALS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE PROCEDURES AS AUTHORIZED BY THE FIRE DEPARTMENT OR OTHER APPROPRIATE REGULATORY AGENCIES AND DEPARTMENTS.

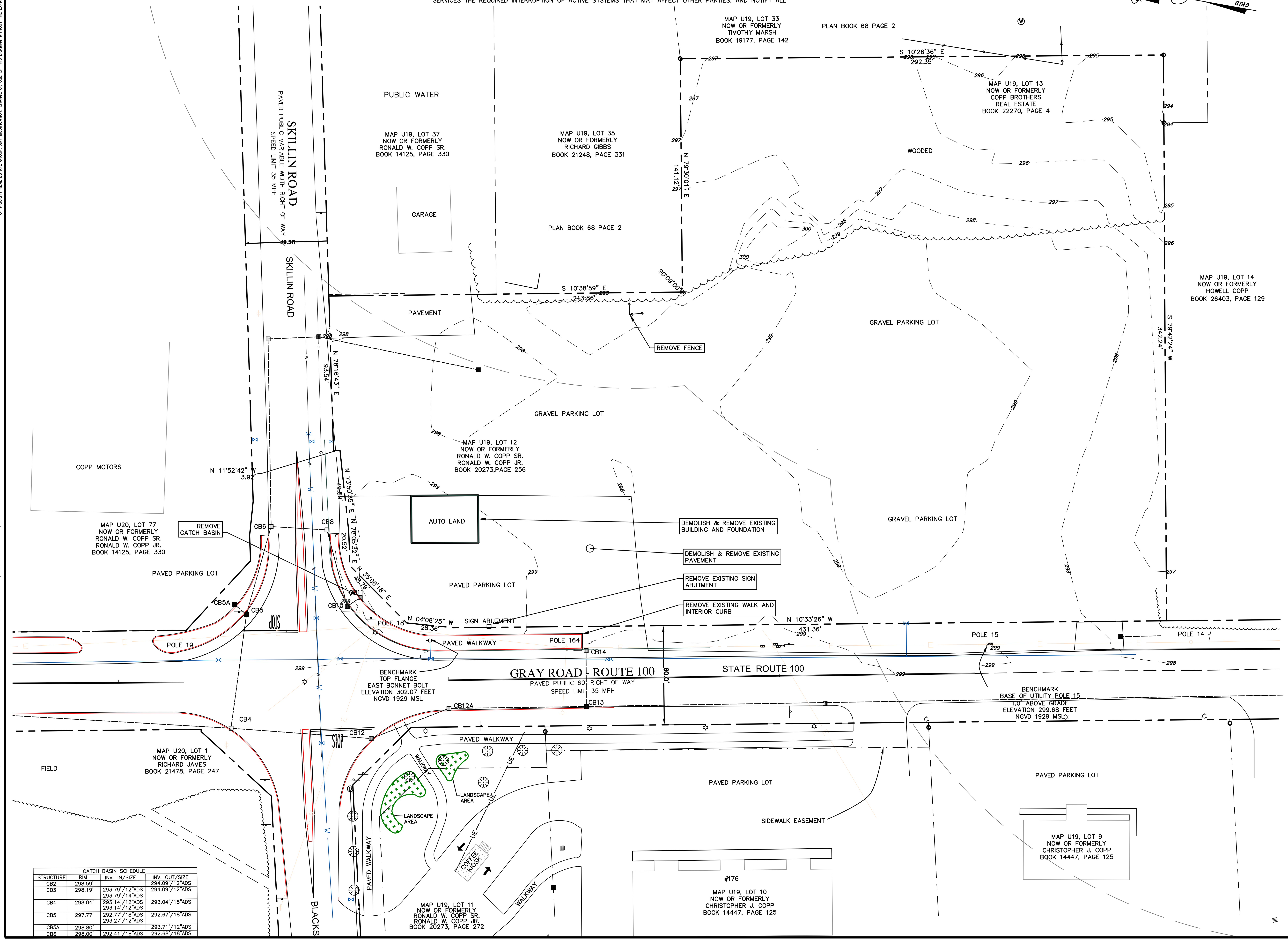
13) DISCONNECT, SHUT OFF AND SEAL ALL UTILITIES SERVING THE STRUCTURE(S) TO BE DEMOLISHED BEFORE THE COMMENCEMENT OF THE DESIGNATED DEMOLITION. MARK FOR POSITION ALL UTILITY DRAINAGE AND SANITARY LINES AND PROTECT ALL ACTIVE LINES. CLEARLY IDENTIFY BEFORE THE COMMENCEMENT OF DEMOLITION SERVICES THE REQUIRED INTERRUPTION OF ACTIVE SYSTEMS THAT MAY AFFECT OTHER PARTIES, AND NOTIFY ALL APPLICABLE UTILITY COMPANIES TO INSURE THE CONTINUATION OF SERVICE.

14) PROTECT EXISTING DRAINAGE SYSTEM(S) AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING DURING CONSTRUCTION. SEE DETAIL SHEETS FOR EROSION CONTROL DEVICES.

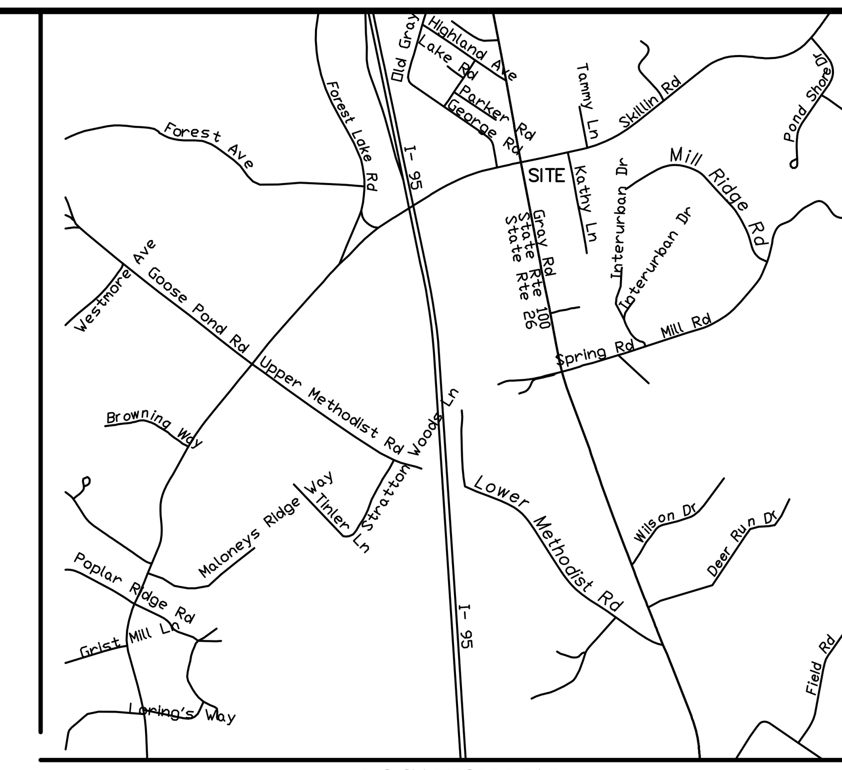
15) ALL WORK WITHIN ROADWAY RIGHT–OF–WAYS TO CONFORM TO TOWN OF BRUNSWICK AND MaineDOT STANDARDS.

16) THE LIMITS OF WORK SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OR SITE CLEARING.

17) NOTES ON THIS PLAN THAT READ "TBR" REPRESENT FEATURES TO BE REMOVED. ANY FEATURES NOT LABELED "TBR" OR "TO BE REMOVED" SHALL BE CONSIDERED EXISTING TO REMAIN.



CATCH BASIN SCHEDULE			
STRUCTURE	RIM	INV. IN/SIZE	INV. OUT/SIZE
CB2	298.59'		294.09'/12"ADS
CB3	298.19'	293.79'/12"ADS 293.79'/14"ADS	294.09'/12"ADS
CB4	298.04'	293.14'/12"ADS 293.14'/12"ADS	293.04'/18"ADS
CB5	297.77'	292.77'/18"ADS 293.27'/12"ADS	292.67'/18"ADS
CB5A	298.80'		293.71'/12"ADS
CB6	298.00'	292.41'/18"ADS	292.68'/18"ADS



LOCATION MAP
NOT TO SCALE

NOTES:

THIS PLAN DEPICTS CONDITIONS FOUND AND SURVEYED BY MAIN–LAND AS OF APRIL, 2023. SUPPORTING DATA IS FROM THE INFORMATION BELOW.

1. TITLE REFERENCE FOR SURVEYED PARCEL:

BK XXX, PG XXX
BK XXX, PG XXX

2. PLAN REFERENCE(S):

a) PLAN ENTITLED, "EXISTING CONDITIONS SURVEY FOR PRIORITY REAL ESTATE GROUP OF 181 GRAY ROAD, CUMBERLAND, MAINE 04021", DATED 5–30–2023, BY MAIN–LAND, LIVERMORE FALLS. NOT RECORDED.

3. AREA INFORMATION:

XXX ACRES

4. TAX MAP REFERENCE:

TAX MAP U19, LOT 12,13

5. BASIS OF BEARINGS:

BEARINGS ARE BASED ON MAINE STATE PLANE GRID, WEST ZONE, NORTH AMERICAN DATUM 1983.

6. ROAD INFORMATION:

GRAY ROAD WIDTH IS XXX' PER PLANS REFERENCED IN NOTE 2(a) THROUGH 2(d) ABOVE. LOCATION IS BASED ON EVIDENCE FOUND.

7. UTILITY INFORMATION:

THERE MAY BE UNDERGROUND CONDUIT, WIRES, CABLES AND/OR STRUCTURES NOT SHOWN ON THIS PLAN. THE LOCATIONS SHOWN ARE BASED ON SURFACE FEATURES VISIBLE AT THE TIME OF SURVEY AND POSSIBLY FROM INFORMATION PROVIDED BY THE OWNER, MUNICIPAL GIS DATA, AND/OR UTILITY COMPANIES. NO EXCAVATIONS WERE MADE DURING THE COURSE OF THE SURVEY TO VERIFY OR LOCATE ANY UNDERGROUND STRUCTURES. IT IS THE RESPONSIBILITY OF THE OWNER/CONTRACTOR TO VERIFY THE LOCATION OF ANY UNDERGROUND UTILITIES PRIOR TO EXCAVATING BY CONTACTING THE APPROPRIATE UTILITY COMPANY. STATE LAW REQUIRES DIG–SAFE BE CONTACTED PRIOR TO EXCAVATION.

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

ISSUED FOR:
PERMITTING

NOT FOR CONSTRUCTION
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2.	01–29–24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08–11–23	SUBMITTED FOR MAINEDOT REVIEW	CYN

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
01–29–24

EXISTING CONDITIONS PLAN

RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

PRIORITY REAL ESTATE GROUP LLC

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

FIELD WK:	SCALE: 1"=30'	SHEET:
DRN BY: CYN	JOB #: 22-RLM-004	C2
CH'D BY: CYN	MAP/LOT: U-19 12&13	
DATE: 11-22-23	FILE:	

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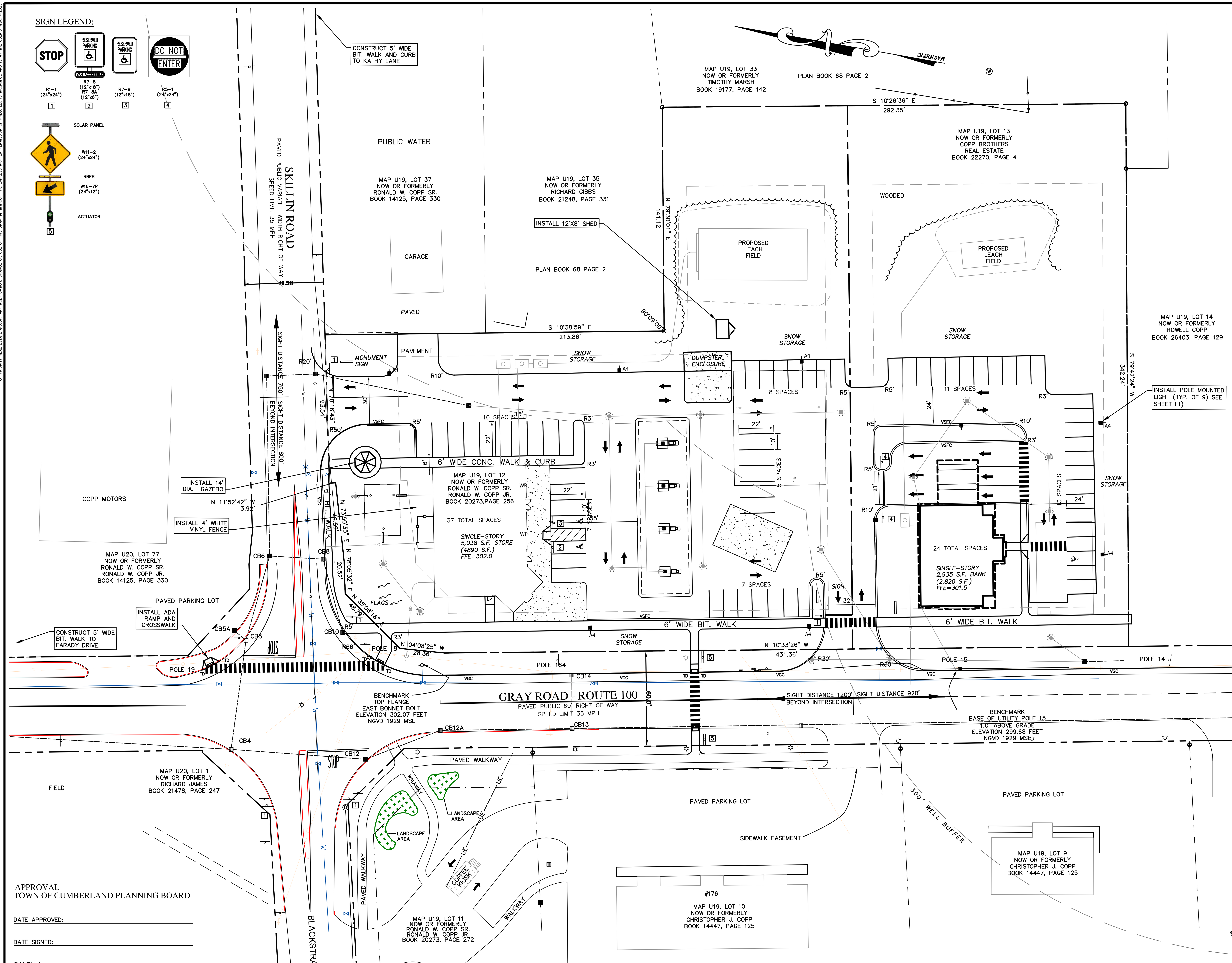

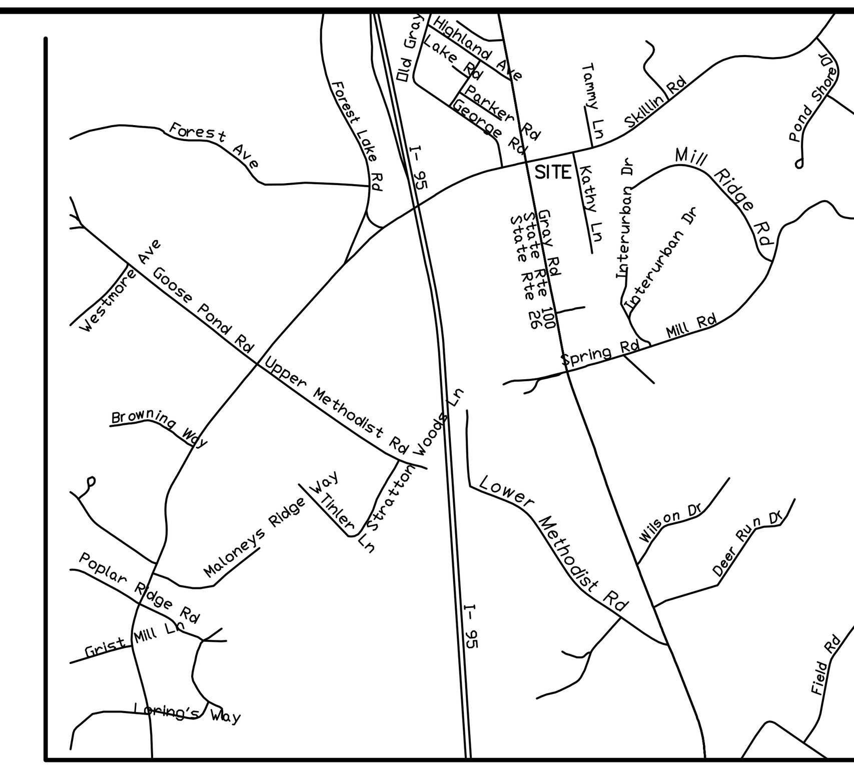

LOCATION MAP
NOT TO SCALE

GENERAL NOTES:

1. TITLE REFERENCE FOR SURVEYED PARCEL:

   BK 20273, PG 256 (U19-12)
   BK 34640, PG 209 (U19-13)

2. PLAN REFERENCE(S):

   (1) EXISTING CONDITIONS SURVEY FOR PRIORITY REAL ESTATE GROUP OF 181 GRAY ROAD, CUMBERLAND, MAINE 04021, PREPARED BY BOUNDARY POINTS, NOT RECORDED.

3. AREA INFORMATION:

   LOT AREA: 141,116 S.F. (3.24 ACRES)

4. TAX MAP REFERENCE:

   TAX MAP U19, LOT 12 & 13.

5. BASIS OF BEARINGS:

   BEARINGS ARE MAINE STATE PLANE, WEST ZONE, NAD 83.

6. ELEVATION DATUM:

   NGVD 1929 MSL

7. FLOOD ZONE INFORMATION:

   PARCEL IS LOCATED WITHIN ZONE C (AREAS OF MINIMAL FLOODING) OF THE FLOOD INSURANCE RATE MAPS FOR CUMBERLAND COUNTY, MAINE. THE PROJECT IS LOCATED ON PANEL 15 OF 25 (COMMUNITY PANEL 230162 0015 B, EFF. DATE MAY 19, 1981)

8. IMPERVIOUS AREA:

EXISTING IMPERVIOUS AREA:	94,773 S.F.	(2.18 AC)
PROPOSED IMPERVIOUS AREA:	68,232 S.F.	(1.57 AC)
NET CHANGE IN IMPERVIOUS AREA:	-26,541 S.F.	(0.61 AC)

UTILITY NOTES:

1. INFORMATION REGARDING THE LOCATION OF EXISTING UNDERGROUND UTILITIES IS A COMPILATION OF THAT FOUND IN THE FIELD AND THAT SHOWN ON A PREVIOUS PLANS, AND SHALL NOT BE CONSIDERED AN AS-BUILT PLAN. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING UTILITY LOCATIONS PRIOR TO COMMENCING WORK. NOTIFY ENGINEER OF ANY DISCREPANCY BETWEEN UTILITIES AS SHOWN AND AS FOUND. CONTRACTOR SHALL NOTIFY DIG-SAFE PRIOR TO EXCAVATION. 1-888-344-7233

LAYOUT NOTES:

1. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB OR FOUNDATION.
2. BOUNDARY INFORMATION ON LAYOUT PLAN IS FOR REFERENCE ONLY, REFER TO CERTIFIED BOUNDARY PLANS FOR BOUNDARY INFORMATION.
3. ALL HANDICAP ACCESSIBLE PARKING SPACES, RAMPS AND SIDEWALKS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).
4. ALL SITE SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. (MUTCD)
5. BUILDING FOUNDATION SHOWN IS NOT FOR FOUNDATION LAYOUT. COORDINATE SITE WORK WITH ARCHITECTURAL DRAWINGS INCLUDING BUILDING FEATURES AND FOUNDATION PLAN.
6. REFER TO SHEET C4 FOR GRADING AND DRAINAGE INFORMATION.
7. REFER TO SHEET L1 FOR LANDSCAPE INFORMATION.
8. REFER TO SHEET L2 FOR LIGHTING INFORMATION.

APPROVAL
TOWN OF CUMBERLAND PLANNING BOARD

DATE APPROVED: ____________________

DATE SIGNED: ____________________

CHAIRMAN: ____________________

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

ISSUED FOR:
PERMITTING

PRIORITY

2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

SHEET: C3

SCALE: 1"=30'	FIELD WK:
JOB #: 22-RLM-004	DRN BY: CYN
MAP/LOT: U-19 12&13	CH'D BY: CYN
FILE:	DATE: 11-22-23

TITLE: **SITE PLAN**

PROJECT: *RUSTY LANTERN CONVENIENCE STORE*
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR: *CUMBERLAND REAL ESTATE GROUP, LLC*
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
11-22-23

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION

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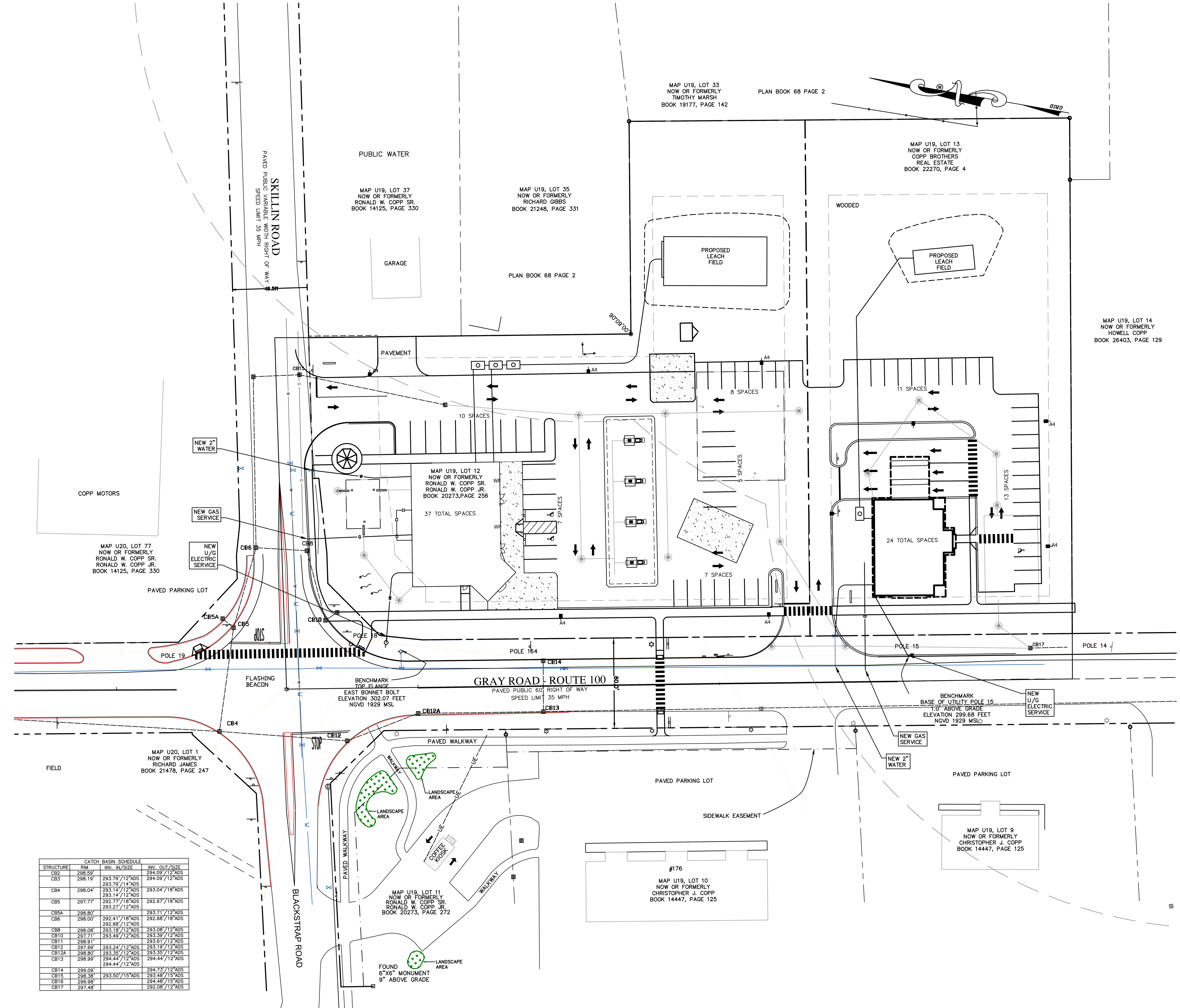

CATCH BASIN SCHEDULE			
STRUCTURE	RIM	INV. IN/SIZE	INV. OUT/SIZE
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CB3	298.19'	293.79'/12"ADS 293.79'/14"ADS	294.09'/12"ADS
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CB8	298.08'	293.18'/12"ADS	293.08'/12"ADS
CB10	297.71'	293.49'/12"ADS	293.39'/12"ADS
CB11	298.91'		293.61'/12"ADS
CB12	297.69'	293.24'/12"ADS	293.19'/12"ADS
CB12A	298.80'	293.35'/12"ADS	293.35'/12"ADS
CB13	298.99'	294.44'/12"ADS 294.44'/12"ADS	294.44'/12"ADS
CB14	299.09'		294.73'/12"ADS
CB15	298.38'	293.50'/15"ADS	293.48'/15"ADS
CB16	296.98'		294.48'/15"ADS
CB17	297.48'		292.08'/12"ADS

UTILITY NOTES:

1. ALL TERMINATIONS AND CONNECTIONS OF SERVICES SHALL BE IN COMPLIANCE WITH REQUIREMENTS OF THE RESPECTIVE UTILITY DISTRICT. ALL BACKFILLING AND COMPACTION OF WATER AND SEWER LINE TRENCHES SHALL BE AS APPROVED BY THE LOCAL UTILITY DISTRICT.

1. THE CONTRACTOR SHALL CONTACT DIGSAFE (888-344-7233) PRIOR TO COMMENCING EXCAVATION.

2. THE BASIS FOR PROJECT LAYOUT AND FOR CONSTRUCTION ELEVATIONS IS THE BASELINE AND BENCHMARK EXISTING ON THE SITE AND SHOWN ON THE DRAWINGS.

3. THE CONTRACTOR SHALL CONFIRM HORIZONTAL AND VERTICAL CONTROL BEFORE BEGINNING WORK.

4. SEE PLUMBING AND ELECTRICAL PLANS FOR LOCATION AND INVERTS OF SLEEVES IN FOUNDATIONS.

5. ELECTRIC SERVICE SHALL BE INSTALLED IN CONDUIT UNDER PAVEMENT AND CONCRETE.

6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL SEWER, WATER, ELECTRICAL, AND SANITARY CONDUIT, MANHOLES, TRANSFORMERS, AND FITTINGS FOR APPROVAL.

7. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.

8. DUCTILE IRON PIPE SHALL MEET THE REQUIREMENTS OF AWWA C150 AND C151, CLASS 52, AND HAVE PUSH ON OR FLANGED JOINTS AS REQUIRED. FITTINGS SHALL HAVE MECHANICAL JOINTS WITH RETAINER GLANDS.

9. SANITARY SEWER PIPE AND FITTINGS SHALL BE SDR-35 PVC.

10. INSTALL 2" RIGID STYROFOAM INSULATION OVER SANITARY SEWER IN AREAS WHERE THERE IS LESS THAN 4' OF COVER.

11. CONNECTIONS AT MANHOLES/CATCH BASINS SHALL HAVE A FLEXIBLE BOOT CAST ONTO THE BARREL AND SECURED WITH STAINLESS STEEL BANDS.

12. SEE SHEET C4 FOR GRADING, DRAINAGE, STORM DRAIN DATA & EROSION CONTROL MEASURES.

13. BUILDING FOOTPRINT SHOWN IS NOT FOR FOUNDATION LAYOUT. REFER TO STRUCTURAL/ARCHITECTURAL DRAWINGS.

14. ALL PIPING MATERIAL TO THE BALL VALVE SHALL BE 1" OR 2" TYPE K COPPER AND ALL CONTROL VALVES SHALL BE LOCATED WITHIN THE EASEMENT AREA.

15. ALL DOMESTIC WATER SERVICES ON THE BUILDING SIDE OF THE CONTROL VALVE SHALL BE EITHER 2" TYPE K COPPER OR 2" CTS PE RATED AT 200 PSI. IF THE PE IS USED, AN 8 GAUGE WIRE SHALL BE ATTACHED TO THE PIPE WITH ONE END BROUGHT ALONGSIDE THE CURB BOX FOR LOCATING PURPOSES.

16. ANY CURB BOXES LOCATED WITHIN PAVEMENT SHALL BE INSTALLED INSIDE A GATE BOX TOP.

17. ALL MATERIALS SHOWN SHALL BE NEW AND FURNISHED BY CONTRACTOR AS PART OF CONTRACT WORK. ONLY ITEMS SPECIFICALLY IDENTIFIED TO BE SALVAGED MAY BE RE-USED WITHOUT PRIOR WRITTEN PERMISSION.

18. SEE HHE-200 FOR EACH SITE FOR DETAILS OF SUBSURFACE DISPOSAL SYSTEMS.

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

SHEET: C4

SCALE: 1"=30'
JOB #: 22-RLM-004
MAP/LOT: U-19 12&13
FILE:

FIELD WK:
DRN BY: CYN
CHD BY: CYN
DATE: 11-22-23

TITLE: **UTILITY PLAN**

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME 04021

PREPARED FOR: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE — CURTIS Y. NEUFELD — 9779 — LICENSED — PROFESSIONAL ENGINEER — 01-29-24

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION

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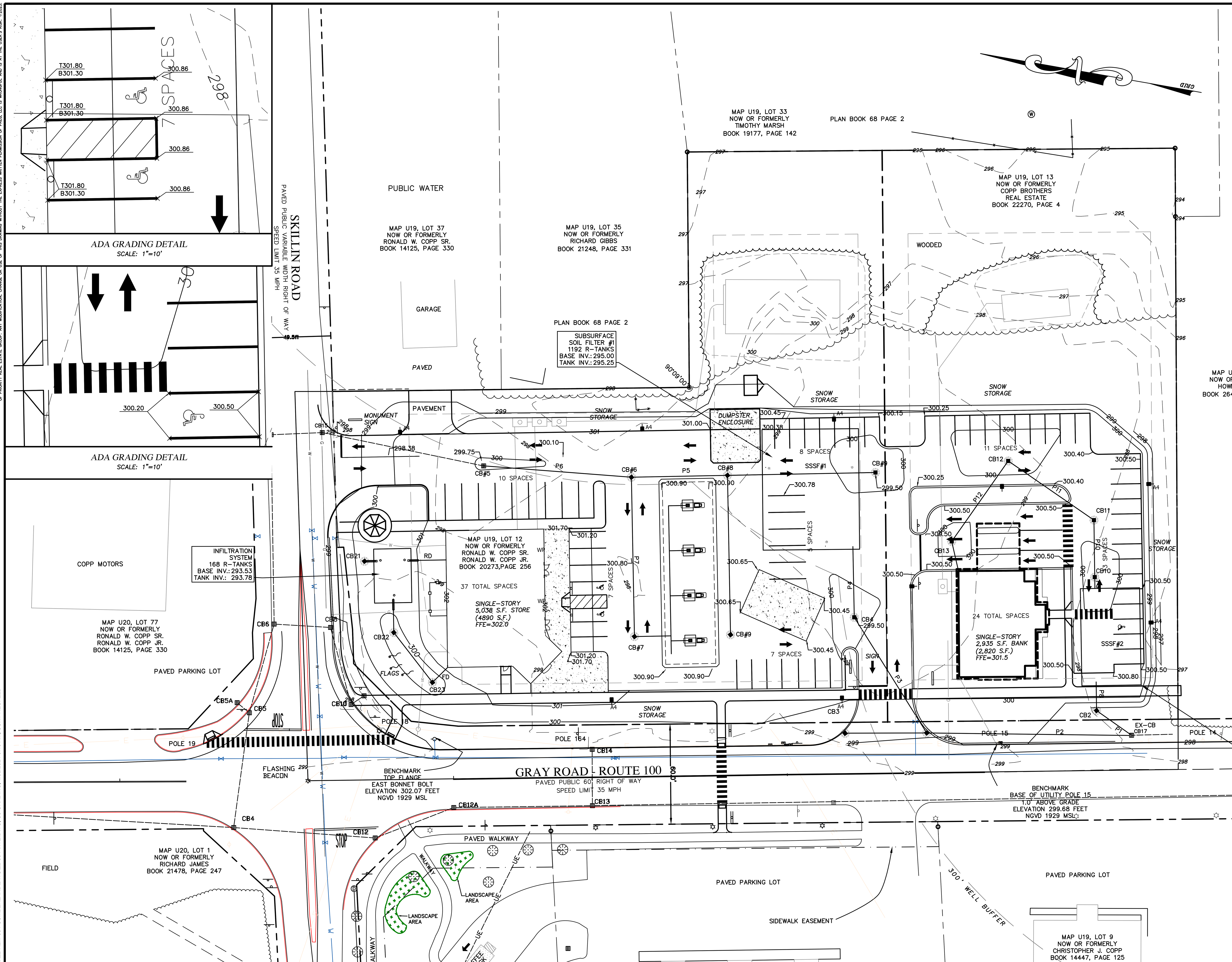
PRICING BASED ON THIS PLAN SHALL BE CONSIDERED PRELIMINARY AND MUST BE UPDATED PRIOR TO FINAL CONSTRUCTION DRAWINGS.



CATCH BASIN SCHEDULE			
STRUCTURE	RIM	INV. IN/SIZE	INV. OUT/SIZE
CB2	298.59'		294.09'/12"ADS
CB3	298.19'	293.79'/12"ADS 293.79'/14"ADS	294.09'/12"ADS
CB4	298.04'	293.14'/12"ADS 293.14'/12"ADS	293.04'/18"ADS
CB5	297.77'	292.77'/18"ADS 293.27'/12"ADS	292.67'/18"ADS
CB5A	298.80'		293.71'/12"ADS
CB6	298.00'	292.41'/18"ADS 292.68'/12"ADS	292.68'/18"ADS
CB8	298.08'	293.18'/12"ADS	293.08'/12"ADS
CB10	297.71'	293.49'/12"ADS	293.39'/12"ADS
CB11	298.91'		293.61'/12"ADS
CB12	297.69'	293.24'/12"ADS	293.19'/12"ADS
CB12A	298.80'	293.35'/12"ADS	293.35'/12"ADS
CB13	298.99'	294.44'/12"ADS 294.44'/12"ADS	294.44'/12"ADS
CB14	299.09'		294.73'/12"ADS
CB15	298.38'	293.50'/15"ADS	293.48'/15"ADS
CB16	296.98'		294.48'/15"ADS
CB17	297.48'		292.08'/12"ADS

GRADING AND DRAINAGE NOTES:

1. THE CONTRACTOR SHALL PHASE GRADING EFFORTS SUCH THAT TOTAL SITE DISTURBANCE IS MINIMIZED. TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO GRADING EFFORTS OR WITHOUT DELAY UPON THEIR COMPLETION, DEPENDENT UPON THE SITUATION.

2. ALL FILL SLOPES SHALL BE A MINIMUM OF 3:1 HORIZONTAL TO VERTICAL UNLESS OTHERWISE NOTED OR DIRECTED.

3. THE LIMITS OF DISTURBANCE SHALL GENERALLY BE THE MINIMAL EXTENT NECESSARY ONLY TO PERFORM THE GRADING EFFORTS SHOWN ON THE DRAWINGS. SPECIAL CARE SHALL BE TAKEN TO AVOID DISTURBANCE OF OBJECTS AND AREAS NOT SPECIFICALLY IDENTIFIED FOR MODIFICATION OR REMOVAL.

4. ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED IN ACCORDANCE WITH THE DRAWINGS, UNLESS INTENDED FOR OTHER SURFACE COVER.

5. STORM DRAINS SHALL BE CONSTRUCTED CONCURRENTLY WITH GRADING EFFORTS TO PROVIDE ADEQUATE CONVEYANCE FOR ANY SITE RUNOFF CONDITIONS.

6. WHERE FINAL GRADING HAS BEEN COMPLETED, SURFACE RESTORATION FOR DISTURBED AREAS WILL BE COMPLETED AS SOON AS PRACTICABLE. FOR VEGETATIVE AREAS, VEGETATION WILL BE PROGRESSIVELY ESTABLISHED.

7. UNLESS OTHERWISE NOTED, ALL STORM DRAIN PIPE SHALL BE IN ACCORDANCE WITH MDOT SPECIFICATIONS SECTION 603. PIPE CULVERTS AND STORM DRAINS, LATEST REVISION WITH ACCEPTABLE TYPES OF PIPE ARE AS FOLLOWS:
   SMOOTH BORE POLYETHYLENE PIPE – HDPE N-12 ADS

8. BENCHMARK INFORMATION: SEE PLAN

9. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL DRAINAGE STRUCTURES AND PIPING PRIOR TO ORDERING.

10. RIM ELEVATIONS OF PROPOSED DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH AND CONSISTENT WITH THE GRADING PLANS.

11. TRANSITIONS BETWEEN SLOPES ARE TO BE GENERALLY GRADUAL AND RESULT IN A SMOOTH, ROUNDED APPEARANCE.

STORM DRAIN PIPE TABLE								
NAME	SIZE (IN)	LENGTH	MATERIAL	SLOPE (%)	UP STR.	DN STR.	UP INV.	DOWN INV.
P1	18.0	25.06	HDPE	0.50	CB#2	EX-CB	292.38	292.25
P2	18.0	148.20	HDPE	0.50	CB#3	CB#2	293.22	292.48
P8	18.0	17.22	HDPE	0.83	SSSF2-Out	CB#2	292.62	292.48
P3	18.0	54.50	HDPE	0.50	CB##4	CB#3	293.59	293.32
P4	18.0	39.19	HDPE	0.50	SSSF1-Out	CB##4	293.78	293.59
SSSF1	18.0	82.83	HDPE	0.01	SSSF1-IN	SSSF1-Out	293.79	293.78
P6	18.0	6.33	HDPE	0.50	CB#8	SSSF1-IN	293.82	293.79
SSSF3	18.0	57.58	HDPE	0.50	CB#6	CB#8	294.11	293.82
SSSF4	18.0	95.54	HDPE	0.99	CB#9	CB#8	294.77	293.82
P7	18.0	95.54	HDPE	0.50	CB#7	CB#6	294.69	294.21
P5	18.0	88.49	HDPE	1.30	CB#5	CB#6	295.36	294.21
SSSF2	12.0	56.00	HDPE	0.00	SSSF2-IN	SSSF2-Out	292.72	292.72
P9	12.0	6.82	HDPE	0.50	CB#10	SSSF2-IN	292.85	292.82
P10	12.0	34.15	HDPE	0.50	CB#11	CB#10	293.12	292.95
P11	12.0	62.43	HDPE	0.50	CB#12	CB#11	293.53	293.22
P12	12.0	58.90	HDPE	0.50	CB#13	CB#12	293.93	293.63

STORM DRAIN STRUCTURE TABLE				
NAME	RIM ELEV	INV.-IN (1)	INV.-IN (2)	INV.-OUT
CB#13	299.50	N/A	N/A	293.93
CB#12	299.50	293.63	N/A	293.53
CB#11	300.39	293.22	N/A	293.12
CB#10	299.50	292.95	N/A	292.85
SSSF2-IN	299.67	292.82	N/A	292.72
SSSF2-Out	300.42	292.72	N/A	292.62
CB#7	300.25	N/A	N/A	294.69
CB#5	299.85	N/A	N/A	295.36
CB#6	300.25	294.21	294.21	294.11
CB#9	300.77	N/A	N/A	294.77
CB#8	300.84	293.82	293.82	293.82
SSSF1-IN	300.79	293.79	N/A	293.79
SSSF1-Out	300.46	293.78	N/A	293.78
CB#4	299.50	293.59	N/A	293.59
CB#3	299.00	293.32	N/A	293.22
CB#2	298.00	292.48	292.48	292.38
EX-CB	298.00	292.25	N/A	N/A
CB21	298.88	N/A	N/A	294.88
CB23	299.59	N/A	N/A	293.99
CB22	299.52	293.50	N/A	293.50
INF	298.88	294.86	293.00	N/A

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

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

SHEET: C5

SCALE: 1"=30'
JOB #: 22-RLM-004
MAP/LOT: U-19 12&13
FILE:
FIELD WK:
DRN BY: CYN
CH'D BY: CYN
DATE: 11-22-23

TITLE:
GRADING PLAN

PROJECT:
RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
01-29-24

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

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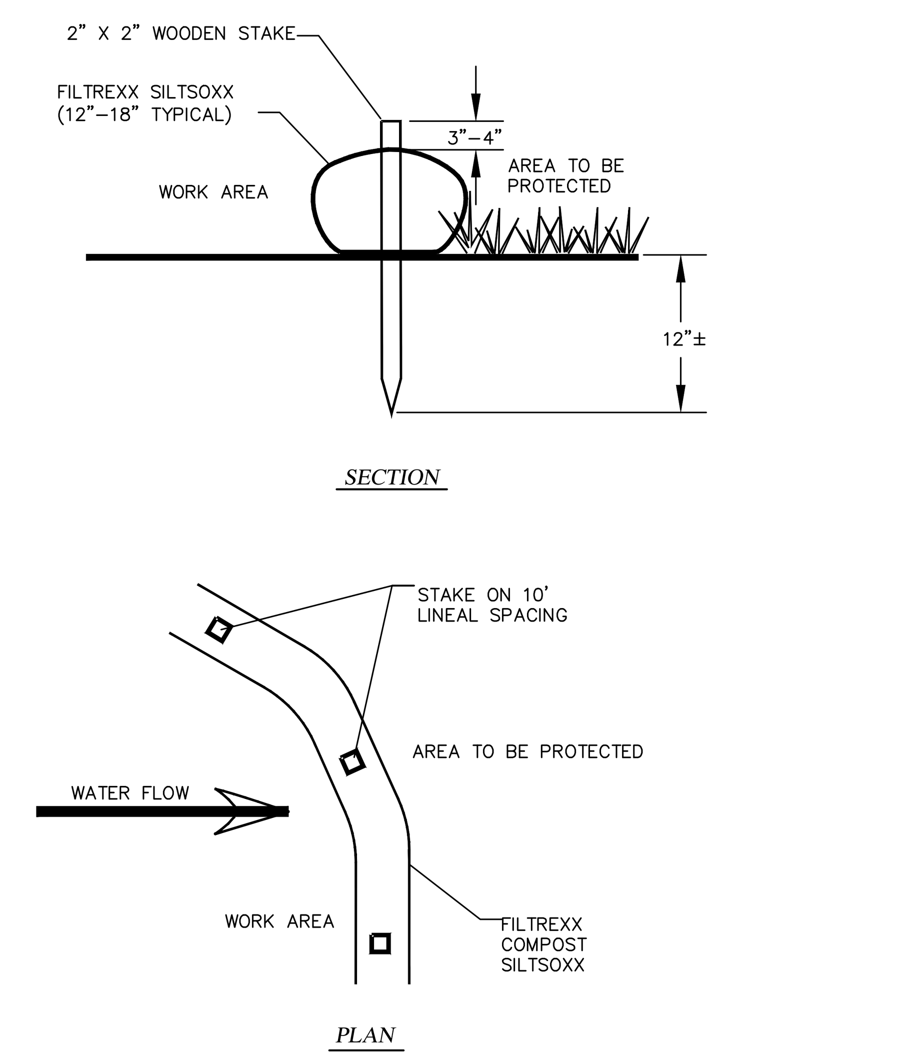
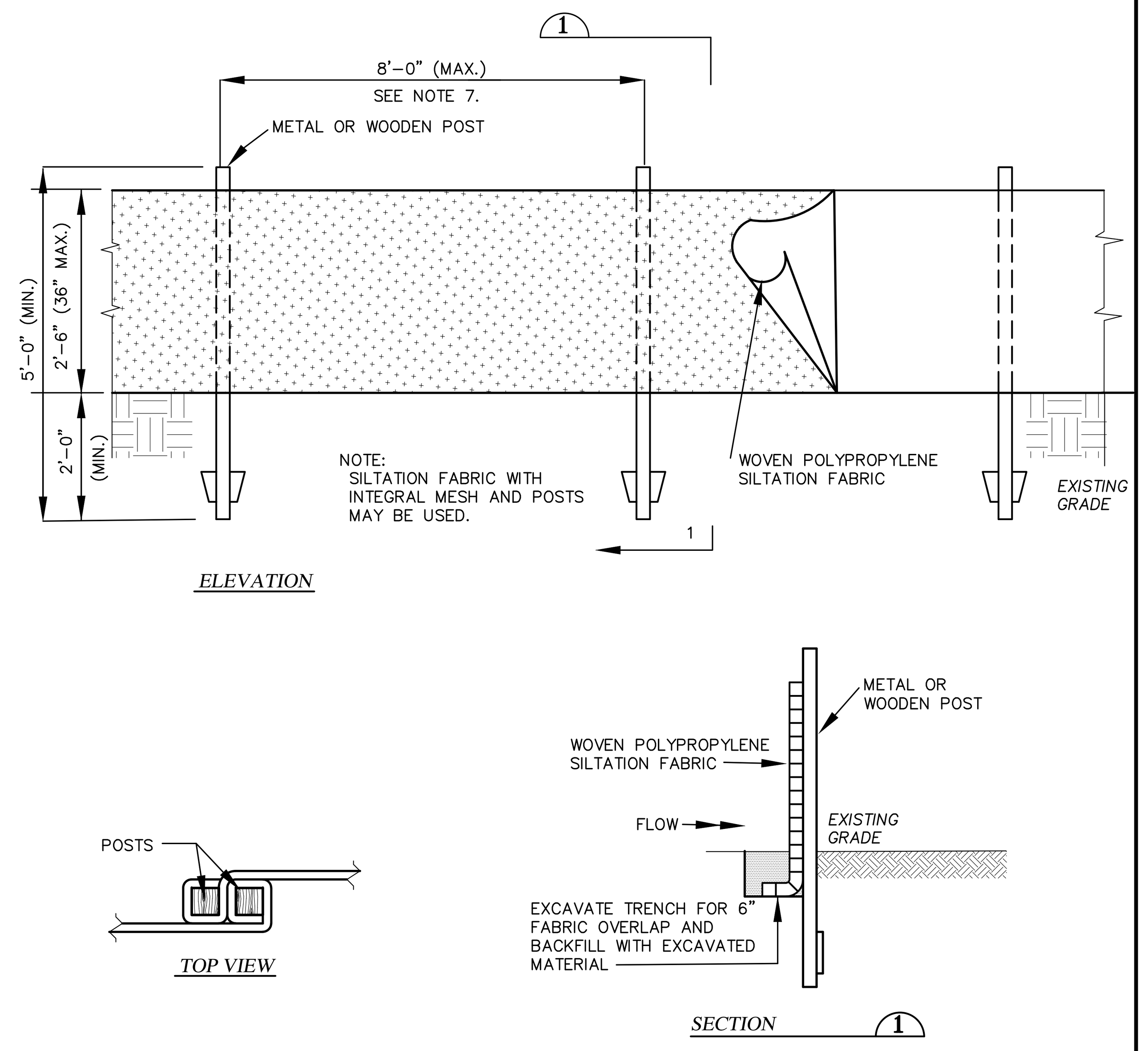
C:\USERS\CURT NEUFELD\ONEDRIVE\DOCUMENTS\PROJECTS\22-RLM-004 CUMBERLAND\DWG\22-004 SITE.DWG, C5 GRADING, 1/30/2024 9:43 AM, CURT NEUFELD



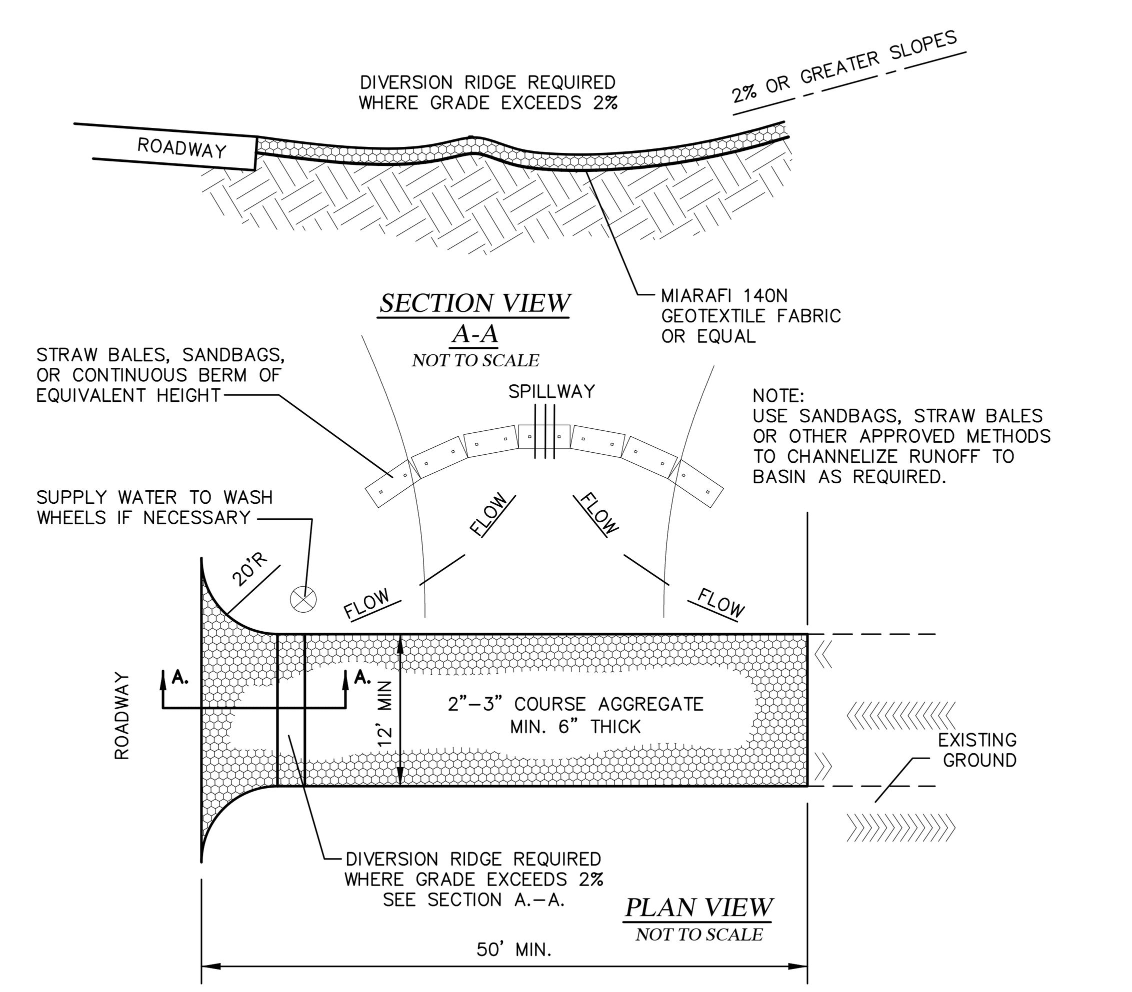
NOTES:
1. ALL MATERIALS TO MEET FILTREXX SPECIFICATIONS
2. SILTSOXX COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS
3. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.
4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

A FILTREXX SILTSOXX DETAIL "SEDIMENT BARRIER OPTION"
N.T.S.



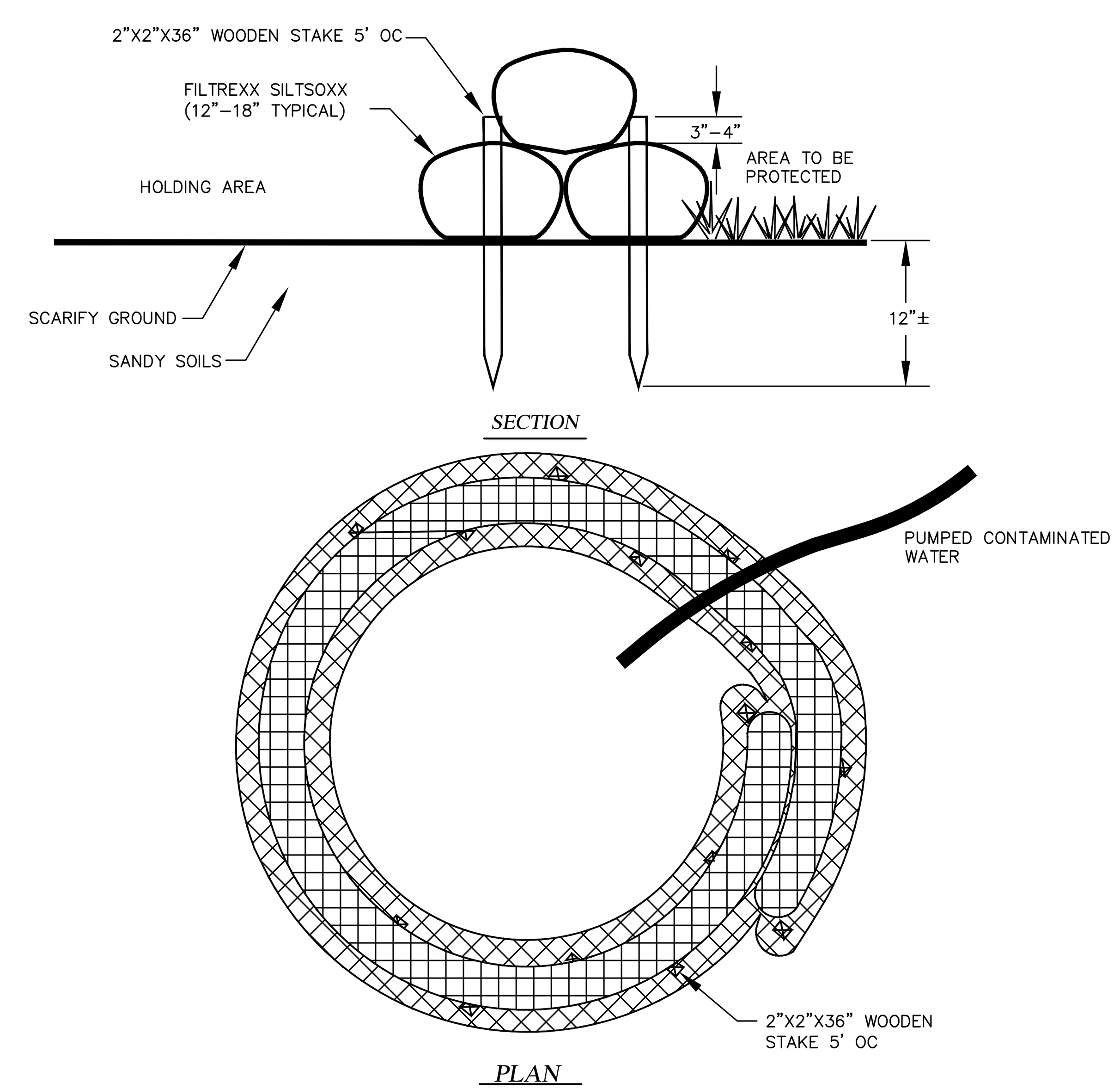
INSTALLATION:
1. EXCAVATE A 6" X 6" TRENCH ALONG THE LINE OF PLACEMENT FOR THE FILTER BARRIER.
2. UNROLL A SECTION AT A TIME AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH.
3. DRIVE POSTS INTO THE GROUND UNTIL APPROXIMATELY 2" OF FABRIC IS LYING ON THE TRENCH BOTTOM.
4. LAY THE TOE-IN FLAP OF FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH. BACK FILL THE TRENCH AND TAMP THE SOIL.
5. JOIN SECTION AS SHOWN IN TOP VIEW.
6. BARRIER SHALL BE MIRAFI SILT FENCE (100X) OR APPROVED EQUIVALENT.
7. A STONE "FILLET" MAY BE USED FOR ANCHORING FABRIC IF IT CANNOT BE KEYED IN.

B SILT FENCE DETAIL "SEDIMENT BARRIER OPTION"
N.T.S.

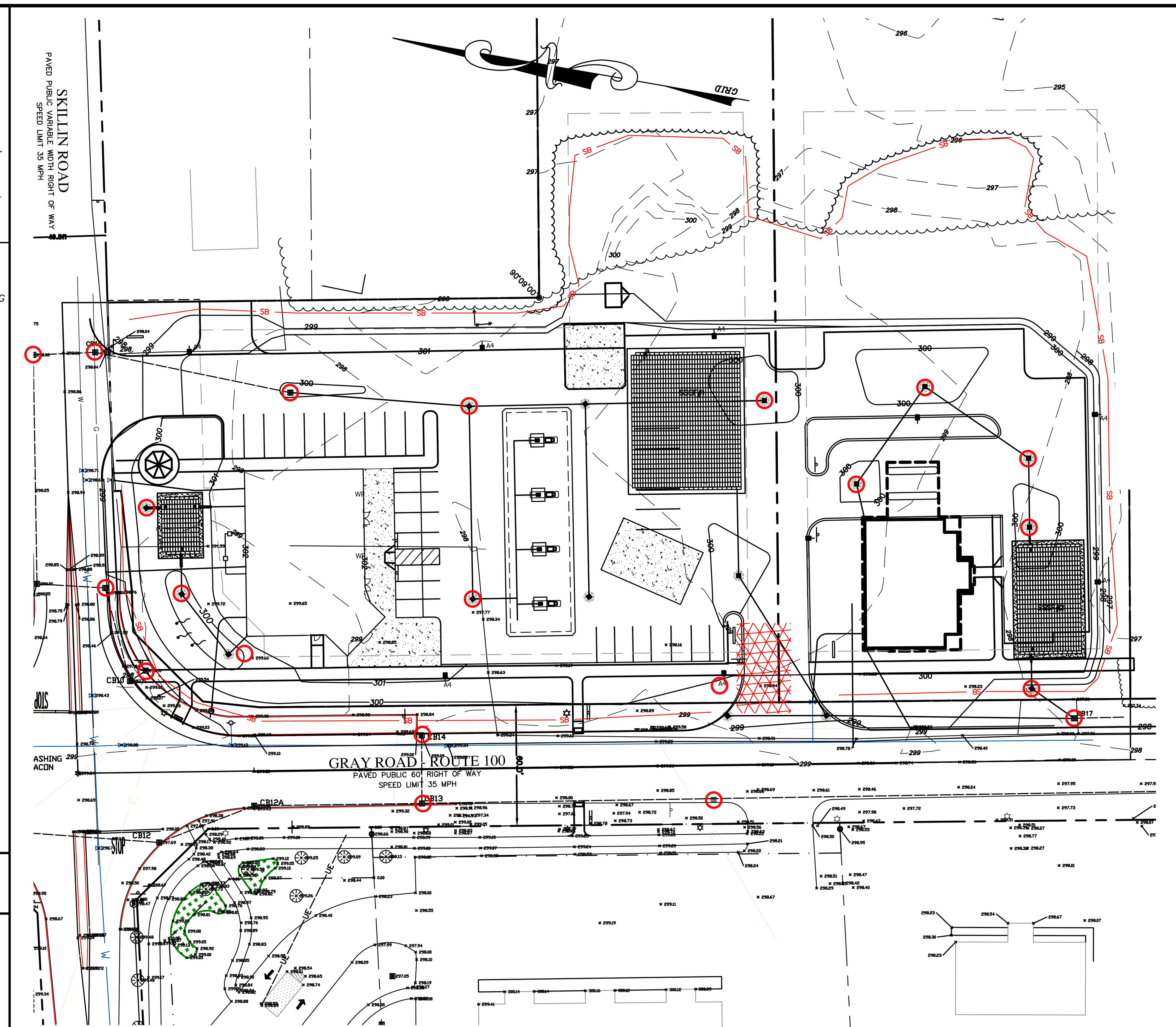


NOTE:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR, AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAYS.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR BASIN.
4. TRACKED MUD OR SEDIMENT SHALL BE REMOVED PRIOR TO THE NEXT STORM EVENT. "REMOVED" SHALL MEAN VACUUM SWEEPING. MECHANICAL BROOM/SWEEPING SEDIMENT INTO DITCHES OR STRUCTURES IS NOT ACCEPTABLE.

C STABILIZED CONSTRUCTION ENTRANCE
N.T.S.



D SEDIMENT TRAP DETAIL
N.T.S.



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

LEGEND
- CATCH BASIN INLET PROTECTION
- SEDIMENT BARRIER
- STABILIZED CONSTRUCTION ENTRANCE
- SNOW STORAGE AREA

EROSION & SEDIMENT CONTROL (ESC) NOTES:

1. THE CONTRACTOR SHALL UTILIZE THE CONSTRUCTION ENTRANCE FOR ENTERING AND EXITING THE PROPERTY
2. ESC BMPS SHALL BE INSTALLED PRIOR TO START OF WORK.
3. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT DISTURBED AREAS AND REVIEW BMPS PRIOR TO FORECAST PRECIPITATION OF MORE THAN 0.5 INCHES.
4. CONTRACTOR TO SWEEP EXISTING PAVED ACCESS AS NEEDED TO REMOVE TRACKED SOILS.
5. CONTRACTOR SHALL KEEP THE WRITTEN STORMWATER MANAGEMENT INSPECTION AND MAINTENANCE PLAN ON SITE.
6. ALL RUNOFF FROM DISTURBED AREAS SHALL BE DIRECTED TO A FILTERING DEVICE DESIGNATED TO LIMIT DISCHARGE TURBIDITY. THE FILTERING DEVICE MAY BE BUT IS NOT LIMITED TO SAND FILTERS, EROSION CONTROL MIX, STRAW WA TILES, FLOCCULATION CHEMICALS, DIRT GLUE AND SILT FENCE.
7. STOCKPILES TO BE TEMPORARILY SEEDED AND MULCHED OR COVERED WITH POLY SHEETING AS REQUIRED BY THE PROJECT SPECIFICATIONS.
8. THE CONTRACTOR SHALL TREAT DISTURBED AREAS, BUILDING AREAS, AND CONSTRUCTION HAUL PATHS WITH DUST CONTROL BMPS TO LIMIT ALL FUGITIVE DUST PER THE PROJECT SPECIFICATIONS.
9. THE EROSION AND SEDIMENT CONTROL MEASURES DEPICTED ON THIS PLAN ARE CONSIDERED TO BE THE MINIMUM REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE TO MANAGE, INSPECT AND PROTECT THE SITE USING MEDEP BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL AS REQUIRED BY THE PROJECT SPECIFICATIONS AND THE EROSION AND SEDIMENT CONTROL REPORT. THIS MAY REQUIRE ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES NOT DEPICTED ON THIS PLAN WHICH ARE CONSIDERED INCIDENTAL TO THE CONTRACT AND WILL BE IMPLEMENTED AT NO ADDITIONAL COST TO THE OWNER.
10. ALL CATCH BASIN INLETS WITH TRIBUTARY AREA WITH PAVEMENT COVER SHALL HAVE AN OIL ABSORBENT BOOM INSTALLED PRIOR TO THE PLACEMENT OF ANY BINDER PAVEMENT.
11. SEE ADDITIONAL NOTES ON SHEET C10, EROSION CONTROL NOTES.

PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP

SHEET: C6

SCALE:	
JOB #:	22-RLM-004
MAP/LOT:	U-19 12&13
FILE:	
FIELD WK:	
DRN BY:	CYN
CHD BY:	CYN
DATE:	11-22-23

TITLE: **EROCION CONTROL PLAN**

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
01-29-24

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

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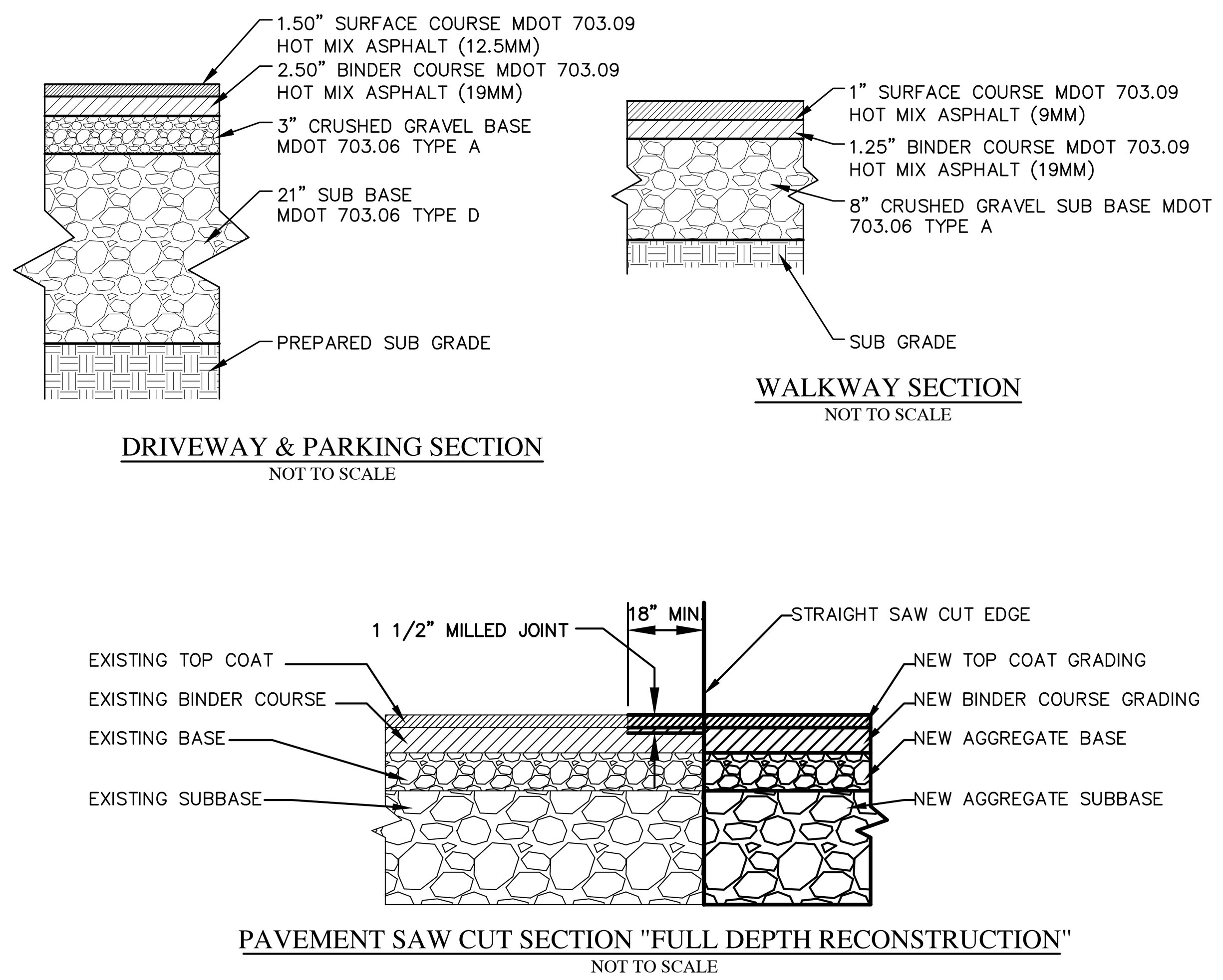
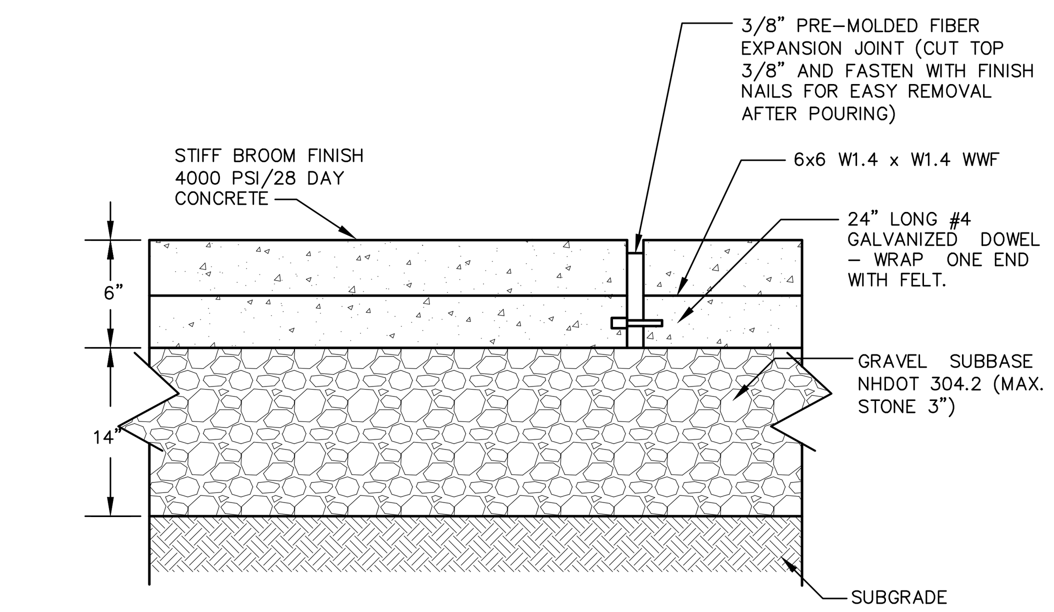
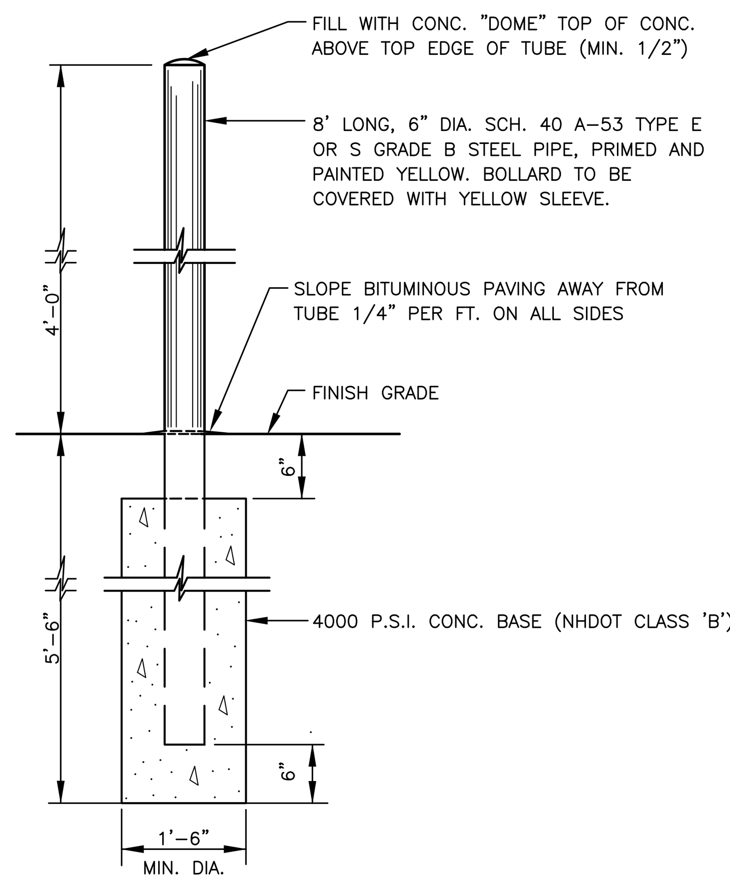


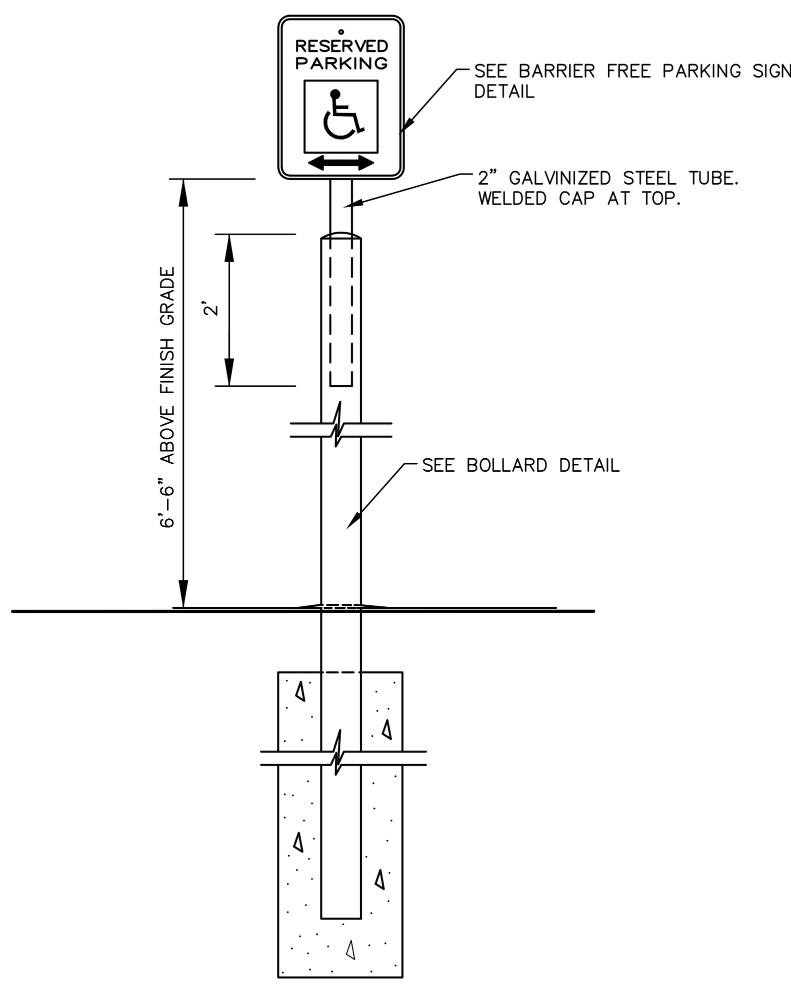
A PAVEMENT SECTIONS
N.T.S.



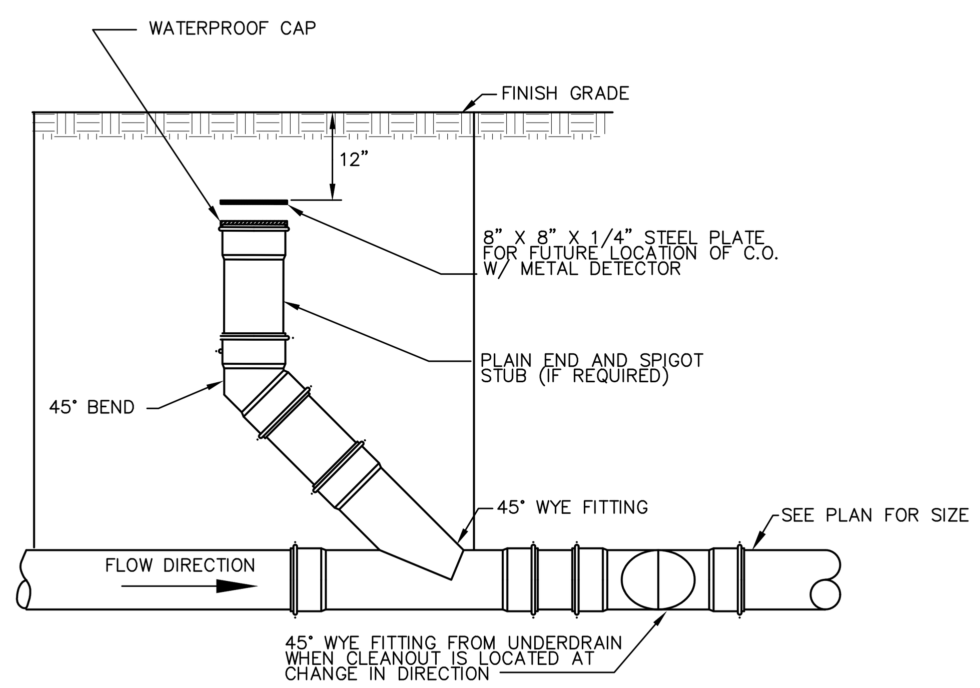
B CONCRETE PAD DETAIL
N.T.S.



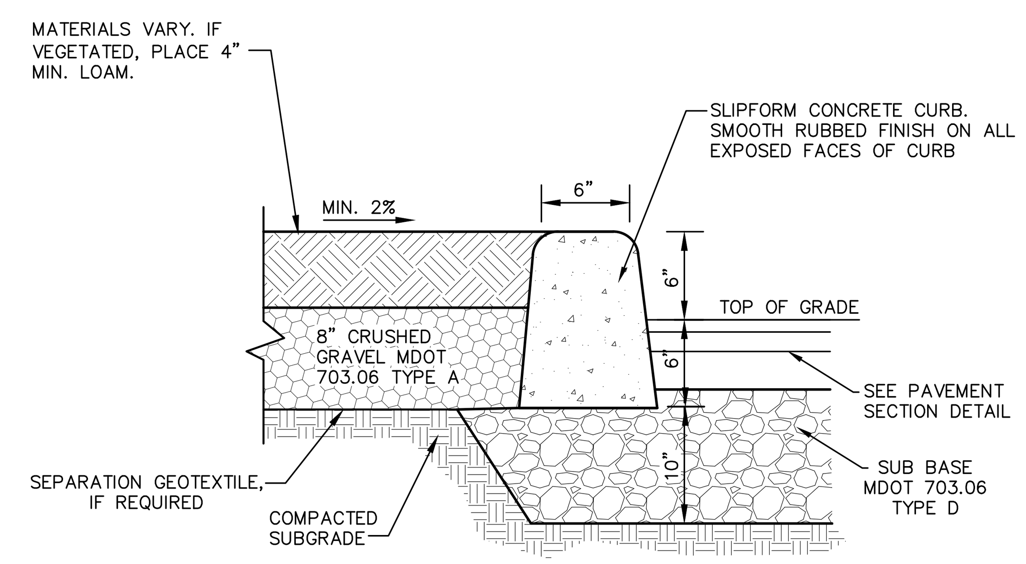
C TYPICAL BOLLARD DETAIL
N.T.S.



D BARRIER FREE PARKING SIGN DETAIL
N.T.S.



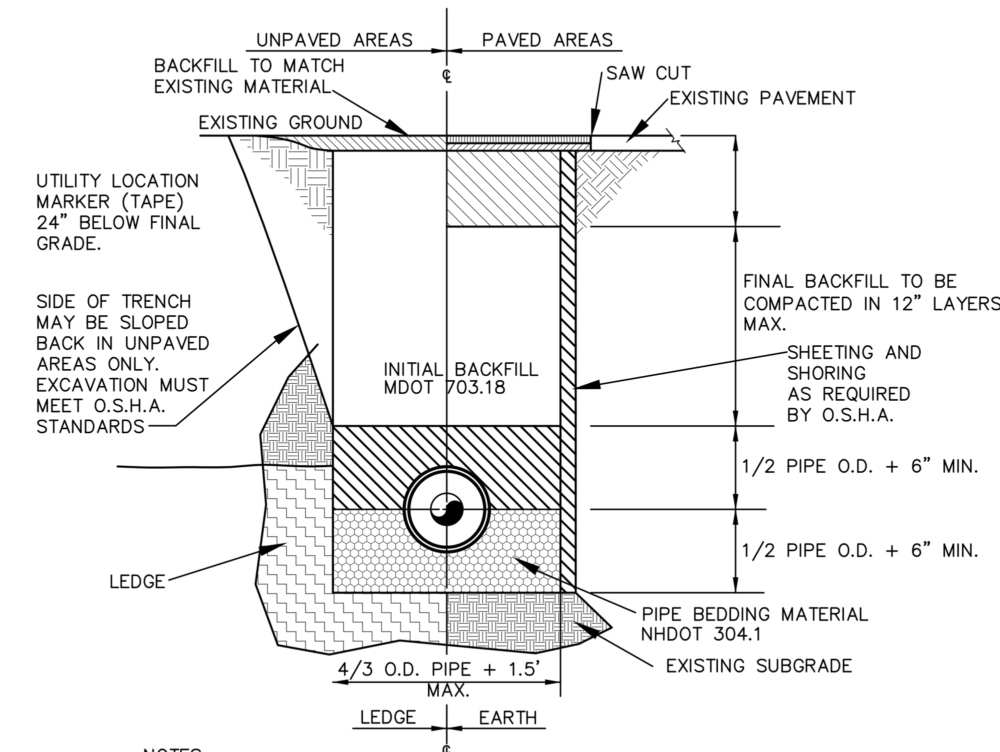
E SEWER CLEAN OUT DETAIL
N.T.S.



NOTES:
1. CONCRETE SHALL BE CAST–IN–PLACE 5000 PSI W/FIBER REINFORCEMENT.
2. APPLY MEDIUM BROOM FINISH PERPENDICULAR TO DIRECTION OF TRAVEL.
3. PROVIDE 1–1/2" DEEP TOOLED CONTROL JOINT PERPENDICULAR TO WALK AT 5' O.C.
4. PROVIDE EXPANSION JOINT AT 20' INTERVALS ON SIDEWALK ONLY.
5. PROVIDE ISOLATION JOINT W/SELF LEVELING SEALER WHERE WALK ABUTS ANY VERTICAL SURFACE.

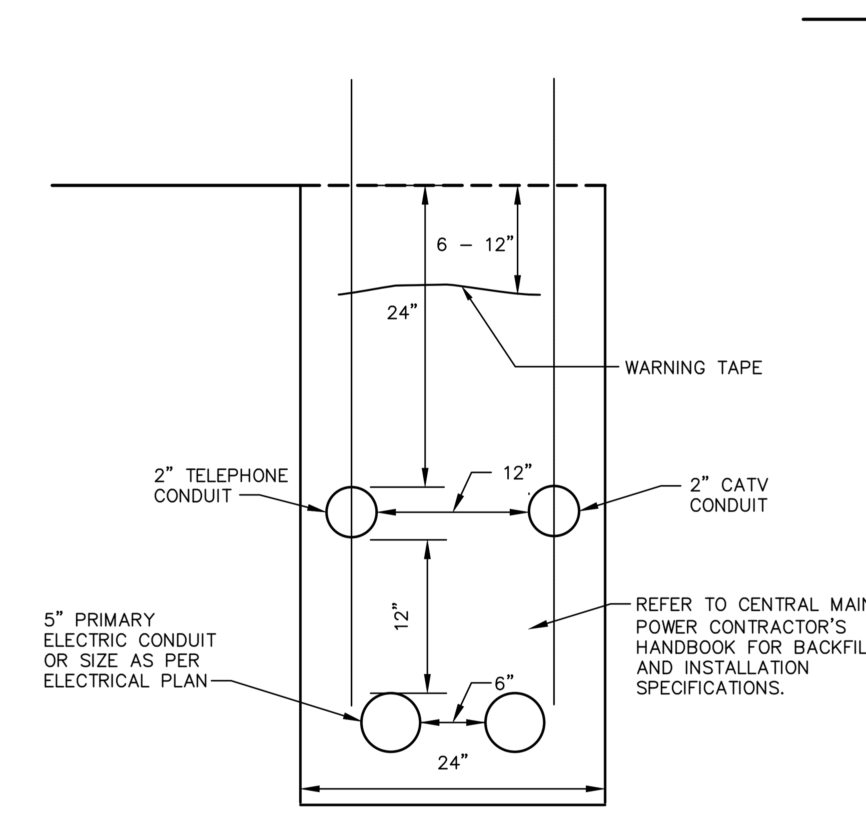
VERTICAL SLIPFORM CONCRETE CURB
NOT TO SCALE

F CURBING DETAILS
N.T.S.

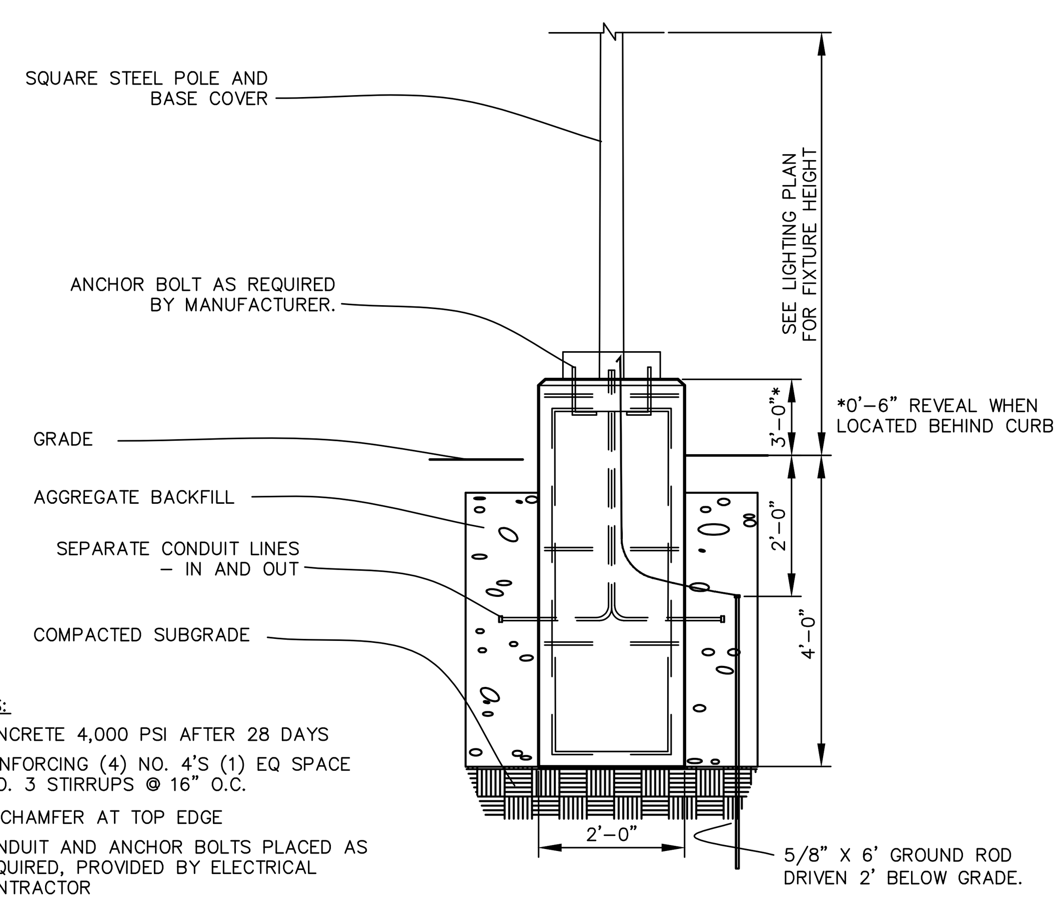


NOTES:
1. INSTALL 3 FOOT LONG IMPERVIOUS DAMS IN BEDDING/INITIAL BACKFILL MATERIAL EVERY 100 FEET TO PREVENT TRENCH GROUNDWATER FROM BEING CHANNELED ALONG BEDDING/INITIAL BACKFILL
2. REFER TO LATEST MDOT SPECIFICATIONS FOR BEDDING AND BACKFILL REQUIREMENTS.
3. INITIAL BACKFILL TO BE 12 INCHES OVER TOP OF PVC PIPE ONLY.

G TYPICAL PIPE TRENCH DETAIL
N.T.S.



H PRIMARY UTILITY TRENCH
N.T.S.



NOTES:

CONCRETE 4,000 PSI AFTER 28 DAYS

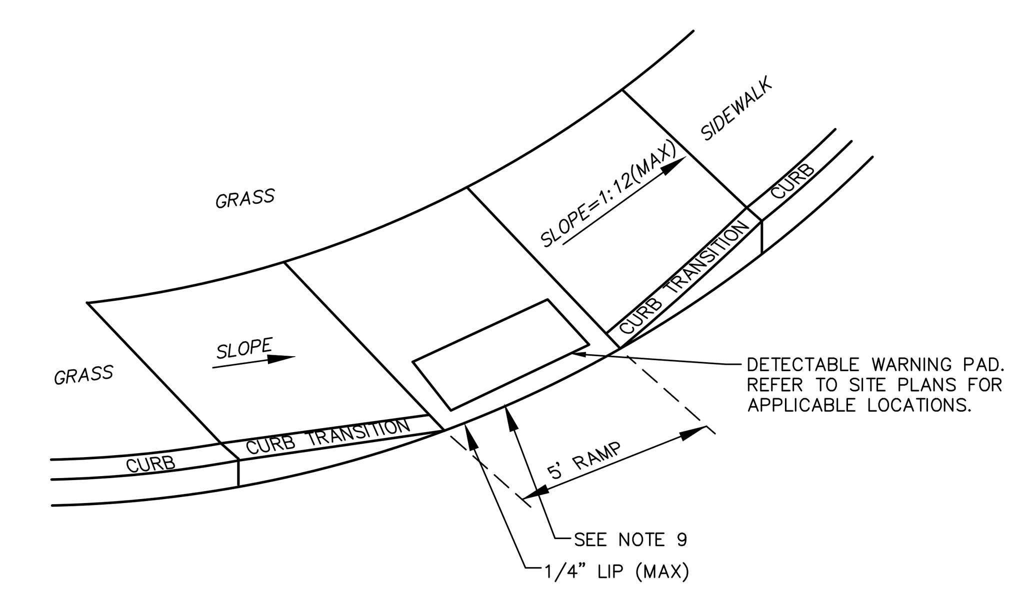
REINFORCING (4) NO. 4'S (1) EQ SPACE NO. 3 STIRRUPS @ 16" O.C.

1" CHAMFER AT TOP EDGE

CONDUIT AND ANCHOR BOLTS PLACED AS REQUIRED, PROVIDED BY ELECTRICAL CONTRACTOR

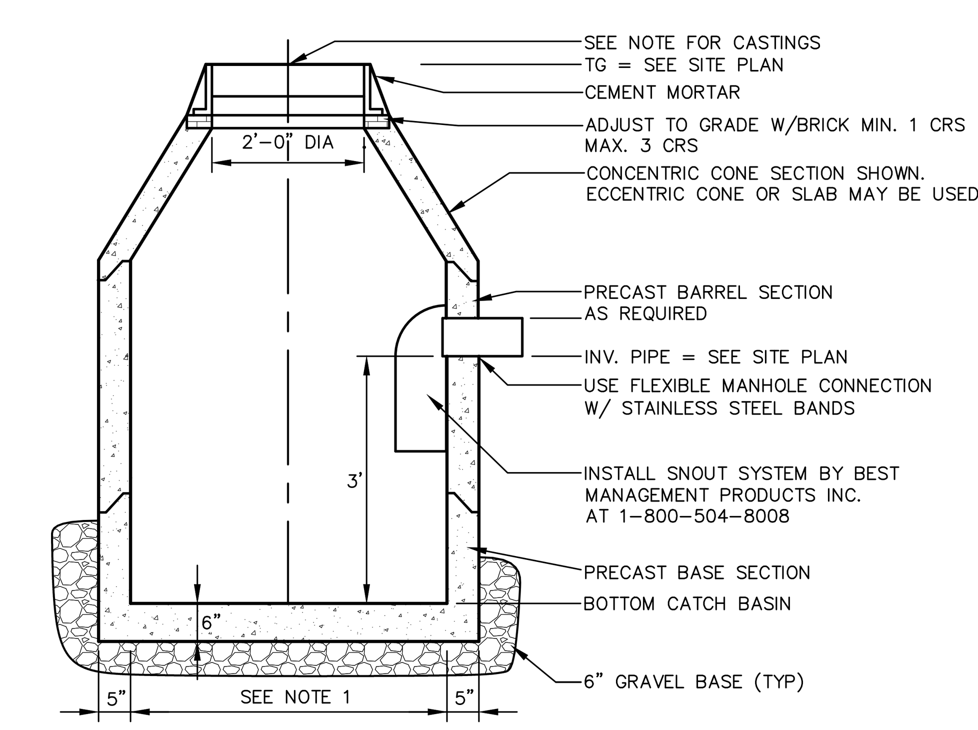
CONCRETE TO HAVE AIR ENTRAINING AGENT

I LIGHT POLE BASE DETAIL
N.T.S.



NOTES:
1. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPE SHALL BE 1.5% (1% MIN).
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE CURB RAMPS SHALL BE 7.5%.
4. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.)
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SIDEWALK SECTION FOR RAMP CONSTRUCTION.
8. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5'x5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FEET.
9. ELIMINATE ALL CURBING AT RAMP (OTHER THAN VERTICAL CURBING, WHICH SHALL BE SET FLUSH) WHERE IT ABUTS ROADWAY.

J TIP DOWN SIDEWALK RAMP
N.T.S.



NOTES:
1. 4'–0" I.D. TYPICAL. SOME STRUCTURES MAY REQUIRE LARGER I.D. PROVIDE SHOP DRAWINGS.
2. DRAINAGE STRUCTURES TO BE DESIGNED FOR H–20 LOADING.
3. PIPE SIZES AND INVERTS AS NOTED ON PLANS.
4. CATCH BASIN FRAME AND GRATE TO BE NHDOT TYPE 'B' OR APPROVED EQUAL.

K CATCH BASIN OR DRAINAGE MANHOLE W/ SNOUT
N.T.S.

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

SHEET: C7

FIELD WK:	SCALE:
DRN BY: CYN	JOB #: 22-RLM-004
CH'D BY: CYN	MAP/LOT: U-19 12&13
DATE: 11-22-23	FILE: COV-DET

TITLE: **CIVIL DETAILS**

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

OWNER: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
06-01-23

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

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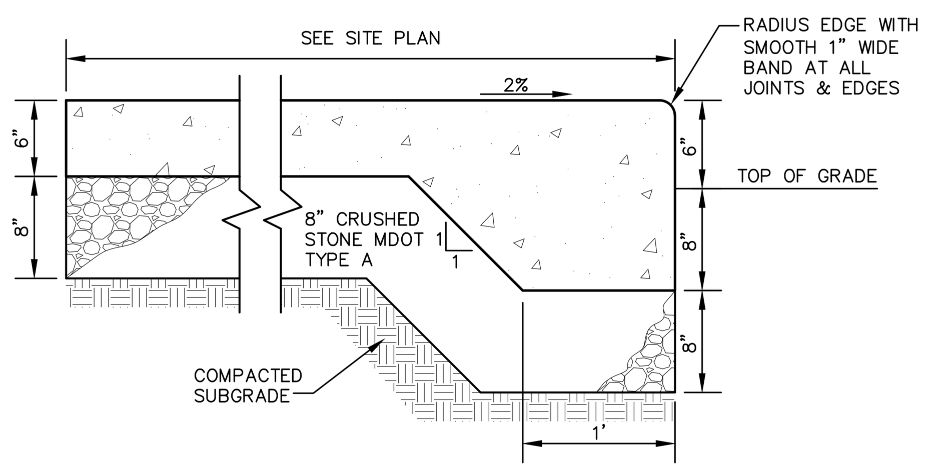
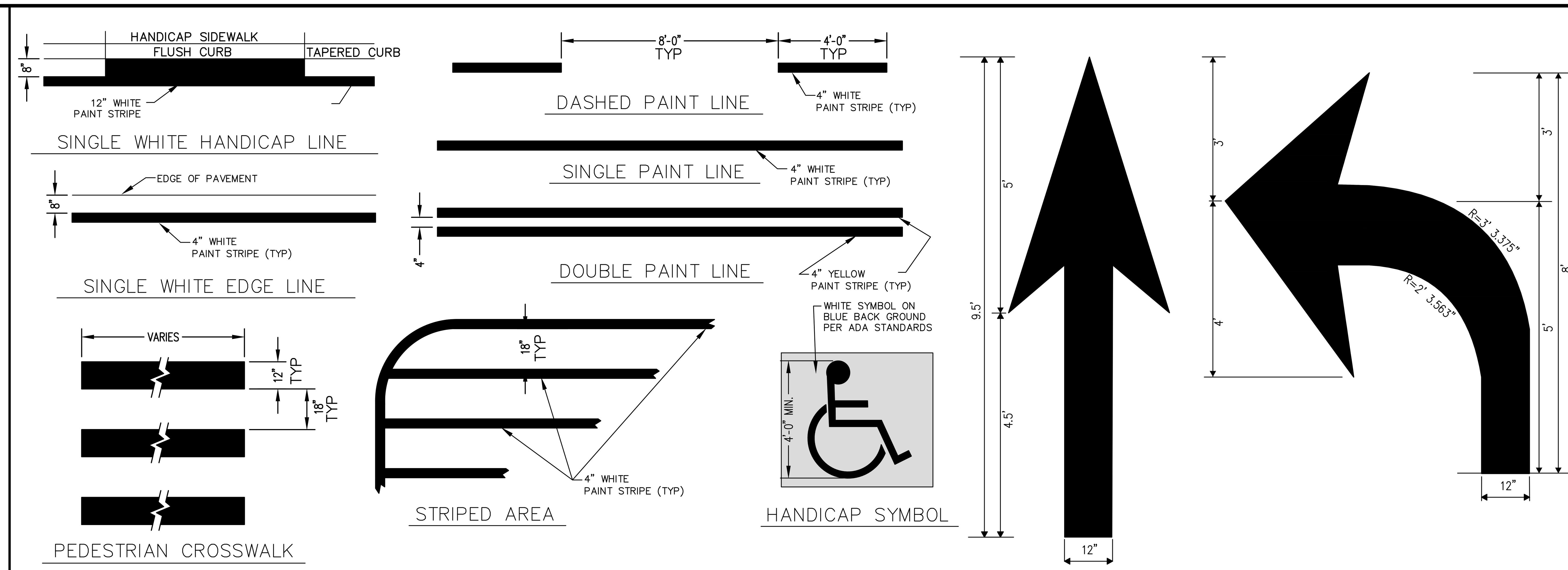
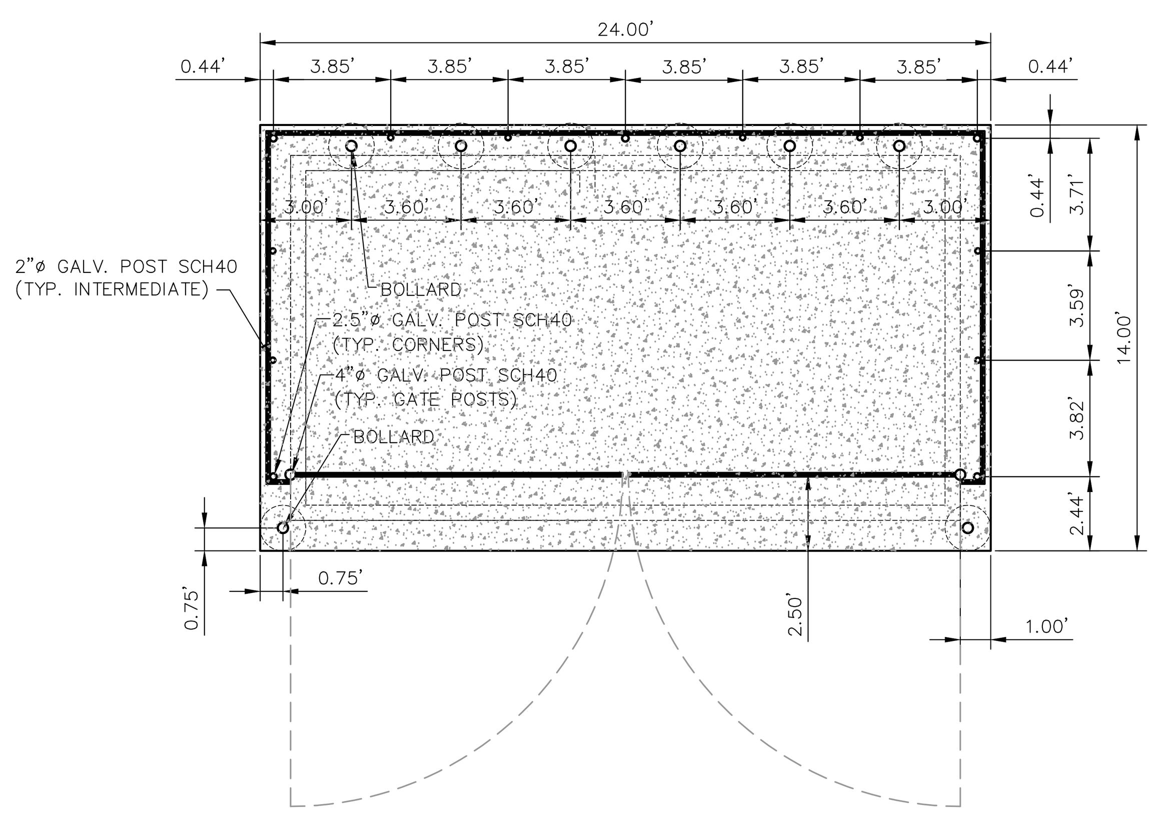


NOTES:
1. CONCRETE SHALL BE CAST-IN-PLACE 5000 PSI W/FIBER REINFORCEMENT.
2. APPLY MEDIUM BROOM FINISH PERPENDICULAR TO DIRECTION OF TRAVEL.
3. PROVIDE 1-1/2" DEEP TOOLED CONTROL JOINT PERPENDICULAR TO WALK AT 5' O.C.
4. PROVIDE EXPANSION JOINT AT 20' INTERVALS.
5. PROVIDE ISOLATION JOINT W/SELF LEVELING SEALER WHERE WALK ABUTS ANY VERTICAL SURFACE.
6. INSTALL 2" RIGID STYROFOAM INSULATION BENEATH SIDEWALK AND HAUNCH WHERE WALK ABUTS BUILDING FOUNDATION.
7. WALK SHALL BE PINNED TO FOUNDATION, REBAR DOWELS SHALL BE DRILLED AND EPOXIED INTO WALK AND FOUNDATION.

A MONOLITHIC CONCRETE CURB AND SIDEWALK
N.T.S.

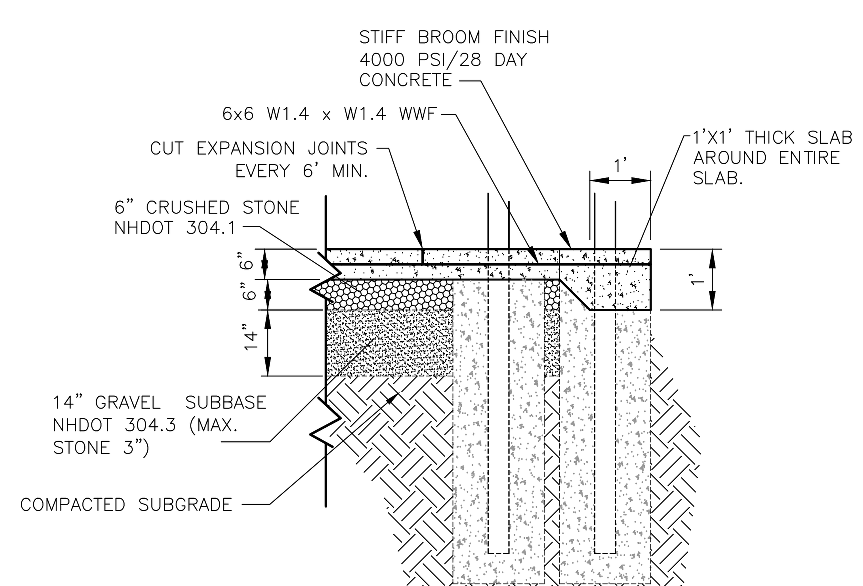


B PAVEMENT MARKINGS
N.T.S.



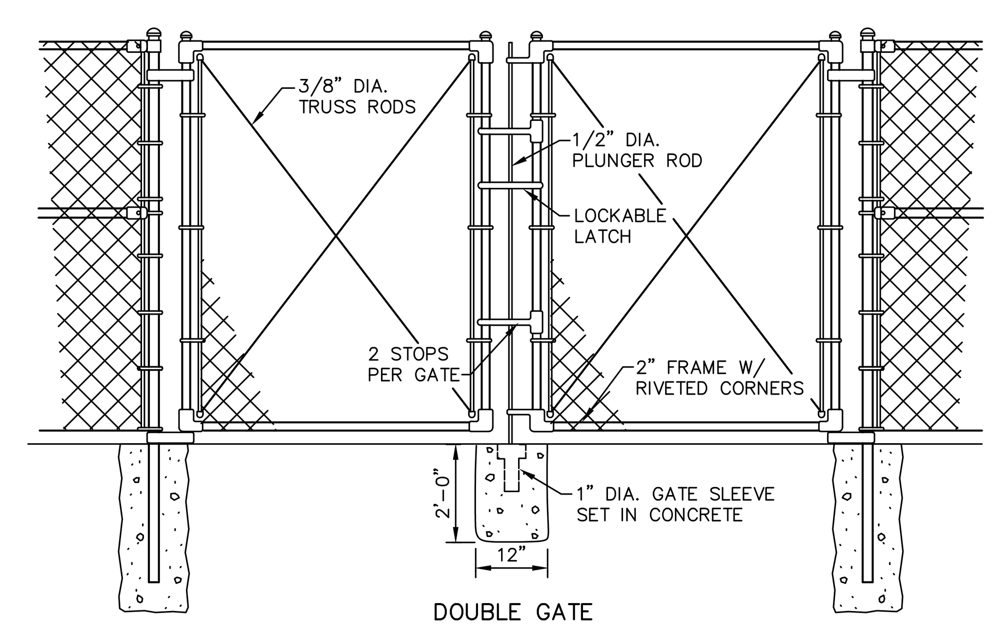
NOTE:
FENCE GATE TO BE DESIGNED BY FENCE INSTALLER. COORDINATE WITH OWNER.

DUMPSTER ENCLOSURE LAYOUT
NOT TO SCALE

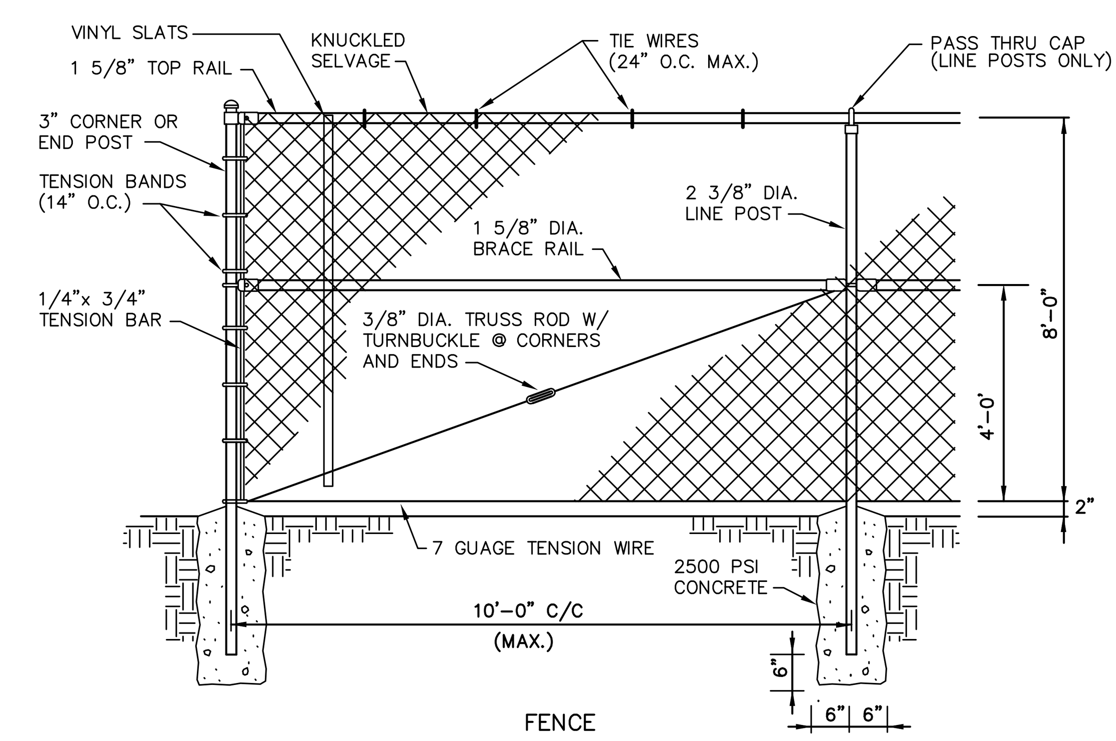


NOTES:
1. DO NOT PLACE CONCRETE DURING COLD OR RAINY WEATHER CONDITIONS.
2. CONTRACTOR MAY USE PRE-CAST CONCRETE BOLLARDS.

CONCRETE DUMPSTER PAD
NOT TO SCALE

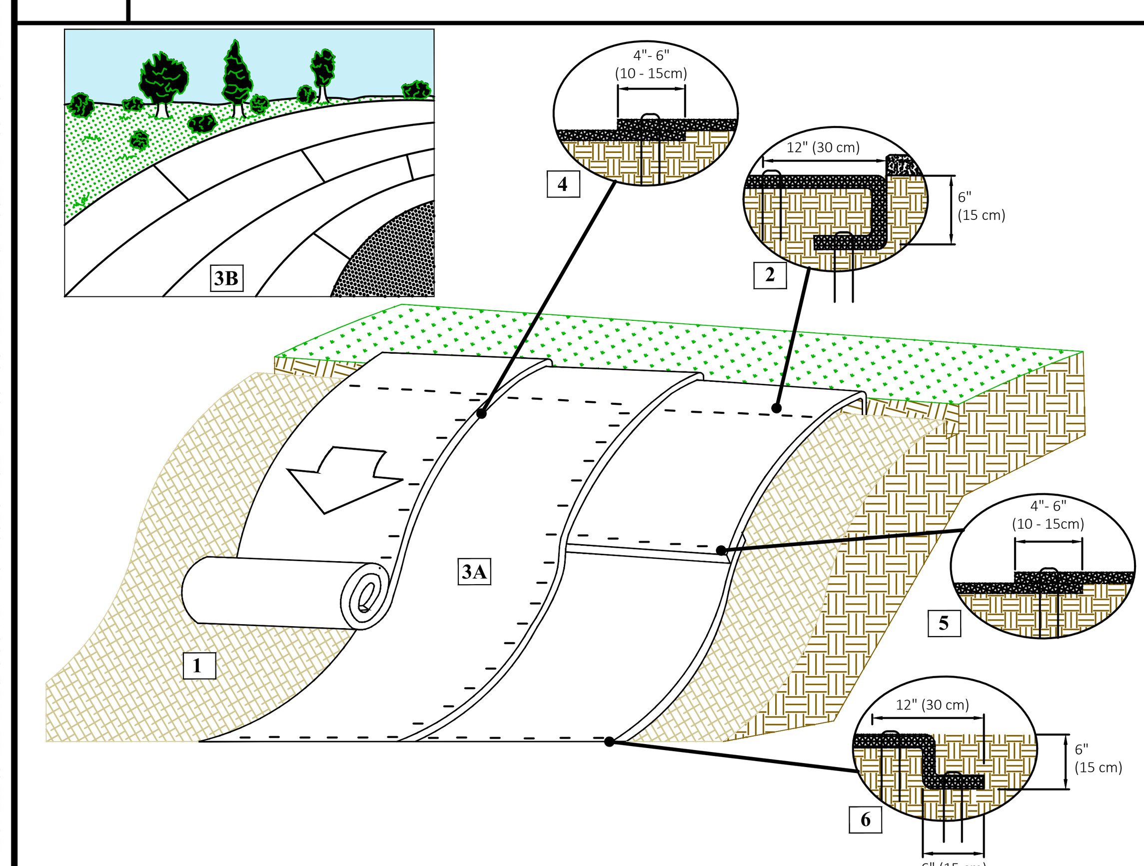


DOUBLE GATE



FENCE

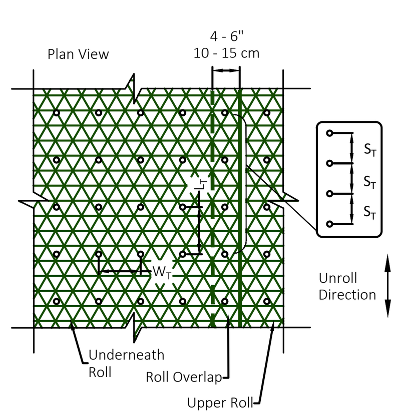
C DUMPSTER DETAILS
N.T.S.



Instructions

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
2. Begin at the top of the slope by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench. Anchor the RECPs with a row of staples/stakes/pins spaced at S_T apart in the bottom of the trench. Backfill and compact the trench after stapling and fold the roll over downslope. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced at S_T apart across the width of the RECPs.
3. Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide. RollMax RECPs and ECBs should utilize Staple Pattern C, TRMs and VMax materials should utilize Staple Pattern D.
4. The edges of parallel RECPs must be stapled with approximately 4" - 6" (10 - 15 cm) overlap.
5. Consecutive RECPs spliced down the slope must overlapped with the upstream mat atop the downstream mat (shingle style). The overlap should be 4" - 6" (10 - 15 cm).
6. At the terminal end, secure each mat across the width with a row of staples/stakes/pins spaced at S_T. If exposed to flow, foot traffic, wind uplift or other disruption, trench the terminal end in as shown in detail.
7. Fasteners should provide a minimum of twenty pounds of pullout resistance. Six-inch (10 cm) X one-inch (2.5 cm) eleven gauge staples are typically adequate. In loose soils, longer staples may be necessary, twist pins can provide the greatest pullout resistance. In hard or rocky soils, straight pins may by used where staples or twist pins are refused, provided the minimum pullout requirements are met. Bio-degradable fasteners shall not be used with VMax (TRM) or TMax (HPTRM) materials.

Staple Pattern Guide



• Pin / Staple / Twist Pin, as appropriate for field conditions

	Staple Pattern	
Dimension	C	D
W_T	30" (75 cm)	24" (60 cm)
L_T	30" (75 cm)	20" (50 cm)
S_T	18" (45 cm)	18" (45 cm)
Nominal Frequency	1.7 / SY	3.0 / SY
Application	ECB (Degradable)	TRM (Permanent)
*Note: Staple Pattern A and B used prior to 8/2019 have been discontinued.		

D TURF REINFORCEMENT MAT INSTALLATION
N.T.S.

ISSUED FOR:
PERMITTING

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No.	Date	Description	By
2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
06-01-23

TITLE: CIVIL DETAILS

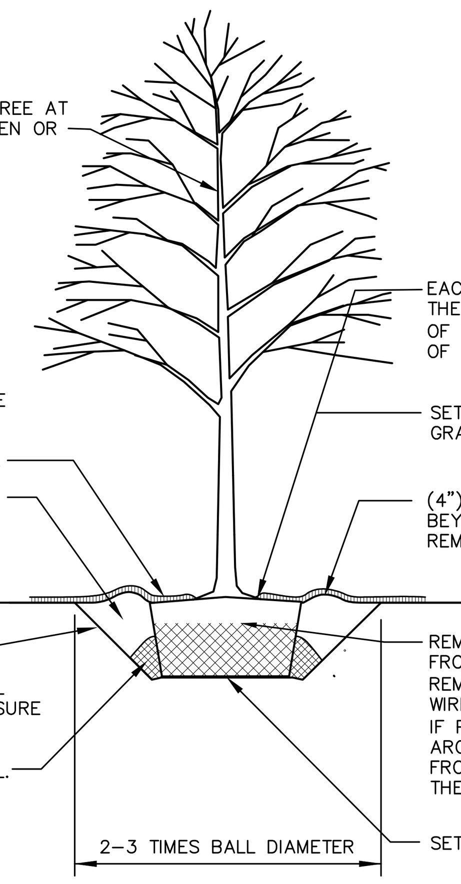
PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME 04021

OWNER: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

PRIORITY REAL ESTATE GROUP

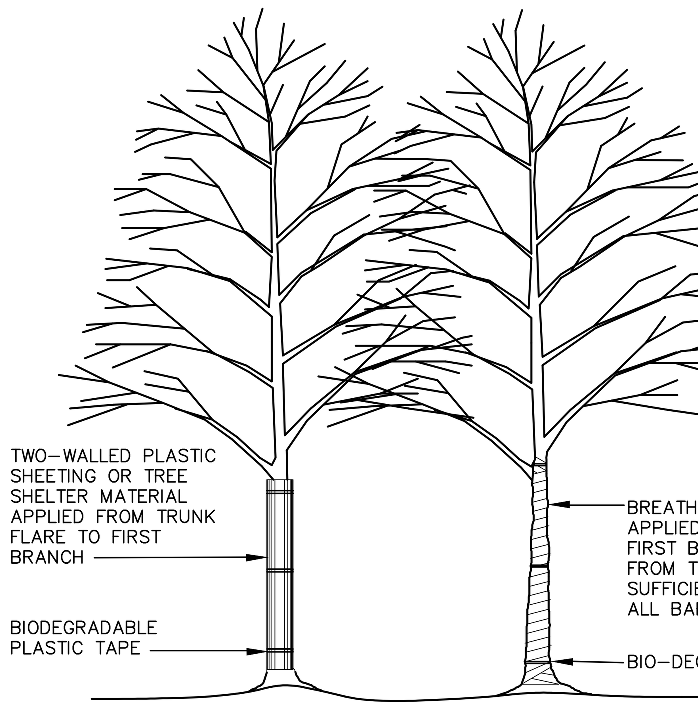
PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

FIELD WK:
DRN BY: CYN
CHD BY: CYN
DATE: 11-22-23
SCALE:
JOB #: 22-RLM-004
MAP/LOT: U-19 12&13
FILE: COV-DET
SHEET: C8



NOTE:
1. MARK THE NORTH SIDE OF THE TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHEN EVER POSSIBLE.
2. STAKE TREES ONLY UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT SEE STAKING DETAIL.
3. WRAP TREE TRUNKS ONLY UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT. SEE WRAPPING DETAIL.
4. WATER TWICE THOROUGHLY SUBSEQUENT TO PLANTING

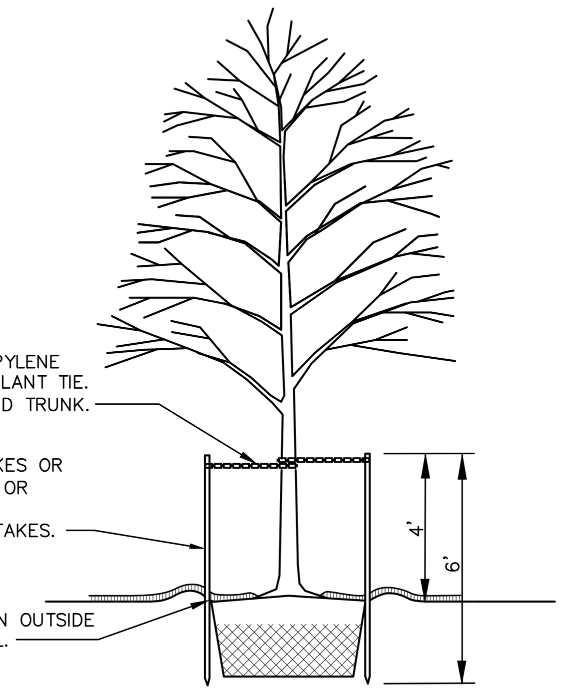
A TREE PLANTING DETAIL - B&B TREES IN ALL SOIL TYPES
N.T.S.



NOTES:
1. TREE WRAP SHOULD BE INSTALLED AT TIME OF PLANTING AFTER AUGUST 1 AND REMOVED BY MAY 1 OF THE NEXT CALENDAR YEAR.
2. TREES WHOSE NORTH ORIENTATION IS NOT CHANGED FROM THE NURSERY DO NOT NEED TO BE WRAPPED.
3. VERY THIN BARK TREES, SUCH AS RED MAPLE, SUGAR MAPLE, HONEY LOCUST, LINDENS, MOUNTAIN ASH, CHERRY, CALLERY PEAR, WILLOW, MALUS AND OTHER SPECIES SHALL BE WRAPPED AS DIRECTED BY THE LANDSCAPE ARCHITECT OR PROJECT ARBORIST.

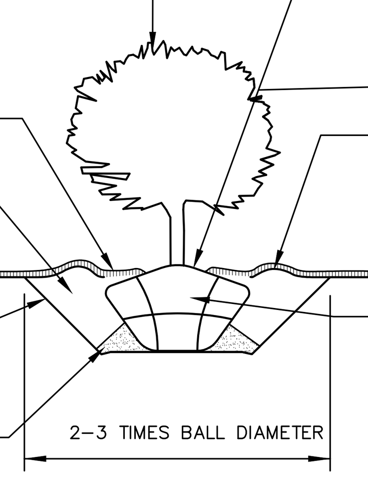
B TREE WRAPPING DETAIL
N.T.S.

TREES NORMALLY DO NOT NEED TO BE STAKED AND STAKING CAN BE HARMFUL TO THE TREE. STAKING SHOULD BE DONE ONLY WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT IF IT IS EXPECTED THAT THE TREE WILL NOT BE ABLE TO SUPPORT ITSELF.



NOTES:
1. REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVERCOME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THAT JUNE 1 OF THE FIRST CALENDAR YEAR AFTER PLANTING.
2. ROOT BALLS WITH VERY SANDY SOIL OR PLANT PITS IN VERY WET CLAY SOIL SHALL BE STAKED.
3. TREES LOCATED IN A PLACE OF EXTREMELY WINDY CONDITIONS SHALL BE STAKED.

C TREE STAKING DETAIL - TREES 3" CALIPER OR LESS
N.T.S.



NOTES:
1. WATER TWICE THOROUGHLY SUBSEQUENT TO PLANTING

D SHRUB PLANTING DETAIL - IN ALL SOIL TYPES
N.T.S.

E NOT USED
N.T.S.

F NOT USED
N.T.S.

G NOT USED
N.T.S.

H NOT USED
N.T.S.

I NOT USED
N.T.S.

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP

SHEET: C9

FIELD WK:	SCALE:
DRN BY: CYN	JOB #: 22-RLM-004
CHD BY: CYN	MAP/LOT: U-19 12&13
DATE: 11-22-23	FILE: COV-DET

TITLE: **LANDSCAPE DETAILS**

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

OWNER: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
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LICENSED
PROFESSIONAL ENGINEER
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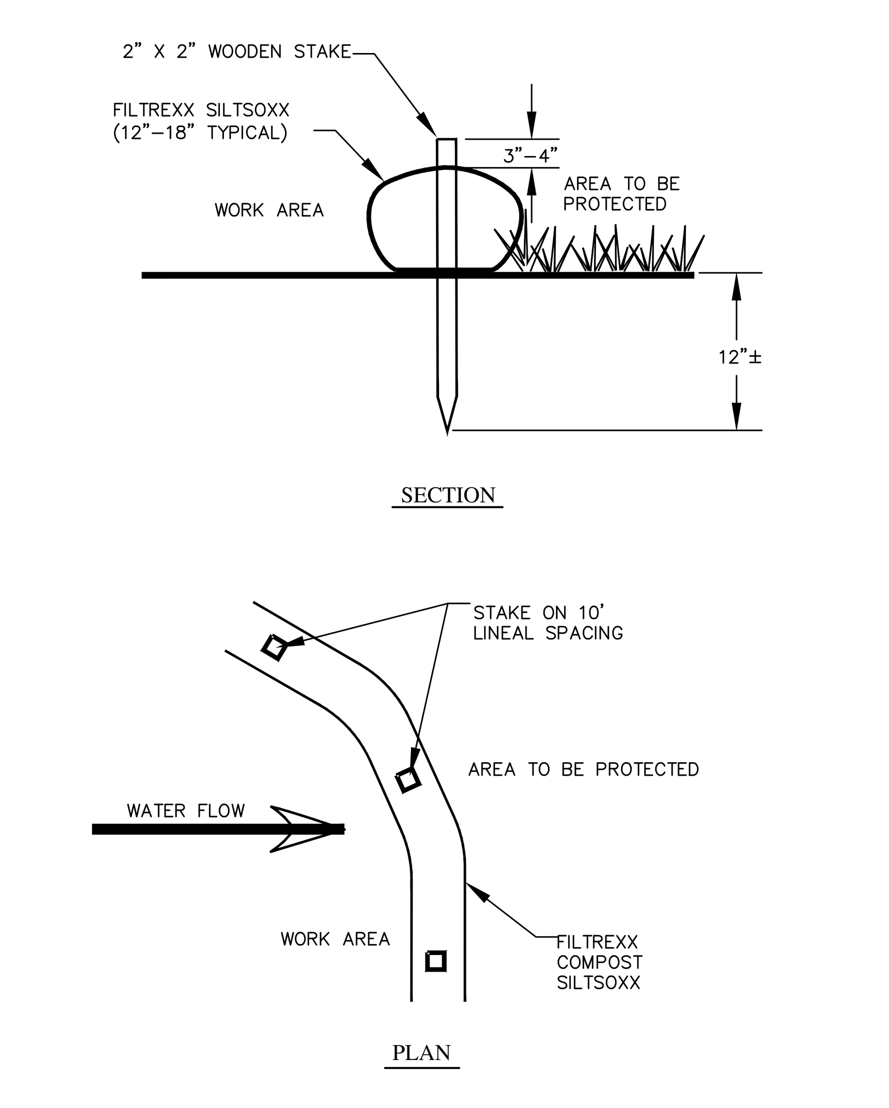
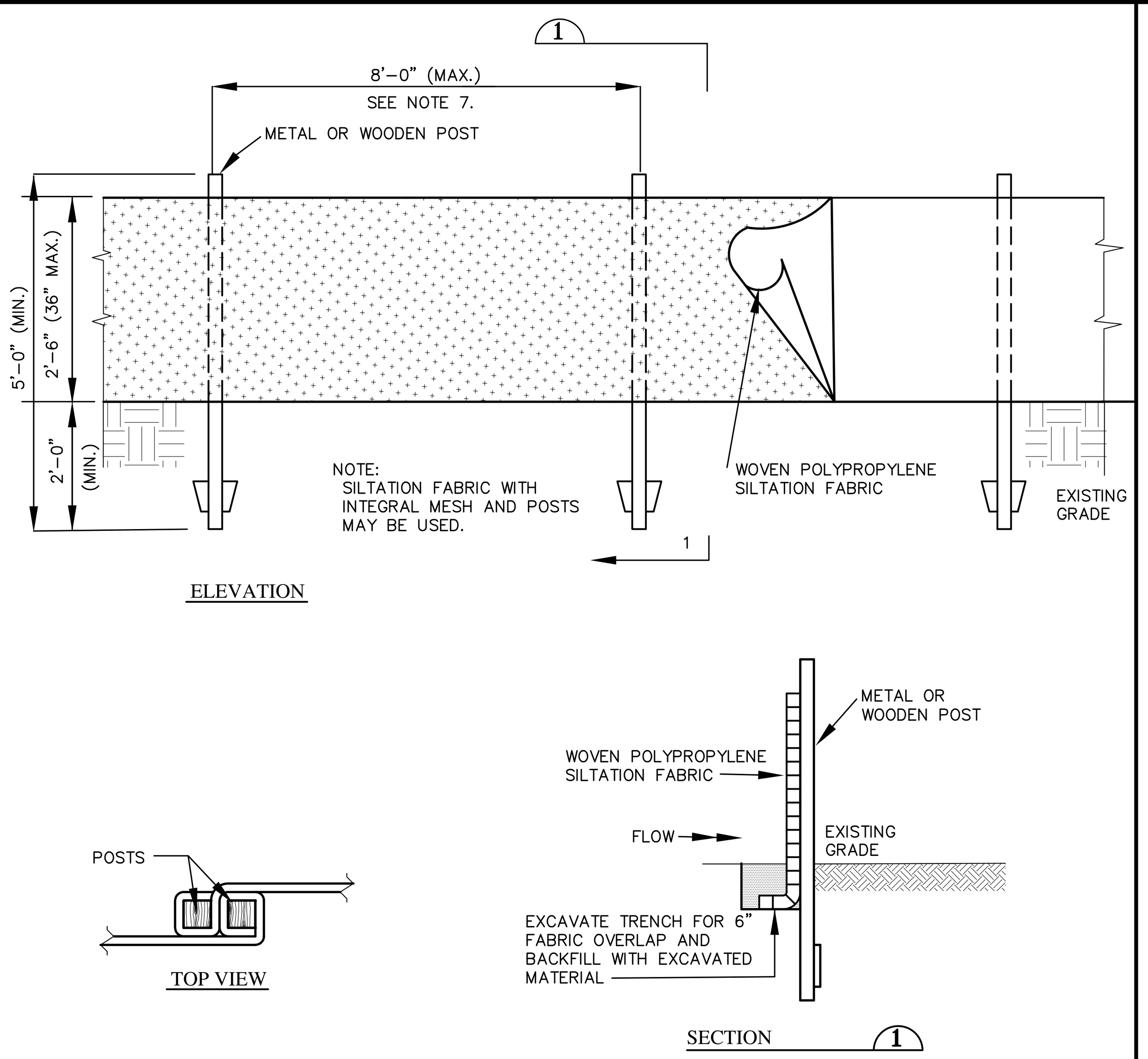


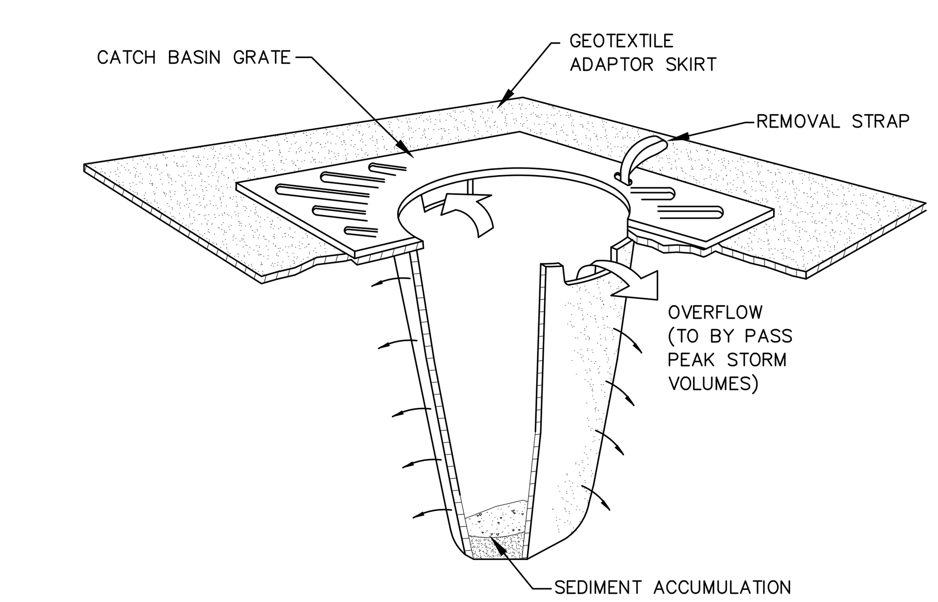
NOTES:
1. ALL MATERIALS TO MEET FILTREXX SPECIFICATIONS
2. SILTSOXX COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS
3. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.
4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.



INSTALLATION:
1. EXCAVATE A 6" X 6" TRENCH ALONG THE LINE OF PLACEMENT FOR THE FILTER BARRIER.
2. UNROLL A SECTION AT A TIME AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH.
3. DRIVE POSTS INTO THE GROUND UNTIL APPROXIMATELY 2" OF FABRIC IS LYING ON THE TRENCH BOTTOM.
4. LAY THE TOE-IN FLAP OF FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH. BACK FILL THE TRENCH AND TAMP THE SOIL.
5. JOIN SECTION AS SHOWN IN TOP VIEW.
6. BARRIER SHALL BE MIRAFI SILT FENCE (100X) OR APPROVED EQUIVALENT.
7. A STONE "FILLET" MAY BE USED FOR ANCHORING FABRIC IF IT CANNOT BE KEYED IN.

A FILTREXX SILTSOXX DETAIL "SEDIMENT BARRIER OPTION"
N.T.S.

B SILT FENCE DETAIL "SEDIMENT BARRIER OPTION"
N.T.S.



NOTES:
1. CATCH BASIN PROTECTION TO BE "SILTSACK" (BY ACF ENVIRONMENTAL) OR "STREAM GUARD" (BY FOSS ENVIRONMENTAL SERVICES).

2. INSERT TO BE EMPTIED IN AN APPROVED MANNER WHEN IT IS 1/2 FULL OF SEDIMENT.

3. INSPECT INSERT AFTER ALL RAINFALL EVENTS, REPAIR AND MAINTAIN AS REQUIRED.

C TEMPORARY INLET PROTECTION DETAIL
N.T.S.

EROSION AND SEDIMENTATION NOTES:
1. CONTRACTOR SHALL FOLLOW BEST MANAGEMENT PRACTICES OF THE MAINE DEP BEST MANAGEMENT PRACTICES HANDBOOK.

GENERAL EROSION AND SEDIMENTATION CONTROL PRACTICES:
EROSION/SEDIMENT CONTROL DEVICES:
THE FOLLOWING EROSION SEDIMENTATION CONTROL DEVICES ARE PROPOSED FOR CONSTRUCTION ON THIS PROJECT. INSTALL THESE DEVICES AS INDICATED ON THE PLANS.

1 SEDIMENT BARRIER: SILT SOXX OR APPROVED EQUAL WILL BE INSTALLED ALONG THE DOWN GRADING EDGES OF DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL THE SITE IS STABILIZED. IN AREAS WHERE STORMWATER DISCHARGES THE SEDIMENT BARRIER WILL BE REINFORCED WITH HAY BALES TO HELP MAINTAIN THE INTEGRITY OF THE SEDIMENT BARRIER AND TO PROVIDE ADDITIONAL TREATMENT.

2. HAY BALES: HAY BALES TO BE PLACED IN LOW FLOW DRAINAGE SWALES AND PATHS TO TRAP SEDIMENTS AND REDUCE RUNOFF VELOCITIES. DO NOT PLACE HAY BALES IN FLOWING WATER OR STREAMS.

3. RIPRAP: PROVIDE RIPRAP IN AREAS WHERE CULVERTS DISCHARGE OR AS SHOWN ON THE PLANS.

4. LOAM, SEED, & MULCH: ALL DISTURBED AREAS, WHICH ARE NOT OTHERWISE TREATED, SHALL RECEIVE PERMANENT SEEDING AND MULCH TO STABILIZE THE DISTURBED AREAS. THE DISTURBED AREAS WILL BE REVEGETATED WITHIN 5 DAYS OF FINAL GRADING. SEEDING REQUIREMENTS ARE PROVIDED AT THE END OF THIS SPECIFICATION.

5. STRAW AND HAY MULCH: USED TO COVER DENUDED AREAS UNTIL PERMANENT SEED OR EROSION CONTROL MEASURES ARE IN PLACE. MULCH BY ITSELF CAN BE USED ON SLOPES LESS THAN 15% IN SUMMER AND 8% IN WINTER. JUTE MESH IS TO BE USED OVER MULCH ONLY.

6. IN LIEU OF MULCH, USE EROSION CONTROL BLANKET (EQUAL TO NORTH AMERICAN GREEN SC150) TO STABILIZE AREAS OF CONCENTRATED FLOW AND DRAINAGE WAYS.

TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES:
PROVIDE THE FOLLOWING TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES DURING CONSTRUCTION OF THE DEVELOPMENT:

1. SEDIMENT BARRIER ALONG THE DOWNGRADIENT SIDE OF THE PARKING AREAS AND OF ALL FILL SECTIONS. THE SEDIMENT BARRIER WILL REMAIN IN PLACE UNTIL THE SITE IS 85% REVEGETATED.

2. HAY BALES PLACED AT KEY LOCATIONS TO SUPPLEMENT THE SEDIMENT BARRIER.

3. PROTECT TEMPORARY STOCKPILES OF STUMPS, GRUBBINGS, OR COMMON EXCAVATION AS FOLLOWS:
A. SOIL STOCKPILE SIDE SLOPES SHALL NOT EXCEED 2:1.
B. AVOID PLACING TEMPORARY STOCKPILES IN AREAS WITH SLOPES OVER 10 PERCENT, OR NEAR DRAINAGE SWALES. SEE ITEM 3 IN CONSTRUCTION PHASE NOTES BELOW.
C. STABILIZE STOCKPILES WITHIN 7 DAYS BY TEMPORARILY SEEDING WITH A HYDROSEED METHOD CONTAINING AN EMULSIFIED MULCH TACKIFIER OR BY COVERING THE STOCKPILE WITH MULCH.
D. SURROUND STOCKPILE SOIL WITH SEDIMENT BARRIER AT BASE OF PILE.

4. ALL DENUDED AREAS WHICH HAVE BEEN ROUGH GRADED AND ARE NOT LOCATED WITHIN THE BUILDING PAD, OR PARKING AND DRIVEWAY SUBBASE AREA SHALL RECEIVE MULCH WITHIN 30 DAYS OF INITIAL DISTURBANCE OF SOIL OR WITHIN 7 DAYS AFTER COMPLETING THE ROUGH GRADING OPERATIONS. IN THE EVENT THE CONTRACTOR COMPLETES FINAL GRADING AND INSTALLATION OF LOAM AND SOD WITHIN THE TIME PERIODS PRESENTED ABOVE, INSTALLATION OF MULCH AND NETTING, WHERE APPLICABLE, IS NOT REQUIRED.

5. IF WORK IS CONDUCTED BETWEEN OCTOBER 15 AND APRIL 15, ALL DENUDED AREAS ARE TO BE COVERED WITH HAY MULCH, APPLIED AT TWICE THE NORMAL APPLICATION RATE, AND ANCHORED WITH FABRIC NETTING. THE PERIOD BETWEEN FINAL GRADING AND MULCHING SHALL BE REDUCED TO A 15 DAY MAXIMUM.

6. TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE HAS BEEN STABILIZED OR IN AREAS WHERE PERMANENT EROSION CONTROL MEASURES HAVE BEEN INSTALLED.

10. TEMPORARY SEDIMENT BASINS MAY BE INSTALLED DOWNGRADIENT OF THE DISTURBED AREAS. THESE BASINS MUST BE DESIGNED TO PROVIDE STORAGE FOR EITHER THE CALCULATED RUNOFF FROM A 2-YEAR, 24-HOUR STORM OR PROVIDE FOR 3,600 CUBIC FEET OF CAPACITY PER ACRE DRAINING TO THE BASIN. OUTLET STRUCTURES MUST DISCHARGE WATER FROM THE SURFACE OF THE BASIN WHENEVER POSSIBLE. EROSION CONTROLS AND VELOCITY DISSIPATION DEVICES MUST BE USED IF THE DISCHARGING WATERS ARE LIKELY TO CREATE EROSION. ACCUMULATED SEDIMENT MUST BE REMOVED AS NEEDED FROM THE BASIN TO MAINTAIN AT LEAST ½ OF THE DESIGN CAPACITY OF THE BASIN.

PERMANENT EROSION CONTROL MEASURES:
THE FOLLOWING PERMANENT CONTROL MEASURES ARE REQUIRED BY THIS EROSION/SEDIMENTATION CONTROL PLAN:

1. ALL AREAS DISTURBED DURING CONSTRUCTION, BUT NOT SUBJECT TO OTHER RESTORATION (PAVING, RIPRAP, ETC.), WILL BE LOAMED, LIMED, FERTILIZED AND SEEDED. NATIVE TOPSOIL SHALL BE STOCKPILED AND REUSED FOR FINAL RESTORATION WHEN IT IS OF SUFFICIENT QUALITY.

2. SLOPES GREATER THAN 2:1 WILL RECEIVE RIPRAP. (NONE ANTICIPATED)

POST-CONSTRUCTION REVEGETATION:
THE FOLLOWING GENERAL PRACTICES WILL BE USED TO PREVENT EROSION AS SOON AS AN AREA IS READY TO UNDERGO FINAL GRADING.

1. A MINIMUM OF 6" OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND GRADED TO A UNIFORM DEPTH AND NATURAL APPEARANCE, OR STONE WILL BE PLACED ON SLOPES TO STABILIZE SURFACES.

2. IF FINAL GRADING IS REACHED DURING THE NORMAL GROWING SEASON (4/15 TO 9/15), PERMANENT SEEDING WILL BE DONE AS SPECIFIED BELOW. PRIOR TO SEEDING, LIMESTONE SHALL BE APPLIED AT A RATE OF 138 LBS/1000 SQ. FT. AND 10:20:20 FERTILIZER AT A RATE OF 18.4 LBS/1000 SQ.FT WILL BE APPLIED. BROADCAST SEEDING AT THE FOLLOWING RATES:

LAWNS SHALL BE: ALLEN, STERLING & LATHROP 'TUFFTURF', 70% DIAMOND TALL FESCUE, 20% PLEASURE OLUS PERENNIAL RYEGRASS, 10% BARON KENTUCKY BLUEGRASS. SEEDING RATE SHALL BE 7-LBS./1,000 SQ. FT.

SWALES SHALL BE: WILDFLOWER MEADOW: (SEED) FESTUCA OVINA SHEEP FESCUE; SOW AT A RATE OF 12 OZ. PER 1,000 SQFT. TRIFOLIUM REPENS WHITE CLOVER; SOW AT A RATE OF ½ OZ.PER 1,000 SQFT. (FLOWERS) ACHILLEA MILLEFOLIUM YARROW, AQUILEGEA CANADENSIS COLUMBINE, ASCLEPIAS TUBEROSE BUTTERFLY MILKWEED, ASTER NOVAE-ANGLIAE NEW-ENGLAND ASTER, BAPTISIA AUSTRALIS WILD INDIGO, BOLTONIA ASTEROIDS FALSE ASTER, CHRYSANTHEMUM LEUCANTHEMUM OXEYE DAISY, DIGITALIS PURPUREA FOXGLOVE, ECHINACEA PURPUREA PURPLE CONEFLOWER, LUPINUS PERENNIS LUPINE, MONARDA FISTULOSA BERGAMOT, PAPAVER ORIENTALE ORIENTAL POPY, RUDBECKIA HIRTA BLACK-EYED SUSAN, SALVIA OFFICINALIS SAGE; SOW AT A RATE OF 1/3 OZ. EACH PER 1,000 SQFT. OR 4 OZ. PER 1,000 SQFT. IN COMBINATION

3. AN AREA SHALL BE MULCHED IMMEDIATELY AFTER IS HAS BEEN SEEDED. MULCHING SHALL CONSIST OF HAY MULCH, HYDRO-MULCH, JUTE NET OVER MULCH, PRE-MANUFACTURED EROSION MATS OR ANY SUITABLE SUBSTITUTE DEEMED ACCEPTABLE BY THE DESIGNER.
A. HAY MULCH SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE. HAY MULCH SHALL BE SECURED BY EITHER: (NOTE: SOIL SHALL NOT BE VISIBLE)
I. BEING DRIVEN OVER BY TRACKED CONSTRUCTION EQUIPMENT ON GRADES OF 5% AND LESS.
II. BLANKETED BY TACKED PHOTODEGRADABLE/BIODEGRADABLE NETTING, OR WITH SPRAY, ON GRADES GREATER THAN 5%.
III. SEE NOTE 6, GENERAL NOTES, AND NOTE 8, WINTER CONSTRUCTION.
B. HYDRO-MULCH SHALL CONSIST OF A MIXTURE OF EITHER ASPHALT, WOOD FIBER OR PAPER FIBER AND WATER SPRAYED OVER A SEEDED AREA. HYDRO-MULCH SHALL NOT BE USED BETWEEN 9/15 AND 4/15.

4. CONSTRUCTION SHALL BE PLANNED TO ELIMINATE THE NEED FOR SEEDING BETWEEN SEPTEMBER 15 AND APRIL 15. SHOULD SEEDING BE NECESSARY BETWEEN SEPTEMBER 15 AND APRIL 15 THE FOLLOWING PROCEDURE SHALL BE FOLLOWED. ALSO REFER TO NOTE 9 OF WINTER CONSTRUCTION.
A. ONLY UNFROZEN LOAM SHALL BE USED.
B. LOAMING, SEEDING AND MULCHING WILL NOT BE DONE OVER SNOW OR ICE COVER. IF SNOW EXISTS, IT MUST BE REMOVED PRIOR TO PLACEMENT OF SEED.
C. WHERE PERMANENT SEEDING IS NECESSARY, ANNUAL WINTER RYE (1.2 LBS/1000 SQ.FT) SHALL BE ADDED TO THE PREVIOUSLY NOTED AREAS.
D. WHERE TEMPORARY SEEDING IS REQUIRED, ANNUAL WINTER RYE (2.6 LBS/1000 SQ. FT.) SHALL BE SOWN INSTEAD OF THE PREVIOUSLY NOTED SEEDING RATE.
E. FERTILIZING, SEEDING AND MULCHING SHALL BE APPLIED TO LOAM THE DAY THE LOAM IS SPREAD BY MACHINERY.
F. ALTERNATIVE HAY MULCH SHALL BE SECURED WITH PHOTODEGRADABLE/BIODEGRADABLE NETTING. TRACKING BY MACHINERY ALONE WILL NOT SUFFICE.

5. FOLLOWING FINAL SEEDING, THE SITE WILL BE INSPECTED EVERY 30 DAYS UNTIL 85% COVER HAS BEEN ESTABLISHED. RESEEDING WILL BE CARRIED OUT BY THE CONTRACTOR WITHIN 10 DAYS OF NOTIFICATION BY THE ENGINEER THAT THE EXISTING CATCH IS INADEQUATE.

MONITORING SCHEDULE:
THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING, MONITORING, MAINTAINING, REPAIRING, REPLACING AND REMOVING ALL OF THE EROSION AND SEDIMENTATION CONTROLS OR APPOINTING A QUALIFIED SUBCONTRACTOR TO DO SO. MAINTENANCE MEASURES WILL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. AFTER EACH RAINFALL, A VISUAL INSPECTION WILL BE MADE OF ALL EROSION AND SEDIMENTATION CONTROLS AS FOLLOWS:

1. HAY BALE BARRIERS, SEDIMENT BARRIER, AND STONE CHECK DAMS SHALL BE INSPECTED AND REPAIRED ONCE A WEEK OR IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL. SEDIMENT TRAPPED BEHIND THESE BARRIERS SHALL BE EXCAVATED WHEN IT REACHES A DEPTH OF 6" AND REDISTRIBUTED TO AREAS UNDERGOING FINAL GRADING. SHOULD THE HAY BALE BARRIERS PROVE TO BE INEFFECTIVE, THE CONTRACTOR SHALL INSTALL SEDIMENT BARRIER BEHIND THE HAY BALES.

2. VISUALLY INSPECT RIPRAP ONCE A WEEK OR AFTER EACH SIGNIFICANT RAINFALL AND REPAIR AS NEEDED. REMOVE SEDIMENT TRAPPED BEHIND THESE DEVICES ONCE IT ATTAINS A DEPTH EQUAL TO 1/2 THE HEIGHT OF THE DAM OR RISER. DISTRIBUTE REMOVED SEDIMENT OFF-SITE OR TO AN AREA UNDERGOING FINAL GRADING.

3. REVEGETATION OF DISTURBED AREAS WITHIN 25' OF DRAINAGE-COURSE/STREAM WILL BE SEEDED WITH THE "MEADOW AREA MIX" AND INSPECTED ON A WEEKLY BASIS OR AFTER EACH SIGNIFICANT RAINFALL AND RESEEDED AS NEEDED. EXPOSED AREAS WILL BE RESEEDED AS NEEDED UNTIL THE AREA HAS OBTAINED 100% GROWTH RATE. PROVIDE PERMANENT RIPRAP FOR SLOPES IN EXCESS OF 3:1 AND WITHIN 25' OF DRAINAGE COURSE.

HOUSEKEEPING:
SPILL PREVENTION. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.

NOTE:

GROUNDWATER PROTECTION. DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.

NOTE: LACK OF APPROPRIATE POLLUTANT REMOVAL BEST MANAGEMENT PRACTICES (BMPS) MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARD ESTABLISHED BY 38 M.R.S.A. §465-C(1).

FUGITIVE SEDIMENT AND DUST. ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHALL BE INSTALLED AT THE END OF THE EXIST PAVED ACCESS TO THE SITE TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

DEBRIS AND OTHER MATERIALS. MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

EXCAVATION DE-WATERING. EXCAVATION DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. NO EXCAVATION DEWATERING IS ANTICIPATED FOR THIS PROJECT. SHOULD IT BE NECESSARY, THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. A DEWATERING DISCHARGE PLAN SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.

AUTHORIZED NON-STORMWATER DISCHARGES. IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES ARE NECESSARY, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE:

(a) DISCHARGES FROM FIREFIGHTING ACTIVITY;
(b) PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED;
(c) UNCONTAMINATED GROUNDWATER OR SPRING WATER;
(d) FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED;
(e) UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5));
(f) POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
(g) LANDSCAPE IRRIGATION.

CONSTRUCTION PHASE:
THE FOLLOWING GENERAL PRACTICES WILL BE USED TO PREVENT EROSION DURING CONSTRUCTION OF THIS PROJECT.

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND MAINTAIN UNTIL SITE IS PAVED.

2. ONLY THOSE AREAS NECESSARY FOR CONSTRUCTION WILL BE DISTURBED.

3. PRIOR TO THE START OF CONSTRUCTION, SEDIMENT BARRIER WILL BE INSTALLED ACROSS THE SLOPE(S), ON THE CONTOUR, AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE ANY ADJACENT TRAVELLED WAY TO PROTECT IT FROM CONSTRUCTION-RELATED EROSION.

4. CLEAR AND GRUB WORK SITE AS NEEDED TO EXECUTE PLANS USING CAUTION NOT TO OVER EXPOSE THE SITE.

5. STORMWATER MANAGEMENT SYSTEM WILL BE INSTALLED PRIOR TO CONSTRUCTION OF SITE ELEMENTS THAT DISCHARGE TO THESE SYSTEMS. CATCH BASIN INLET PROTECTION SHALL BE INSTALLED IN ALL NEW AND EXISTING CATCH BASINS THAT WILL RECEIVE RUNOFF FROM THE PROJECT. NO STORMWATER SHOULD BE DIRECTED TO THE WET POND UNTIL THE SITE IS COMPLETELY STABILIZED.

6. DISTURBED AREAS WILL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 30 DAYS OF THE INITIAL DISTURBANCES OF SOILS. DISTURBED AREAS WILL BE STABILIZED BEFORE STORMS. LOAM WILL BE SAVED FOR LATER USE WHERE POSSIBLE. EXCESS SOIL MATERIALS WILL BE USED AS FILL OR REMOVED FROM SITE TO AN APPROVED LOCATION.

7. AT A MINIMUM, THE EROSION CONTROL MEASURES SHALL BE REVIEWED AND REPAIRED ONCE A WEEK OR IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOWMELT. SEDIMENT TRAPPED BEHIND THESE BARRIERS SHALL BE EXCAVATED WHEN IT REACHES A DEPTH OF 6 INCHES AND BE DISCARDED ON THE SITE. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS.

8. LOAM, LIME, FERTILIZE, SEED, AND MULCH LANDSCAPED AND OTHER DISTURBED AREAS.

9. ONCE THE SITE IS STABILIZED AND A 90% CATCH OF VEGETATION HAS BEEN OBTAINED, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

10. TOUCH UP LOAM AND SEED.

NOTE: ALL DENUDED AREAS NOT SUBJECT TO FINAL PAVING, RIPRAP OR GRAVEL SHALL BE REVEGETATED.

EROSION CONTROL DURING WINTER CONSTRUCTION:
1. WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15.

2. WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.

3. EXPOSED AREA SHALL BE LIMITED TO THOSE AREAS TO BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT. AT THE END OF EACH WORK WEEK NO AREAS MAY BE LEFT UNSTABILIZED OVER THE WEEKEND.

4. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.

5. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 150 LB. PER 1000 S.F. (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ANCHORED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH. NOTE: AN AREA IS ALSO CONSIDERED STABLE IF SODDED, COVERED WITH GRAVEL (PARKING LOTS) OR STRUCTURAL SAND.

6. BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1 AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE CONTINUOUSLY GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT UNEXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW, DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF HAY, SEDIMENT BARRIER OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS SHOWN ON THE DESIGN DRAWINGS. NOTE: DORMANT SEEDING SHOULD NOT BE ATTEMPTED UNLESS SOIL TEMPERATURE REMAINS BELOW 50 DEGREES AND DAY TIME TEMPERATURES REMAIN IN THE 30'S.

7. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS, SLOPES GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%. VEGETATED DRAINAGE SWALES SHALL BE LINED WITH STRAW-COCONUT EROSION CONTROL BLANKET (NORTH AMERICAN GREEN SC150 OR APPROVED EQUAL).

8. BETWEEN THE DATES OF OCTOBER 15 TO NOVEMBER 1, WINTER RYE IS RECOMMENDED FOR STABILIZATION. AFTER NOVEMBER 1, WINTER RYE IS NOT EFFECTIVE. AROUND NOVEMBER 15 OR LATER, ONCE TEMPERATURES OF THE AIR AND SOIL PERMIT, DORMANT SEEDING IS EFFECTIVE.

9. IN THE EVENT OF SNOWFALL (FRESH OR CUMULATIVE) GREATER THAN 1 INCH DURING WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM THE AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.

SITE INSPECTION AND MAINTENANCE:
1. WEEKLY INSPECTIONS, AS WELL AS ROUTINE INSPECTIONS FOLLOWING RAIN FALLS, SHALL BE CONDUCTED BY THE GENERAL CONTRACTOR OF ALL TEMPORARY AND PERMANENT EROSION CONTROL DEVICES UNTIL FINAL ACCEPTANCE OF THE PROJECT (85% GRASS CATCH). NECESSARY REPAIRS SHALL BE MADE TO CORRECT UNDERMINING OR DETERIORATION. FINAL ACCEPTANCE SHALL INCLUDE A SITE INSPECTION TO VERIFY THE STABILITY OF ALL DISTURBED AREAS AND SLOPES. UNTIL FINAL INSPECTION, ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL IMMEDIATELY BE CLEANED, AND REPAIRED BY THE GENERAL CONTRACTOR AS REQUIRED. DISPOSAL OF ALL TEMPORARY EROSION AND CONTROL DEVICES SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

IT IS RECOMMENDED THAT THE OWNER HIRE THE SERVICES OF THE DESIGN ENGINEER TO PROVIDE COMPLIANCE INSPECTIONS (DURING ACTIVE CONSTRUCTION) RELATIVE TO IMPLEMENTATION OF THE STORMWATER AND EROSION CONTROL PLANS. SUCH INSPECTIONS SHOULD BE LIMITED TO ONCE A WEEK OR AS NECESSARY AND BE REPORTABLE TO THE OWNER, TOWN AND DEP.

2. SHORT-TERM SEDIMENTATION MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CLEAN OUT ALL SWALES AND STRUCTURES PRIOR TO TURNING PROJECT OVER.

3. LONG-TERM PROVISIONS FOR PERMANENT MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROL DEVICES AFTER ACCEPTANCE OF THE PROJECT SHALL BE THE RESPONSIBILITY OF THE OWNER.

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198
PRIORITY REAL ESTATE GROUP LLC

SCALE:	
JOB #:	22-RLM-004
MAP/LOT:	U-19 12&13
FILE:	COV-DET
FIELD WK:	
DRN BY:	CYN
CHD BY:	CYN
DATE:	11-22-23
SHEET:	C10

TITLE: EROSION CONTROL NOTES & DETAILS

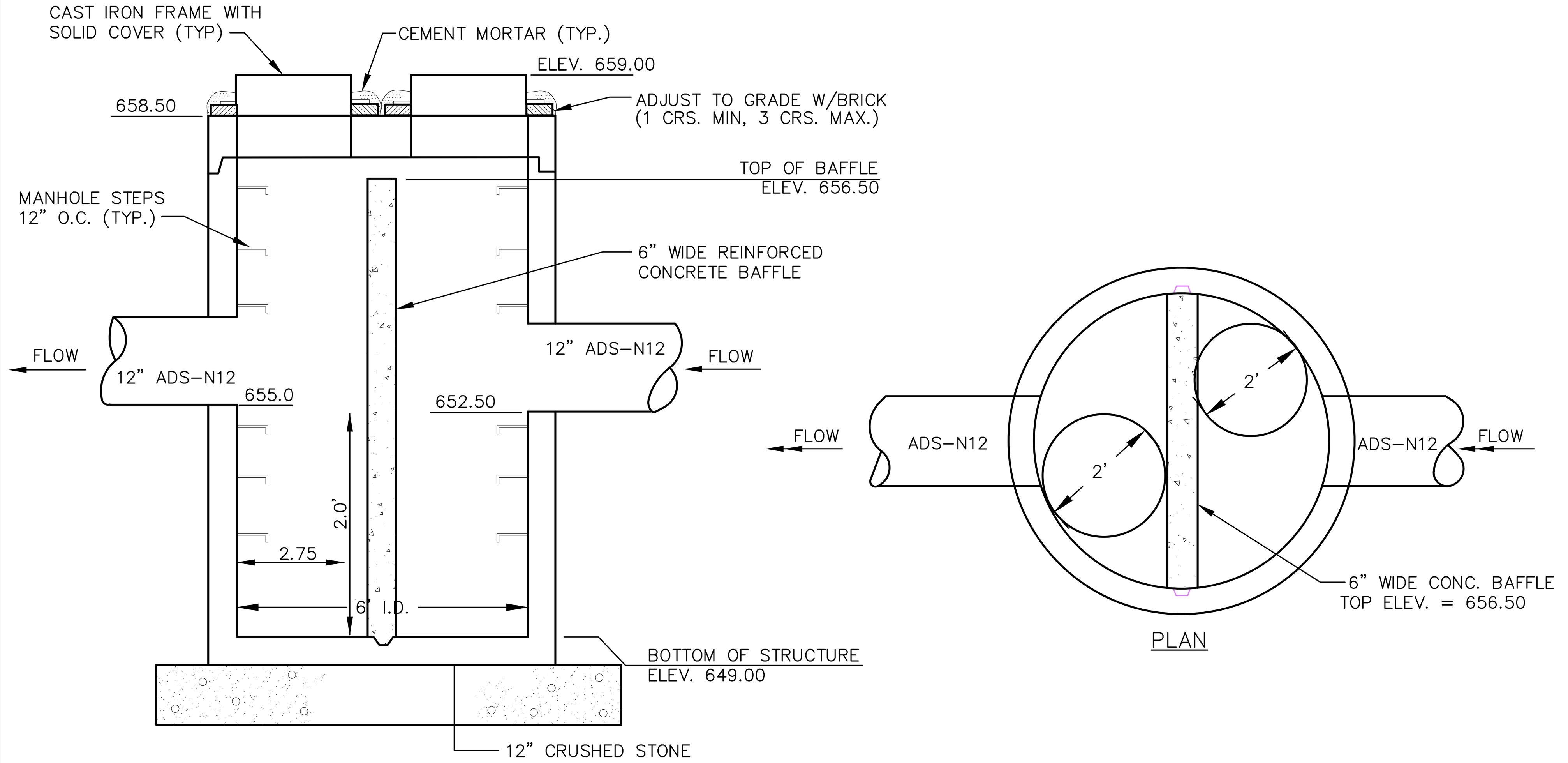
PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME 04021

OWNER: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED PROFESSIONAL ENGINEER
06-01-23

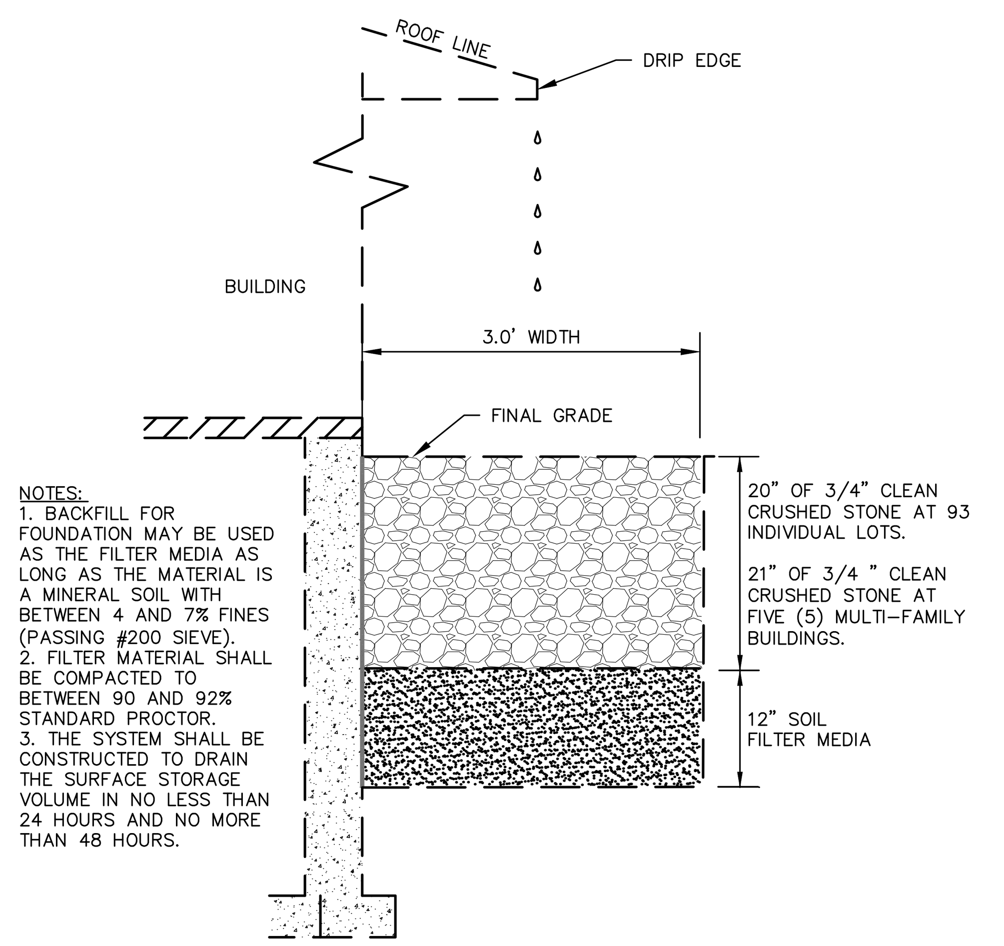
2	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION
THIS PLAN IS ISSUED FOR REVIEW AND INFORMATION PURPOSES ONLY. THIS PLAN WILL CHANGE AND IS NOT INTENDED FOR PRICING OR CONSTRUCTION.
PRICING BASED ON THIS PLAN SHALL BE CONSIDERED PRELIMINARY AND MUST BE UPDATED PRIOR TO FINAL CONSTRUCTION DRAWINGS.



NOTE: PROVIDE SHOP DRAWINGS TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION

A OUTLET CONTROL STRUCTURE
N.T.S.



NOTES:
1. BACKFILL FOR FOUNDATION MAY BE USED AS THE FILTER MEDIA AS LONG AS THE MATERIAL IS A MINERAL SOIL WITH BETWEEN 4 AND 7% FINES (PASSING #200 SIEVE).
2. FILTER MATERIAL SHALL BE COMPACTED TO BETWEEN 90 AND 92% STANDARD PROCTOR.
3. THE SYSTEM SHALL BE CONSTRUCTED TO DRAIN THE SURFACE STORAGE VOLUME IN NO LESS THAN 24 HOURS AND NO MORE THAN 48 HOURS.

CONSTRUCTION OVERSIGHT
THE APPLICANT WILL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES TO BE BUILT AS PART OF THE PROJECT. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE CONSTRUCTION PLANS FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE DEPARTMENT IN WRITING WITHIN 30 DAYS TO STATE THAT THE STRUCTURES HAVE BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION MUST BE A COPY OF THE TEST RESULTS FOR ANY SOIL FILL, AGGREGATE, OR MULCH MATERIALS USED IN THE CONSTRUCTION OF THE STORMWATER MANAGEMENT STRUCTURES AND A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT.

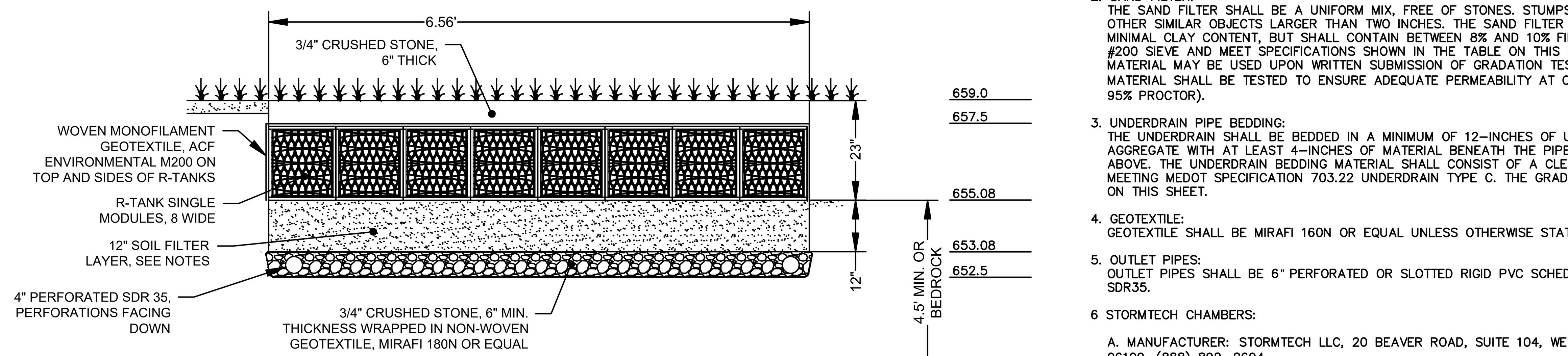
ROOF DRIPLINE FILTRATION
CONSTRUCTION INSPECTIONS: AT A MINIMUM, THE PROFESSIONAL ENGINEER'S INSPECTION WILL OCCUR AFTER FOUNDATION SOIL PREPARATION BUT PRIOR TO PLACEMENT OF THE GEOTEXTILE LINING, AFTER THE FOUNDATION DRAIN PIPE IS INSTALLED BUT NOT YET BACKFILLED, AFTER THE PIPE BEDDING GRAVEL IS PLACED BUT PRIOR TO THE PLACEMENT OF THE GRAVEL FILTER MEDIA, AFTER THE GRAVEL FILTER MEDIA HAS BEEN PLACED BUT PRIOR TO INSTALLING THE CRUSHED STONE SURFACE LAYER, AND AFTER THE SURFACE CRUSHED STONE SURFACE LAYER IS INSTALLED.

TESTING AND SUBMITTALS: THE GRAVEL FILTER MEDIA N THE ROOF DRIPLINE FILTRATION BMP MUST BE CONFIRMED AS SUITABLE BY TESTING. THE CONTRACTOR SHALL IDENTIFY THE SOURCE OF THESE GRAVELS AND OBTAIN SAMPLES FOR TESTING. ALL TESTING MUST BE DONE BY A CERTIFIED LABORATORY. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE COMPLETION OF THE FOLLOWING SAMPLING AND TESTING BEFORE THE GRAVEL IS PLACED AS PART OF THE DRIPLINE FILTER'S CONSTRUCTION.

- OBTAIN A SAMPLE OF THE GRAVEL FILTER MEDIA. THE SAMPLE MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE GRAVEL STOCKPILE. THE SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY. PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES 1996A) OF THE SAND FILTER MEDIA SHOWING IT MEETS THE FOLLOWING GRADATION:

SIEVE SIZE	% PASSING BY WEIGHT
3"	100
#200	4-7

B ROOF DRIP EDGE
N.T.S.



NOTE:
SOIL FILTER: BACKFILL MATERIAL MDOT 703.22 TYPE B MODIFIED TO 4% TO 7% FINES (PASSING #200 SIEVE).

CONSTRUCTION OVERSIGHT NOTES:
INSPECTIONS BY A PROFESSIONAL ENGINEER SHALL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT EACH THE ROOF DRIP EDGE FILTER'S UNDERDRAIN CONSTRUCTION, FILTER MATERIAL PLACEMENT, AND OVERFLOW FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE FILTER.

GENERAL NOTES PERTAINING TO STORMTECH CHAMBERS

1. CRUSHED STONE:
CRUSHED STONE SHALL BE 3/4"—2"CLEAN. CRUSHED, ANGULAR STONE.

2. SAND FILTER:
THE SAND FILTER SHALL BE A UNIFORM MIX, FREE OF STONES. STUMPS. ROOTS, OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. THE SAND FILTER SHALL HAVE MINIMAL CLAY CONTENT, BUT SHALL CONTAIN BETWEEN 8% AND 10% FINES PASSING THE #200 SIEVE AND MEET SPECIFICATIONS SHOWN IN THE TABLE ON THIS SHEET. ON SITE MATERIAL MAY BE USED UPON WRITTEN SUBMISSION OF GRADATION TESTING. THE MATERIAL SHALL BE TESTED TO ENSURE ADEQUATE PERMEABILITY AT COMPACTION (92 TO 95% PROCTOR).

3. UNDERDRAIN PIPE BEDDING:
THE UNDERDRAIN SHALL BE BEDDED IN A MINIMUM OF 12-INCHES OF UNDERDRAIN AGGREGATE WITH AT LEAST 4-INCHES OF MATERIAL BENEATH THE PIPE AND 4-INCHES ABOVE. THE UNDERDRAIN BEDDING MATERIAL SHALL CONSIST OF A CLEAN GRAVEL MEETING MEDOT SPECIFICATION 703.22 UNDERDRAIN TYPE C. THE GRADATION IS SHOWN ON THIS SHEET.

4. GEOTEXTILE:
GEOTEXTILE SHALL BE MIRAFI 160N OR EQUAL UNLESS OTHERWISE STATED.

5. OUTLET PIPES:
OUTLET PIPES SHALL BE 6" PERFORATED OR SLOTTED RIGID PVC SCHEDULE 40 PVC OR SDR35.

6 STORMTECH CHAMBERS:

A. MANUFACTURER: STORMTECH LLC, 20 BEAVER ROAD, SUITE 104, WETHERSFIELD, CT 06109, (888) 892—2694.

B. DETAILS ADAPTED FROM CAD DRAWINGS DOWNLOADED FROM STORMTECH LLC <WWW.STORMTECH.COM>. ACCESSED MARCH 2008.

C. CROSS SECTIONS DETAIL THE REQUIREMENTS NECESSARY TO SATISFY THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS USING STORMTECH CHAMBERS.

D. STORMTECH CHAMBERS SHALL MEET ASTM F 2418—05 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".

7. INVERT AND SIZING INFORMATION PROVIDED IN DETAILS ON THIS SHEET.

FILTER MEDIA GRADATION (MDOT 703.01)	
SIEVE SIZE	% PASSING BY WEIGHT
3/8"	100
#4	95-100
#8	80-100
#16	50-85
#30	25-60
#60	10-30
#100	2-10
#200	0-5 (8-10% IS PREFERRED)

BEDDING GRADATION (MDOT 703.22 TYPE C)	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90-100
3/8"	0-75
#4	0-25
#10	0-5

CONSTRUCTION OVERSIGHT – SUBSURFACE SAND FILTER/STORMWATER DETENTION SYSTEM:

1. INSPECTIONS A PROFESSIONAL ENGINEER WILL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT THE PROPOSED INFILTRATION SYSTEM, FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE INFILTRATION SYSTEM.
2. CONTECH REPRESENTATIVE SHALL BE PRESENT DURING INSTALLATION OF CONTECH ISOLATOR ROWS. CONTRACTOR SHALL COORDINATE WITH CONTECH REPRESENTATIVE DIRECTLY.

NOTES

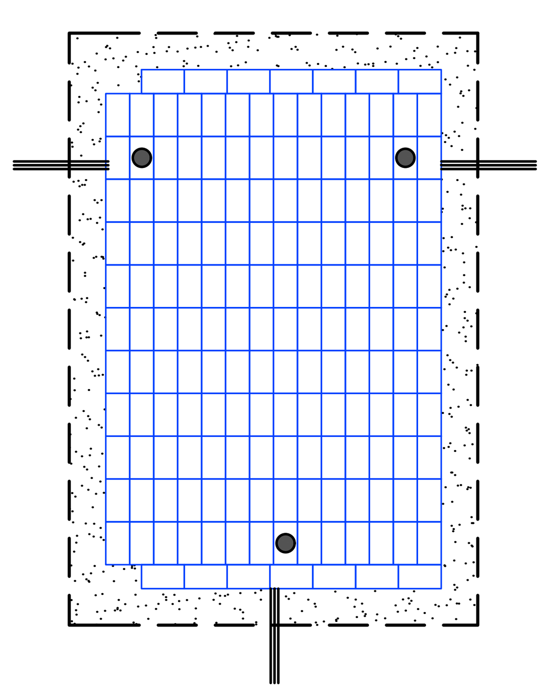
1. SAND FILTER
THE SAND FILTER SHALL BE A UNIFORM MIX, FREE OF STONES. STUMPS. ROOTS, OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. THE SAND FILTER SHALL HAVE MINIMAL CLAY CONTENT, BUT SHALL CONTAIN BETWEEN 8% AND 10% FINES PASSING THE #200 SIEVE AND MEET SPECIFICATIONS OF MEDOT # 703.01 AGGREGATE AS SHOWN IN TABLE THIS SHEET. ON SITE MATERIAL MAY BE USED UPON WRITTEN SUBMISSION OF GRADATION TESTING.

2. BEDDING MATERIAL
UNDERDRAIN BEDDING MATERIAL SHALL BE CLEAN, COARSE GRAVEL MEETING MEDOT 703.22 TYPE C (SEE TABLE THIS SHEET). BEDDING MATERIAL SHALL BE PLACED TO 4 INCHES MINIMUM BELOW AND ABOVE UNDERDRAIN PIPING.

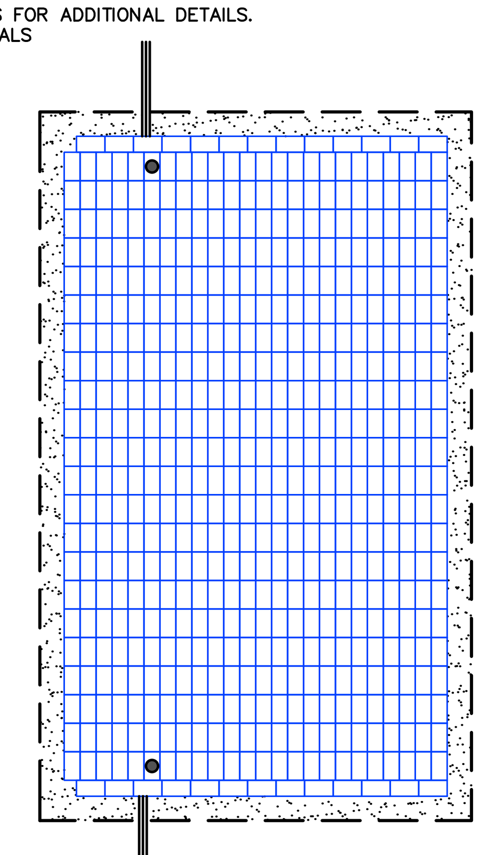
3. LABORATORY TESTING OF THE FILTER MEDIA SHALL BE COMPLETED TO CONFIRM THE REQUIRED FLOW THROUGH RATES (TARGET 0.75 TO 1.5 IN/HR)

C INFILTRATION SYSTEM SECTION
N.T.S.

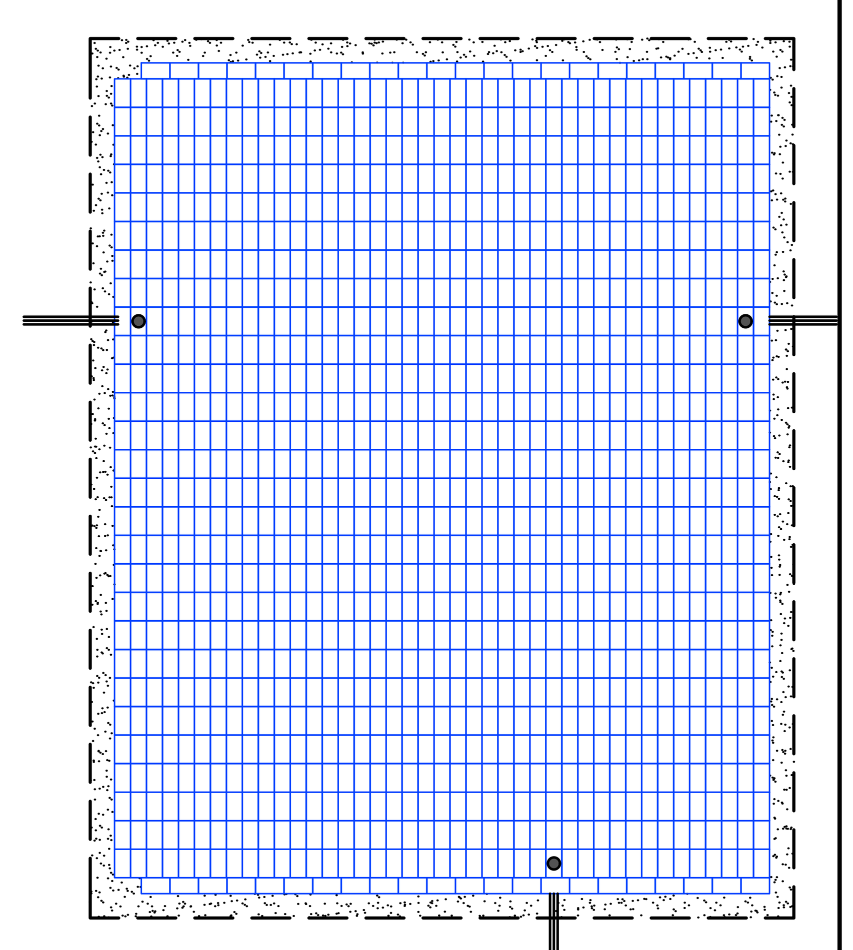
NOTES
1. REFER TO PLANS PREPARED BY FERGUSON WATERWORKS FOR ADDITIONAL DETAILS.
2. CONTACT FERGUSON WATERWORKS PRIOR ORDER MATERIALS TO COORDINATE INSTALLATION INSPECTIONS.



STORE INFILTRATION SYSTEM



BANK PARKING LOT SOIL FILTER SYSTEM



STORE & GAS STATION PARKING LOT SOIL FILTER SYSTEM

D R-TANK CONFIGURATION DETAILS
N.T.S.

E

ISSUED FOR:
PERMITTING

NOT FOR CONSTRUCTION
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2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
06-01-23

TITLE: **STORMWATER DETAILS**

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

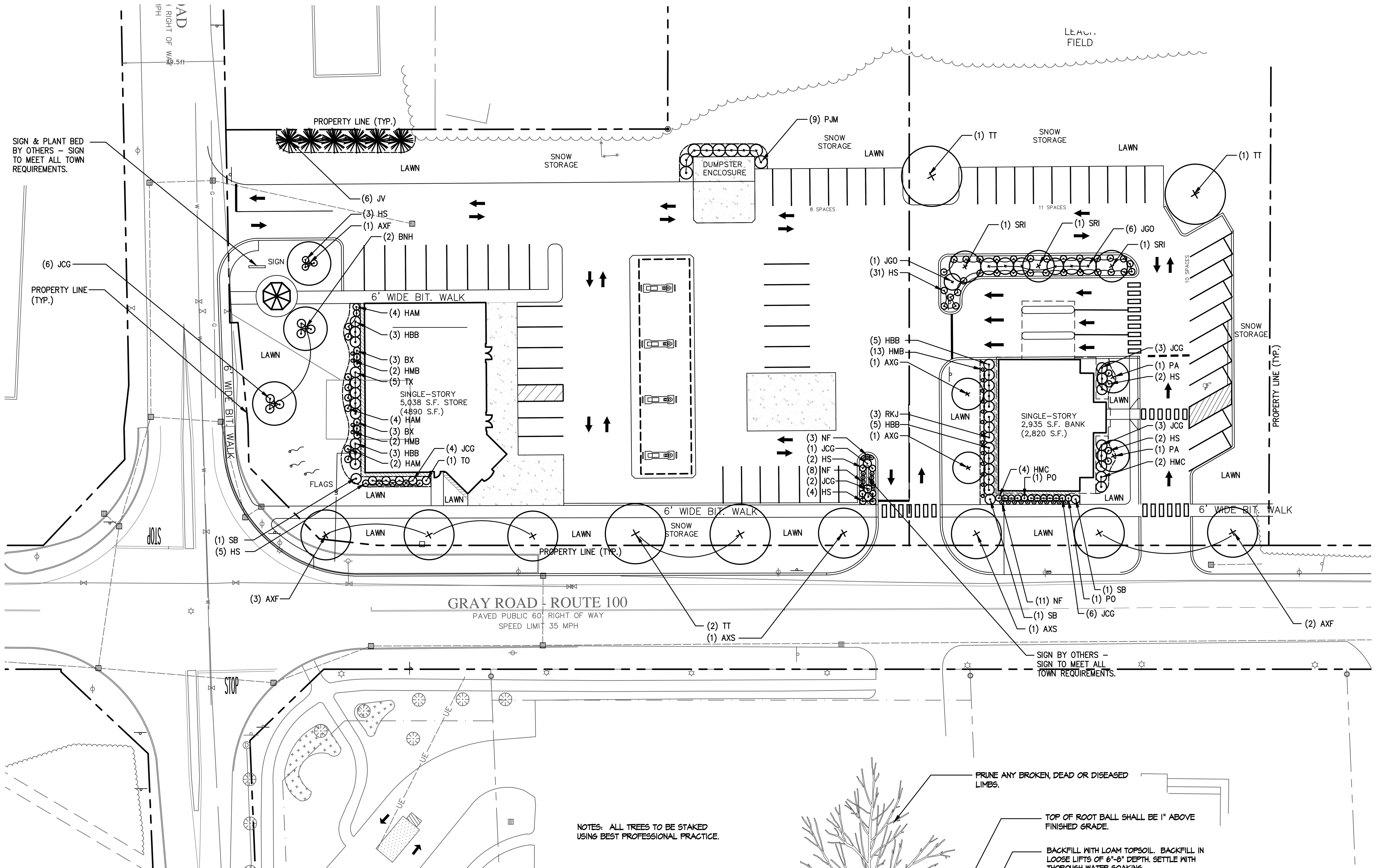
OWNER: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

PRIORITY REAL ESTATE GROUP LLC

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

FIELD WK:	SCALE:
DRN BY: CYN	JOB #: 22-RLM-004
CH'D BY: CYN	MAP/LOT: U-19 12&13
DATE: 11-22-23	FILE: COV-DET

SHEET: C11



LANDSCAPE NOTES:

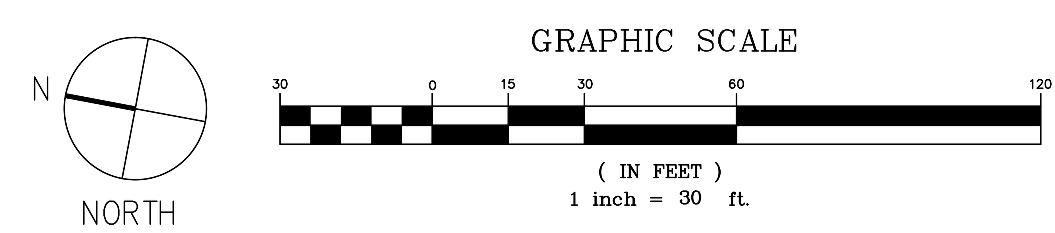
1. PRIOR TO THE START OF ANY EXCAVATION FOR THE PROJECT BOTH ON AND OFF THE SITE, THE CONTRACTOR SHALL NOTIFY DIGSAFE AND BE PROVIDED WITH A DIGSAFE NUMBER INDICATING THAT ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED.
2. LANDSCAPE CONTRACTOR IS ENCOURAGED TO PROVIDE THE LANDSCAPE ARCHITECT WITH CONCERNS AND/OR SUGGESTIONS WITH REGARDS TO PROPOSED PLANT MATERIAL SELECTION PRIOR TO PLACING A PURCHASE ORDER.
3. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTINGS SHOWN GRAPHICALLY ON THIS DRAWING. CLARIFY ANY DISCREPANCIES WITH THE LANDSCAPE ARCHITECT PRIOR TO PRICING ANY PLANT MATERIAL.
4. ALL PLANT MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF NURSERYMEN'S "AMERICAN STANDARD OF NURSERY STOCK".
5. ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE AT THE SITE. PLANTS WHICH ARE REJECTED SHALL BE REMOVED FROM THE SITE IMMEDIATELY AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
6. MULCH FOR PLANTED AREAS TO BE AGED SOFTWOOD BARK, PARTIALLY DECOMPOSED, DARK BROWN IN COLOR AND FREE OF WOOD CHIPS THICKER THAN 1/4 INCH.
7. NO PLANTS SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING AND BEFORE CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
8. ALL TREES SHALL BEGIN BRANCHING AT 6' HT. MIN.
9. ALL PLANT MATERIAL OR REPRESENTATIVE SAMPLES SHALL BE LEGIBLY TAGGED WITH PROPER COMMON AND BOTANICAL NAMES. TAGS SHALL REMAIN ON THE PLANTS UNTIL FINAL ACCEPTANCE.
10. CONTRACTOR SHALL LOAM (SEE LOAM SPECIFICATION BELOW) DISTURBED AREAS AS FOLLOWS:
    - LAWN AREAS 6" DEPTH OF TOPSOIL (LOAM)
    - SHRUB BEDS 18" DEPTH OF TOPSOIL (LOAM).
    - TREE AREAS (10'X10') AROUND EACH TREE INSTALL 24" DEPTH OF TOPSOIL (LOAM).
11. SEED MIXTURES LAWN AREAS SHALL BE "PARK MIX" AS DISTRIBUTED BY ALLEN, STERLING AND LOTHRUP OF FALMOUTH MAINE. SEEDING RATE TO BE 5 LBS PER 1,000 S.F.
12. CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND WILL CONTINUE UNTIL FINAL ACCEPTANCE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF WATERING AND MAINTENANCE.
13. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF FINAL ACCEPTANCE.
14. SCREENED IMAGES SHOW EXISTING CONDITIONS. WHERE EXISTING CONDITIONS LIE UNDER OR ARE IMPINGED UPON BY PROPOSED BUILDINGS AND OR SITE ELEMENTS, THE EXISTING CONDITION WILL BE REMOVED, ABANDONED AND OR CAPPED OR DEMOLISHED AS REQUIRED.
15. SEE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
16. THE CONTRACTOR SHALL INSTALL WATERING BAGS SUCH AS THE TREEGATOR ON ALL TREES AT THE TIME OF INSTALLATION. THESE BAGS SHALL REMAIN ON THE TREES UNTIL FREEZING TEMPERATURES.

LOAM (TOPSOIL) SPECIFICATION:

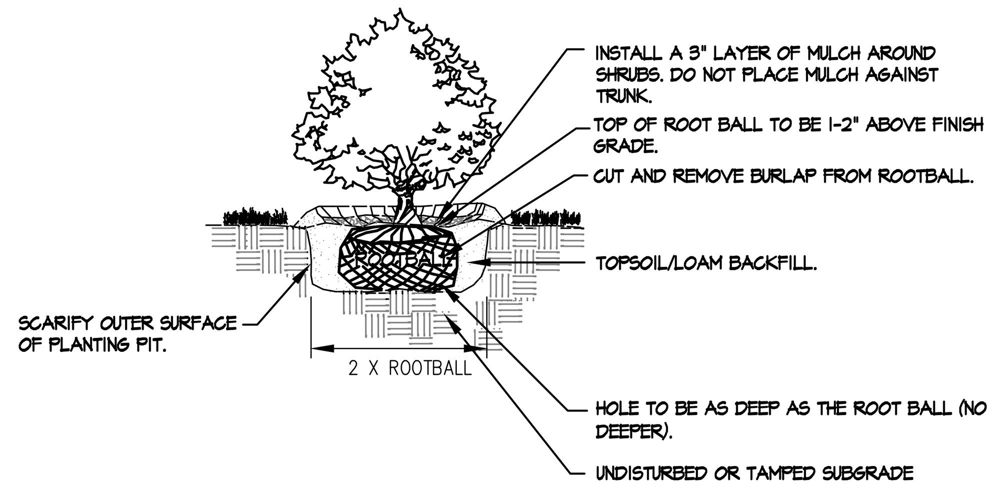
- NATURAL, FERTILE LOAM TYPICAL OF CULTIVATED TOPSOIL OF THE LOCALITY, CONTAINING NOT LESS THAN 3.5 PERCENT OR MORE THAN 8 PERCENT BY WEIGHT, OF DECAYED ORGANIC MATTER (HUMUS) AS DETERMINED BY ASTM F1647.
- OBTAIN FROM A WELL DRAINED ARABLE SITE, FREE OF SUBSOIL, EARTH CLODS, LARGE STONES, STICKS, STUMPS, CLAY LUMPS, ROOTS, OR OTHER OBJECTIONABLE, EXTRANEOUS MATTER OR DEBRIS. SCREEN TOPSOIL TO A MAXIMUM STONE SIZE OF ONE INCH.
- TOPSOIL SHALL BE FREE OF QUACK-GRASS RHIZONES, AGROPYRON REPENS, AND THE NUT-LIKE TUBERS OF NUTGRASS, CYPERUS ESCULENTUS, AND ALL OTHER PRIMARY NOXIOUS WEEDS.
- TOPSOIL SHALL HAVE A PH OF NOT LESS THAN 6.0 OR GREATER THAN 6.8. AMEND WITH LIME AS REQUIRED.
- TOPSOIL SHALL HAVE A LOAM TEXTURE CLASSIFICATION. TOPSOIL (LOAM) SHALL CONFORM TO THE FOLLOWING PARTICLE SIZE DISTRIBUTION, AS DETERMINED BY PIPETTE METHOD IN COMPLIANCE WITH ASTM F1632.
    a. SAND: 40-60 PERCENT.
    b. SILT: 30-40 PERCENT.
    c. CLAY: 5-20 PERCENT.
- DO NOT DELIVER OR USE TOPSOIL WHILE IN A FROZEN OR MUDDY CONDITION.

PLANT LIST:

SYMBOL	BOTANICAL NAME	COMMON NAME	QTY	SIZE	COMMENTS
DECIDUOUS AND EVERGREEN TREES					
BNH	BETULA NIGRA 'HERITAGE'	HERITAGE RIVER BIRCH	2	10'-12' HT.	CLUMP, B&B
AXF	ACER X FREEMANII 'AUTUMN BLAZE'	AUTUMN BLAZE MAPLE	6	2" CAL.	SINGLE LEADER, B&B
AXG	AMELACHIER X G. 'ROBIN HILL'	ROBIN HILL SERVICEBERRY'	2	2" CAL.	SINGLE LEADER, B&B
AXS	ACER X FREEMANII 'SIENNA GLEN'	SIENNA GLEN MAPLE	2	2"' CAL.	SINGLE LEADER, B&B
PA	PRUNUS X ACCOLADE	ACCOLADE CHERRY	2	2" CAL.	SINGLE LEADER, B&B
SRI	SYRINGA RETICULATA 'IVORY SILK'	IVORY SILK JAPANESE TREE LILAC	3	2" CAL.	SINGLE LEADER, B&B
TT	TILIA TOMENTOSA 'STERLING'	SILVER LINDEN	4	2" CAL.	SINGLE LEADER, B&B
JV	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	6	6' HT.	FULL & BUSHY
SHRUBS, GROUNDCOVERS & HERBACEOUS MATERIALS					
BX	BUXUS X. 'GREEN VELVET'	GREEN VELVET BOXWOOD	6	24" HT.	FULL & BUSHY
HAM	HOSTA AUGUST MOON	AUGUST MOON HOSTA	10	1 GAL.	-
HBB	HYDRANGEA M. SERRATA 'BLUE BILLOW'	BLUE BILLOW HYDRANGEA	16	24" HT.	FULL & BUSHY
HMB	HOSTA 'MAUI BUTTERCUPS'	MAUI BUTTERCUPS HOSTA	17	1 GAL.	-
HMC	HYDRANGEA M. 'SUMMER CRUSH'	SUMMER CRUSH HYDRANGEA	6	24" HT.	FULL & BUSHY
HS	HEMEROCALLIS 'STELLA D' ORO'	STELLA D' ORO DAYLILY	49	1 GAL.	-
JCG	JUNIPERUS CHINENSIS 'CASINO GOLD'	CASINO GOLD JUNIPER	25	24" SPD.	FULL & BUSHY
JGO	JUNIPERUS VIRGINIANA 'GREY OWL'	GREY OWL JUNIPER	7	24" HT.	FULL & BUSHY
NF	NEPETA FAASSENII 'WALKER'S LOW'	WALKERS LOW CATMINT	22	1 GAL.	-
PJM	RHODODENDRON PJM	PJM RHODODENDRON	9	36" HT.	FULL & BUSHY
PO	PHYSOCARLUS OPULIFOLIUS 'TINY WINE'	TINY WINE NINEBARK	2	18" HT.	FULL & BUSHY
RKJ	RHODODENDRON 'KEN JENAK'	KEN JANEK RHODODENDRON	3	24" HT.	FULL & BUSHY
SB	SYRINGA BLOOMERANG 'DARK PURPLE'	DARK PURPLE BLOOMERANG LILAC	3	24" HT.	FULL & BUSHY
TO	THUJA OCCIDENTALIS ''GOLDEN GLOBE'	GOLDEN GLOBE ARBORVITAE	1	24" HT.	FULL & BUSHY
TX	TAXUS X M. 'TAUNTONII'	TAUNTON YEW	5	24" HT.	FULL & BUSHY



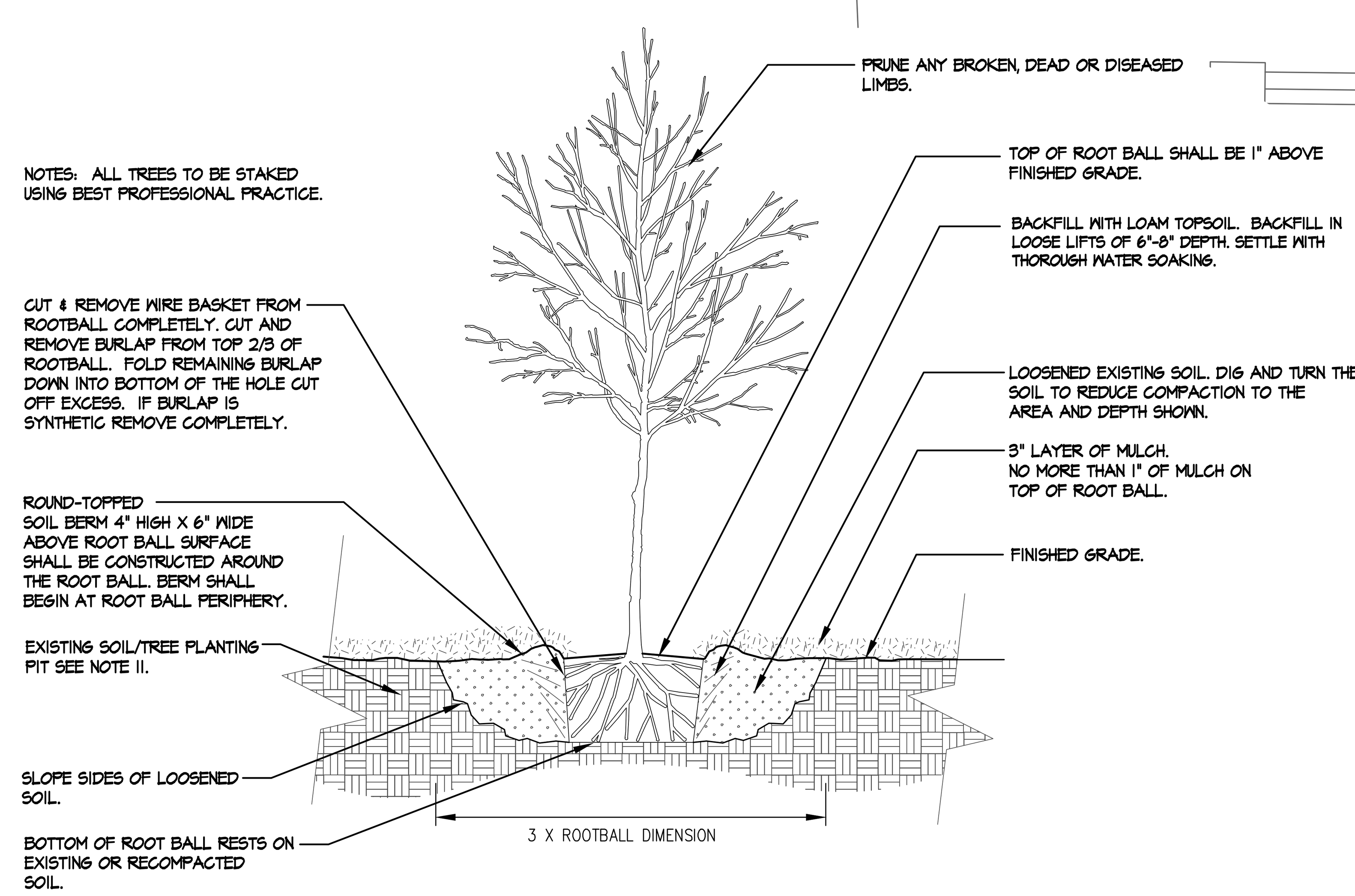
NOTES:
1. CONSTRUCT TEMPORARY PLANT SAUCIER FROM MULCH TO ASSIST WITH WATER RETENTION. SAUCER NOT REQUIRED WHEN SHRUB OCCURS IN A PLANT BED.
2. WHEN PLANTING CONTAINER GROWN PLANTS-REMOVE THE BALL FROM THE CONTAINER AND LOOSEN THE OUTSIDE LAYER OF THE ROOT SYSTEM BY SCORING WITH A CLEAN KNIFE. DIVIDE ALL CIRCLING ROOTS.
3. SHRUBS TO BE WATERED IMMEDIATELY AFTER PLANTING.



1 SHRUB PLANTING DETAIL

SCALE: N.T.S.

NOTES: ALL TREES TO BE STAKED USING BEST PROFESSIONAL PRACTICE.



2 TREE PLANTING

SCALE: N.T.S.

REV.	DATE	STATUS	BY	CHKD.	APPD.	REV.	DATE	STATUS	BY	CHKD.	APPD.
A	11-27-23	ISSUED TO TOWN OF CUMBERLAND FOR SITE PLAN REVIEW	DEPT.	PBB	PBB						

LICENSED LANDSCAPE ARCHITECT PETER B. BIEGEL No. 2624 STATE OF MAINE 11/27/23

LAND DESIGN SOLUTIONS
LAND PLANNING, SITE PLANNING & LANDSCAPE ARCHITECTURE
1 Faraday Drive, Suite 7, Cumberland, ME 04021 tel:(207) 939-1717

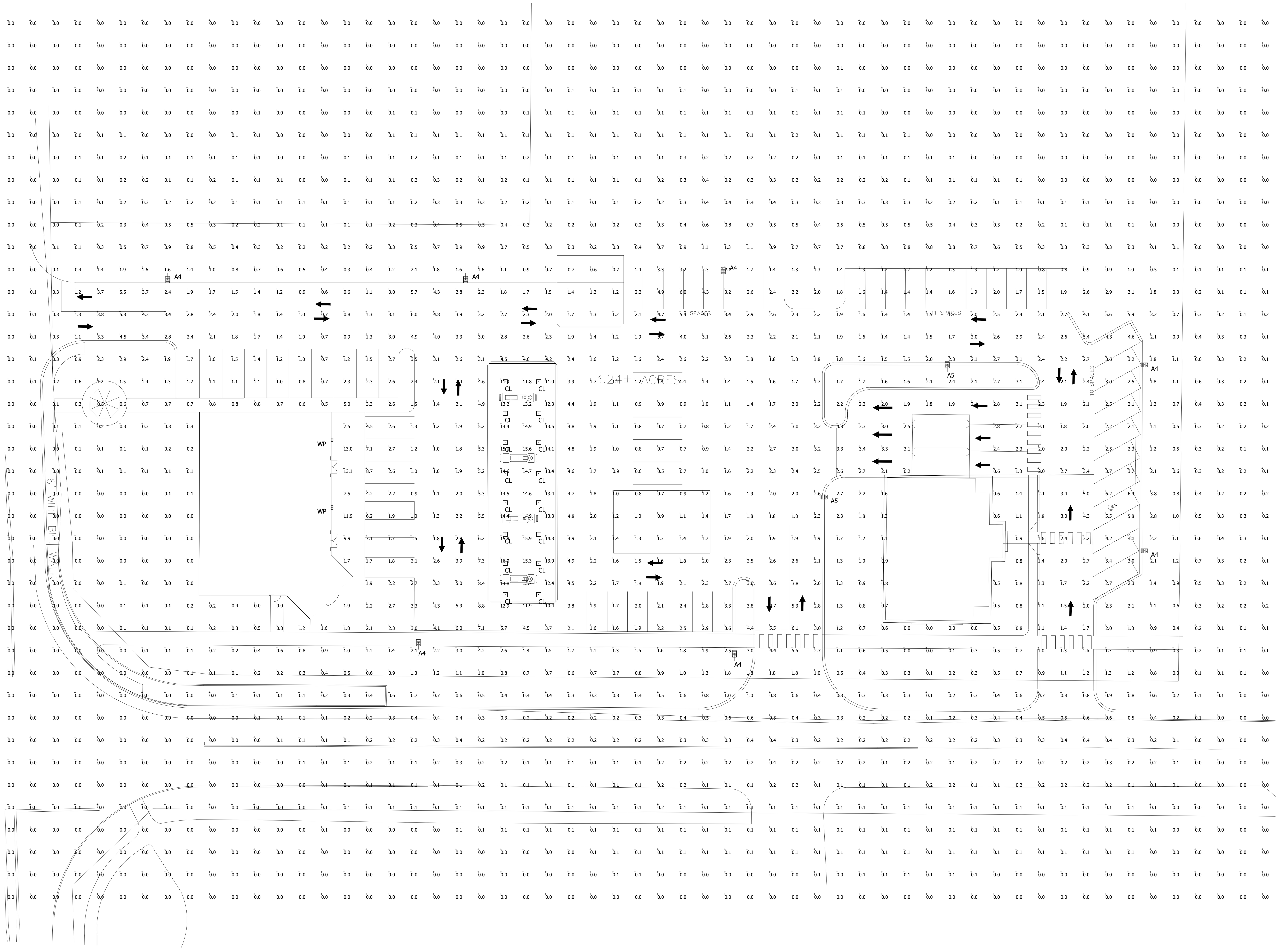
OWNER:
PRIORITY REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, MAINE 04086

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: PBB
DATE: OCTOBER 2023
SCALE: 1"=30'

PROPOSED RUSTY LANTERN & BANK DEVELOPMENT
ROUTE 100, (GRAY ROAD) , CUMBERLAND, MAINE

LANDSCAPE PLAN

PROJ. NO. 23-135
DWG. NO. L-1
REV. A



Luminaire Schedule

Symbol	Qty	Label	Mounting Height	LLF	Lum. Lumens	Lum. Watts	Description
	4	WP	10' - 0" AFG	0.900	3882	35	LNC2-48L-35-3K7-4W-UNV-DBT
	16	CL	12' - 0" AFG	0.900	4450	30	VSH-30-4K7-UNV
	2	A5	25' - 0" AFG	0.900	20539	160	VP-1-160L-160-3K7-5QW
	7	A4	25' - 0" AFG	0.900	20060	160	VP-1-160L-160-3K7-4W

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Fuel Canopy	Illuminance	Fc	13.74	15.7	8.5	1.62	1.85
Overall Area	Illuminance	Fc	0.89	16.0	0.0	N.A.	N.A.
Parking Area	Illuminance	Fc	2.44	8.8	0.5	4.88	17.60

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 - FT.

1. THIS LIGHTING DESIGN IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO CURRENT. SITE DETAILS PROVIDED HEREON ARE REPRODUCED ONLY AS A VISUALIZATION AID. FIELD DEVIATIONS MAY SIGNIFICANTLY AFFECT PREDICTED PERFORMANCE. PRIOR TO INSTALLATION, CRITICAL SITE INFORMATION (POLE LOCATIONS, ORIENTATION, MOUNTING HEIGHT, ETC.) SHOULD BE COORDINATED WITH THE CONTRACTOR AND/OR SPECIFIER RESPONSIBLE FOR THE PROJECT.
2. LUMINAIRE DATA IS TESTED TO INDUSTRY STANDARDS UNDER LABORATORY CONDITIONS. OPERATING VOLTAGE AND NORMAL MANUFACTURING TOLERANCES OF LAMP, BALLAST, AND LUMINAIRE MAY AFFECT FIELD RESULTS.
3. CONFORMANCE TO FACILITY CODE AND OTHER LOCAL REQUIREMENTS IS THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.

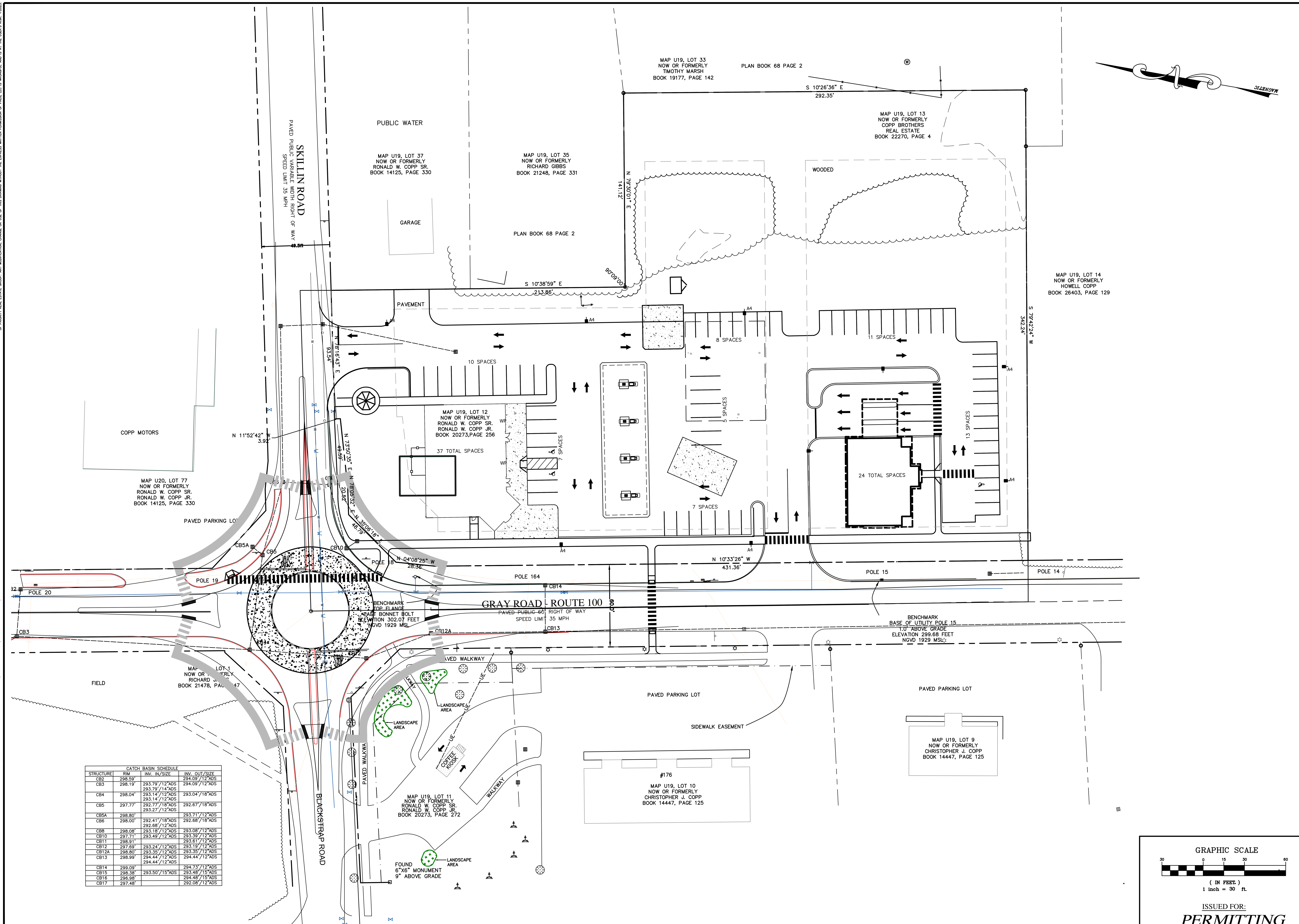
TITLE:

RUSTY LANTERN
CUMBERLAND, ME
SITE PHOTOMETRIC PLAN

REVISED FROM DRAWING NUMBER(S):

Current

DN BY: DHK	DATE: 08/15/23	CHK BY: N/A
REV. BY:	DATE:	SCALE: AS NOTED
QUOTE: N/A	DRAWING / DESIGN NO.: A231508	



CATCH BASIN SCHEDULE			
STRUCTURE	RIM	INV. IN/SIZE	INV. OUT/SIZE
CB2	298.59'		294.09'/12"ADS
CB3	298.19'	293.79'/12"ADS 293.79'/14"ADS	294.09'/12"ADS
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CB5	297.77'	292.77'/18"ADS 293.27'/12"ADS	292.67'/18"ADS
CB5A	298.80'		293.71'/12"ADS
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CB16	296.98'		294.48'/15"ADS
CB17	297.48'		292.08'/12"ADS

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

ISSUED FOR:
PERMITTING

NOT FOR CONSTRUCTION

THIS PLAN IS ISSUED FOR REVIEW AND INFORMATION PURPOSES ONLY. THIS PLAN WILL CHANGE AND IS NOT INTENDED FOR PRICING OR CONSTRUCTION.

PRICING BASED ON THIS PLAN SHALL BE CONSIDERED PRELIMINARY AND MUST BE UPDATED PRIOR TO FINAL CONSTRUCTION DRAWINGS.

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
01-29-24

TITLE:
SITE PLAN WITH PROPOSED ROUNDABOUT

PROJECT:
RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

PRIORITY REAL ESTATE GROUP LLC

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

FIELD WK:	SCALE: 1"=30'	SHEET:
DRN BY: CYN	JOB #: 22-RLM-004	
CH'D BY: CYN	MAP/LOT: U-19 12&13	
DATE: 11-22-23	FILE:	

SCHEMATIC SIDEWALK SECTION
SKILLIN ROAD

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

PERMITTING

C:\USERS\CURT NEUFELD\ONEDRIVE\DOCUMENTS\PROJECTS\22-RLM-004 CUMBERLAND\DWG\22-004 SITE.DWG, SIDEWALKS, 1/30/2024 9:42 AM, CURT NEUFELD

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

SHEET:	SW
SCALE: 1"=30'	FIELD WK:
JOB #: 22-RLM-004	DRN BY: CYN
MAP/LOT: U-19 12&13	CH'D BY: CYN
FILE:	DATE: 11-22-23

TITLE:
SIDEWALK CONCEPT PLAN

PROJECT:
RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
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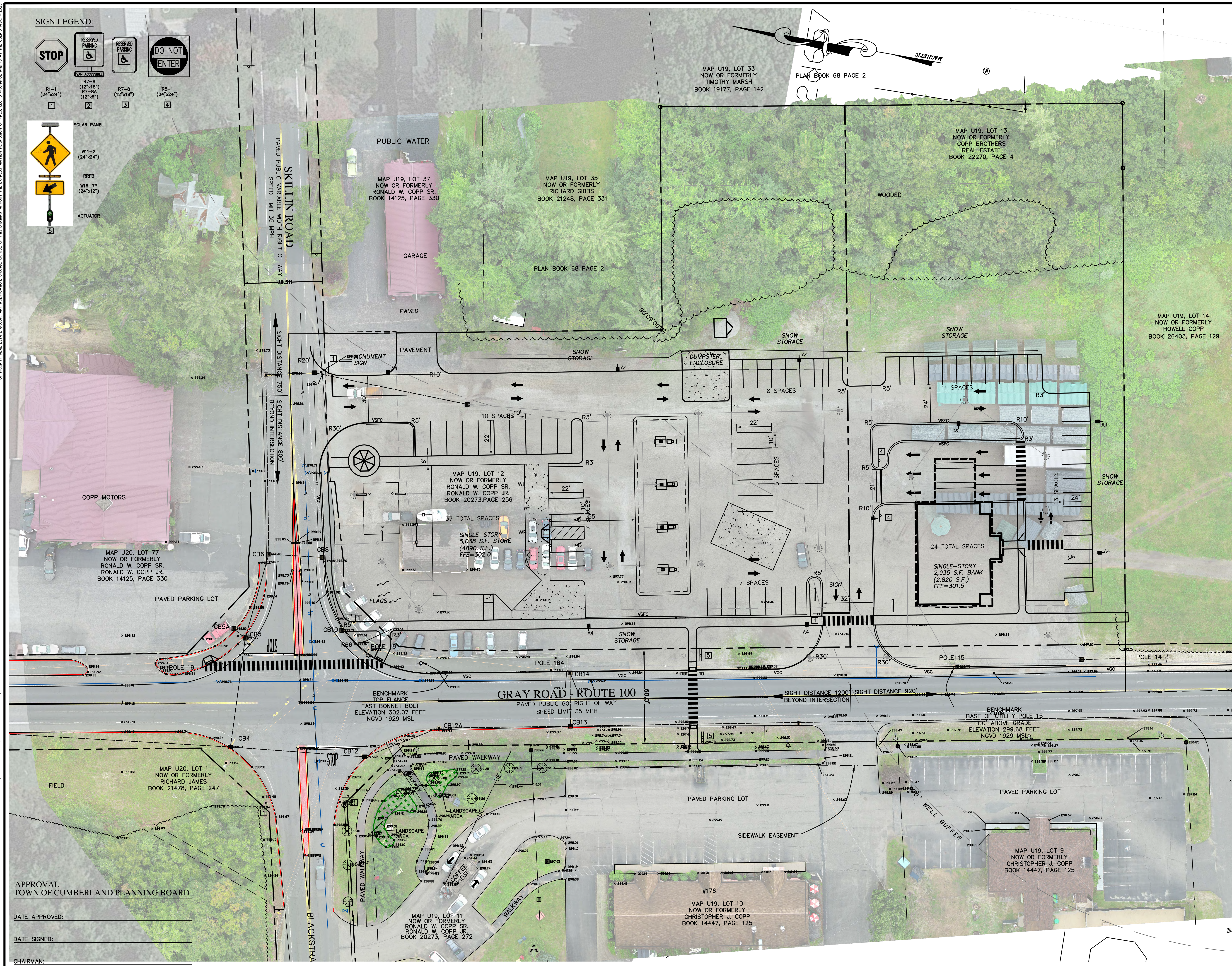
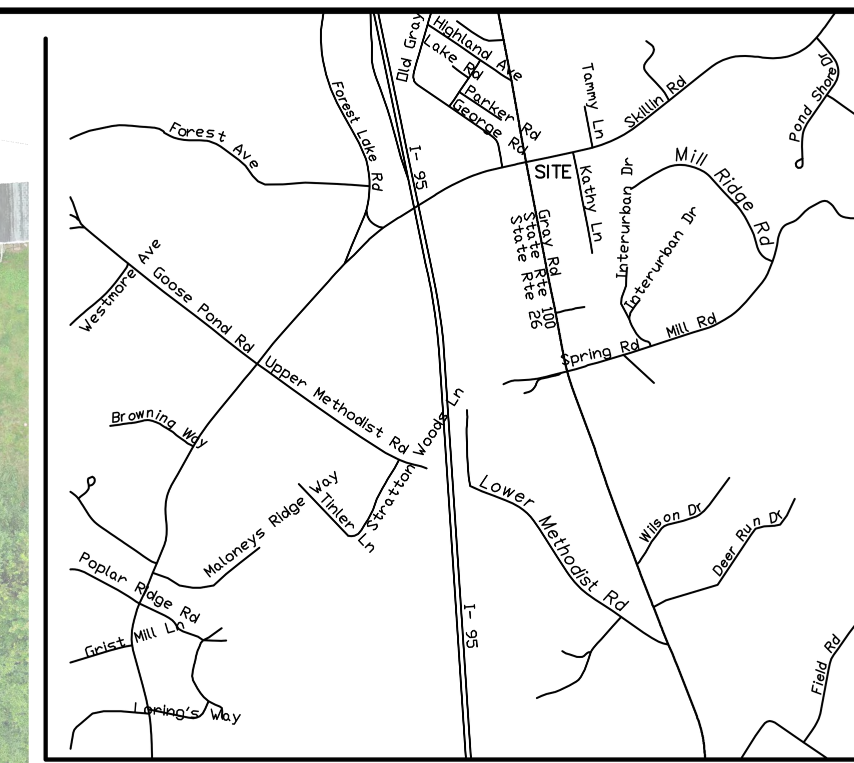


APPROVAL
TOWN OF CUMBERLAND PLANNING BOARD

DATE APPROVED: ______________________

DATE SIGNED: ______________________

CHAIRMAN: ______________________



LOCATION MAP
NOT TO SCALE

GENERAL NOTES:

1. TITLE REFERENCE FOR SURVEYED PARCEL:

   BK 20273, PG 256 (U19–12)
   BK 34640, PG 209 (U19–13)

2. PLAN REFERENCE(S):

   (1) EXISTING CONDITIONS SURVEY FOR PRIORITY REAL ESTATE GROUP OF 181 GRAY ROAD, CUMBERLAND, MAINE 04021, PREPARED BY BOUNDARY POINTS, NOT RECORDED.

3. AREA INFORMATION:

   LOT AREA: 141,116 S.F. (3.24 ACRES)

4. TAX MAP REFERENCE:

   TAX MAP U19, LOT 12 & 13.

5. BASIS OF BEARINGS:

   BEARINGS ARE MAINE STATE PLANE, WEST ZONE, NAD 83.

6. ELEVATION DATUM:

   NGVD 1929 MSL

7. FLOOD ZONE INFORMATION:

   PARCEL IS LOCATED WITHIN ZONE C (AREAS OF MINIMAL FLOODING) OF THE FLOOD INSURANCE RATE MAPS FOR CUMBERLAND COUNTY, MAINE. THE PROJECT IS LOCATED ON PANEL 15 OF 25 (COMMUNITY PANEL 230162 0015 B, EFF. DATE MAY 19, 1981)

8. IMPERVIOUS AREA:

   EXISTING IMPERVIOUS AREA: 94,773 S.F. (2.18 AC)
   PROPOSED IMPERVIOUS AREA: 68,232 S.F. (1.57 AC)
   NET CHANGE IN IMPERVIOUS AREA: –26,541 S.F. (0.61 AC)

UTILITY NOTES:

1. INFORMATION REGARDING THE LOCATION OF EXISTING UNDERGROUND UTILITIES IS A COMPILATION OF THAT FOUND IN THE FIELD AND THAT SHOWN ON A PREVIOUS PLANS, AND SHALL NOT BE CONSIDERED AN AS-BUILT PLAN. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING UTILITY LOCATIONS PRIOR TO COMMENCING WORK. NOTIFY ENGINEER OF ANY DISCREPANCY BETWEEN UTILITIES AS SHOWN AND AS FOUND. CONTRACTOR SHALL NOTIFY DIG-SAFE PRIOR TO EXCAVATION. 1-888-344-7233

LAYOUT NOTES:

1. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB OR FOUNDATION.
2. BOUNDARY INFORMATION ON LAYOUT PLAN IS FOR REFERENCE ONLY, REFER TO CERTIFIED BOUNDARY PLANS FOR BOUNDARY INFORMATION.
3. ALL HANDICAP ACCESSIBLE PARKING SPACES, RAMPS AND SIDEWALKS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).
4. ALL SITE SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. (MUTCD)
5. BUILDING FOUNDATION SHOWN IS NOT FOR FOUNDATION LAYOUT. COORDINATE SITE WORK WITH ARCHITECTURAL DRAWINGS INCLUDING BUILDING FEATURES AND FOUNDATION PLAN.
6. REFER TO SHEET C4 FOR GRADING AND DRAINAGE INFORMATION.
7. REFER TO SHEET L1 FOR LANDSCAPE INFORMATION.
8. REFER TO SHEET L2 FOR LIGHTING INFORMATION.

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

ISSUED FOR:
PERMITTING

PRIORITY

2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

FIELD WK:	SCALE: 1"=30'	SHEET:	C3
DRN BY: CYN	JOB #: 22-RLM-004		
CH'D BY: CYN	MAP/LOT: U-19 12&13		
DATE: 11-22-23	FILE:		

TITLE: **AERIAL SITE PLAN**

PROJECT: RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR: CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE ★ CURTIS Y. NEUFELD 9779 LICENSED ★ PROFESSIONAL ENGINEER
8-11-23

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

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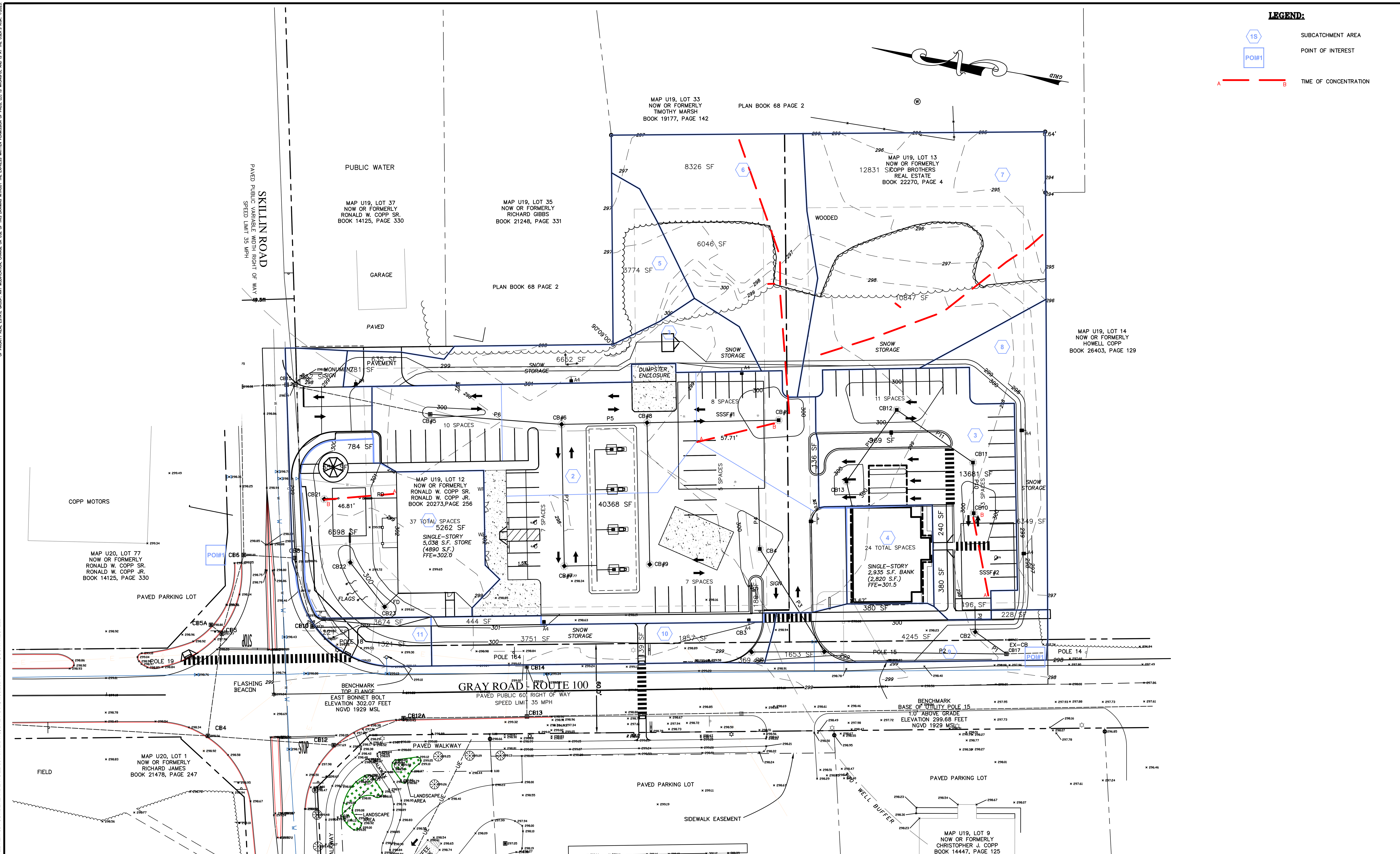

CATCH BASIN SCHEDULE			
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STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
01-29-24

TITLE:
POST-DEVELOPMENT DRAINAGE PLAN

PROJECT:
RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

PRIORITY REAL ESTATE GROUP LLC

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

FIELD WK:	SCALE: 1"=30'	SHEET:
DRN BY: CYN	JOB #: 22-RLM-004	DR2
CH'D BY: CYN	MAP/LOT: U-19 12&13	
DATE: 11-22-23	FILE:	

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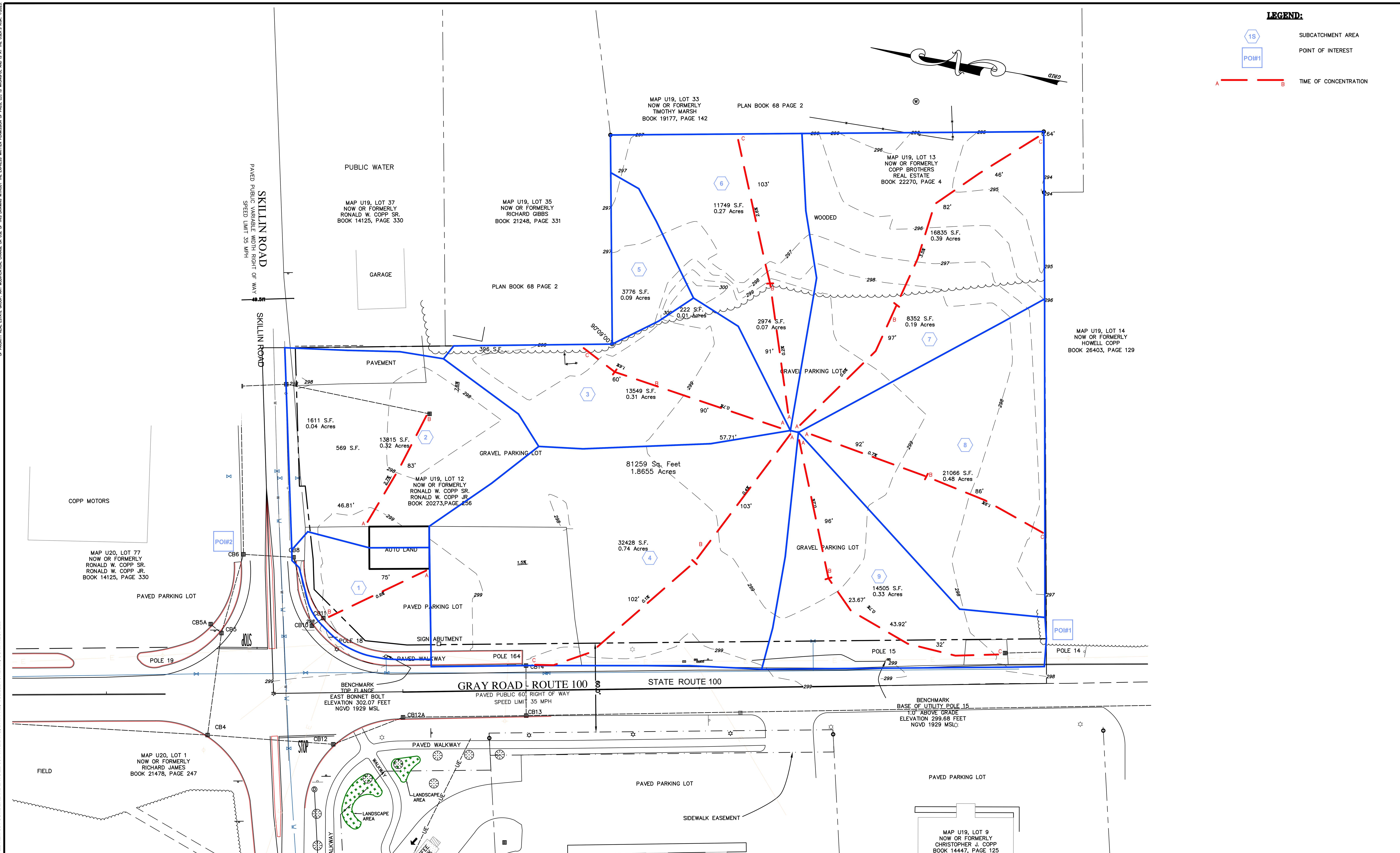

CATCH BASIN SCHEDULE

STRUCTURE	RIM	INV. IN/SIZE	INV. OUT/SIZE
CB2	298.59'		294.09'/12"ADS
CB3	298.19'	293.79'/12"ADS 293.79'/14"ADS	294.09'/12"ADS
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CB15	298.38'	293.50'/15"ADS	293.48'/15"ADS
CB16	296.98'		294.48'/15"ADS
CB17	297.48'		292.08'/12"ADS

ISSUED FOR:
PERMITTING

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

PRIORITY REAL ESTATE GROUP LLC

SHEET: DR1

SCALE: 1"=30'
JOB #: 22-RLM-004
MAP/LOT: U-19 12&13
FILE:

FIELD WK:
DRN BY: CYN
CH'D BY: CYN
DATE: 11-22-23

TITLE:
PRE-DEVELOPMENT DRAINAGE PLAN

PROJECT:
RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBERLAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
01-29-24

2.	01-29-24	SUBMITTED TO TOWN OF CUMBERLAND FOR SITE PLAN APPROVAL	CYN
1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

NOT FOR CONSTRUCTION
THIS PLAN IS ISSUED FOR REVIEW AND INFORMATION PURPOSES ONLY. THIS PLAN WILL CHANGE AND IS NOT INTENDED FOR PRICING OR CONSTRUCTION.

PRICING BASED ON THIS PLAN SHALL BE CONSIDERED PRELIMINARY AND MUST BE UPDATED PRIOR TO FINAL CONSTRUCTION DRAWINGS.

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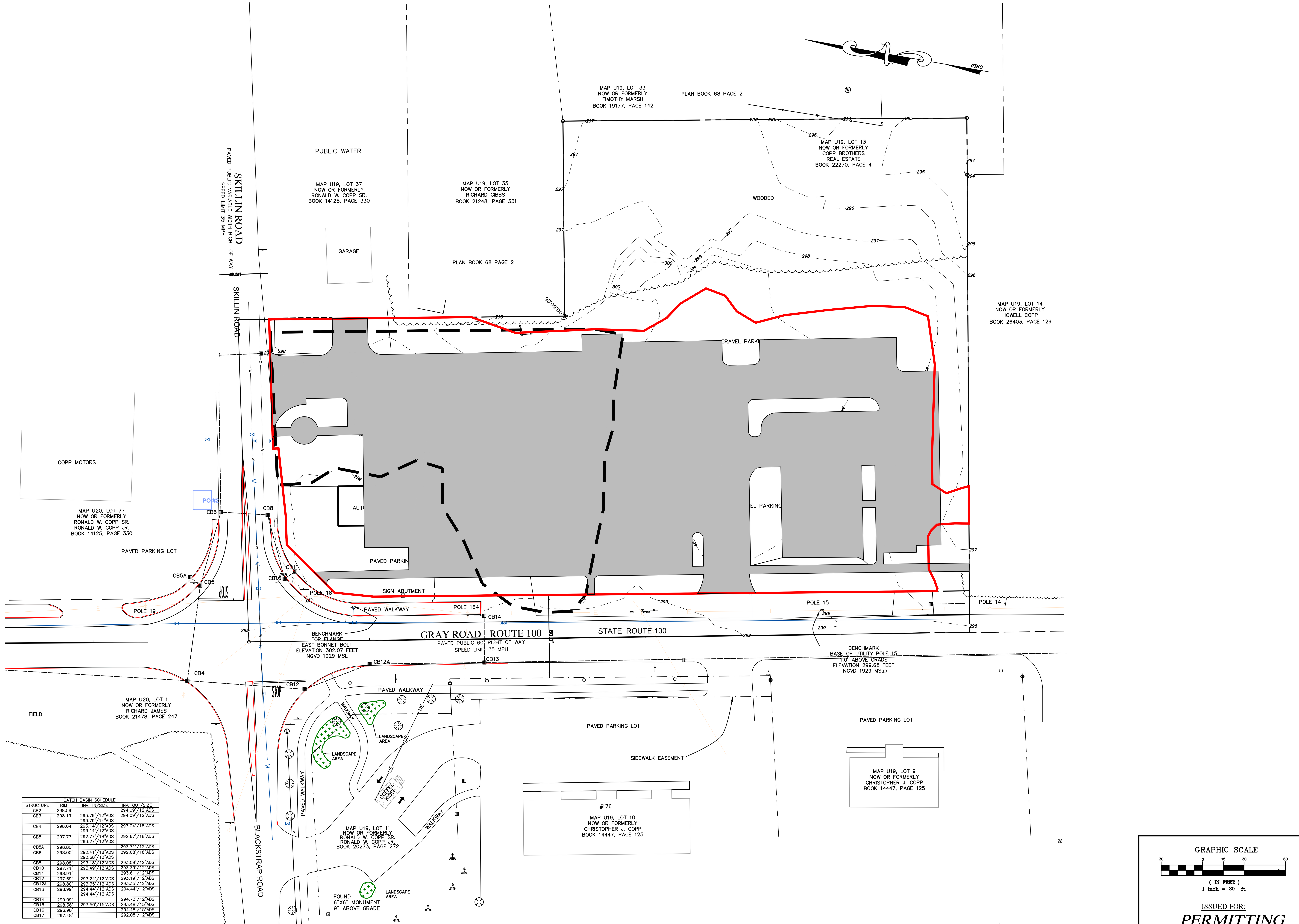

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GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

ISSUED FOR:
PERMITTING

NOT FOR CONSTRUCTION

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1.	08-11-23	SUBMITTED FOR MAINEDOT REVIEW	CYN

STATE OF MAINE
CURTIS Y. NEUFELD
9779
LICENSED
PROFESSIONAL ENGINEER
01-29-24

TITLE:
PRE/POST DEVELOPMENT
IMPERVIOUS AREA COMPARISON

PROJECT:
RUSTY LANTERN CONVENIENCE STORE
181 GRAY ROAD, CUMBER;LAND, ME 04021

PREPARED FOR:
CUMBERLAND REAL ESTATE GROUP, LLC
2 MAIN STREET, TOPSHAM, ME 04086

PRIORITY REAL ESTATE GROUP LLC

PRIORITY
2 MAIN STREET
TOPSHAM, MAINE 04086
(207) 837-6198

FIELD WK:	SCALE: 1"=30'
DRN BY: CYN	JOB #: 22-RLM-004
CHD BY: CYN	MAP/LOT: U-19 12&13
DATE: 11-22-23	FILE:

SHEET:
1A

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SURVEYOR'S NOTES

1 THIS SURVEY PLAN IS COPYRIGHT PROTECTED. THIS PLAN IS THE PROPERTY OF BOUNDARY POINTS, AND SHALL NOT BE USED FOR ANY PURPOSE WITHOUT THE WRITTEN CONSENT OF AN AUTHORIZED AGENT OF BOUNDARY POINTS. ALL RIGHTS RESERVED.

2 THIS SURVEY PLAN IS ONLY VALID IF AUTHENTIC EMBOSSED SEAL AND SIGNATURE OF CERTIFYING PROFESSIONAL APPEAR ON THE FACE OF THIS SURVEY PLAN.

3 REFERENCE IS MADE TO THE CONTRACTUAL AGREEMENT BETWEEN THE PROFESSIONAL LAND SURVEYOR AND THE CLIENT.

4 THIS SURVEY PLAN IS SUBJECT TO POSSIBLE REVISION UPON RECEIPT OF A CERTIFIED TITLE OPINION.

5 ON THE BASIS OF MY KNOWLEDGE, INFORMATION AND BELIEF I CERTIFY EXCLUSIVELY TO THE CLIENT THAT THIS SURVEY PLAN, MADE TO THE NORMAL STANDARD OF CARE, SUBSTANTIALLY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR LAND SURVEYOR STANDARDS.

6 NO CERTIFICATION IS MADE TO THE EXISTENCE OR NONEXISTENCE OF HAZARDOUS SUBSTANCES, ENVIRONMENTALLY SENSITIVE AREAS, UNDERGROUND UTILITIES, UNDERGROUND STRUCTURES, OR REAL ESTATE TITLE.

7 THE SOURCE OF BEARINGS FOR THIS LAND SURVEY WAS MAINE STATE PLANE GRID WEST ZONE, N.A.D. 1983.

8 ELEVATIONS AND CONTOURS ARE BASED UPON THE NGVD OF 1929 MEAN SEA LEVEL.

9 REFERENCE IS MADE TO RIGHT OF WAY MAP IN THE TOWN OF CUMBERLAND ON ROUTE 100 BY DEPARTMENT OF TRANSPORTATION DATED AUGUST 1993 BEING D.O.T. FILE NUMBER 3–405 AND HAVING 2 SHEETS.

10 REFERENCE IS MADE TO PLAN OF THE INTERSECTION OF SKILLIN ROAD AND ROUTE 100 BY DEPARTMENT OF TRANSPORTATION DATED AUGUST 2005 BEING D.O.T. FILE NUMBER 3–517.

11 REFERENCE IS MADE TO PLAN OF THE RELOCATION OF ROUTE 100 IN THE TOWN OF CUMBERLAND DATED AUGUST 1906, BY H.W. FOSTER AND IS RECORDED IN THE CUMBERLAND COUNTY COMMISSIONERS RECORDS IN VOLUME 17, PAGE 507.

12 REFERENCE IS MADE TO PLAN OF A STANDARD BOUNDARY SURVEY ON ROUTE 100 IN THE TOWN OF CUMBERLAND DATED JANUARY 2006, BY WAYNE T. WOOD & CO. FOR ELVIN COPP. THIS PLAN WAS USED FOR THE FOR THE RIGHT OF WAY OF BLACKSTRAP ROAD.

CATCH BASIN SCHEDULE

STRUCTURE	RIM	INV. IN/SIZE	INV. OUT/SIZE
CB2	298.59'		294.09'/12"ADS
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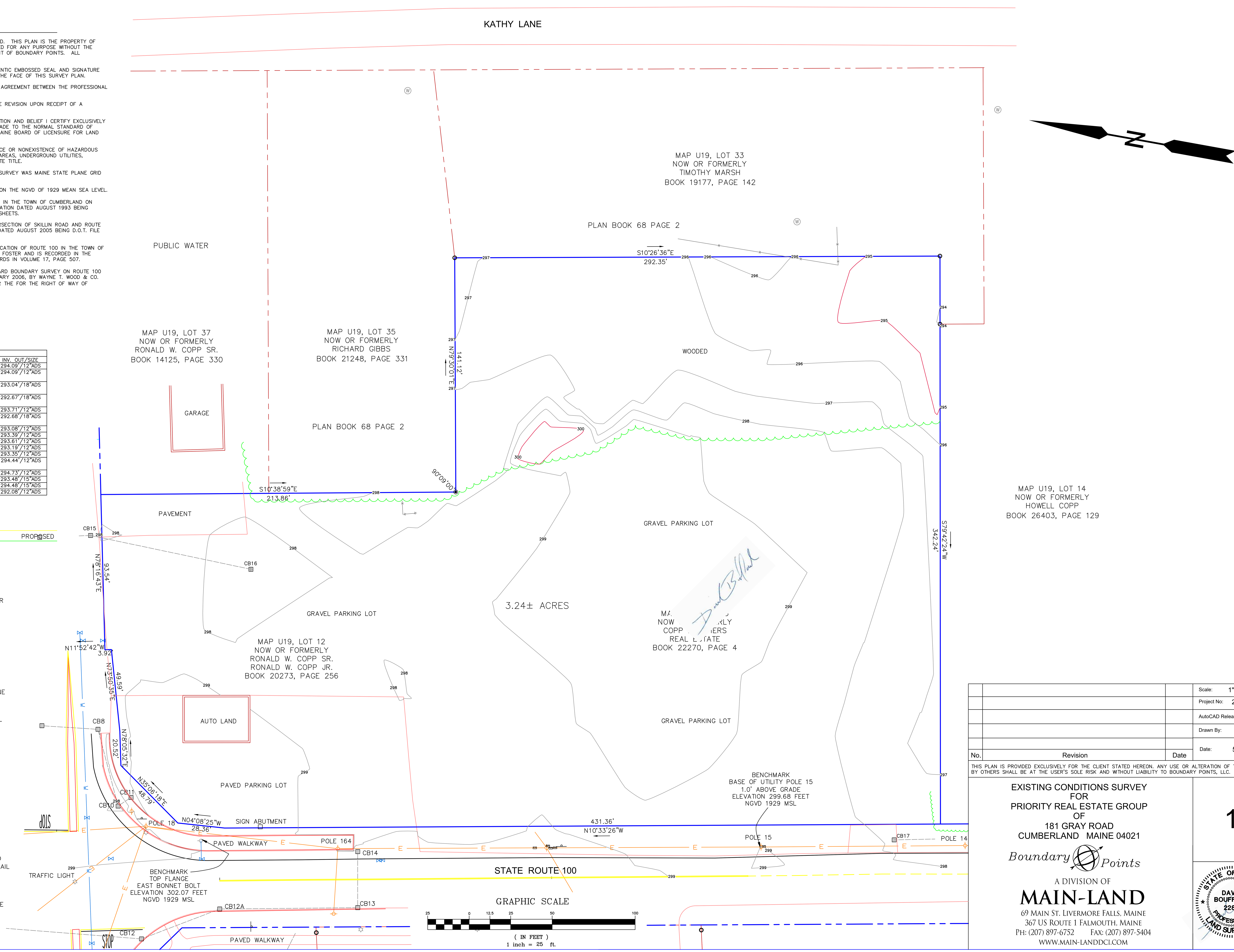
LEGEND

EXISTING DESCRIPTION PROPOSED

PROPERTY/ROW
EASEMENT
CENTERLINE
MONUMENT
IRON PIPE/ROD
5/8" IRON REBAR
DRILLHOLE
CURVE/LINE NO.
BUILDING
WETLANDS
EDGE WETLAND
SIGN
STREAM
ROCK OUTCROP
EDGE PAVEMENT
GRAVEL ROAD
GRANITE CURBLINE
EDGE WATER
TREELINE
MONITORING WELL
CONTOURS
WATER
STORM DRAIN
OVERHEAD ELECTRIC LINE
GATE VALVE
LIGHT
UTILITY POLE
HYDRANT
CATCH BASIN
MANHOLE
POTABLE WELL
CULVERT
SPOT GRADE
FENCE AS NOTED
WOODED GUARDRAIL
RIP RAP AREA
DECIDUOUS TREE
CONIFEROUS TREE
MAIL BOX



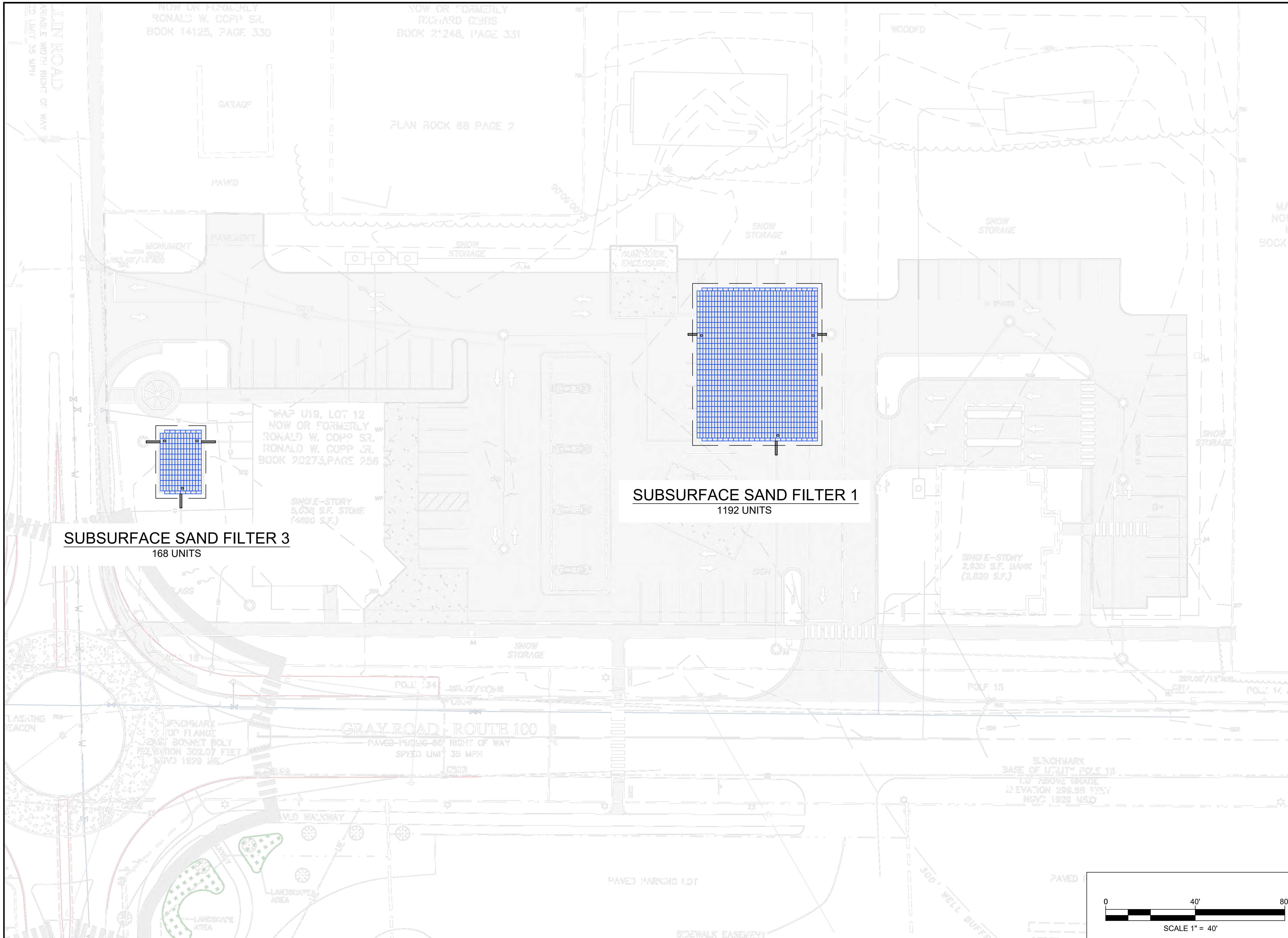
No.	Revision	Date	
			Scale: 1" = 25'
			Project No: 23-128F
			AutoCAD Release: 2023
			Drawn By: DB
			Date: 5-30-2023

EXISTING CONDITIONS SURVEY FOR PRIORITY REAL ESTATE GROUP OF 181 GRAY ROAD CUMBERLAND MAINE 04021

Boundary Points
A DIVISION OF
MAIN-LAND
69 MAIN ST. LIVERMORE FALLS, MAINE
367 US ROUTE 1 FALMOUTH, MAINE
PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

1

STATE OF MAINE
DAVID BOUFFARD
2282
PROFESSIONAL LAND SURVEYOR



ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FERGUSON WATERWORKS

FOR ADDITIONAL INFORMATION PLEASE CONTACT:
FERGUSON WATERWORKS,
1-800-448-3636, www.ferguson.com

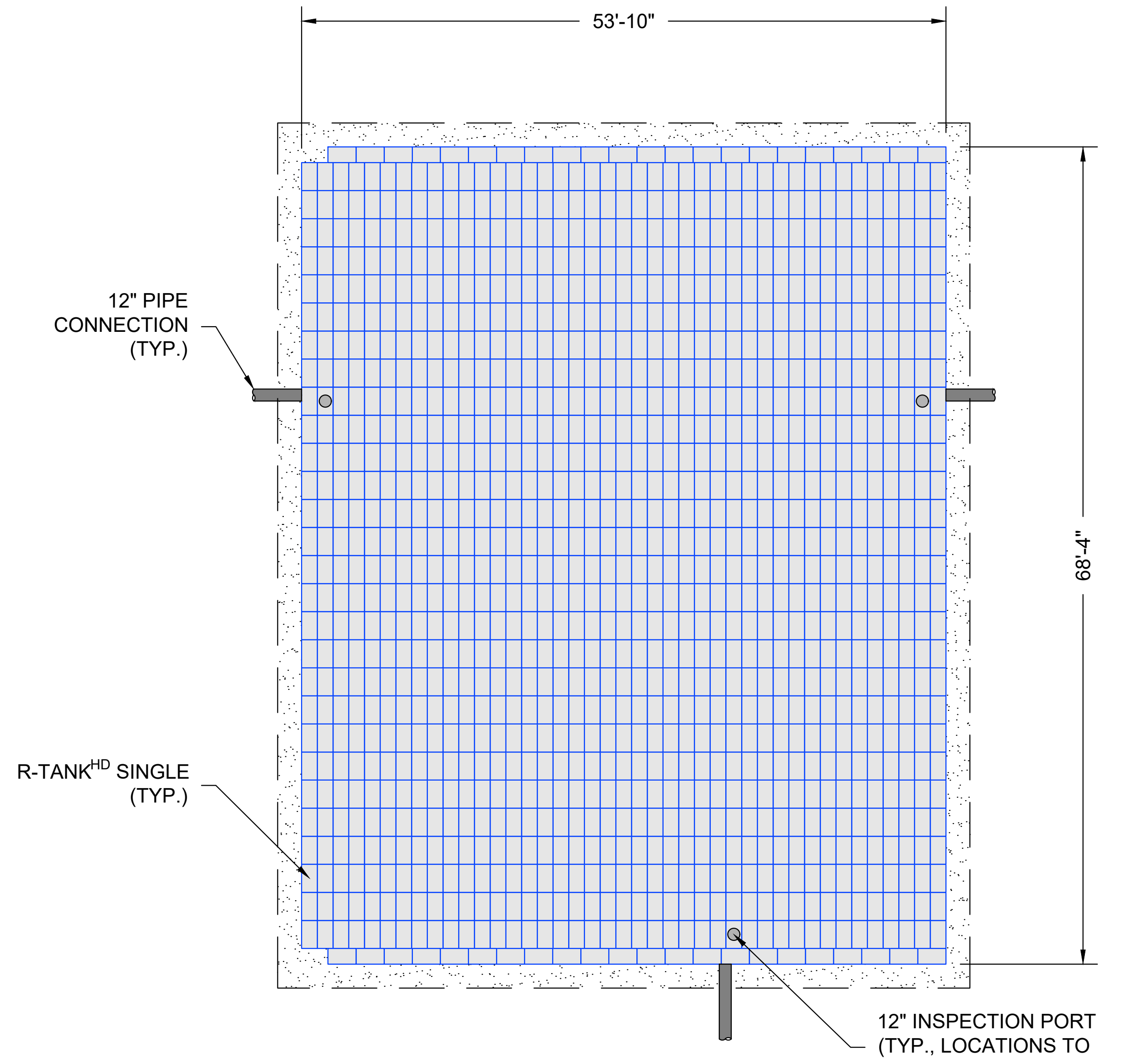
R-TANK^{HD} SYSTEM OVERLAY
RUSTY LANTERN CONVENIENCE STORE
CUMBERLAND, ME

SCALE
1" = 40'

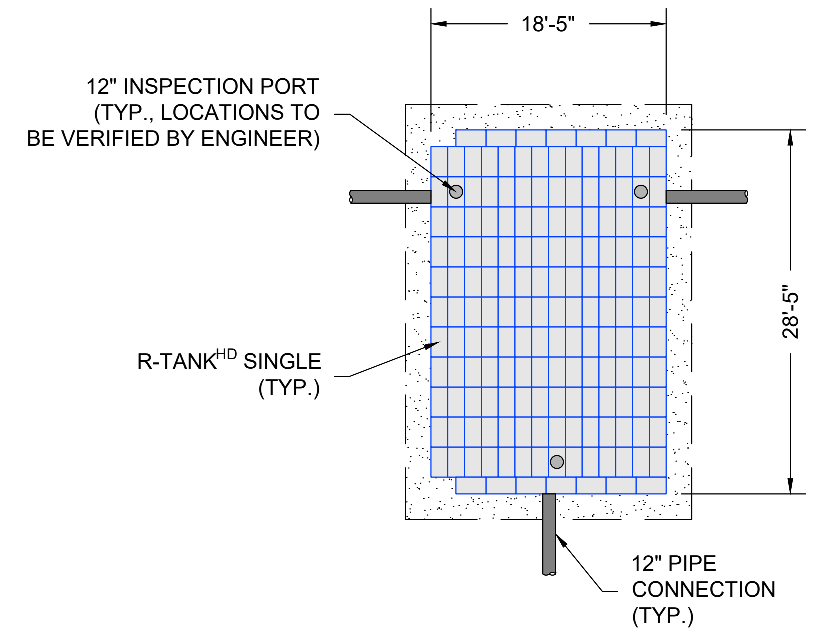
DRAWN BY
BMK

DATE
01/29/2024

SHEET NO.
1 of 6



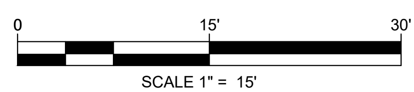
SUBSURFACE SAND FILTER 1



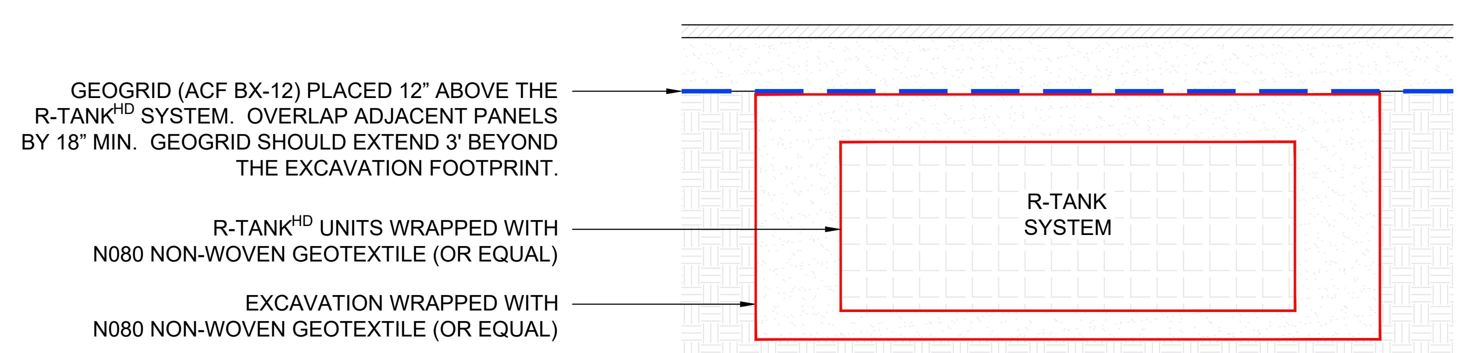
SUBSURFACE SAND FILTER 3

R-TANK QUANTITIES		
SYSTEM DESIGNATION	FILTER 1	FILTER 3
R-TANK^{HD} MODULE TYPE	SINGLE	SINGLE
TRAFFIC LOAD	HS-20	HS-20
# OF SINGLE R-TANKS	1192	168
TOTAL SYSTEM STORAGE	7,417 CF	1,192 CF
R-TANK STORAGE VOLUME	5,032 CF	709 CF
STONE STORAGE VOLUME (40% VOID RATIO)	2,385 CF	483 CF
STONE BED FOOTPRINT	4,180 SF	726 SF
STONE QUANTITY	221 CY	45 CY
N080 NON-WOVEN GEOTEXTILE TANK WRAP	983 SY	150 SY
N080 NON-WOVEN GEOTEXTILE EXCAVATION WRAP	1,158 SY	223 SY
ACF BX-12 GEOGRID	639 SY	139 SY
12" INSPECTION PORTS	3	3
GEOTEXTILE PIPE BOOTS (12")	3	3
STORMRING CPS (12")	3	2
NOTE: STONE QUANTITY INCLUDES 12" OF COVER AND 3" OF BASE.		
NOTE: GEOTEXTILE / LINER QUANTITIES INCLUDE A 15% WASTE FACTOR.		
SEE SHEETS 3 - 6 FOR DETAILS AND ADDITIONAL INFORMATION		

GRAPHIC SCALE



R-TANK ELEVATIONS		
SYSTEM DESIGNATION	FILTER 1	FILTER 3
BASE INV.	293.53	295.00
TANK INV.	293.78	295.25
TOP OF TANK	295.22	296.69
GEOGRID	296.22	297.69
MIN. ALLOW. FINAL GRADE	296.89	298.36
MAX. ALLOW. FINAL GRADE	302.21	303.68



R-TANK^{HD} TANK WRAP & EXCAVATION ENVELOPE DETAIL

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FERGUSON WATERWORKS

FOR ADDITIONAL INFORMATION PLEASE CONTACT: FERGUSON WATERWORKS, 1-800-448-3636, www.ferguson.com

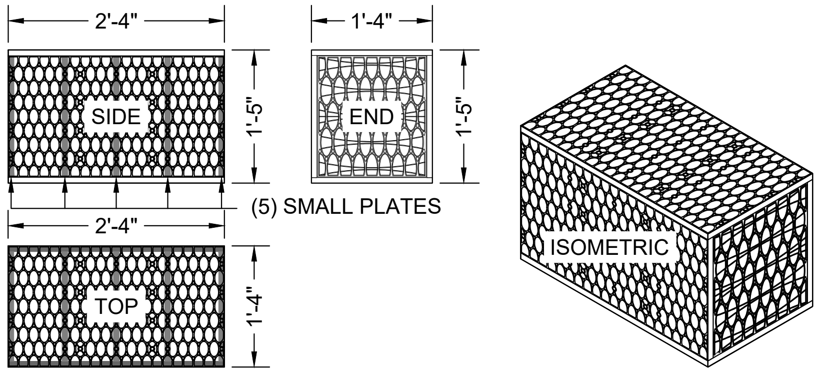
R-TANK^{HD} SYSTEM LAYOUT
RUSTY LANTERN CONVENIENCE STORE
CUMBERLAND, ME

SCALE
1" = 15'

DRAWN BY
BMK

DATE
01/29/2024

SHEET NO.
2 of 6



MODULE DATA

GEOMETRY:	LOAD RATING:
LENGTH = 28.15 IN. (715 MM)	33.4 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20/HS25 - SEE SPEC FOR
HEIGHT = 17.32 IN. (440 MM)	COVER REQUIREMENTS
TANK VOLUME = 4.44 CF	**MATERIAL:**
STORAGE VOLUME = 4.22 CF	100% RECYCLED POLYPROPYLENE
VOID INTERNAL VOLUME: 95%	**SMALL PLATES REQUIRED:**
VOID SURFACE AREA: 90%	5/SEGMENT, 5/MODULE

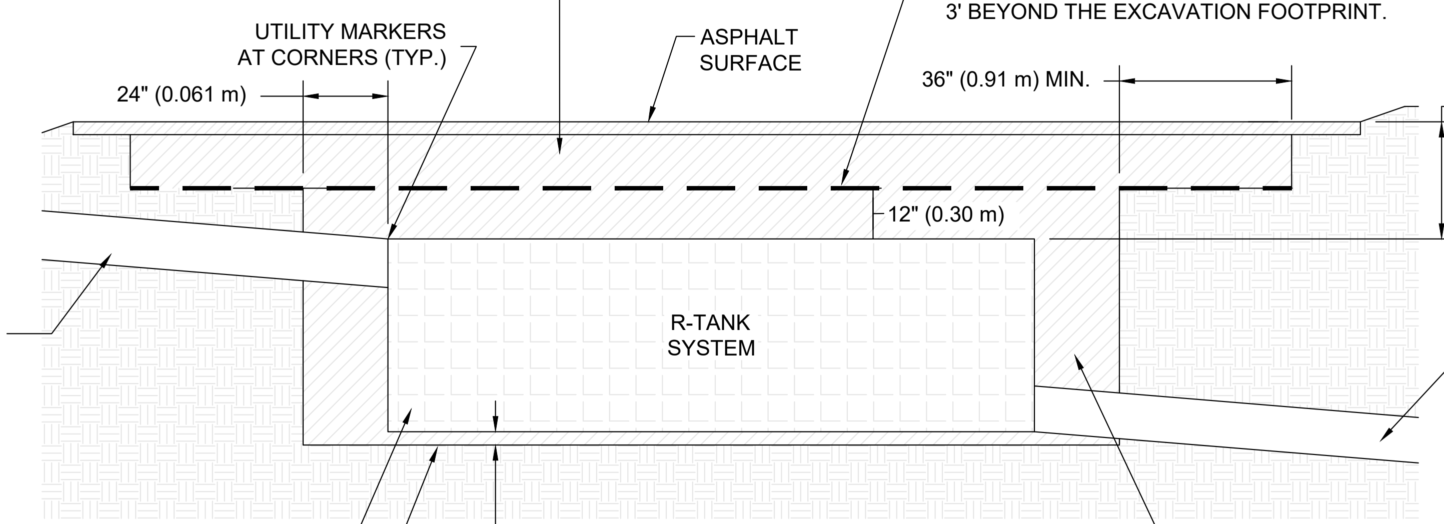
SINGLE R-TANK^{HD} - MODULE DETAIL

TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7'. CONTACT FERGUSON WATERWORKS IF MORE THAN 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:

1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK^{HD} MODULE SHEET .
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE ACF M200 (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{HD} FOOTPRINT.

GEOGRID (ACF BX-12) PLACED 12" ABOVE THE R-TANK^{HD} SYSTEM. OVERLAP ADJACENT PANELS BY 18" MIN. GEOGRID SHOULD EXTEND 3' BEYOND THE EXCAVATION FOOTPRINT.



R-TANK^{HD} UNITS
LOAD RATING: 33.4 PSI (MODULE ONLY)

SUBGRADE / EXCAVATION LINE: COMPACT PER SPEC SECTION 3.02 D. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK^{HD}

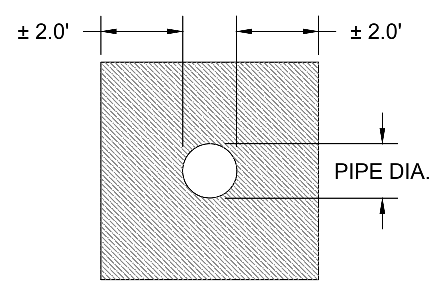
BASE: 3" (0.08 m) MIN. FREE DRAINING BACKFILL (SPEC SECTION 2.03B) COMPACTED TO 95% STANDARD PROCTOR DENSITY IS REQUIRED TO PROVIDE A LEVEL BASE SURFACE. MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{HD} FOOTPRINT. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK^{HD}. NATIVE SOILS MAY BE ACCEPTABLE IF DETERMINED TO BE STABLE BY OWNER'S ENGINEER.

SIDE BACKFILL: FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). MUST BE FREE FROM LUMPS, DEBRIS AND OTHER SHARP OBJECTS. SPREAD EVENLY TO PREVENT R-TANK^{HD} MOVEMENT. COMPACT SIDE BACKFILL WITH POWERED MECHANICAL COMPACTOR IN 12" LIFTS (PER SPEC SECTION 3.05 A2).

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

NOTE:

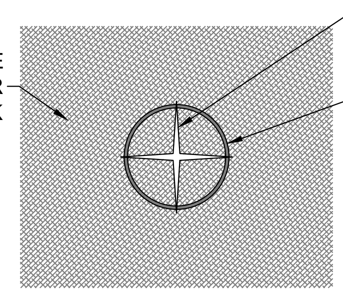
- PIPE BOOTS ARE AVAILABLE IN THE FOLLOWING STANDARD SIZES: 8" | 12" | 15" | 18" | 24".
- LARGER SPECIAL ORDER, CUSTOM SIZES ARE AVAILABLE.



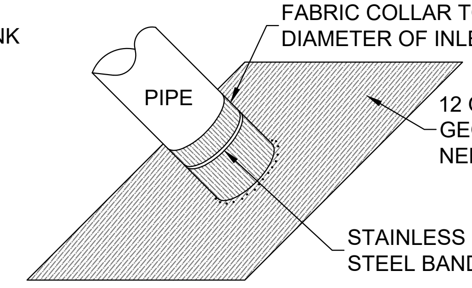
FRONT VIEW OF GEOTEXTILE BOOT

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

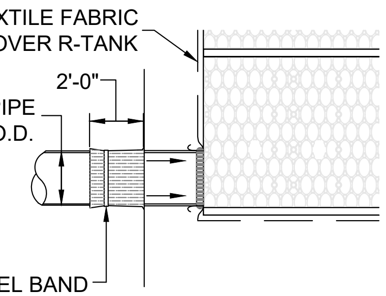
AFTER TANK WRAP IS SECURED TO PIPE, SLIDE BOOT AGAINST R-TANK AND SECURE WITH SECOND STAINLESS STEEL BAND, THEN ATTACH BOOT FLAP TO TANK ENVELOPE FABRIC WITH DUCT TAPE OR OTHER ADHESIVE.



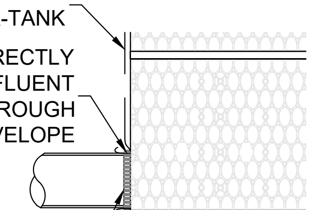
END VIEW OF PIPE/FABRIC CONNECTION



GEOTEXTILE BOOT



SIDE VIEW OF GEOTEXTILE BOOT



SIDE VIEW OF PIPE/FABRIC CONNECTION

R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

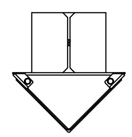
ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FERGUSON WATERWORKS

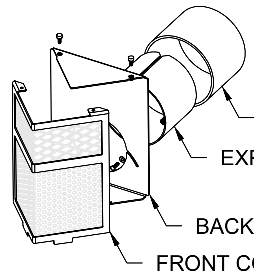
FOR ADDITIONAL INFORMATION PLEASE CONTACT: FERGUSON WATERWORKS, 1-800-448-3636, www.ferguson.com

R-TANK^{HD} SYSTEM DETAILS
RUSTY LANTERN CONVENIENCE STORE
CUMBERLAND, ME

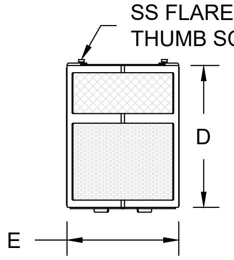
SCALE	NTS
DRAWN BY	BMK
DATE	01/29/2024
SHEET NO.	3 of 6



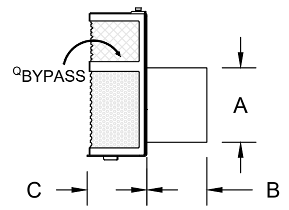
PLAN VIEW



REFERENCE VIEW



FRONT VIEW



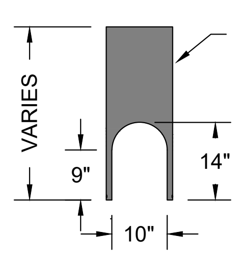
SIDE VIEW

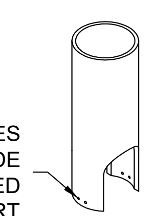
PIPE DIA. (A)	STUB LENGTH (B)	CPS DEPTH (C)	CPS HEIGHT (D)	CPS WIDTH (E)
6"	4.00"	8.50"	10.00"	10.00"
8"	6.00"	11.00"	12.25"	11.50"
10"	8.00"	16.00"	13.50"	13.50"
12"	8.00"	16.00"	15.50"	15.50"
15"	8.00"	16.00"	21.50"	18.50"
18"	8.00"	16.00"	28.00"	21.50"
24"	10.00"	18.00"	40.00"	28.00"

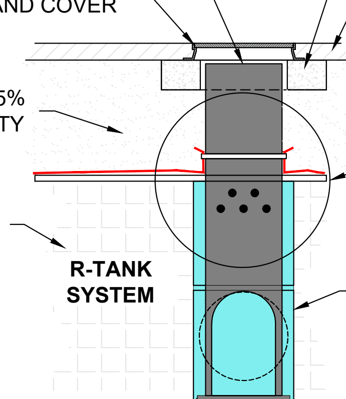
STORMRING CPS PRETREATMENT DETAIL

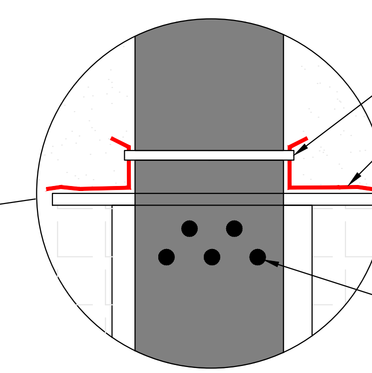
NOTES

1. THE INSPECTION PORT IS USED IN THE ACCESS MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. R-TANK^{HD}, R-TANK^{SD}, R-TANK^{UD} AND R-TANK^{XD} MAY BE USED IN TRAFFIC APPLICATIONS.
4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
5. IF INSPECTION PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.









R-TANK TYPICAL VEHICULAR LOAD RATED INSPECTION PORT

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FOR ADDITIONAL INFORMATION PLEASE CONTACT: FERGUSON WATERWORKS, 1-800-448-3636, www.ferguson.com

R-TANK^{HD} SYSTEM DETAILS
RUSTY LANTERN CONVENIENCE STORE
CUMBERLAND, ME

SCALE
NTS

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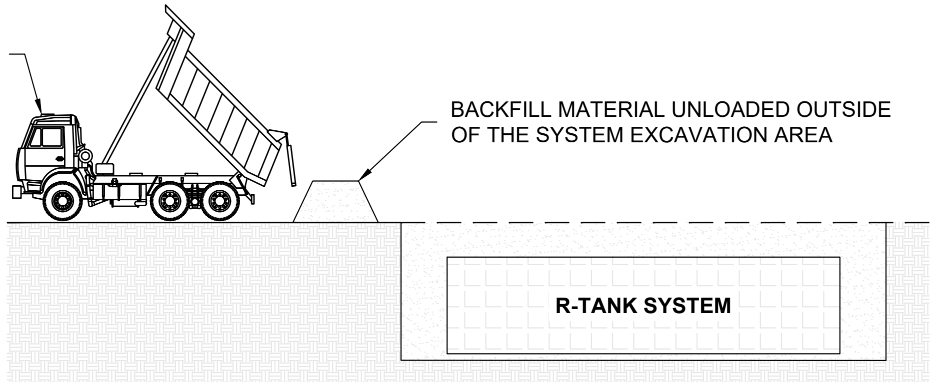
BMK

DATE
01/29/2024

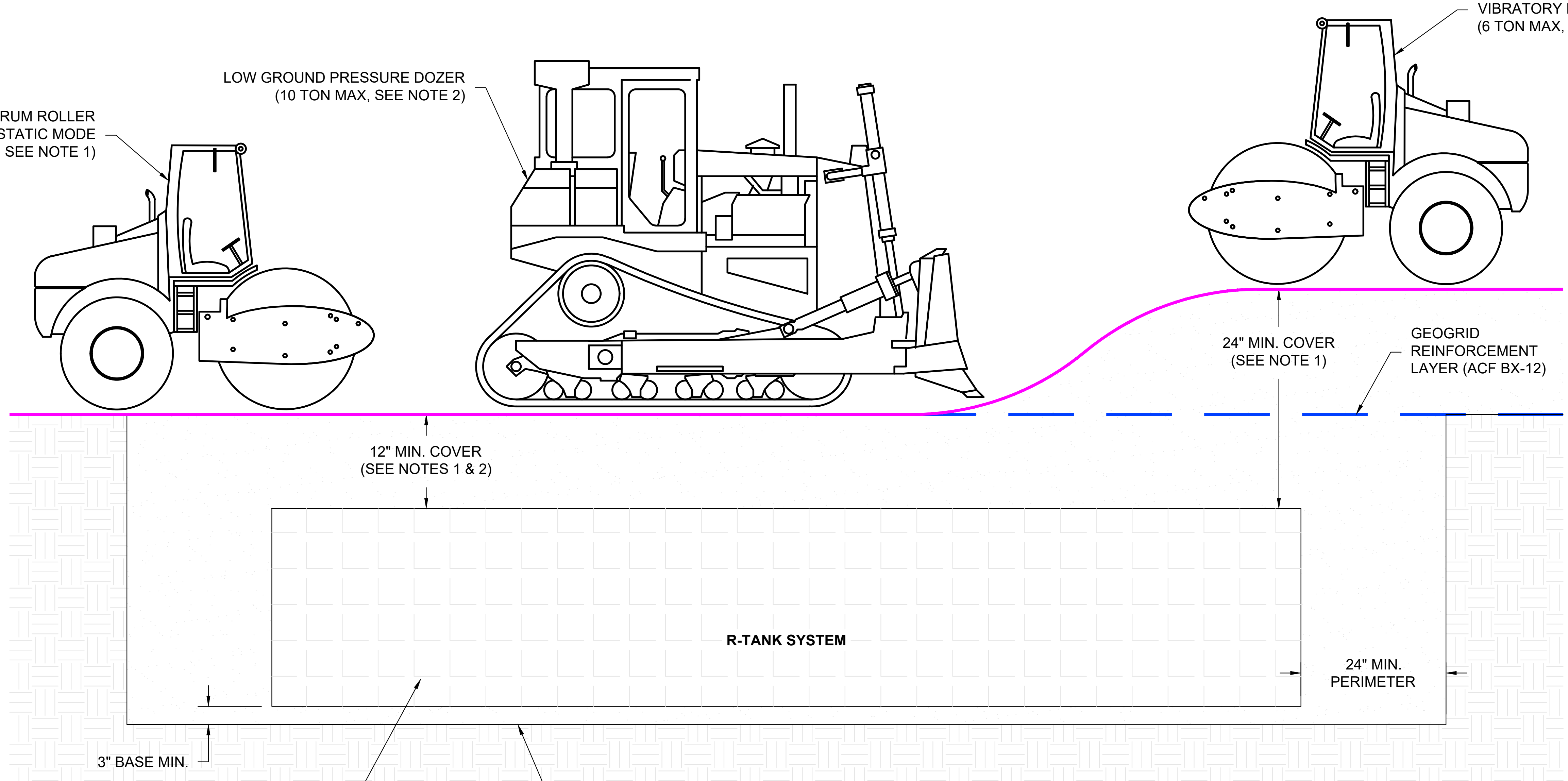
SHEET NO.
4 of 6



DUMP TRUCK DETAIL (SEE NOTE 3)

NOTES:

1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B2) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL FERGUSON REPRESENTATIVE FOR ADDITIONAL INFORMATION.



CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FOR ADDITIONAL INFORMATION PLEASE CONTACT: FERGUSON WATERWORKS, 1-800-448-3636, www.ferguson.com

R-TANK^{HD} CONSTRUCTION EQUIPMENT COVER DETAIL
RUSTY LANTERN CONVENIENCE STORE
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R-TANK SPECIFICATION

PART 1 - GENERAL
1.01 RELATED DOCUMENTS
A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

1.02 DESCRIPTION OF WORK INCLUDED
A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
B. Provide and install R-TankLD/, R-TankHD/, R-TankSD/, or R-TankU/D/ system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.
C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.
D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.03 QUALITY CONTROL
A. All materials shall be manufactured in ISO certified facilities.
B. Installation Contractor shall demonstrate the following experience:
1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.
C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
D. Contractor must have manufacturer's representative available for site review if requested by Owner.

1.04 SUBMITTALS
A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
B. Submit manufacturer's product data, including compressive strength and unit weight.
C. Submit manufacturer's installation instructions.
D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.
E. Submit material certificates for geotextile, geogrid, base course and backfill materials.
F. Submit required experience and personnel requirements as specified in Section 1.03.
G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 DELIVERY, STORAGE, AND HANDLING
A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.
C. Cold weather:
1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
2. Do not use frozen materials or materials mixed or coated with ice or frost.
3. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 PREINSTALLATION CONFERENCE.
A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.07 PROJECT CONDITIONS
A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.
B. Protect adjacent work from damage during R-Tank system installation.
C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.
D. Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS
2.01 R-TANK UNITS
A. R-Tank - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).
B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank^{LD} VALUE	R-Tank^{HD} VALUE	R-Tank^{SD} VALUE	R-Tank^{UD} VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.4 psi	28.9 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (STONE BACKFILL)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	15" (STONE BACKFILL)
Maximum Cover	Maximum allowable cover depth	3 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs / cf	3.62 lbs/cf	3.96 lbs / cf	4.33 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 – 167° F

C. Supplier: Ferguson Waterworks 2831 Cardwell Road Richmond, VA 23234 (T): 800-448-3636; (F): 804-743-7779 www.ferguson.com

2.02 GEOSYNTHETICS
A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.
1. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (ACF N080 or equivalent).
2. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (ACF M200 or equivalent) shall be used.
B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (ACF BX12 or equivalent) to reinforce backfill above the R-Tank system. Geogrid is not always required for R-TankUD/ installations, and is often not required for non-traffic load applications.

2.03 BACKFILL & COVER MATERIALS
A. Bedding Materials: Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
B. Side and Top Backfill: Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
1. Traffic Applications - Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system.
a. For HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).
b. For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more. Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill.
2. Non-Traffic / Green Space Applications - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.
C. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

2.04 OTHER MATERIALS
A. Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 - EXECUTION
3.01 ASSEMBLY OF R-TANK UNITS
A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2.

3.02 LAYOUT AND EXCAVATION
A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.
B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.
C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.
D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
1. Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
2. Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.
E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.
1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 PREPARATION OF BASE
A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within ½" (+/- ¼") or as shown on the plans. Native suitable soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.
1. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
2. Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.
B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.04 INSTALLATION OF THE R-TANKS
A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.
B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans.
1. For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details
2. For UD installations, there is no perpendicular end row required.
D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (butted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.
F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.
G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with 'U" bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

3.05 BACKFILLING OF THE R-TANK UNITS
A. Backfill and fill with recommended materials as follows:
1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank units.
4. No compaction equipment is permissible to operate directly on the R-Tank modules.
5. Top Backfill: Only low pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.
a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.
b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.
6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.
8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
B. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).
C. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.
D. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

3.06 MAINTENANCE REQUIREMENTS
A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
B. All inlet pipes and Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.
C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.
D. All inspection and maintenance activities should be performed in accordance with the R-Tank Operation, Inspection & Maintenance Manual.

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FERGUSON WATERWORKS

FOR ADDITIONAL INFORMATION PLEASE CONTACT: FERGUSON WATERWORKS, 1-800-448-3636, www.ferguson.com

R-TANK^{HD} SPECIFICATION
RUSTY LANTERN CONVENIENCE STORE
CUMBERLAND, ME

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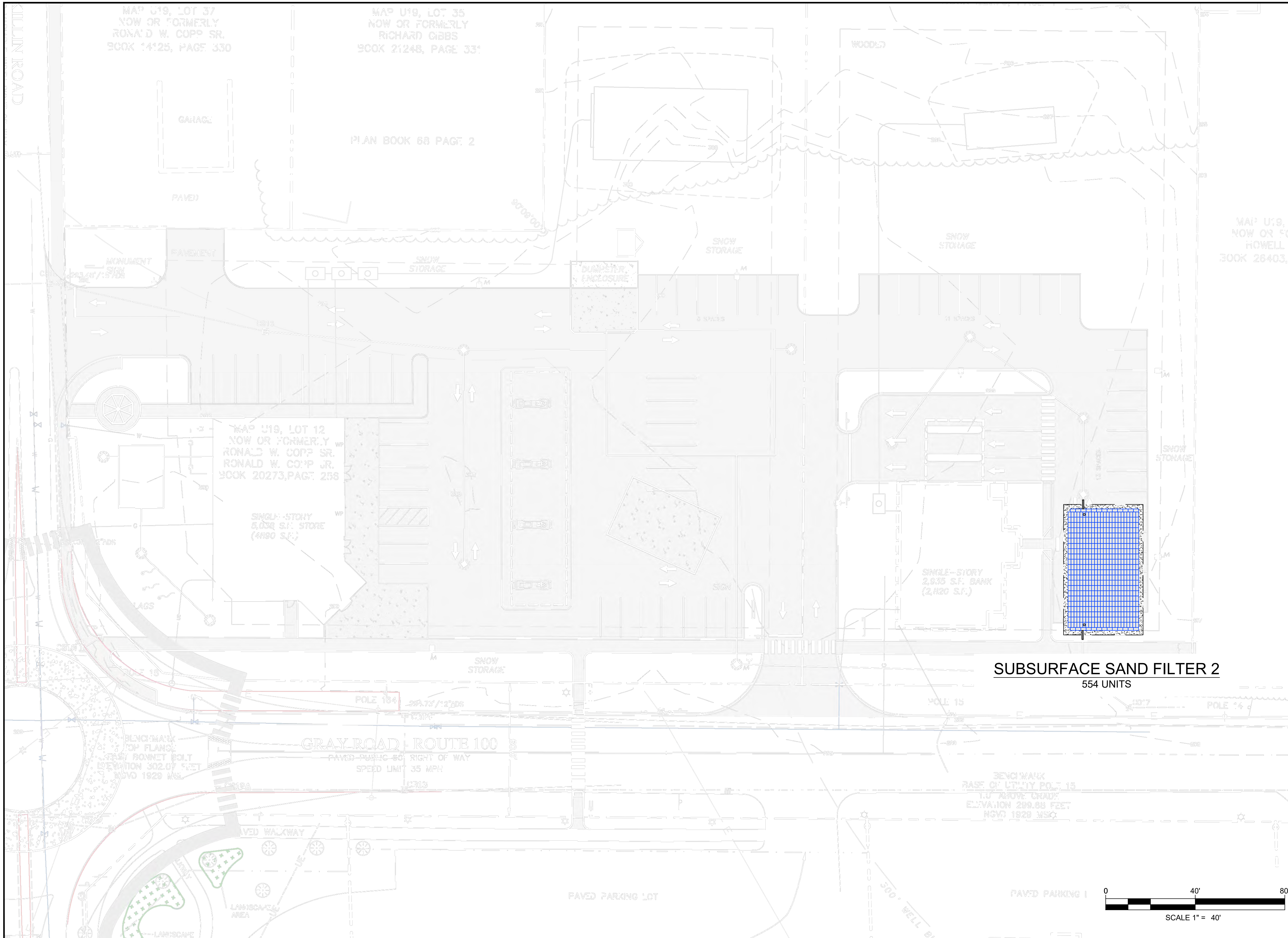

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FERGUSON WATERWORKS

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FERGUSON WATERWORKS,
1-800-448-3636, www.ferguson.com

R-TANK^{SD} SYSTEM OVERLAY
RUSTY LANTERN CONVENIENCE STORE
CUMBERLAND, ME

SCALE
1" = 40'

DRAWN BY
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DATE
01/29/2024

SHEET NO.
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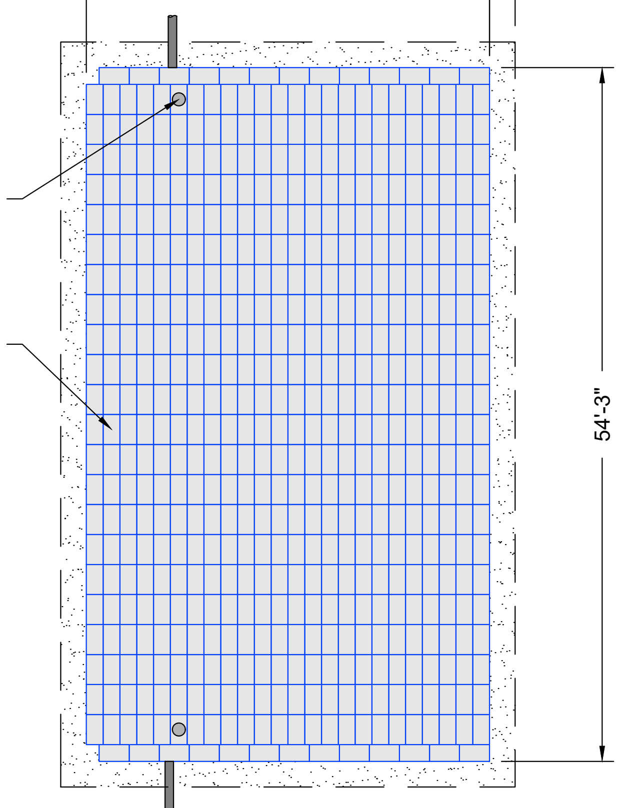


R-TANK QUANTITIES

R-TANK^SD MODULE TYPE	SINGLE
TRAFFIC LOAD	HS-20
# OF SINGLE R-TANKS	554
TOTAL SYSTEM STORAGE	2,424 CF
R-TANK STORAGE VOLUME	1,276 CF
STONE STORAGE VOLUME (40% VOID RATIO)	1,148 CF
STONE BED FOOTPRINT	2,067 SF
STONE QUANTITY	106 CY
N080 NON-WOVEN GEOTEXTILE TANK WRAP	453 SY
N080 NON-WOVEN GEOTEXTILE EXCAVATION WRAP	577 SY
ACF BX-12 GEOGRID	341 SY
12" MAINTENANCE PORTS	2
GEOTEXTILE PIPE BOOTS (8")	2
STORMRING CPS (8")	1

NOTE: STONE QUANTITY INCLUDES 12" OF COVER AND 3" OF BASE.

NOTE: GEOTEXTILE / LINER QUANTITIES INCLUDE A 15% WASTE FACTOR.

SEE SHEETS 3 - 6 FOR DETAILS AND ADDITIONAL INFORMATION

GRAPHIC SCALE

SCALE 1" = 15'

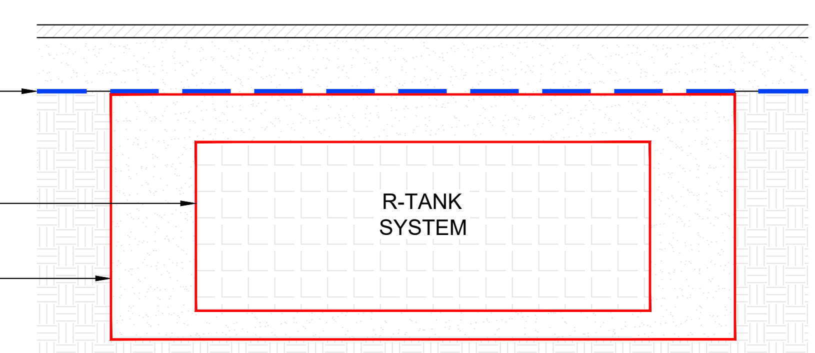
R-TANK ELEVATIONS

DESCRIPTION	ELEVATION
BASE INV.	292.47
TANK INV.	292.72
TOP OF TANK	293.51
GEOGRID	294.51
MIN. ALLOW. FINAL GRADE	295.01
MAX. ALLOW. FINAL GRADE	303.50

GEOGRID (ACF BX-12) PLACED 12" ABOVE THE R-TANK SYSTEM. OVERLAP ADJACENT PANELS BY 18" MIN. GEOGRID SHOULD EXTEND 3' BEYOND THE EXCAVATION FOOTPRINT.

R-TANK^SD UNITS WRAPPED WITH N080 NON-WOVEN GEOTEXTILE (OR EQUAL)

EXCAVATION WRAPPED WITH N080 NON-WOVEN GEOTEXTILE (OR EQUAL)



R-TANK^SD TANK WRAP & EXCAVATION ENVELOPE DETAIL

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

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FOR ADDITIONAL INFORMATION PLEASE CONTACT: FERGUSON WATERWORKS, 1-800-448-3636, www.ferguson.com

R-TANK^SD SYSTEM LAYOUT
RUSTY LANTERN CONVENIENCE STORE
CUMBERLAND, ME

SCALE
1" = 15'

DRAWN BY
BMK

DATE
01/29/2024

SHEET NO.
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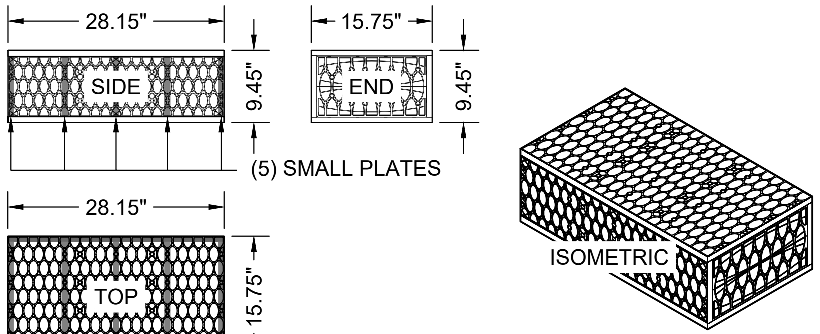


MODULE DATA

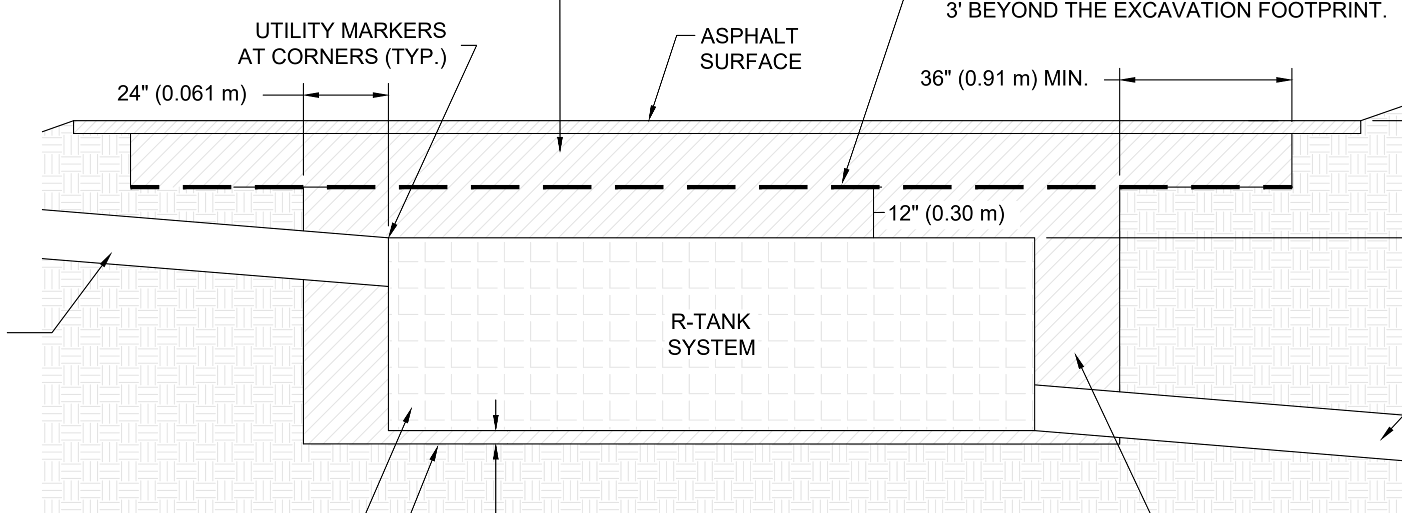
GEOMETRY: LENGTH = 28.15 IN. (715 MM) WIDTH = 15.75 IN. (400 MM) HEIGHT = 9.45 IN. (240 MM) TANK VOLUME = 2.42 CF STORAGE VOLUME = 2.30 CF VOID INTERNAL VOLUME: 95% VOID SURFACE AREA: 90%	**LOAD RATING:** 42.9 PSI, (MODULE ONLY) HS20/HS25 - SEE SPEC FOR COVER REQUIREMENTS **MATERIAL:** 100% RECYCLED POLYPROPYLENE **SMALL PLATES REQUIRED:** 5/SEGMENT, 5/MODULE

SINGLE R-TANK^{SD} - MODULE DETAIL

TOTAL COVER: 18" MINIMUM AND 9.99' MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 9.99'. CONTACT FERGUSON WATERWORKS IF MORE THAN 9.99' OR LESS THAN 18" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:
1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK^{SD} MODULE SHEET .
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE ACF M200 (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{SD} FOOTPRINT.

GEOGRID (ACF BX-12) PLACED 12" ABOVE THE R-TANK^{SD} SYSTEM. OVERLAP ADJACENT PANELS BY 18" MIN. GEOGRID SHOULD EXTEND 3' BEYOND THE EXCAVATION FOOTPRINT.



R-TANK^{SD} UNITS
LOAD RATING: 42.9 PSI (MODULE ONLY)

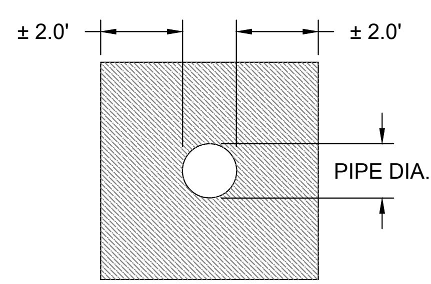
SUBGRADE / EXCAVATION LINE: COMPACT PER SPEC SECTION 3.02 D. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK^{SD}

BASE: 3" (0.08 m) MIN. FREE DRAINING BACKFILL (SPEC SECTION 2.03B) COMPACTED TO 95% STANDARD PROCTOR DENSITY IS REQUIRED TO PROVIDE A LEVEL BASE SURFACE. MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{SD} FOOTPRINT. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK^{SD}. NATIVE SOILS MAY BE ACCEPTABLE IF DETERMINED TO BE STABLE BY OWNER'S ENGINEER.

SIDE BACKFILL: FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). MUST BE FREE FROM LUMPS, DEBRIS AND OTHER SHARP OBJECTS. SPREAD EVENLY TO PREVENT R-TANK^{SD} MOVEMENT. COMPACT SIDE BACKFILL WITH POWERED MECHANICAL COMPACTOR IN 12" LIFTS (PER SPEC SECTION 3.05 A2).

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

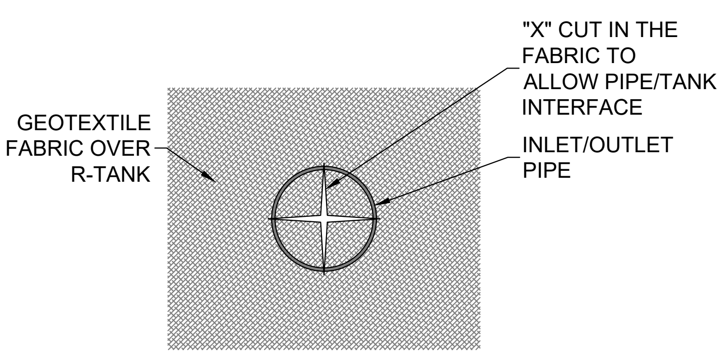
NOTE:
- PIPE BOOTS ARE AVAILABLE IN THE FOLLOWING STANDARD SIZES: 8" | 12" | 15" | 18" | 24".
- LARGER SPECIAL ORDER, CUSTOM SIZES ARE AVAILABLE.



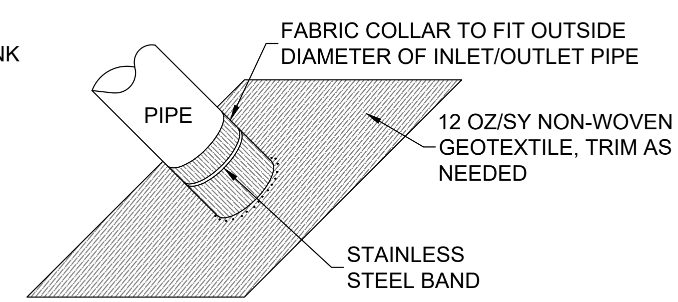
FRONT VIEW OF GEOTEXTILE BOOT

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

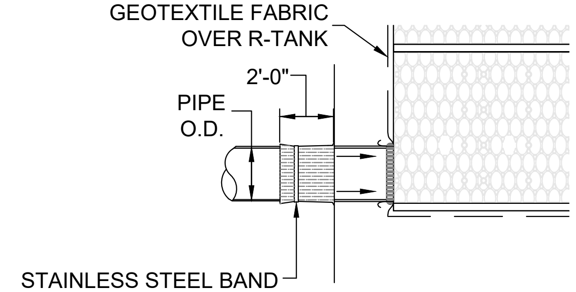
AFTER TANK WRAP IS SECURED TO PIPE, SLIDE BOOT AGAINST R-TANK AND SECURE WITH SECOND STAINLESS STEEL BAND, THEN ATTACH BOOT FLAP TO TANK ENVELOPE FABRIC WITH DUCT TAPE OR OTHER ADHESIVE.



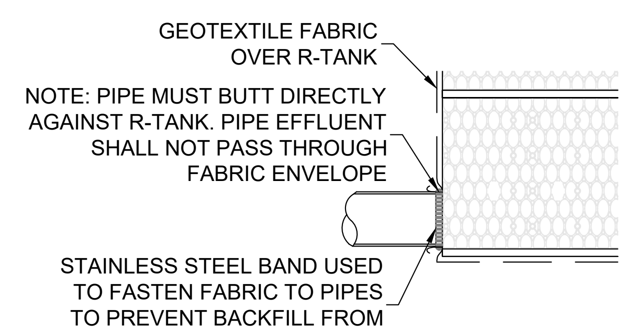
END VIEW OF PIPE/FABRIC CONNECTION



GEOTEXTILE BOOT



SIDE VIEW OF GEOTEXTILE BOOT



SIDE VIEW OF PIPE/FABRIC CONNECTION

R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

R-TANK SD

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FERGUSON WATERWORKS

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R-TANK^{SD} SYSTEM DETAILS
RUSTY LANTERN CONVENIENCE STORE
CUMBERLAND, ME

SCALE
NTS

DRAWN BY
BMK

DATE
01/29/2024

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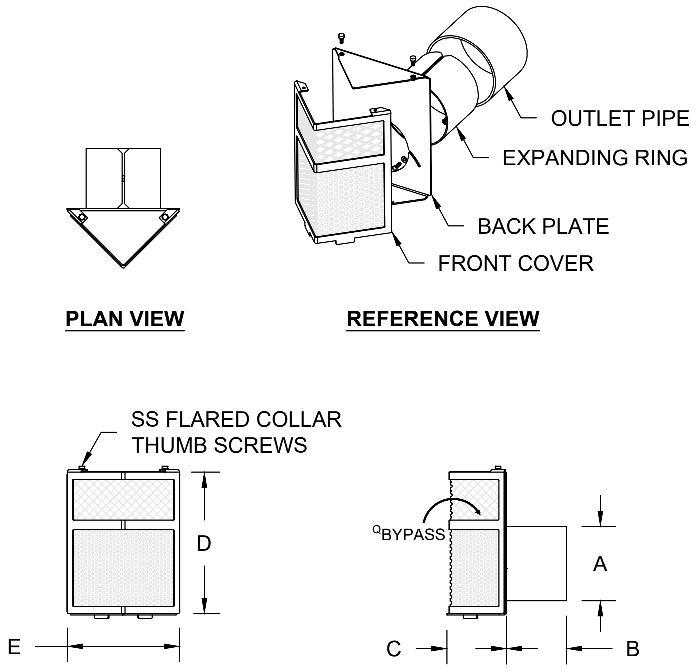
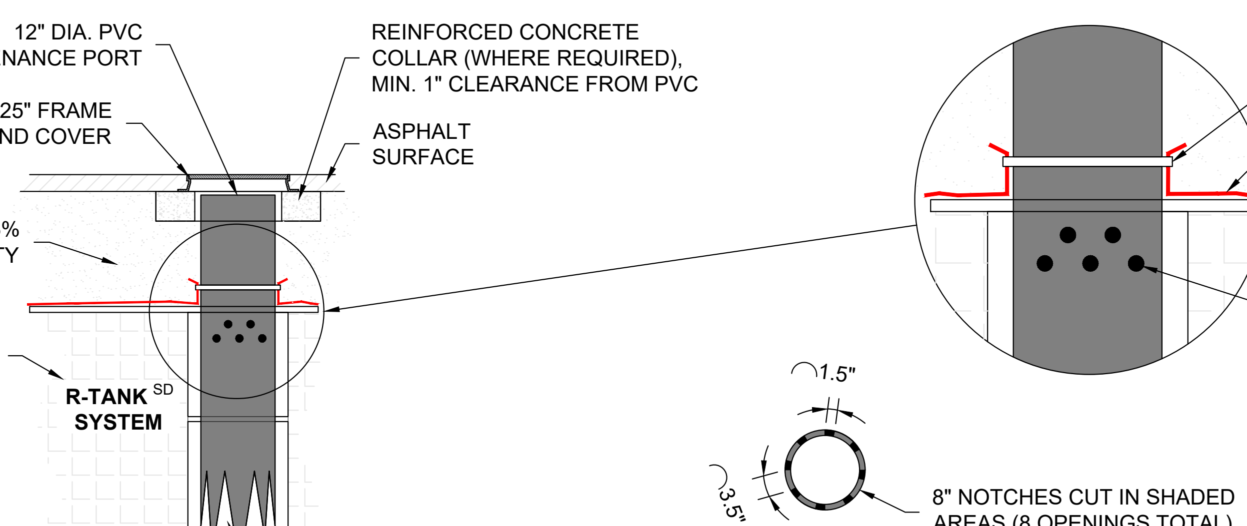


PIPE DIA. (A)	STUB LENGTH (B)	CPS DEPTH (C)	CPS HEIGHT (D)	CPS WIDTH (E)
6"	4.00"	8.50"	10.00"	10.00"
8"	6.00"	11.00"	12.25"	11.50"
10"	8.00"	16.00"	13.50"	13.50"
12"	8.00"	16.00"	15.50"	15.50"
15"	8.00"	16.00"	21.50"	18.50"
18"	8.00"	16.00"	28.00"	21.50"
24"	10.00"	18.00"	40.00"	28.00"

STORMRING CPS PRETREATMENT DETAIL

NOTES
1. THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT IT MAY BE PUMPED OUT.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. R-TANK^{HD}, R-TANK^{SD}, R-TANK^{UD} AND R-TANK^{XD} MAY BE USED IN TRAFFIC APPLICATIONS.
4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
5. IF MAINTENANCE PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



PIPE NOTCHING PATTERN

R-TANK^{SD} TYPICAL MAINTENANCE PORT

R-TANK SD

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FERGUSON WATERWORKS

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R-TANK^{SD} SYSTEM DETAILS
RUSTY LANTERN CONVENIENCE STORE
CUMBERLAND, ME

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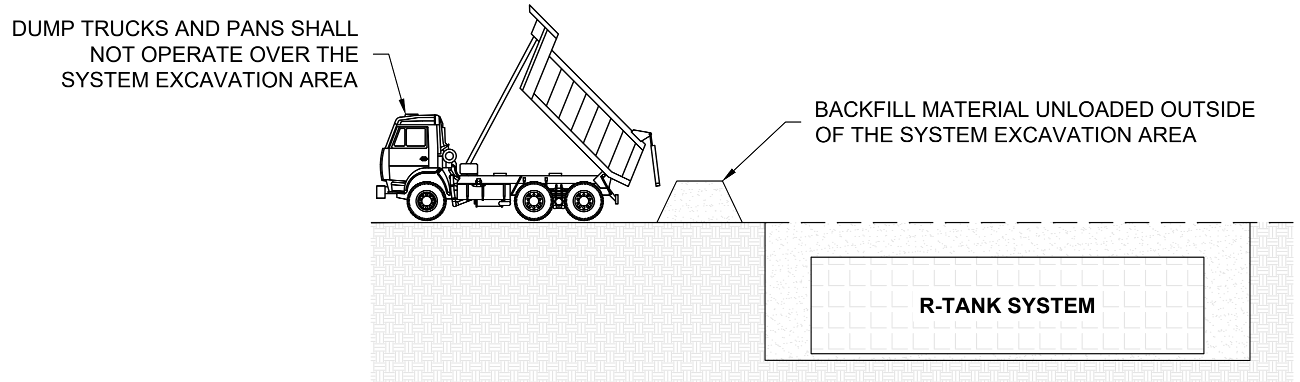
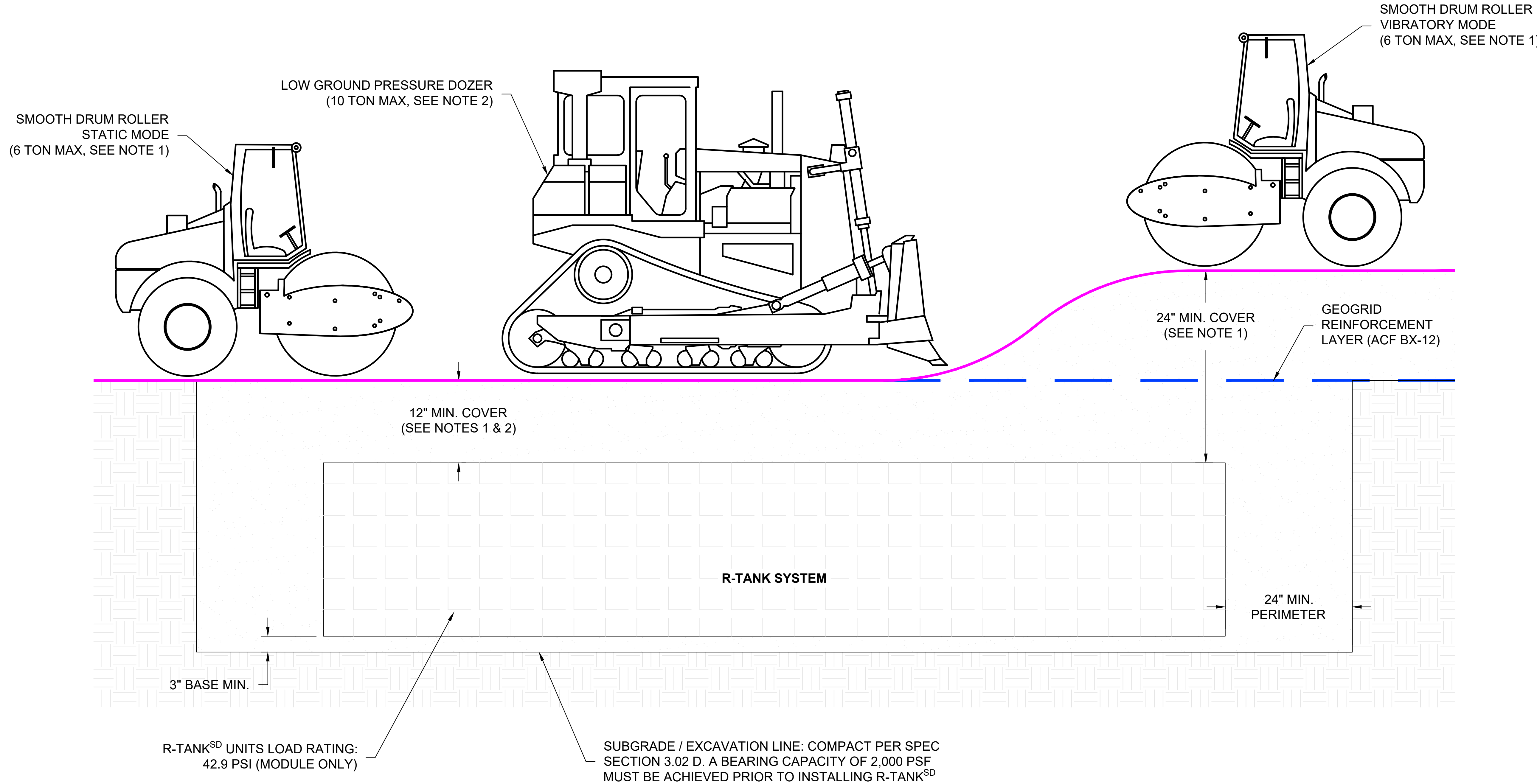


DUMP TRUCK DETAIL (SEE NOTE 3)

NOTES:

1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B2) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL FERGUSON REPRESENTATIVE FOR ADDITIONAL INFORMATION.



CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FERGUSON WATERWORKS

FOR ADDITIONAL INFORMATION PLEASE CONTACT: FERGUSON WATERWORKS, 1-800-448-3636, www.ferguson.com

R-TANK^{SD} CONSTRUCTION EQUIPMENT COVER DETAIL
RUSTY LANTERN CONVENIENCE STORE
CUMBERLAND, ME

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R-TANK SPECIFICATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

1.02 DESCRIPTION OF WORK INCLUDED

A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.

B. Provide and install R-TankLD/, R-TankHD/, R-TankSD/, or R-TankU/D/ system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.

C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.

D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.03 QUALITY CONTROL

A. All materials shall be manufactured in ISO certified facilities.

B. Installation Contractor shall demonstrate the following experience:

1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.

C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.

D. Contractor must have manufacturer's representative available for site review if requested by Owner.

1.04 SUBMITTALS

A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.

B. Submit manufacturer's product data, including compressive strength and unit weight.

C. Submit manufacturer's installation instructions.

D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.

E. Submit material certificates for geotextile, geogrid, base course and backfill materials.

F. Submit required experience and personnel requirements as specified in Section 1.03.

G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.

B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.

C. Cold weather:

1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
2. Do not use frozen materials or materials mixed or coated with ice or frost.
3. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 PREINSTALLATION CONFERENCE.

A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.07 PROJECT CONDITIONS

A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.

B. Protect adjacent work from damage during R-Tank system installation.

C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.

D. Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS

2.01 R-TANK UNITS

A. R-Tank - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).

B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank^{LD} VALUE	R-Tank^{HD} VALUE	R-Tank^{SD} VALUE	R-Tank^{UD} VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.4 psi	28.9 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (STONE BACKFILL)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	15" (STONE BACKFILL)
Maximum Cover	Maximum allowable cover depth	3 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs / cf	3.62 lbs/cf	3.96 lbs / cf	4.33 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 – 167° F

C. Supplier: Ferguson Waterworks 2831 Cardwell Road Richmond, VA 23234 (T): 800-448-3636; (F): 804-743-7779 www.ferguson.com

2.02 GEOSYNTHETICS

A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.

1. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (ACF N080 or equivalent).
2. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (ACF M200 or equivalent) shall be used.

B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (ACF BX12 or equivalent) to reinforce backfill above the R-Tank system. Geogrid is not always required for R-TankUD/ installations, and is often not required for non-traffic load applications.

2.03 BACKFILL & COVER MATERIALS

A. Bedding Materials: Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.

B. Side and Top Backfill: Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

1. Traffic Applications - Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system.

a. For HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).

b. For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more. Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill.

2. Non-Traffic / Green Space Applications - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.

C. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

2.04 OTHER MATERIALS

A. Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 - EXECUTION

3.01 ASSEMBLY OF R-TANK UNITS

A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2.

3.02 LAYOUT AND EXCAVATION

A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.

B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.

C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.

D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.

1. Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
2. Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.

E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.

1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 PREPARATION OF BASE

A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within ½" (+/- ¼") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.

1. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
2. Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.

B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.04 INSTALLATION OF THE R-TANKS

A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.

B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.

C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans.

1. For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details
2. For UD installations, there is no perpendicular end row required.

D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.

E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (butted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.

F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.

G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with 'U" bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

3.05 BACKFILLING OF THE R-TANK UNITS

A. Backfill and fill with recommended materials as follows:

1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and the R-Tank units.
4. No compaction equipment is permissible to operate directly on the R-Tank modules.
5. Top Backfill: Only low pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.

a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.

b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.

6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.
8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.

B. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).

C. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.

D. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

3.06 MAINTENANCE REQUIREMENTS

A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).

B. All inlet pipes and Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.

C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.

D. All inspection and maintenance activities should be performed in accordance with the R-Tank Operation, Inspection & Maintenance Manual.

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FOR ADDITIONAL INFORMATION PLEASE CONTACT: FERGUSON WATERWORKS, 1-800-448-3636, www.ferguson.com

R-TANK SPECIFICATION
RUSTY LANTERN CONVENIENCE STORE
CUMBERLAND, ME

SCALE
NTS

DRAWN BY
BMK

DATE
01/29/2024

SHEET NO.
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