# TOWN OF BRISTOL, RHODE ISLAND

#### TECHNICAL REVIEW COMMITTEE

Technical Review Committee Agenda
Monday, August 25, 2025 at 1:00 PM
Community Development Office Conference Room, 235 High Street,
1st Floor, Bristol, RI 02809

- A. Pledge of Allegiance
- B. New Business
  - B1. Minor Land Development Preliminary Phase/Unified Development. Proposal for construction of a 3,500 square foot building for a contract construction use in a General Business Zoning District that also requires a Special Use Permit. Property located at 670-688 Metacom Avenue, Assessor's Plat 128, Lot 15 & 16, Zone: General Business and Metacom Overlay District. Owners/Applicants: David Ramos and Lionel Ramos.

#### C. Adjournment

Date Posted: August 14, 2025

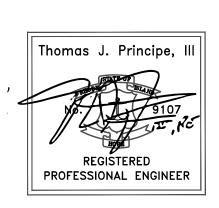
Posted By: mbw

# PRELIMINARY SUBMISSION

668 & 670 METACOM AVENUE

ASSESSORS MAP 128 PARCELS 15 & 16

BRISTOL, RHODE ISLAND





**APPLICANT**: 12 RUTH AVENUE BRISTOL, RI 02809

OWNER (LOT 15): DAVID J. RAMOS 12 RUTH AVENUE BRISTOL, RI 02809

OWNER (LOT 16): LIONEL J. RAMOS 9 SCOTT LANE BRISTOL, RI 02809

# PREPARED BY: PRINCIPE COMPANY, INC.

ENGINEERING DIVISION

27 SAKONNET RIDGE DRIVE TIVERTON, RHODE ISLAND 02878 401.816.5385 INFO@PRINCIPECOMPANY.COM WWW.PRINCIPECOMPANY.COM

AUGUST 8, 2025

# LIST OF DRAWINGS

- 1) TITLE SHEET
- 2) EXISTING CONDITIONS PLAN (LOTS 15 & 16)
- 3) PROPOSED LAYOUT PLAN (LOT 16)
- 4) DRAINAGE & GRADING PLAN (LOT 16)
- 5) LANDSCAPE PLAN (LOT 16)
- 6) PROPOSED CONDITIONS PLAN (LOT 15)
- 7) RIDOT PAP PLAN
- 8) CONSTRUCTION DETAILS 1
- 9) CONSTRUCTION DETAILS 2
- 10) CONSTRUCTION DETAILS 3

STREET INDEX METACOM AVENUE (PUBLIC- STATE HIGHWAY)

# **SOIL REFERENCE:**

NRCS WEB SOIL SURVEY: PmA - PITTSTOWN SILT LOAM (0-3% SLOPES) [27" GWT] Sf - STISSING VERY STONY SILT LOAM [9" GWT] CaC - CANTON-CHARLTON-ROCK OUTCROP COMPLEX (3-15% SLOPES) DATE ACCESSED: 03/25/24

# PLAN REFERENCE:

SIGNED BY: STEPHEN T. LONG, PLS NO. 1930

1.) EXISTING CONDITIONS TAKEN FROM CLASS I SURVEY PLAN ENTITLED: "EXISTING CONDITIONS PLAN FOR DAVID J. RAMOS & LIONEL J. RAMOS" AP 128 LOT 15 & 16 IN BRISTOL, RI DATE: 03/27/2024; REVISED JULY 3, 2025 PREPARED BY: PRINCIPE COMPANY, INC. - SURVEYING DIVISION

# REQUESTED RELIEF

# WAIVERS REQUESTED

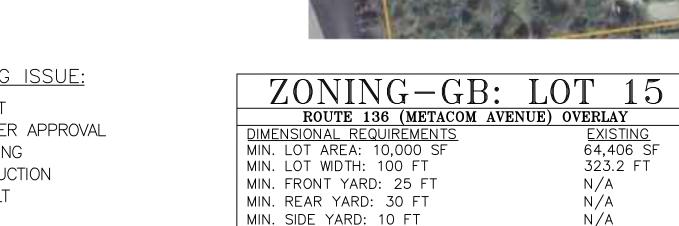
A waiver is requested from Land Development Projects Section: Sidewalks shall be required to be installed on one side of new streets in subdivisions and in multifamily developments. No sidewalks is proposed in front of Lot 15.

# DRAWING ISSUE:

☐ CONCEPT ☐ CUSTOMER APPROVAL X PERMITTING ☐ CONSTRUCTION ☐ AS-BUILT OTHER: ONLY PLANS ISSUED FOR CONSTRUCTION



SHALL BE USED FOR CONSTRUCTION



MAX. BLDG. LOT COV.: 40%

MAX. TOTAL LOT COV.: 70%

MAX. FLOOR AREA RATIO: 0.5

MIN. DIST. FROM RES. ZONE: 25 FT

#### ZONING-GB: LOT 16 ROUTE 136 (METACOM AVENUE) OVERLAY DIMENSIONAL REQUIREMENTS MIN. LOT AREA: 10,000 SF MIN. LOT WIDTH: 100 FT 157.0 FT MIN. FRONT YARD: 25 FT N/A MIN. REAR YARD: 30 FT N/A MIN. SIDE YARD: 10 FT N/A MAX. BLDG. LOT COV.: 40% N/A MAX. TOTAL LOT COV.: 70% N/A MIN. DIST. FROM RES. ZONE: 25 FT N/A MAX. FLOOR AREA RATIO: 0.5 N/A

# GENERAL NOTES:

1. THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATE AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD AND UNDERGROUND, AND "DIG-SAFE" MU BE NOTIFIED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL CO THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR TOWN WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEA 72 HOURS IN ADVANCE.

N/A

N/A

N/A

N/A

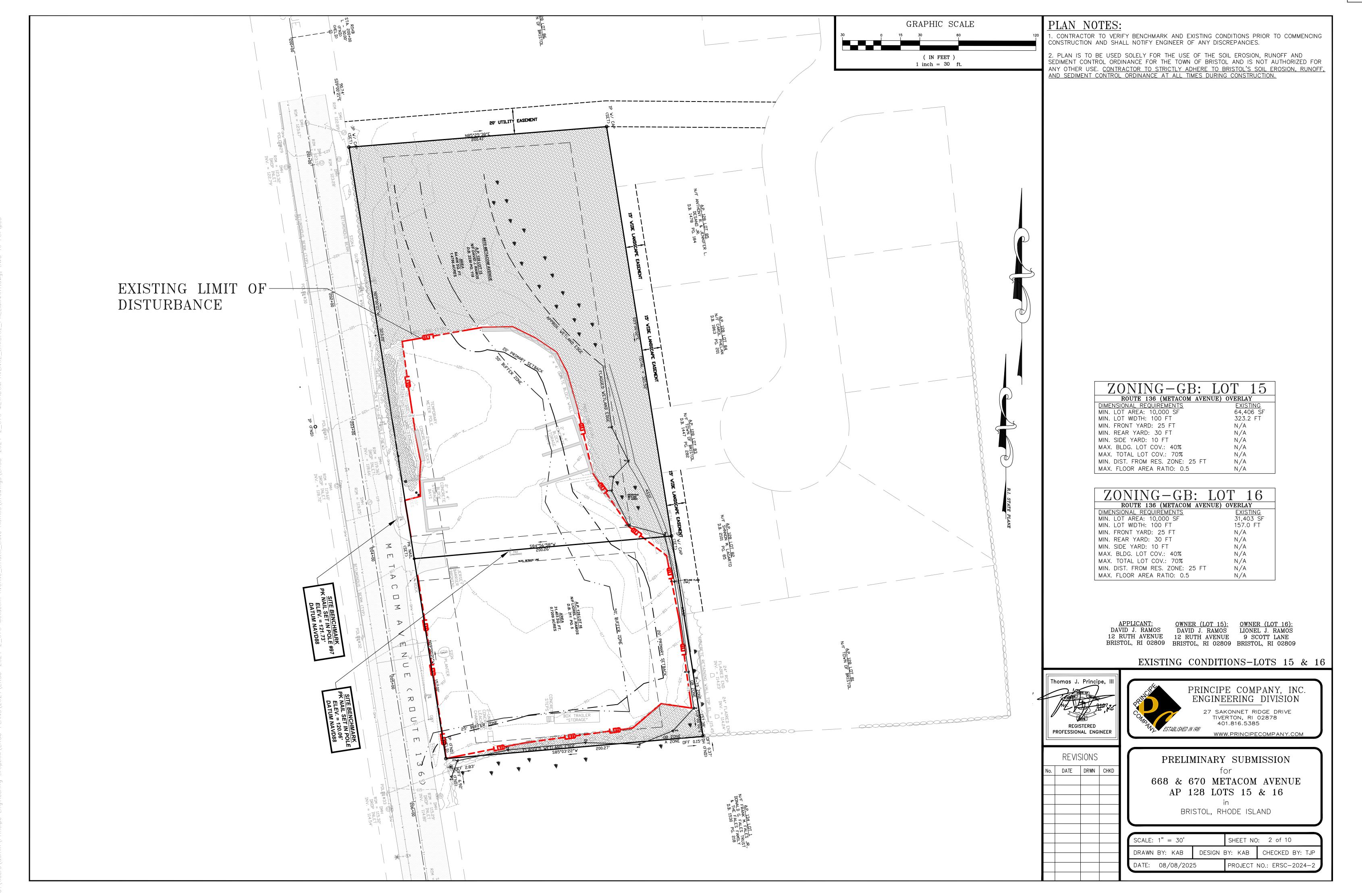
2. THIS SITE LIES IN ZONE X AS SHOWN ON THE FIRM MAP FOR THE CITY OF BRISTOL, RI COMMUNITY PANEL NO.44001C0011H, MAP REVISED JULY 7, 2014. 3. THERE ARE NO KNOWN EASEMENTS OR RIGHTS OF WAY WITHIN OR ADJACENT TO THIS PARCEL UNLESS OTHERWISE SHOWN.

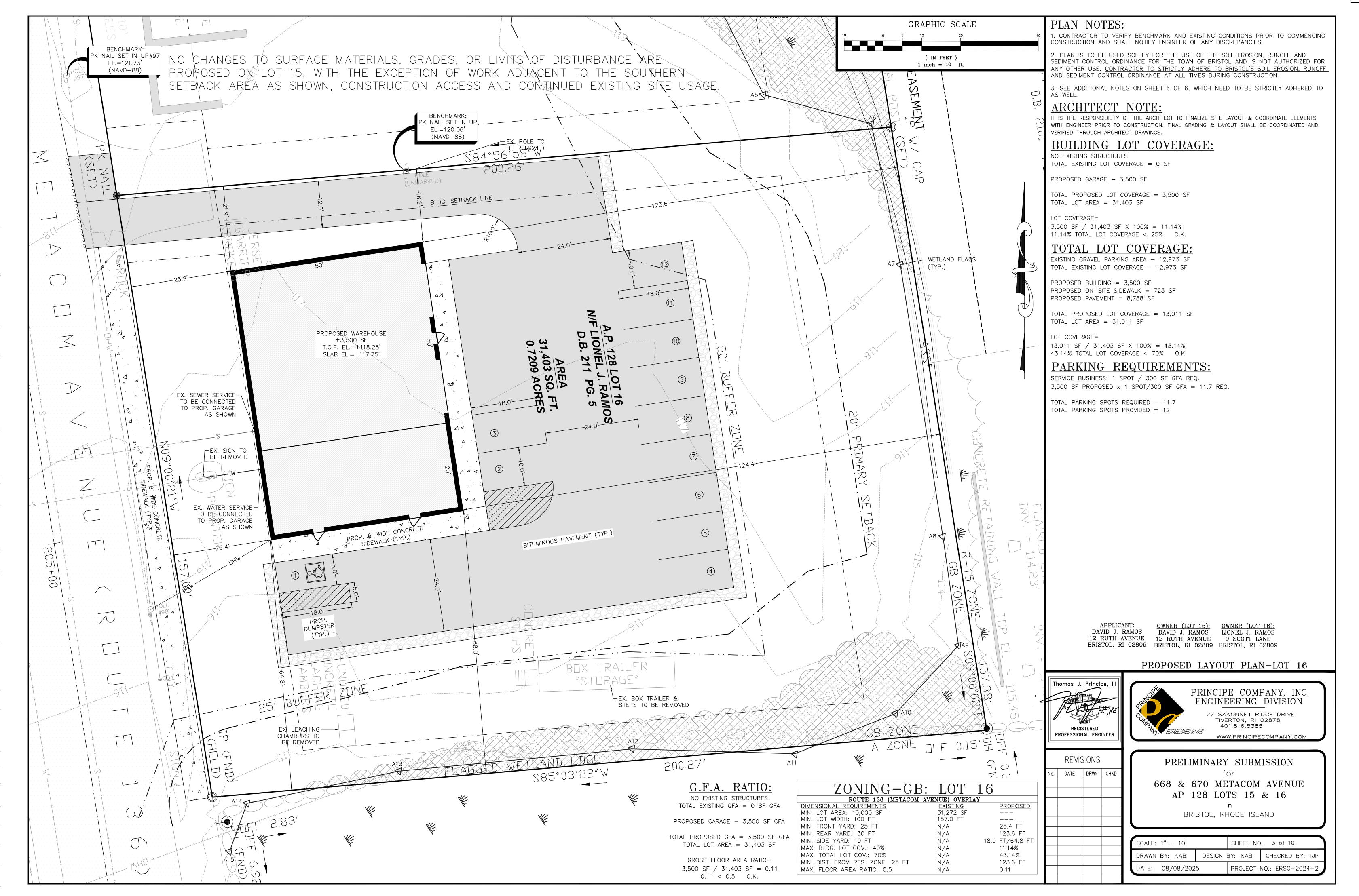
ALDNG THIS PARCELS FRONTAGE.

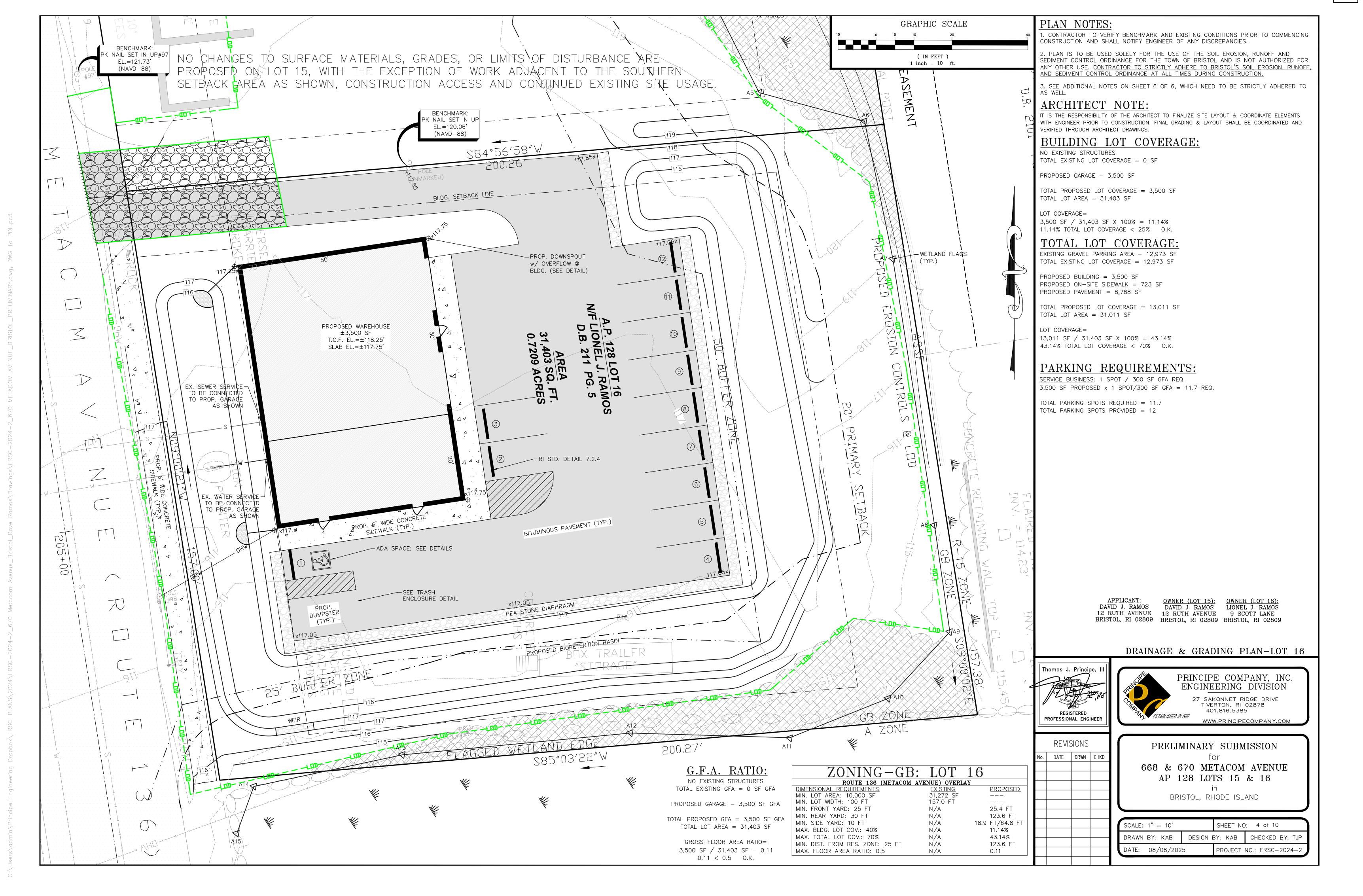
# SITE LOCUS NOT TO SCALE

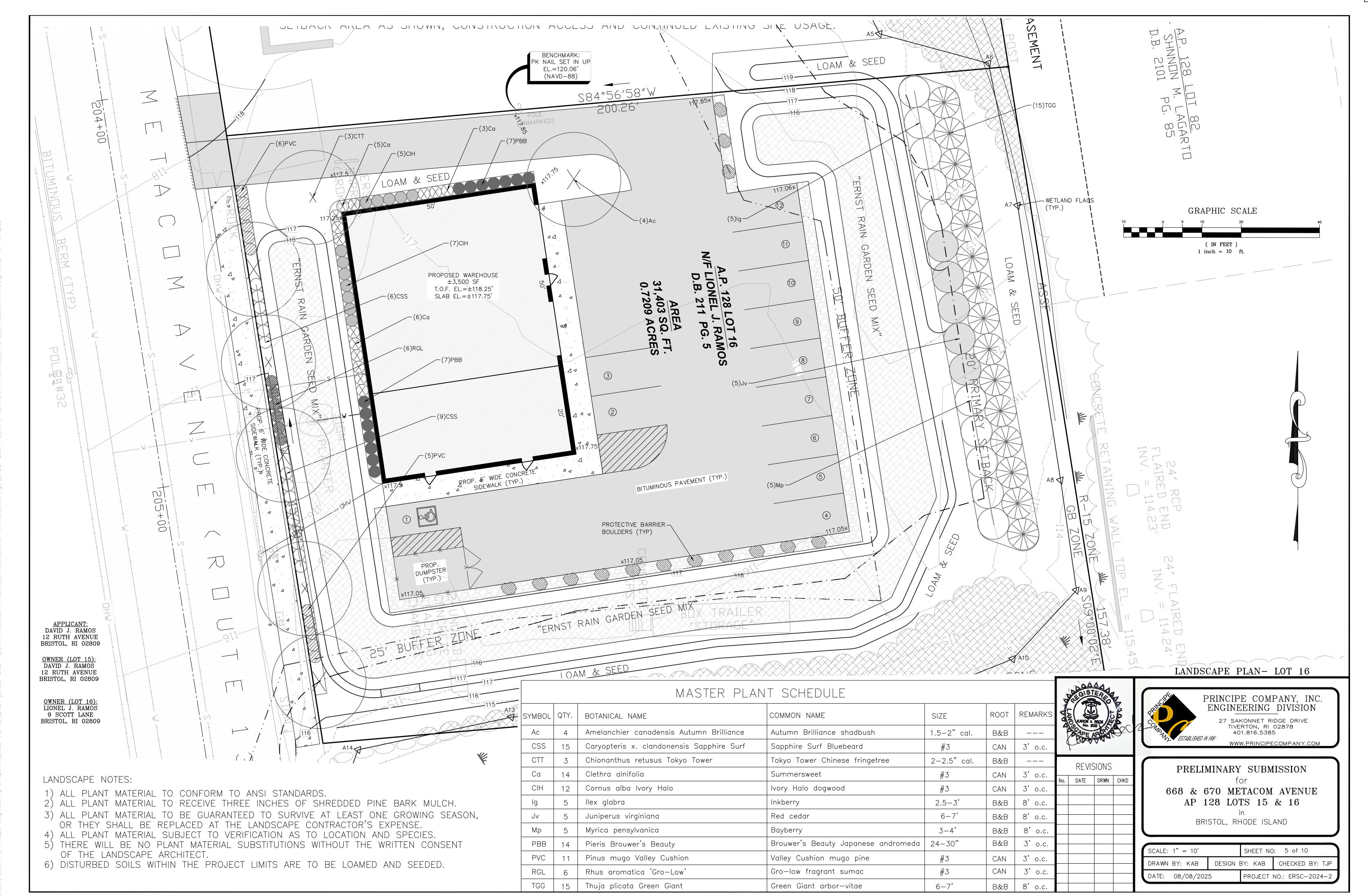
# LEGEND EXISTING PROPOSED PERIMETER LINE ABUTTER LINE EDGE OF PAVEMENT FENCE EASEMENT \_\_\_\_\_ -----CONTOUR -----UTILITY POLE TEST HOLE SAWCUT BUILDING SETBACK \_\_ \_ \_ \_ \_ \_ \_ \_ \_ \_ OVERHEAD WIRE CATCH BASIN DRAIN MANHOLE DRAIN LINE WATER LINE WATER GATE VALVE SEWER LINE WETLAND FLAG DOWNSPOUT LIGHT POST STONEWALL COMPOST FILTER SOCK RIDOT STD 9.9.0 CONSTRUCTION ACCESS

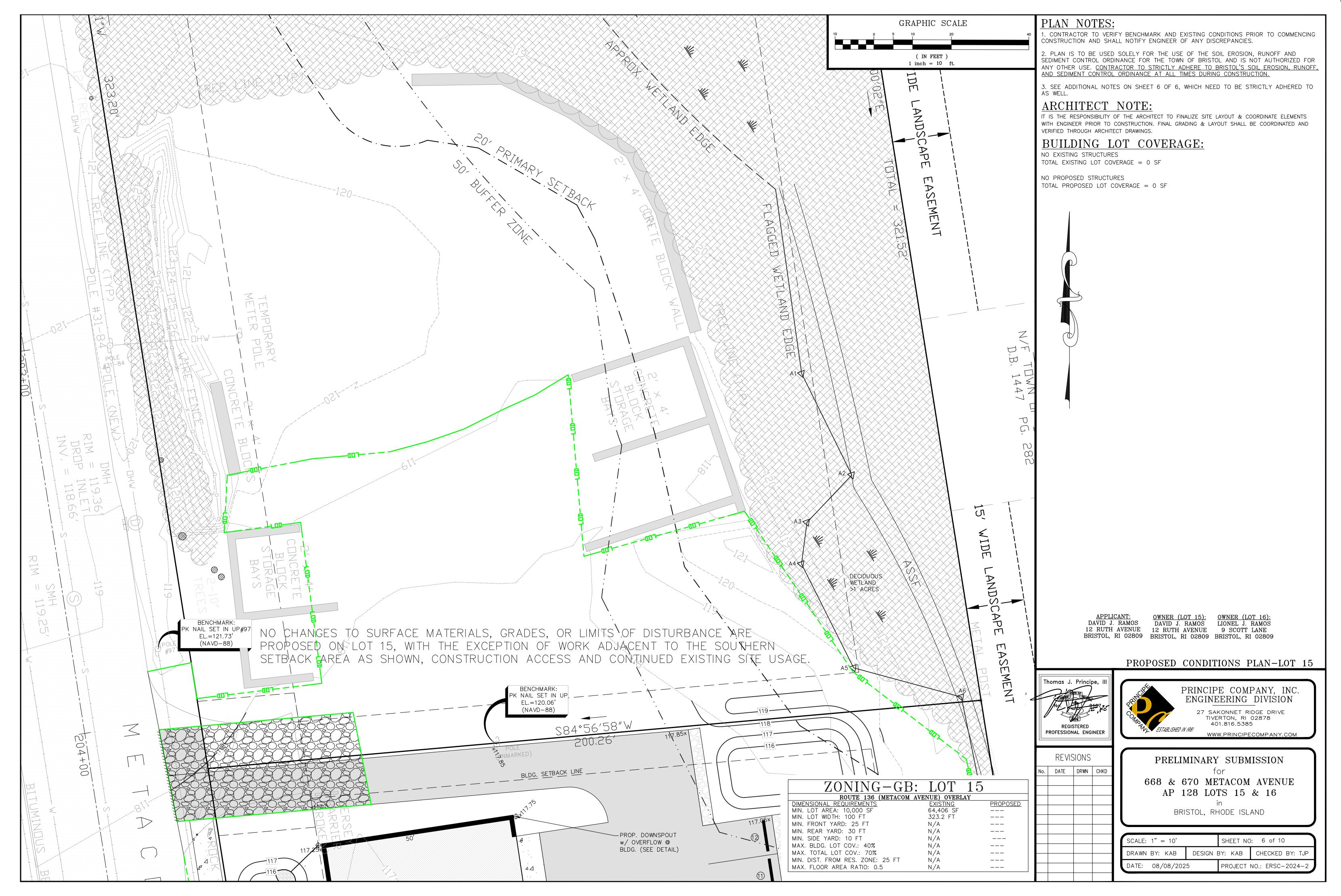
4. THE CONTOURS SHOWN HEREIN ARE BASED UPON THE NAVD88 DATUM. 5. THERE ARE UNDERGROUND UTILITIES LOCATED WITHIN METACOM AVENUE

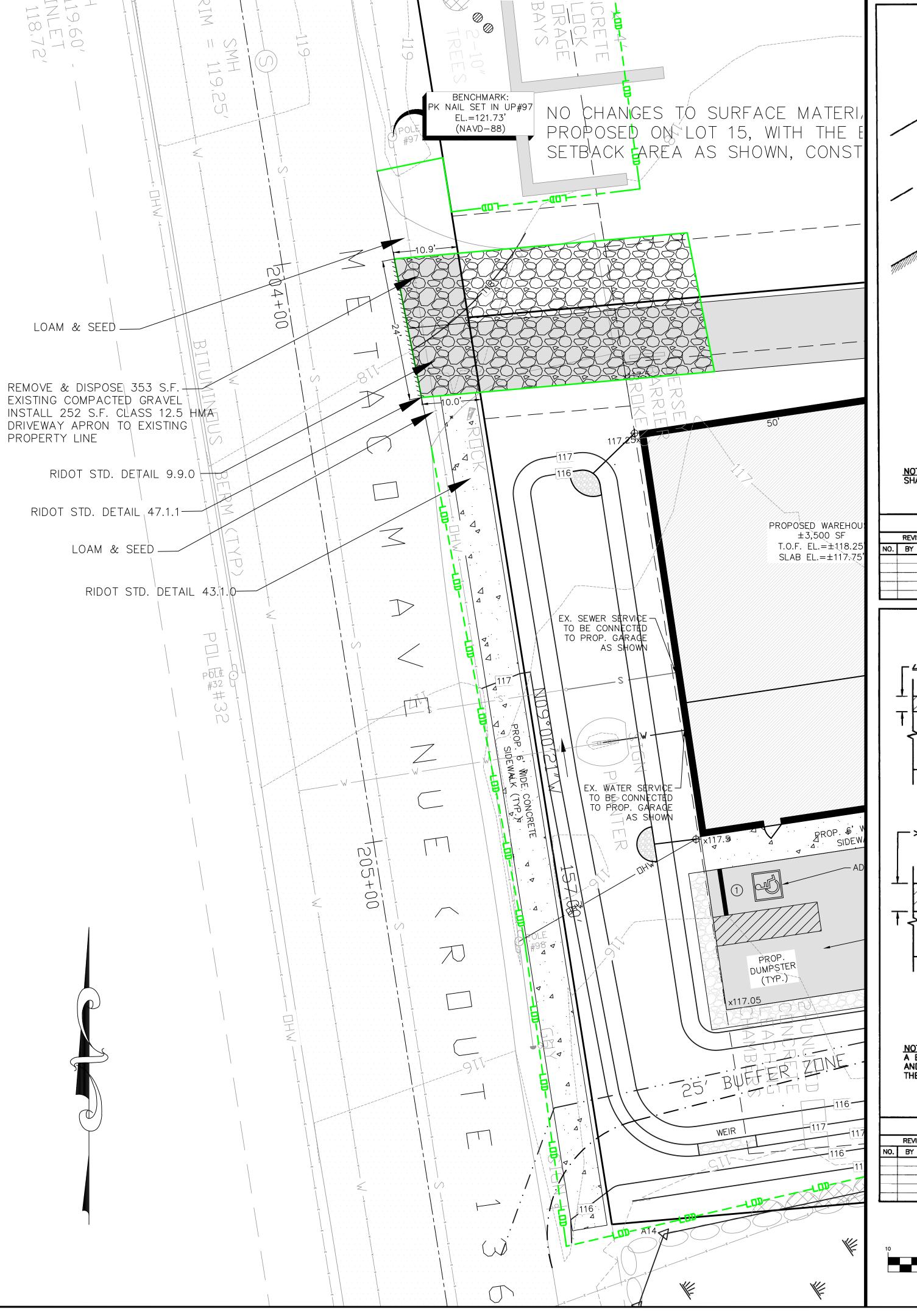


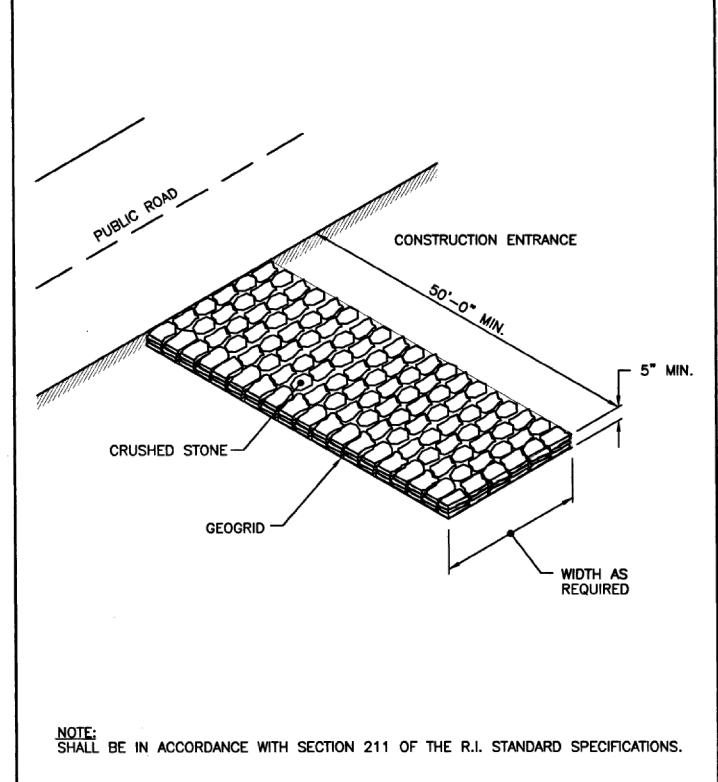


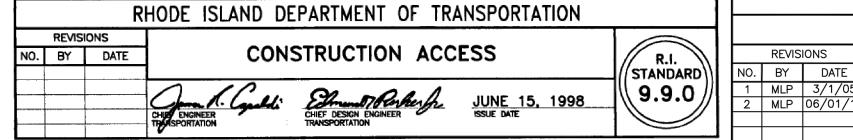


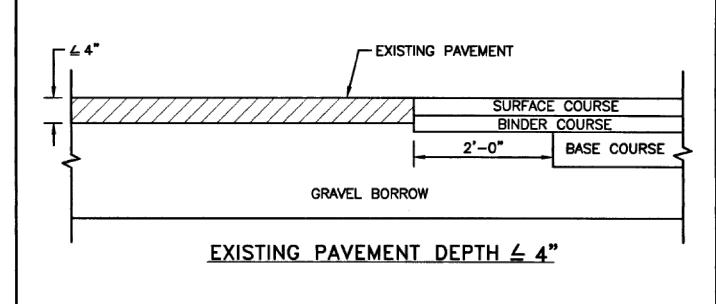


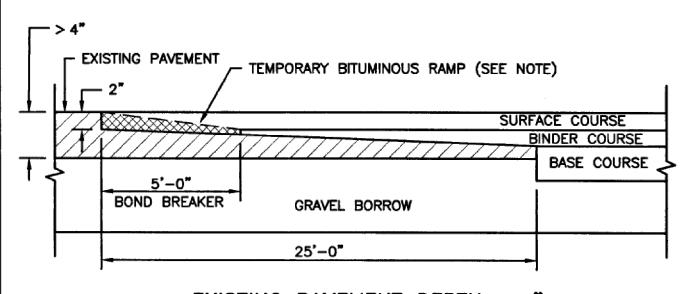








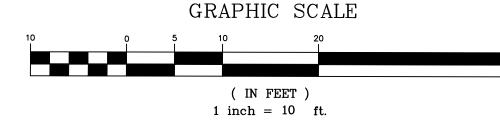




# EXISTING PAVEMENT DEPTH > 4"

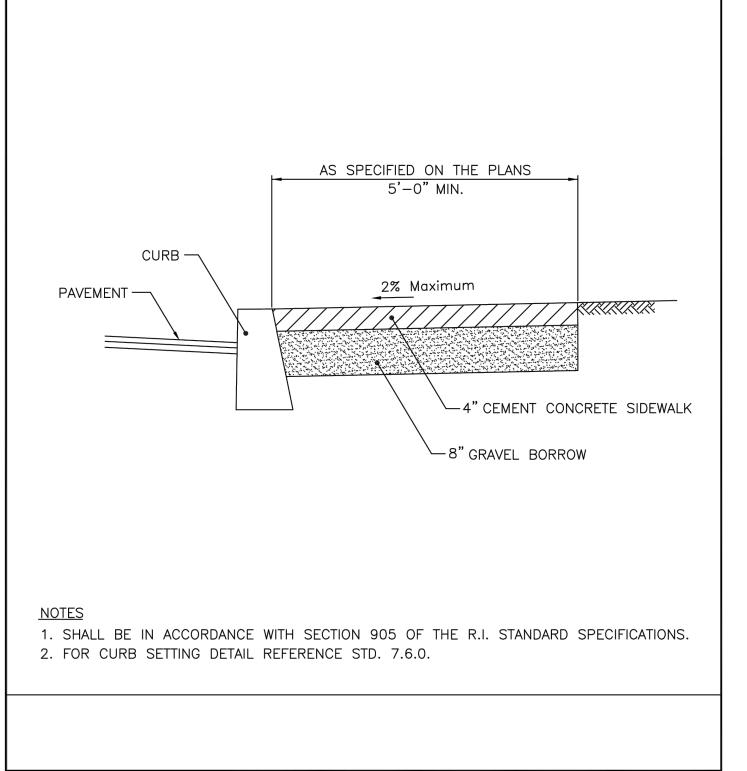
A BOND BREAKER (TAPERED OR EQUIVALENT) WILL BE PLACED 5'-0" FROM THE JOINT AND COVERED WITH THE BINDER COURSE AS THE TEMPORARY RAMP. PRIOR TO PLACING THE SURFACE COURSE, THE BINDER COURSE AND BOND BREAKER WILL BE REMOVED.

DE	MEIONE	RHO		EPARTMENT OF TRA		<del></del>
NO. B	Y DA	TE		NSVERSE PAVE CUT AND MATC		R.I. STANDARD
			ENGINEER SPORTATION	CHIEF DESIGN ENGINEER TRANSPORTATION	JUNE 15, 1998 ISSUE DATE	47.1.1



APPLICANT: DAVID J. RAMOS

DAVID J. RAMOS LIONEL J. RAMOS 12 RUTH AVENUE 12 RUTH AVENUE 9 SCOTT LANE BRISTOL, RI 02809 BRISTOL, RI 02809 BRISTOL, RI 02809



RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CEMENT CONCRETE SIDEWALK

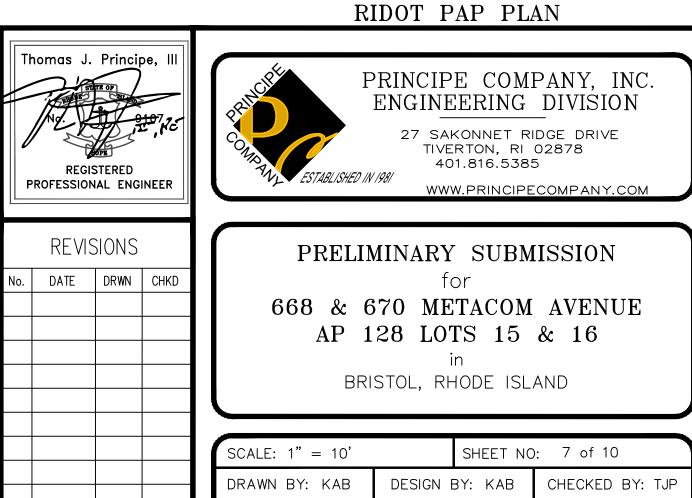
# RIDOT NOTES:

- 1. THERE WILL BE NO IMPACT TO THE STATE HIGHWAY DRAINAGE SYSTEM AS THERE IS NO PROPOSED INCREASE IN UNTREATED IMPERVIOUS AREA AND NO CHANGE IN WATERSHED FLOW.
- 2. ALL WORK TO BE DONE WITHIN THE STATE HIGHWAY RIGHT OF WAY (ROW) SHALL CONFORM TO THE RHODE ISLAND STANDARD SPECÍFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AUGUST 2023 EDITION WITH ALL REVISIONS AND ADDENDA. STANDARD DETAILS FOR THIS WORK ARE R.I. STANDARD DETAILS 1998 EDITION (AMENDED OCTOBER 2022) WITH ALL REVISIONS.
- 3. ALL TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICED 2009, INCLUDING ALL REVISIONS.
- 1. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO FAMILIARIZE HIMSELF WITH ANY APPLICABLE LOCAL, STATE AND FEDERAL LAWS GOVERNING HIS INTENDED ACTIVITIES. OSHA REGULATIONS ARE APPLICABLE OF PROJECT SITE CONSTRUCTION ACTIVITIES.

STANDARD\ \43.1.0*/* 

- 2. ALL CONSTRUCTION WILL BE UNDERTAKEN IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE TOWN OF TIVERTON.
- 3. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF ALL EXISTING UTILITIES, STRUCTURES, AND ABUTTING PROPERTIES. THE COST OF ANY REPAIR OR REPLACEMENT OF DAMAGED ITEMS SHALL BE BORNE BY THE CONTRACTOR.
- 4. IF THE MUNICIPALITY REQUIRES A PROJECT PRE-CONSTRUCTION CONFERENCE, THE PROJECT DEVELOPER AND THE PROJECT CONTRACTOR WILL ATTEND AND WILL PROVIDE ALL REQUESTED MATERIALS PRIOR TO COMMENCING ANY WORK.
- 5. IF CEMENT CONCRETE MIX TRUCKS ARE TO BE WASHED OUT ON SITE, THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING A WASH OUT AREA WITH APPROPRIATE PROTECTION CONTROLS.
- 6. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING COLLECTION AND STORAGE LOCATIONS ON-SITE FOR ALL CONSTRUCTION DEBRIS AND TRASH SO THAT THIS MATERIAL DOES NOT BECOME A NEIGHBORHOOD NUISANCE.

PROJECT NO.: ERSC-2024-2



DATE: 08/08/2025

# **GENERAL NOTES**

- IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO OBTAIN ANY AND ALL PERMITS REQUIRED BY THE STATE OF RHODE ISLAND AND THE MUNICIPALITY PRIOR TO COMMENCING ANY WORK.
- IT SHALL ALSO BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF ALL EXISTING UTILITIES, STRUCTURES, AND ABUTTING PROPERTIES. THE COST OF ANY REPAIR OR REPLACEMENT OF DAMAGED ITEMS SHALL BE BORNE BY THE CONTRACTOR.
- BEFORE STARTING ANY CONSTRUCTION THE CONTRACTOR SHALL COORDINATE INSTALLATION OF ANY HYDRANTS, WATER MAINS, BLOWOFF ASSEMBLIES, FITTINGS, AND VALVES WITH THE LOCAL WATER DEPARTMENT AS TO TYPE AND MANUFACTURER.
- THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE MUNICIPAL ENGINEERING DEPARTMENT AND ALL UTILITY INSTALLATIONS AND INSPECTIONS WITH THE APPROPRIATE UTILITY COMPANY. A 48 HOUR ADVANCE NOTICE IS REQUIRED BEFORE WORK
- ALL WORK PERFORMED HEREIN SHALL BE GOVERNED BY THE "R.I. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (REVISION OF 1997)" WITH ALL CORRECTIONS AND ADDENDA AND THE 1974 R.I. STANDARD DETAILS WITH ALL CORRECTIONS AND ADDENDA AND THE TOWN OF BRISTOL STANDARD SPECIFICATIONS AND DETAILS.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR QUANTITY TAKE-OFF IN COMPUTING ANY ESTIMATES.
- EMBANKMENT SLOPES AND ALL DISTURBED AREAS ARE TO RECEIVE 4" OF TOPSOIL AND SEEDED, SEE EROSION CONTROL PROGRAM.
- UNLESS OTHERWISE SPECIFIED, ALL STORM DRAINS SHALL BE REINFORCED CONCRETE CLASS III PIPE
- THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION INDICATED ON THESE PLANS. THAT INCLUDES ANY CONSTRUCTION TO BRING UTILITIES TO SITE, ANY REPAIRS, ANY TRENCHING REQUIRED, HYDRANTS, ANY AND ALL CONSTRUCTION FOR ACCEPTANCE OF ROADS AND EASEMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL TEMPORARY SEDIMENTATION AND EROSION
- THE LOCATION OF EXISTING UTILITIES AS SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR. "DIG SAFE" SHALL
- BE CONTACTED BY THE CONTRACTOR AS PART OF THIS VERIFICATION. IN ALL EXCAVATION AND PLACEMENT OF FILL, THE CONTRACTOR SHALL PERFORM THE WORK IN FULL COMPLIANCE WITH THE R.I.
- STANDARD SPECIFICATION SECTION 202.
- ALL WATER MAINS SHALL BE DEFLECTED ALONG A CURVE WITH A MINIMUM RADIUS OF 250' AT ANY LOCATION WHERE THIS IS NOT POSSIBLE, PROPER BENDS AND FITTINGS SHALL BE USED.
- ALL EXCESS SOIL, STUMPS, TREES, ROCKS, BOULDERS, AND OTHER REFUSE SHALL BE DISCARDED OFF SITE, IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.

# EROSION CONTROL & SOIL STABILIZATION PROGRAM

- DENUDED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON.
- ALL DISTURBED SLOPES, EITHER NEWLY CREATED OR EXPOSED PRIOR TO OCTOBER 15, SHALL BE SEEDED OR PROTECTED BY THAT DATE, FOR ANY WORK COMPLETED DURING EACH CONSTRUCTION YEAR.
- THE TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM WITH R.I. STD SPECIFICATION M 18.
- THE SEED MIX SHALL BE INOCULATED WITHIN 24 HOURS, BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCOLUM FOR EACH VARIETY.
- THE DESIGN MIX SHALL BE COMPRISED OF THE FOLLOWING PERMANENT SEEDING MIXTURES

A.	MOWED	AREA	(ALL	FLATS	OR	SLOPES	LESS	THAN	3:1)
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MIXTURE:	% BY WEIGHT:	<b>SEEDING DATES:</b>
RED FESCUE	75	APRIL 1 – JUNE 15
KENTUCKY BLUEGRASS	15	AUGUST 15 - OCTOBER 15
COLONIAL BENTGRASS	5	
PERENNIAL RYEGRASS	5	
TOTAL:	100 lbs/Ac.	

B. UNMOWED AREA OR INFREQUENTLY MOSED (ALL SLOPES GREATER THAN 3:1)

MIXTURE:	<u>% BY WEIGHT:</u>	<u>SEEDING DATES:</u>
RED FESCUE	75	APRIL 1 — JUNE 15
COLONIAL BENTGRASS	5	AUGUST 15 - OCTOBER 15
PERENNIAL RYEGRASS	5	
BIRDSFOOT TREFOIL	15	
TOTAL:	100 lbs/Ac.	

- TEMPORARY TREATMENTS SHALL CONSIST OF A STRAW, OR FIBER MULCH OR PROTECTIVE COVERS SUCH AS A MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, EXCELSIOR BLANKETS) THEY SHALL BE INCORPORATED INTO THE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER.
- STRAW APPLICATIONS SHOULD BE IN THE AMOUNT OF 3,000 4,000 lbs/Ac.
- ALL STRAW BALES OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED. IF NEEDED, TEMPORARY SEEDING CAN HELP MINIMIZE THE EROSION. A TEMPORARY SEEDING GUIDE MUST BE INCLUDED AS A REFERENCE. THE FOLLOWING SPECIES ARE RECOMMENDED:

MIXTURE:	lbs./1,000 S.F.	lbs/Ac.	SEEDING DATES:
ANNUAL RYEGRASS	1.0 - 1.5	40 - 60	3/1 - 6/1
PERENNIAL RYEGRASS	1.0 - 1.5	40 - 60	3/1 - 6/1
SUDAN GRASS	0.7 - 1.0	30 - 40	5/15 - 8/15
MILLET	0.7 - 1.0	30 - 40	5/15 - 8/15
WINTER RYE	3.0	120	4/15 - 6/15
OATS	0.5 - 5.0	86 - 120	3/1 - 6/15
WEEPING COVER GRASS	0.5 - 5.0	5 - 20	5/1 - 7/1

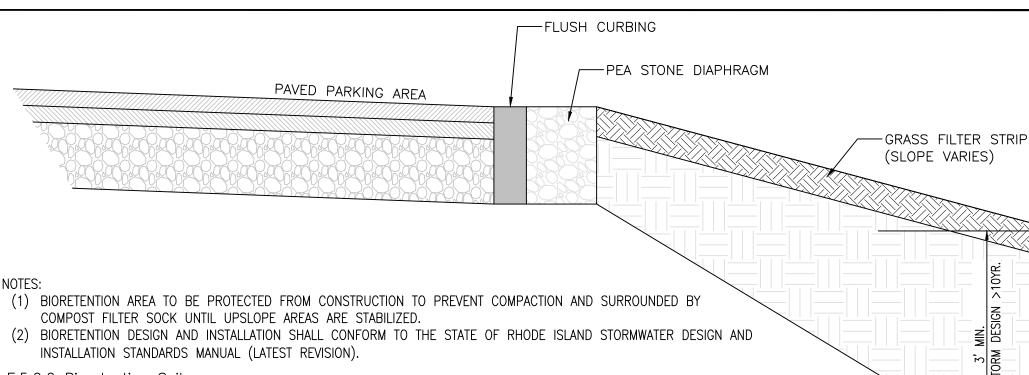
- THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE.
- ALL FILL SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH THE R.I.D.P.W. STD SPECIFICATIONS SECTION 202.
- STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 15 DAYS OF FINAL GRADING.
- STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS, THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES SHALL ALSO BE SEEDED AND/OR STABILIZED.
- ON BOTH STEEP AND LONG SLOPES CONSIDERATION SHALL BE GIVEN TO "CRIMPING" OR "TRACKING" TO TACK DOWN MULCH APPLICATIONS.
- REFERENCE THE SEDIMENTATION CONTROL PROGRAM AND ORDER OF PROCEDURE FOR PROPER COORDINATION
- THE DRAINAGE SYSTEM SHALL RECEIVE ONE FINAL CLEANING PRIOR TO ACCEPTANCE TO THE OVERALL PROJECT BY THE OWNER SEDIMENTS SHALL BE DISPOSED OF IN A PROPER MANNER.

# ORDER OF PROCEDURE:

- PRIOR TO ANY CLEARING AND GRUBBING OR ANY ROUGH GRADING, TEMPORARY STRAW BALES AND SANDBAGS SHALL BE PLACED OUTSIDE THE LIMITS OF CONSTRUCTION AS PER THE PLANS (I.E. ALONG ROADWAYS, STREAM BANKS, CRITICAL AREAS, ETC.).
- ALL EROSION AND SEDIMENTATION CONTROL STRUCTURES SHALL BE PERIODICALLY MAINTAINED AS PER THE RESPECTIVE PROGRAMS FOR TEMPORARY CONTROL.
- IF WORK PROGRESS IS TO BE INTERRUPTED AT ANY TIME, REFERENCE EROSION AND SEDIMENTATION PROGRAMS FOR TEMPORARY CONTROL.
- TEMPORARY STRAW BALES AND SANDBAGS ALONG AND AT THE ENDS OF ROADWAYS MAY ALSO BE REMOVED AFTER FINAL SOIL STABILIZATION
- STRAW BALES LOCATED AT DRAINAGE OUTLETS MUST REMAIN UNTIL SUCH TIME THAT A DESIRABLE STAND OF GRASS OR COVER HAS BEEN ESTABLISHED AND THE PROJECT RECEIVES A FAVORABLE APPROVAL FOR FINAL ACCEPTANCE FROM THE ENGINEER.

# SEDIMENTATION CONTROL PROGRAM:

- RIP RAP SPLASH PADS SHALL BE INSTALLED AT THE OUTLETS FOR ALL CULVERTS DISCHARGING INTO A WATERWAY.
- EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY UNSUITABLE MATERIAL ENTERING THE WETLANDS.
- ALL DISTURBED AREAS SUBJECT TO EROSIVE TENDENCIES WHETHER THEY BE NEWLY FILLED OR EXCAVATED SHALL BE SEEDED AND PROTECTED WITH A FIBER MULCH.
- DURING CONSTRUCTION, THE CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL.
- SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED CLOSELY AND MAINTAINED PROMPTLY AFTER EACH RAINFALL. CARE SHOULD BE TAKEN SO AS NOT TO PLACE "REMOVED SEDIMENTS" WITHIN THE PATH OF EXISTING, NEWLY CREATED (BOTH
- TEMPORARY AND PERMANENT) OR PROPOSED WATERCOURSES OR THOSE AREAS SUBJECTED TO STORM WATER FLOW.
- ADDITIONAL STRAW BALES OR SANDBAGS SHALL BE LOCATED AS CONDITIONS WARRANT. ALL SEDIMENTS SHALL BE REMOVED FROM THE DRAINAGE AND DETENTION FACILITIES AS SCHEDULED FOR EACH FACILITY
- (SEE DETENTION BASIN MAINTENANCE, THIS SHEET).
- REFERENCE THE "R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" PREPARED BY THE U.S. DEPT. OF AGRICULTURE, SOIL CONSERVATION SERVICE, 1989, AS A GUIDE.



### F.5.2.2 Bioretention Soil

The soil should be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances should be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The bioretention soil should be free of noxious weeds. The bioretention system shall utilize planting soil having a composition as follows:

#### Sand: 85-88% Soil fines: 8 to 12% (no more than 2% clay)

Organic Matter\*: 3 to 5% \*Note: For bioretention applications with a soil depth of less than 4 feet, add 20% (by volume) of well aged (3 months), well aerated, leaf compost (or approved equivalent) to the above planting soil mixture. Where soil fines content is less than 12%, add a corresponding % of leaf compost. A textural analysis is required to ensure the bioretention soil meets the specification listed above. The bioretention soil should also be tested for the following criteria:

pH range 5.2 - 7.0; magnesium not to exceed 32 ppm; phosphorus P205 not to exceed 69 ppm; potassium K20 not to exceed 78 ppm; soluble salts not to exceed 500 ppm.

# BMP REQUIRED MAINTENANCE:

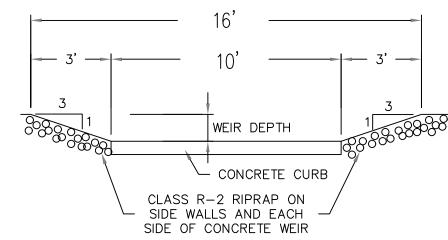
INSPECT AND REMOVE ANY TRASH REMOVE ANY INVASIVE SPECIES PLANTS

MULCH- SPRING, AS NEEDED REPLACE ANY DEAD VEGETATION-SPRING REMOVE DEAD VEGETATION-FALL OR SPRING PRUNE-SPRING

BEEN ESTABLISHED.

REPLACE SOIL MEDIA AND PLANTS WHEN PONDING DOES NOT SUBSIDE WITHIN 72 HRS (CAREFUL MAINTENANCE SHOULD PROLONG THIS

\*ALL PLANT MATERIAL SHALL BE WATERED AND MAINTAINED BY THE OWNER TO ASSURE THAT SUITABLE GROWTH HAS



**Emergency Spillway / Overflow Weir Detail** 

# CONCRETE CURB WEIR TO BE SET LEVEL WITH 2" EXPOSED AND 6" EMBEDDED IN RIPRAP/GRAVEL BORROW RIPRAP CLASS **∤ MINIMUM** ∴ **!** ·· 'MINIMUM

TOP ELE=117.00

-6" LOAM & SEED

ALL BACKFILL SHALL BE FREE FROM ORGANIC OR HTM.

ESTIMATED SEASONAL HIGH GROUNDWATER TABLE

=112.00' (based on surveyed pond elevation)

# **Curb Outlet Weir Cross Section** NOT TO SCALE

NOT TO SCALE

# EROSION CONTROL, SOIL STABILIZATION AND SEDIMENT CONTROL PLAN

- 1. PRIOR TO THE COMMENCEMENT OF ANY CLEARING, GRUBBING, DEMOLITION OR EARTHWORK ACTIVITY, TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE PLANS ARE TO BE INSTALLED BY THE CONTRACTOR.
- 2. CONSTRUCTION ACCESS STABILIZATION ENTRANCE PADS ARE TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF SITE GRUBBING OR EARTHWORK ACTIVITY.
- 3. EXISTING CATCH BASINS ARE TO BE PROTECTED WITH HAY BALES AND/OR SILT SACS PRIOR TO THE START OF SITE GRUBBING, EARTHWORK OR UNDERGROUND
- UTILITY AND DRAINAGE INFRASTRUCTURE INSTALLATION TO SERVE THE DEVELOPMENT SITE.
- 4. THE PROJECT CONSTRUCTION SEQUENCE, TO THE EXTENT PRACTICAL, SHOULD REQUIRE THE INSTALLATION OF DOWN GRADE AND OFF SITE STORM DRAINAGE SYSTEM IMPROVEMENTS BEFORE THE START OF SITE GRUBBING AND EARTHWORK ACTIVITY.
- 5. TEMPORARY SITE SLOPE TREATMENTS FOR SOIL STABILIZATION SHALL CONSIST OF STRAW, FIBER MULCH, RIP RAP OR PROTECTIVE COVERS SUCH AS MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, AND EXCELSIOR OR EQUAL PRODUCTS). THESE AND OTHER ACCEPTABLE MEASURES SHALL BE INCORPORATED INTO THE SITE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER.
- 6. CONSTRUCTION SITES ARE DYNAMIC, THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND OR MOVEMENT AND MAINTENANCE OF EROSION CONTROLS, SOIL STABILIZATION AND SEDIMENT CONTROL MEASURES AS NEEDED TO MAXIMIZE THE INTENT OF THE PLAN FOR ALL SITE CONDITIONS THROUGHOUT THE CONSTRUCTION PERIOD.
- 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERIODIC INSPECTION, MAINTENANCE, REPAIR, AND REPLACEMENT OF EROSION CONTROLS, SOIL STABILIZATION AND SEDIMENT CONTROL DEVICES UNTIL AN ACCEPTABLE PERMANENT VEGETATIVE GROWTH IS ESTABLISHED. THE CONTRACTOR SHALL MAINTAIN A DETAIL LOG OF ALL EROSION CONTROL INSPECTIONS, COMPLAINTS RELATED TO EROSION OR SEDIMENT, AND CORRECTIVE REMEDIAL MEASURES TAKEN THROUGHOUT THE COURSE OF THE PROJECT CONSTRUCTION.
- 8. SOIL EROSION AND SEDIMENT CONTROL IS NOT LIMITED TO DAMAGES CAUSED BY WATER BUT ALSO INCLUDES EROSION AND SEDIMENT RESULTING FROM WINDS. MEASURES, SUCH AS TEMPORARY GROUND COVERS, WATER AND CALCIUM APPLICATIONS ARE TO BE UNDERTAKEN AS NEEDED TO MINIMIZE WIND RELATED SOIL AND DUST CONTROL.
- 9. STOCK PILES OF EARTH MATERIALS SHALL NOT BE LOCATED NEAR WATERWAYS OR WETLANDS. STOCK PILES SHALL HAVE SIDE SLOPES NO GREATER THAN THIRTY PERCENT (30%). STOCK PILES SHALL BE SURROUNDED ON THE DOWN GRADIENT OF THE EXISTING GROUND SURFACE BY STRAW BALES OR SILT FENCE. THE STOCK PILES SHALL ALSO BE SEEDED OR STABILIZED IN SOME MANOR TO PREVENT SOIL EROSION. 10. THE SMALLEST POSSIBLE SITE AREAS SHALL BE DISTURBED OR EXPOSED AT ONE TIME AND DENUDED SLOPES OR WORK AREAS SHALL NOT BE LEFT EXPOSED
- FOR EXCESSIVE PERIODS OF TIME, SUCH AS INACTIVE PERIODS OR SITE WORK SHUT DOWNS. 11. TO THE EXTENT POSSIBLE, ALL DISTURBED AREAS MUST BE SEEDED OR STABILIZED WITHIN THE CONSTRUCTION SEASON. STABILIZATION OF ONE FORM OR ANOTHER SHALL BE ACHIEVED WITHIN FIFTEEN (15) DAYS OF FINAL GRADING.
- 12. EXPOSED STEEP OR LONG SLOPES SHOULD BE TREATED WITH "CRIMPING" OR "TRACKING" TO REDUCE EROSION AND SEDIMENT AND TO TACK DOWN SEEDING OR MULCH APPLICATIONS.
- 13. IF CONCRETE IS TO BE USED ON SITE, THE CONTRACTOR MUST ESTABLISH AND MAINTAIN SPECIFIC WASHOUT AREAS FOR THE CONCRETE TRUCKS WITH APPROPRIATE PROTECTION CONTROLS.
- 14. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING COLLECTION AND STORAGE LOCATIONS ON-SITE FOR ALL CONSTRUCTION DEBRIS AND TRASH SO THAT THIS MATERIAL DOES NOT BECOME A NEIGHBORHOOD NUISANCE. 15. EXISTING TREES AND VEGETATION WILL BE RETAINED WHENEVER FEASIBLE

# 16. SITE SOIL EROSION AND SOIL STABILIZATION AND SEDIMENT CONTROLS MUST CONFORM TO ALL REQUIREMENTS OF THE APPLICABLE LOCAL COMMUNITY ORDINANCES AND STATE REGULATIONS.

# Rain Garden Mix - ERNMX-180

TOP ELE=117.00

85% COMPACTED NATIVE SOIL

WEIR ELE=116.60

	Botanical Name	Common Name	Price/Lb
25.60 %	Schizachyrium scoparium, Fort Indiantown Gap-PA Ecotype	Little Bluestem, Fort Indiantown Gap-PA Ecotype	17.91
20.00 %	Elymus virginicus, Madison-NY Ecotype	Virginia Wildrye, Madison-NY Ecotype	11.22
9.00 %	Carex vulpinoidea, PA Ecotype	Fox Sedge, PA Ecotype	33.80
8.00 %	Echinacea purpurea	Purple Coneflower	46.80
7.80 %	Chasmanthium latifolium, WV Ecotype	River Oats, WV Ecotype	104.00
6.80 %	Panicum rigidulum, PA Ecotype	Redtop Panicgrass, PA Ecotype	78.00
3.00 %	Coreopsis lanceolata	Lanceleaf Coreopsis	31.20
3.00 %	Rudbeckia hirta	Blackeyed Susan	33.80
2.50 %	Verbena hastata, PA Ecotype	Blue Vervain, PA Ecotype	41.60
2.00 %	Chamaecrista fasciculata, PA Ecotype	Partridge Pea, PA Ecotype	13.00
2.00 %	Panicum clandestinum, Tioga	Deertongue, Tioga	23.87
1.50 %	Asclepias incarnata, PA Ecotype	Swamp Milkweed, PA Ecotype	192.40
1.50 %	Heliopsis helianthoides, PA Ecotype	Oxeye Sunflower, PA Ecotype	36.40
1.30 %	Penstemon digitalis, PA Ecotype	Tall White Beardtongue, PA Ecotype	182.00
1.20 %	Zizia aurea, PA Ecotype	Golden Alexanders, PA Ecotype	62.40
0.70 %	Pycnanthemum tenuifolium	Narrowleaf Mountainmint	260.00
0.50 %	Aster novae-angliae	New England Aster	390.00
0.50 %	Baptisia australis, Southern WV Ecotype	Blue False Indigo, Southern WV Ecotype	104.00
0.50 %	Juncus effusus	Soft Rush	52.00
0.50 %	Juncus tenuis, PA Ecotype	Path Rush, PA Ecotype	65.00
0.50 %	Senna hebecarpa, VA & WV Ecotype	Wild Senna, VA & WV Ecotype	31.20
0.50 %	Vernonia noveboracensis, PA Ecotype	New York Ironweed, PA Ecotype	286.00
0.30 %	Monarda fistulosa, Fort Indiantown Gap-PA Ecotype	Wild Bergamot, Fort Indiantown Gap-PA Ecotype	104.00
0.20 %	Aster lateriflorus	Calico Aster	364.00
0.20 %	Solidago nemoralis, PA Ecotype	Gray Goldenrod, PA Ecotype	312.00
0.10 %	Aster pilosus, PA Ecotype	Heath Aster, PA Ecotype	286.00
0.10 %	Eupatorium perfoliatum, PA Ecotype	Boneset, PA Ecotype	208.00
0.10 %	Mimulus ringens, PA Ecotype	Square Stemmed Monkeyflower, PA Ecotype	260.00
0.10 %	Solidago juncea, PA Ecotype	Early Goldenrod, PA Ecotype	364.00
100 00 %			

# 100.00 %

F.5.2.3 Mulch Layer Specifications.

A finely shredded, well—aged organic hardwood mulch is the preferred accepted mulch;

case—by--case basis. Bark dust mulches and wood chips will float and move to the

perimeter of the bioretention area during a storm event and are not acceptable.

Mix approximately ½ the specified mulch layer into the planting soil to a depth of

a finely shredded, well—aged organic dark pine mulch may be accepted on a

Shredded mulch must be well aged (6-12 months) for acceptance.

approximately 4 inches to help foster a highly organic surface layer.

2-3" HARDWOOD MULCH

^2'-4' BIORETENTION SOIL MIX (

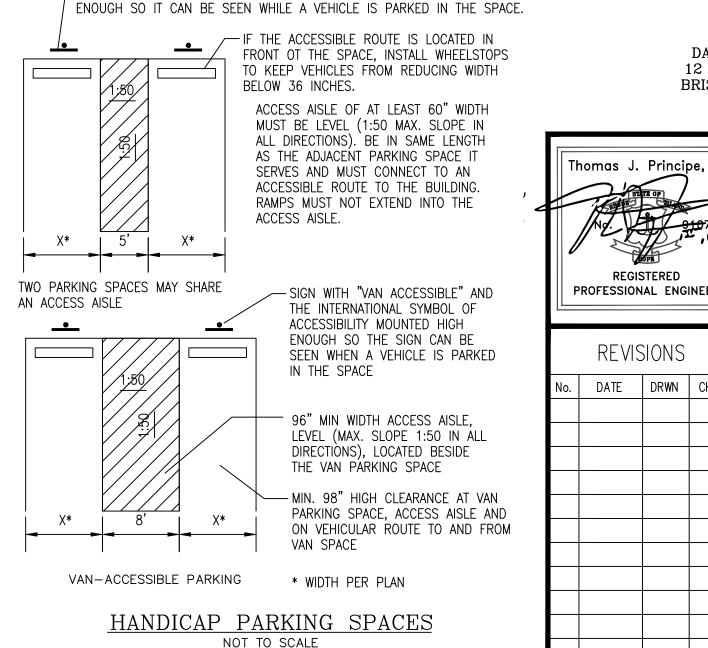
>(ALL HTM TO BE REMOVED & REPLACED)

BIORETENTION AREA DETAIL

NOT TO SCALE

# **Seeding Rate:** 20 lb per acre with a cover crop. For sites that

drain within 24 hours of a rain event use one of the following cover crops:Oats (1 Jan to 31 Jul; 30 lbs/acre), Japanese Millet (1 May to 31 Aug; 10 lbs/acre), or grain rye (1 Aug to 31 Dec; 30



-SIGN WITH INTERNATIONAL SYMBOL OF ACCESSIBILITY MOUNTED HIGH

APPLICANT: DAVID J. RAMOS CONSTRUCTION DETAILS-1

OWNER (LOT 15): DAVID J. RAMOS LIONEL J. RAMOS 12 RUTH AVENUE 12 RUTH AVENUE 9 SCOTT LANE BRISTOL, RI 02809 BRISTOL, RI 02809 BRISTOL, RI 02809





PRELIMINARY SUBMISSION 668 & 670 METACOM AVENUE

BRISTOL, RHODE ISLAND

SHEET NO: 8 of 10

SCALE: AS NOTED CHECKED BY: TJP DRAWN BY: KAB DESIGN BY: KAB DATE: 08/08/2025 PROJECT NO.: ERSC-2024-2

**BOLLARDS PLUS** 

SPRING, TX 77380

PHONE: (713) 396-6166

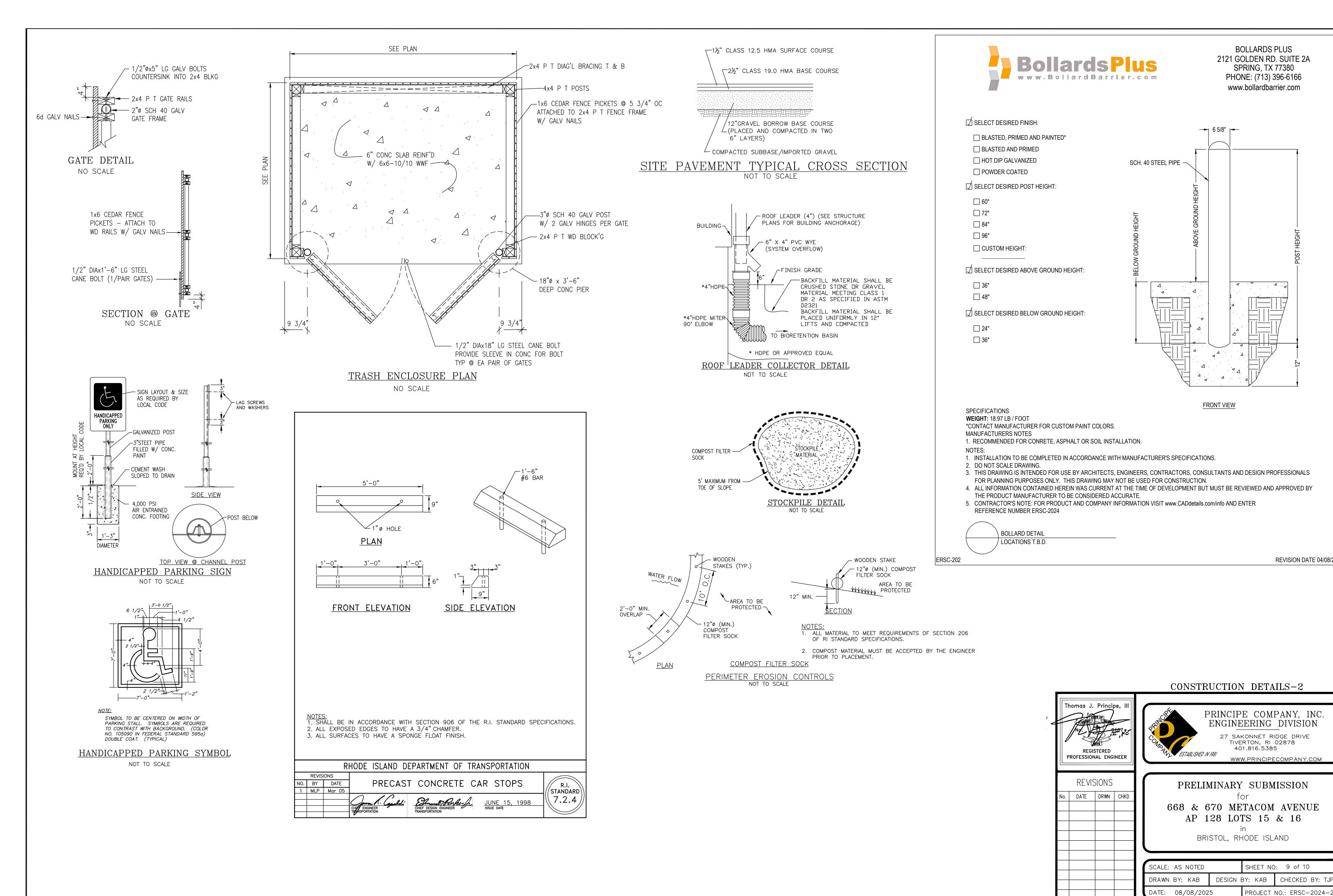
www.bollardbarrier.com

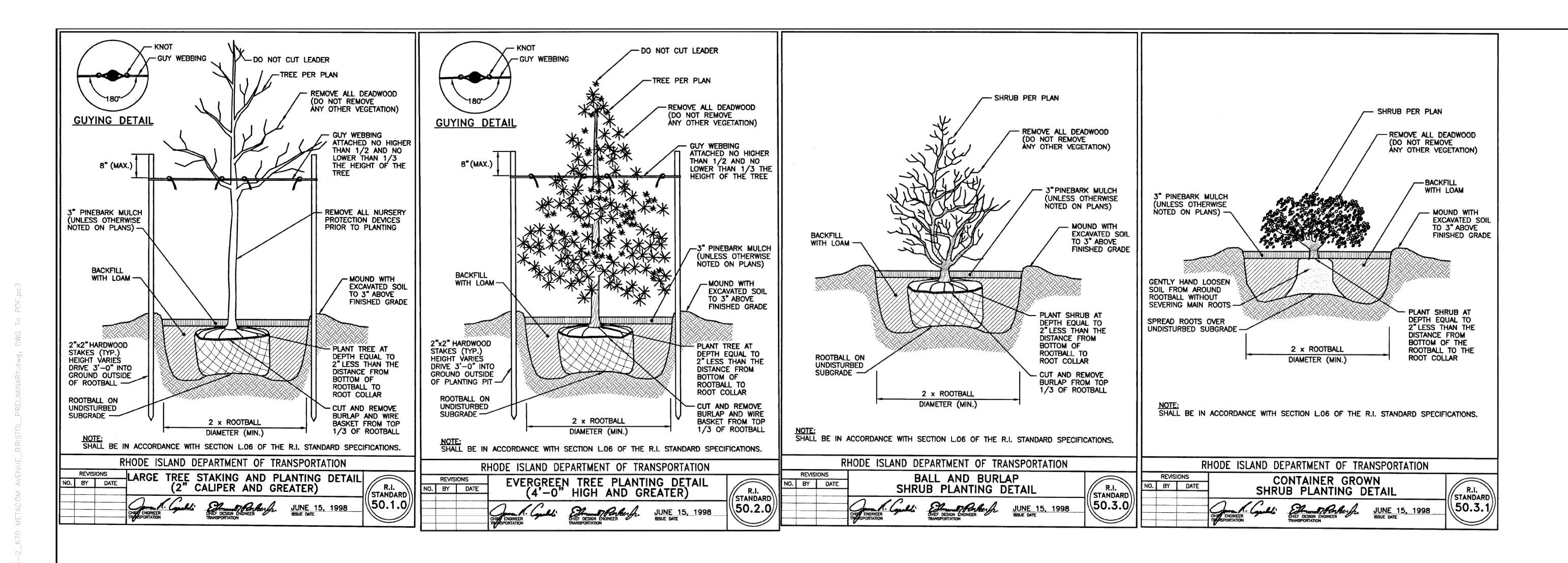
REVISION DATE 04/08/2025

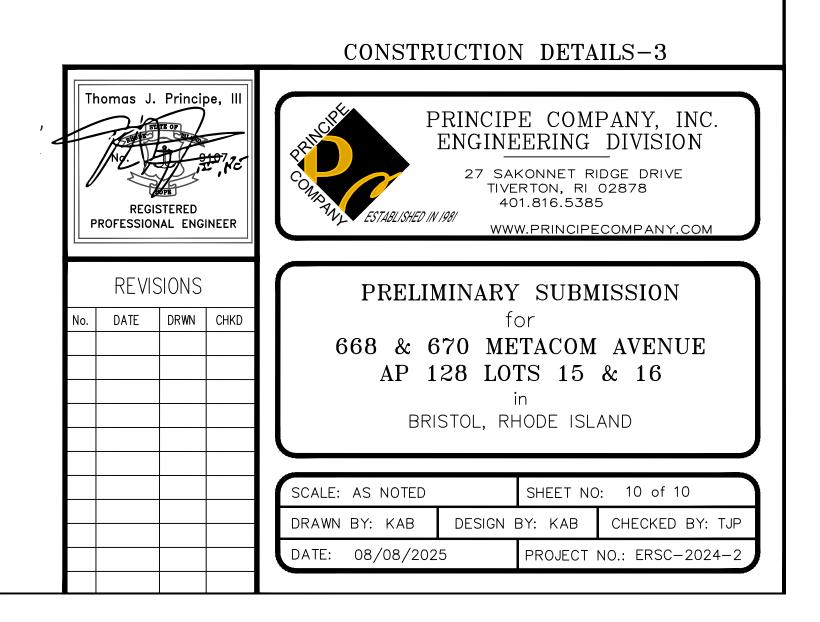
WWW.PRINCIPECOMPANY.COM

SHEET NO: 9 of 10

PROJECT NO.: ERSC-2024-2



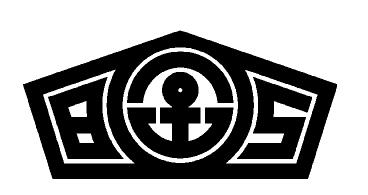












No.	Description	Date

Ramos Landscaping LLC

668 Metacom -Concept

668 Metacom Ave. Bristol, RI 02809

Concept Design - Not for Construction

# Cover

Project Number	25002
Date	08/05/2025
Drawn By	B. Spina

A0.00

ale





No.	Description	Date

Ramos Landscaping LLC

668 Metacom -Concept

668 Metacom Ave. Bristol, RI 02809

Concept Design - Not for Construction

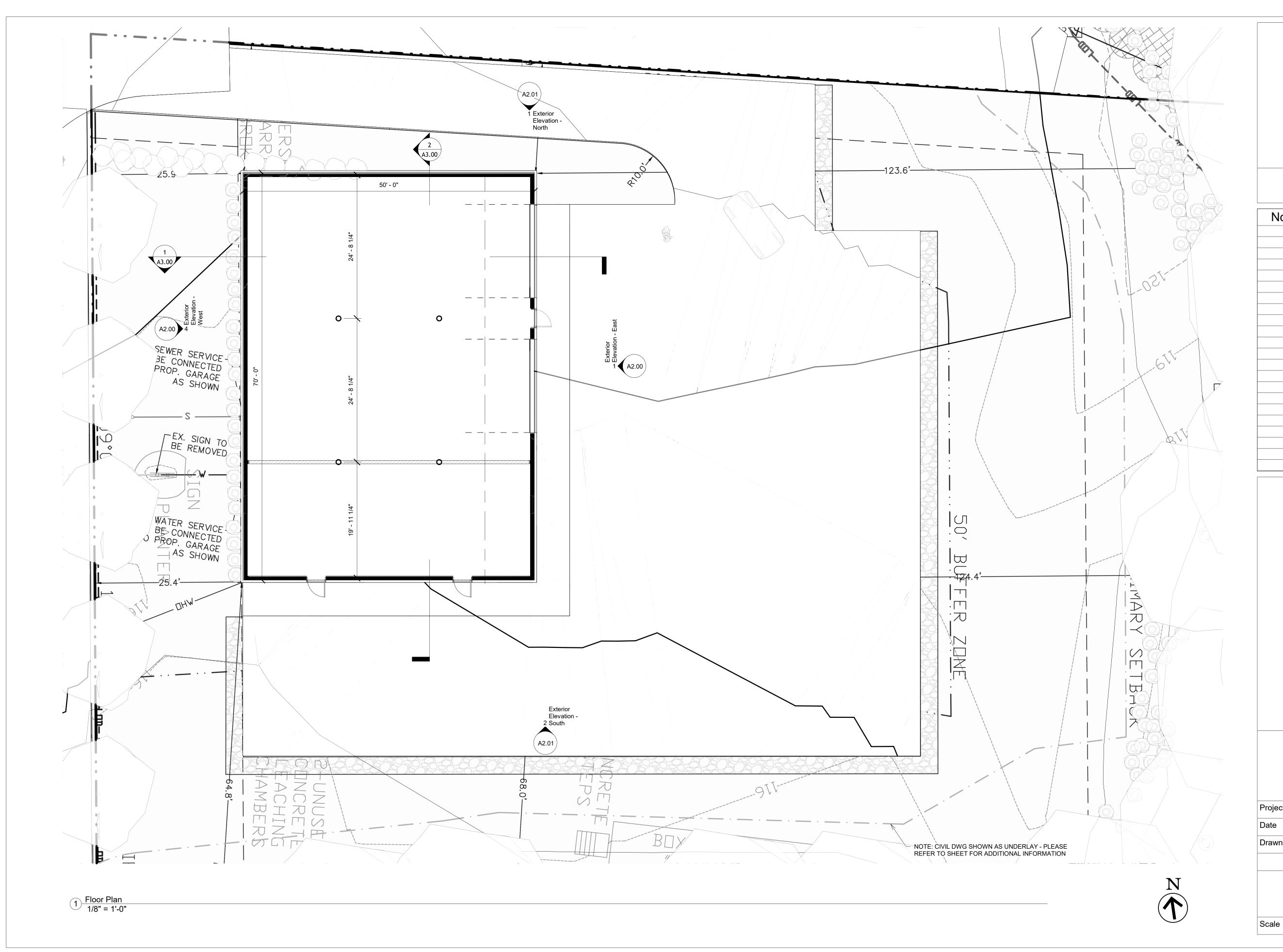
# Site Plan - Proposed

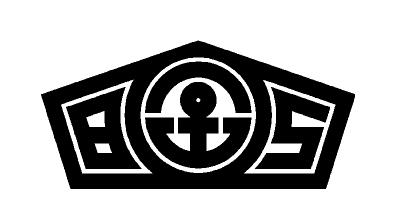
25002
08/05/2025
B. Spina

A0.10

Scale

1" = 20'-0"





No.	Description	Date

668 Metacom -Concept

Ramos Landscaping LLC

668 Metacom Ave. Bristol, RI 02809

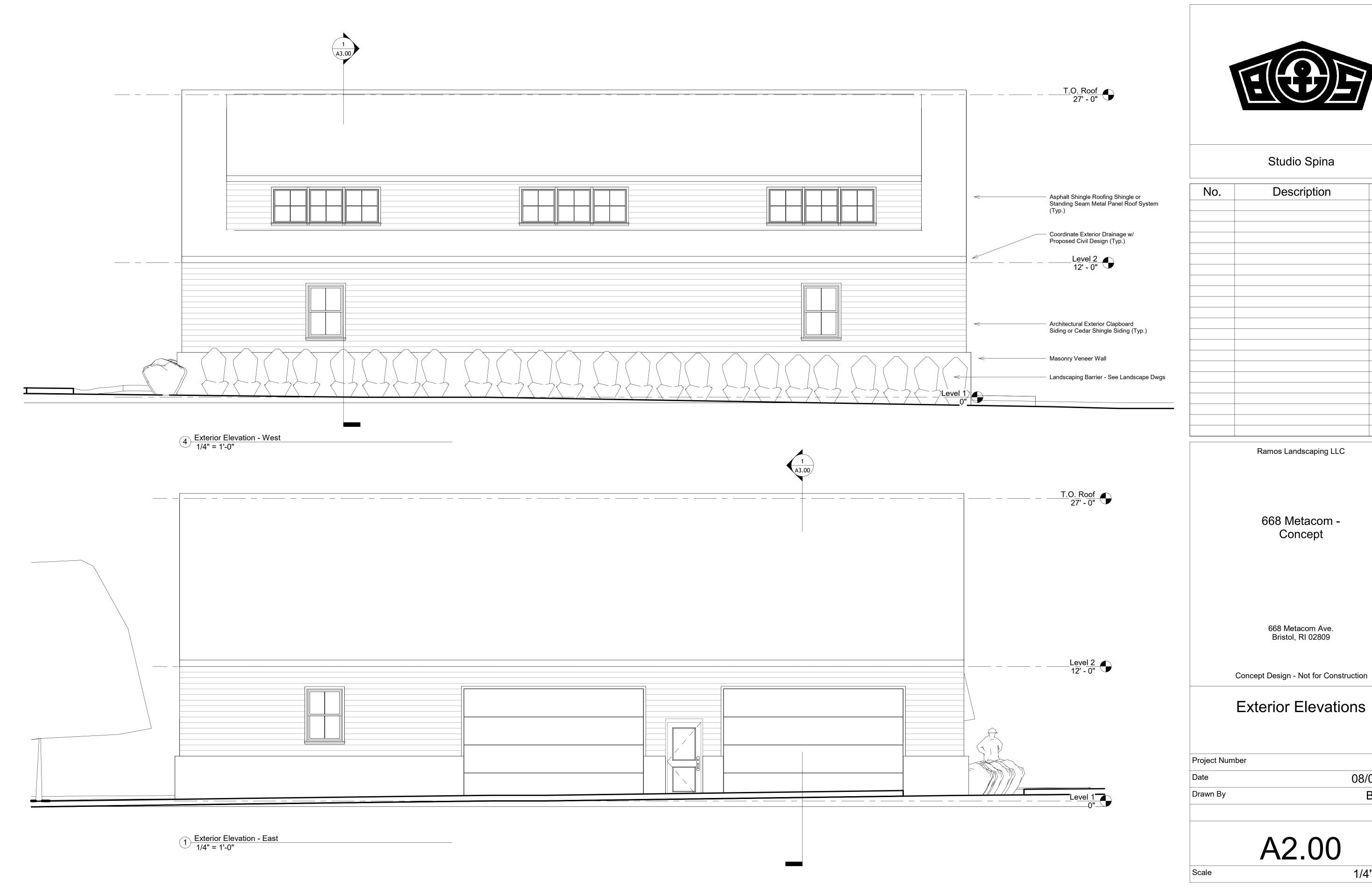
Concept Design - Not for Construction

# Floor Plan - Proposed

08/05/2025
B. Spina

A1.00

1/8" = 1'-0"

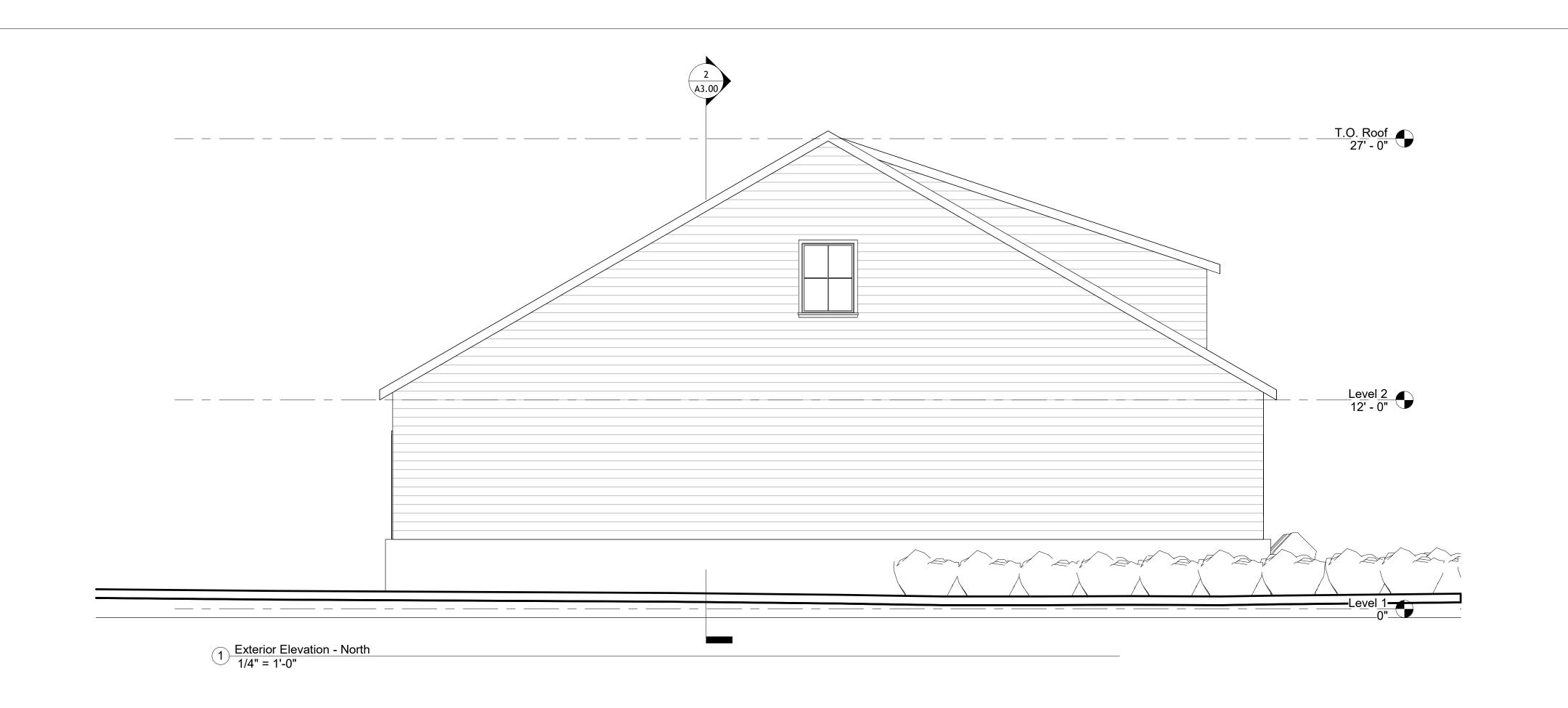


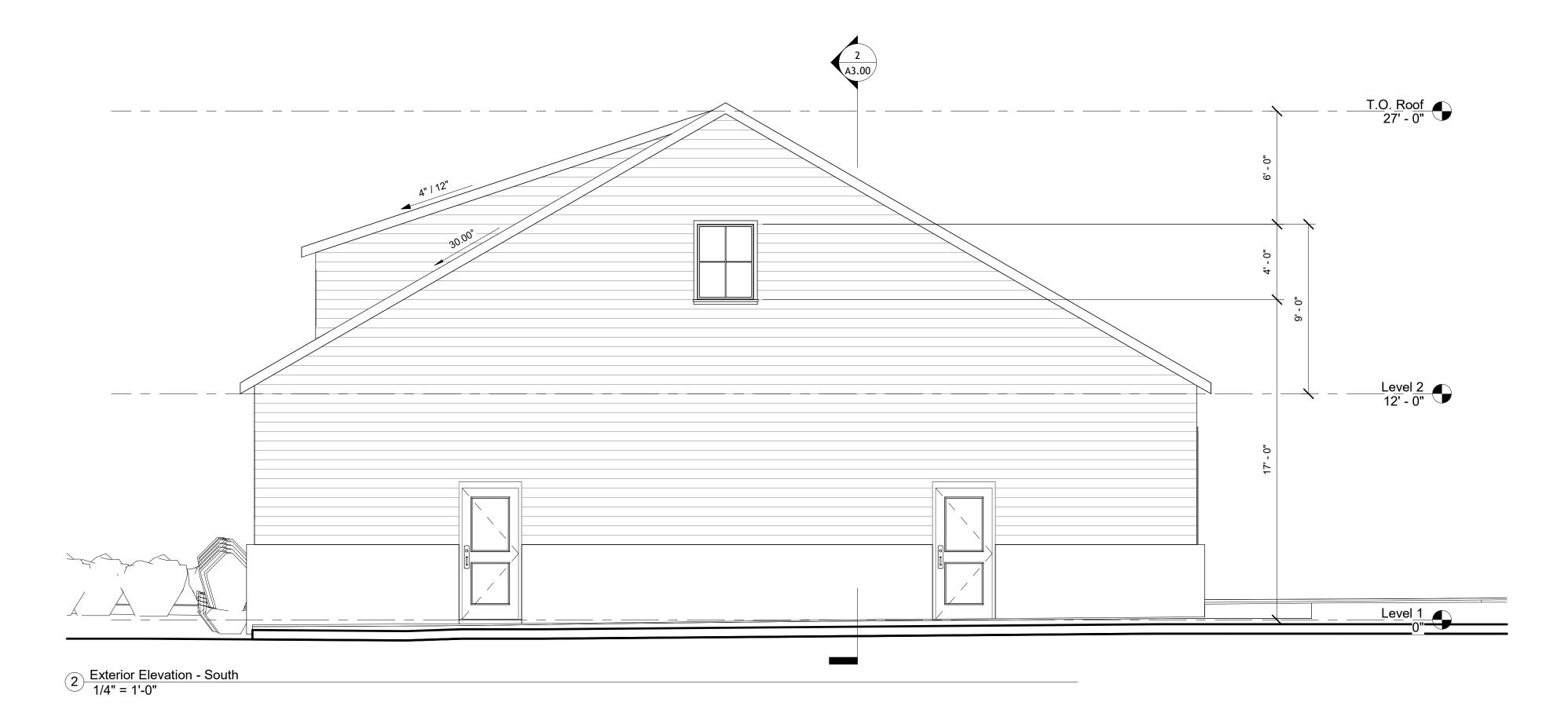


No.	Description	Date

2500
08/05/202
B. Spin

1/4" = 1'-0"







No.	Description	Date

Ramos Landscaping LLC

668 Metacom -Concept

668 Metacom Ave. Bristol, RI 02809

Concept Design - Not for Construction

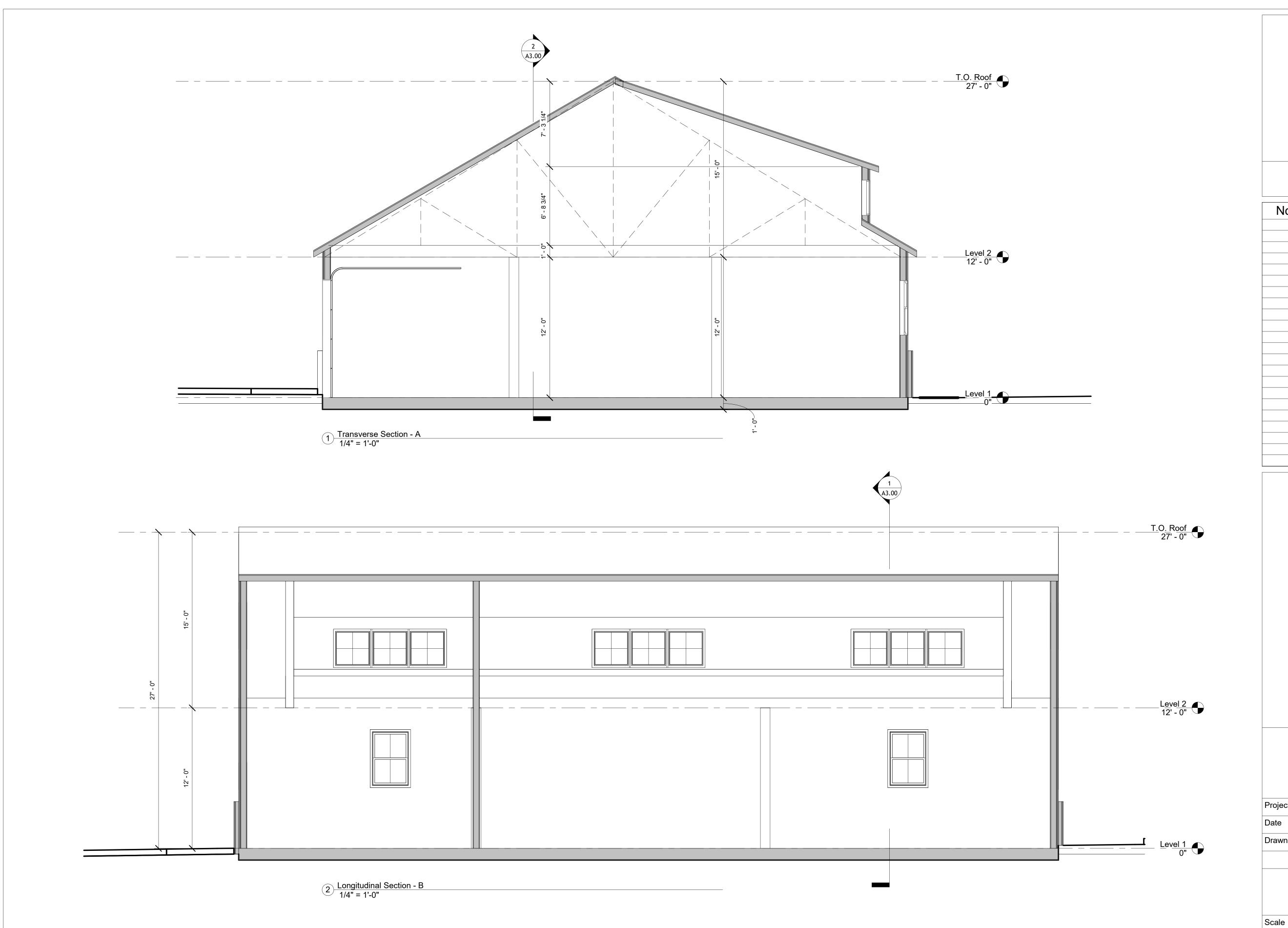
# **Exterior Elevations**

25002
08/05/2025
B. Spina

A2.01

Scale

1/4" = 1'-0"





No.	Description	Date

Ramos Landscaping LLC

668 Metacom -Concept

668 Metacom Ave. Bristol, RI 02809

Concept Design - Not for Construction

# **Building Sections**

Project Number	25002
Date	08/05/2025
Drawn By	B. Spina

A3.00

1/4" = 1'-0"



## DRAINAGE ANALYSIS AUGUST 8, 2025

# 668 & 670 Metacom Avenue AP 128, Lots 15 & 16 Bristol, RI

Prepared For:

David J. Ramos 12 Ruth Avenue Bristol, RI 02809 Prepared By:

Principe Engineering, Inc. 27 Sakonnet Ridge Drive Tiverton, Rhode Island



Stormwater Calculations 668-670 Metacom Avenue Bristol, RI August 8, 2025

#### **Storm Water Management**

The storm water management system selected is best suited to the site and provides the least disturbance of the site while complying with the stormwater regulations. The storm water management system consists of the collection of overland runoff to a proposed bioretention system. The drainage system is designed to offset increased storm flows and provide water quality in accordance with the regulations of both state and local authorities. This drainage system is intended to mitigate increased runoff generated from new construction so the downstream wetlands, water bodies, and neighboring properties will not be impacted. The drainage system will control post development peak flows and provide for pollutant removal at the maximum possible rates.

The Pre-Development watershed area (PRE-WET) includes the entirety of the site, which drains to a neighboring wetland system. The site has been disturbed and altered over the years, including fill and establishment of an existing gravel work/parking surface. The observed surface water elevation in the adjacent open water area was utilized to determine the anticipated groundwater table and a "C" hydrologic group was utilized for the calculations/infiltration rate.

Under post development conditions the watershed was analyzed to address in two sub-areas: the area controlled (CONT) by the proposed bioretention basin



Stormwater Calculations 668-670 Metacom Avenue Bristol, RI August 8, 2025

and the uncontrolled (UNC) portions of the site. The parking lot is proposed to be paved, per the Town of Bristol requirements.

The following table compares the flows between pre-development conditions and post development conditions, after flows are routed through the stormwater treatment areas:

WATERSHED	1-YEAR	10-YEAR	25-YEAR	100-YEAR
WATERSHED	STORM	STORM	STORM	STORM
PRE-WET	0.71 CFS	1.72 CFS	2.32 CFS	3.57 CFS
POST-WET	0.15 CFS	0.49 CFS	1.15 CFS	3.63 CFS

Per RIDEM regulations, the required water quality volume and recharge volume for the new roof and paved parking area is provided by the project. There is a slight increase in peak flow rate for the 100-year storm event; however, there is a decrease in the peak volume (PRE = 0.390 af; POST = 0.239 af).

Per the Town of Bristol, the project adheres to the regulations associated with the site's location within the Silver Creek watershed. The proposed bioretention area completely infiltrates the entirety of the 1-, 2-, and 5-year storm events, and to the maximum extent practicable infiltrates the entirety of the 10-year storm event (i.e. more than the increase, as required). The drainage collection system proposed takes advantage of the natural slopes and contours of the site. It provides for both peak storm flow mitigation, recharge and water quality control. By reducing post-development storm water flows, the primary goal of the proposed drainage system is achieved. Any potential



Stormwater Calculations 668-670 Metacom Avenue Bristol, RI August 8, 2025

impacts from the proposed development on the abutting properties have been mitigated.

**RIDOT NOTE**: It should be noted that the Town of Bristol is requiring that a concrete sidewalk be installed within the RIDOT/State ROW associated with Metacom Avenue. To the extent feasible this impervious surface area has been directed to flow away from Metacom Avenue. The site also takes advantage of an existing curb cut that supplies access to both Lot 15 and Lot 16. No future curb cuts are proposed or anticipated and no increase in the peak flow or volume into the state system is proposed or anticipated.



	STORMWATE NNING REPOR						
PROJECT NAME						(RII	DEM USE ONLY)
668-670 METACOM	AVENUE					(IIII)	DENI COE ONEI)
TOWN					ST	W/WQ	C File #:
BRISTOL					D	4 D	. 1
BRIEF PROJECT DES						ite Rece	eivea:
	commercial building on a						
	es, grading & stormwater						
being utilized by the sa	ne business and will not	be developed	to any grea	ater d	egree.		
	Management P						
Analysis and Design Rep	ort with Plan Set/Drawings; nce (O&M) Plan. Please re	; Soil Erosion a	nd Sedimer	nt Cor	itrol (SESC) P		
help identify the required Certification.	er the RIDEM Stormwater I elements to be submitted	with an Appli	cation for				
PROJECT TYPE (Chec			011				
□ Residential	⊠ Commercial	☐ Federal			Retrofit		☐ Restoration
□ Residential							☐ Mine
☐ Other (specify):	☐ Utility ☐ Fill ☐ Dredge			Dieuge		□ Willie	
□ Other (speeny).							
SITE INFORMATION							
□ Vicinity Map							
points are associated with		Ov discharges to	o: (You may	y choo		one ansv	wer if several discharge
<b>⊠</b> Groundwater	☐ Surface Water				☐ MS4		
□ GAA	☐ Isolated Wetland						
☐ GA	☐ Named Waterbody		4. M				ation Permit is Approved
$\Box$ GB	☐ Unnamed Waterbo Waterbody	ody Connected				.,),	
	waterbody				☐ Other	(specify	y);
	NG WATERBODY LOCA including overflows. Choose						to both $WQ_{\nu}$ and flow
☐ Groundwater or Disco							
			☐ Coldv	vater	□ Warn	ıwater	☐ Unassessed
☐ Waterbody ID: 01090	0040907		☐ 4 <sup>th</sup> ord	ler str	eam of pond 5	0 acres	or more
☐ TMDL for:			☐ Watershed of flood prone river (e.g., Pocasset River)			.g., Pocasset River)	
•	ity outfall listed in the TMD	DL	☐ Contributes stormwater to a public beach				
☐ 303(d) list – Impairment(s) for:			☐ Contributes to shellfishing grounds				

APPENDIX A: STORMWATER MANAGEMENT PLAN CHECKLIST Updated 09/2020

Item B1.

PROJECT HISTORY					
☐ RIDEM Pre- Application Meeting	T	Meeting Date:	☐ Minutes Attached		
☐ Municipal Master Plan Approval		Approval Date:	☐ Minutes Attached		
☐ Subdivision Suitability Required		Approval #:			
☐ Previous Enforcement Action has been taken on the	ne property	Enforcement #:			
FLOODPLAIN & FLOODWAY See Guidance Pert	aining to Flood	plain and Floodways			
☐ Riverine 100-year floodplain: <b>FEMA FLOODPL</b>	AIN FIRMET	<b>FE</b> has been reviewed and the 10	00-year floodplain is on site		
☐ Delineated from FEMA Maps					
NOTE: Per Rule 250-RICR-150-10-8-1.1(B)(5)(d)(3) fill/displacement calculated by qualified profe		netric floodplain compensation ca	alculations for cut and		
☐ Calculated by Professional Engineer	essionai				
☐ Calculations are provided for cut vs. fill/displacem	nent volumes	Amount of Fill (CY):			
proposed within the 100-year floodplain		Amount of Cut (CY):			
☐ Restrictions or modifications are proposed to the f	low path or velo	ocities in a floodway			
☐ Floodplain storage capacity is impacted					
☑ Project area is not within 100-year floodplain as defect the second seco	efined by RIDE	M			
CRMC JURISDICTION					
☐ CRMC Assent required					
☐ Property subject to a Special Area Management Pl	an (SAMP). If	so, specify which SAMP:			
☐ Sea level rise mitigation has been designed into the	is project				
LUHPPL IDENTIFICATION - MINIMUM STAN	DARD 8:				
1. OFFICE OF Land Revitalization and Sust	ainable Materi	ials Management (OLRSMM)			
☐ Known or suspected releases of HAZA			RIDEM CONTACT:		
(Hazardous Material is defined in Rule					
Rules and Regulations for Investigation Remediation Regulations))	and Remediati	on of Hazardous Materials (the			
	POLETIM PRO	DUCT are present at the site			
☐ Known or suspected releases of PETROLEUM PRODUCT are present at the site (Petroleum Product as defined in Rule 1.5(A)(84) of 250-140-25-1 of the RIDEM Rules					
and Regulations for Underground Storag					
Hazardous Materials)					
$\Box$ This site is identified on the <u>RIDEM</u>	<u>Environmental</u>	Resources Map as one of the	SITE ID#:		
following regulated facilities					
☐ CERCLIS/Superfund (NPL)					
State Hazardous Waste Site (SI					
☐ Environmental Land Usage Res	`	)			
Leaking Underground Storage	Tank (LUST)				
Closed Landfill	aont must conta	et the DIDEM OF DEMM Project	t Managan agas sisted with the		
Note: If any boxes in 1 above are checked, the appli					
Site to determine if subsurface infiltration of stormwater is allowable for the project. Indicate if the infiltration corresponds to "Red," "Yellow" or "Green" as described in Section 3.2.8 of the RISDISM Guidance (Subsurface Contamination					
Guidance). Also, note and reference approval in PART 3, Minimum Standard 2: Groundwater Recharge/Infiltration.					
2. PER MINIMUM STANDARD 8 of RICR			_		
☐ Industrial Site with RIPDES MSGP, exc	ept where No E	Exposure Certification exists.			
http://www.dem.ri.gov/programs/water/	permits/ripdes/s	tormwater/status.php			
☐ Auto Fueling Facility (e.g., gas station)					
☐ Exterior Vehicles Service Maintenance	or Equipment	Cleaning Area			

	☐ Road Salt Storage and Loading Areas (exposed to rainwater)	
	☐ Outdoor Storage and Loading/Unloading of Hazardous Substances	
3.	STORMWATER INDUSTRIAL PERMITTING	
	☐ The site is associated with existing or proposed activities that are considered Land	Activities:
	Uses with Higher Potential Pollutant Loads (LUHPPLS) (see RICR 8.14.C)	Sector:
	☐ Construction is proposed on a site that is subject to <a href="https://example.com/THE MULTI-SECTOR">THE MULTI-SECTOR</a>	MSGP permit #
	GENERAL PERMIT (MSGP) UNDER RULE 31(B)15 OF THE RIPDES	
	REGULATIONS.	
	Additional stormwater treatment is required by the MSGP Explain:	
	Ехріані.	
REDEV	YELOPMENT STANDARD – MINIMUM STANDARD 6	
⊠ Pre 0	Construction Impervious Area LOT 16 ONLY	
	☐ Total Pre-Construction Impervious Area (TIA): 0.3 Ac.	
	☐ Total Site Area (TSA): 0.72 Ac.	
	☐ Jurisdictional Wetlands (JW): 0.03 Ac.	
	☐ Conservation Land (CL)	
☐ Calc	ulate the Site Size (defined as contiguous properties under same ownership)	
	$\boxtimes$ Site Size (SS) = (TSA) – (JW) – (CL) 0.72-0.03=0.69	
	$\boxtimes$ (TIA) / (SS) = 0.3/0.69=0.43>0.4 $\boxtimes$ (TIA) / (SS) >0.4?	
$\boxtimes$ YES	, Redevelopment	
PART	<b>C2.</b> LOW IMPACT DEVELOPMENT ASSESSMENT – MINIM	IUM STANDARD 1
	(NOT REQUIRED FOR REDEVELOPMENT OR RETROFITS)	
	This section may be deleted if not required.	
Note: A	A written description must be provided specifying why each method is not being used or is not	applicable at the Site.
	riate answers may include:	application at the Site.
	Town requires (state the specific local requirement)	
	Meets Town's dimensional requirement of	
•	Not practical for site because	
•	Applying for waiver/variance to achieve this (pending/approved/denied)	
•	Applying for wavier/variance to seek relief from this (pending/approved/denied)	
A) PRE	ESERVATION OF UNDISTURBED AREAS, BUFFERS, AND FLOODPLAINS	IF NOT
	Sensitive resource areas and site constraints are identified (required)	IMPLEMENTED,
	Local development regulations have been reviewed (required)	EXPLAIN HERE
	All vegetated buffers and coastal and freshwater wetlands will be protected during and after	
	construction	
	Conservation Development or another site design technique has been incorporated to protect	
	open space and pre-development hydrology. <u>Note</u> : If Conservation Development has been	
	used, check box and skip to Subpart C	
$\bowtie$	As much natural vegetation and pre-development hydrology as possible has been maintained	

<b>B</b> )	LO	CATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE	
	NA	TURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS	
		Development sites and building envelopes have been appropriately distanced from wetlands and waterbodies  Development and stormwater systems have been located in areas with greatest infiltration	
		capacity (e.g., soil groups A and B)  Plans show measures to prevent soil compaction in areas designated as Qualified Pervious	
		Areas (QPA's)	
	$\boxtimes$	Development sites and building envelopes have been positioned outside of floodplains  Site design positions buildings, roadways and parking areas in a manner that avoids impacts	
		to surface water features	
		Development sites and building envelopes have been located to minimize impacts to steep slopes (≥15%)	
		Other (describe):	
<b>C</b> )	MI	NIMIZE CLEARING AND GRADING	
		Site clearing has been restricted to <u>minimum area needed</u> for building footprints, development activities, construction access, and safety.	
	$\boxtimes$	Site has been designed to position buildings, roadways, and parking areas in a manner that minimizes grading (cut and fill quantities)	
	$\boxtimes$	Protection for stands of trees and individual trees and their root zones to be preserved has been specified, and such protection extends at least to the tree canopy drip line(s)	
		Plan notes specify that public trees removed or damaged during construction shall be replaced	
		with equivalent	
D)	RE	DUCE IMPERVIOUS COVER	
		Reduced roadway widths ( $\leq$ 22 feet for ADT $\leq$ 400; $\leq$ 26 feet for ADT 400 - 2,000) Reduced driveway areas (length minimized via reduced ROW width ( $\leq$ 45 ft.) and/or reduced (or absolute minimum) front yard setback; width minimized to $\leq$ 9 ft. wide one lane; $\leq$ 18 ft. wide two lanes; shared driveways; pervious surface)	
		Reduced building footprint: Explain approach:  Reduced sidewalk area (≤ 4 ft. wide; one side of the street; unpaved path; pervious surface)	
		Reduced cul-de-sacs (radius < 45 ft; vegetated island; alternative turn-around)	
		Reduced parking lot area: Explain approach	
		Use of pervious surfaces for driveways, sidewalks, parking areas/overflow parking areas, etc.  Minimized impervious surfaces (project meets or is less than maximum specified by Zoning	
		Ordinance)	
<b>T</b> 1)		Other (describe):	
E)		SCONNECT IMPERVIOUS AREA Impervious surfaces have been disconnected, and runoff has been diverted to QPAs to the maximum extent possible	
		Residential street edges allow side-of-the-road drainage into vegetated open swales	
		Parking lot landscaping breaks up impervious expanse AND accepts runoff Other (describe):	
<b>F</b> )		TIGATE RUNOFF AT THE POINT OF GENERATION	
1')		Small-scale BMPs have been designated to treat runoff as close as possible to the source	
<b>G</b> )	PRO	OVIDE LOW-MAINTENANCE NATIVE VEGETATION	
٠,		Low-maintenance landscaping has been proposed using native species and cultivars	
	$\boxtimes$	Plantings of native trees and shrubs in areas previously cleared of native vegetation are	
		shown on site plan  Lawn areas have been limited/minimized, and yards have been kept undisturbed to the	
	_	maximum extent practicable on residential lots	

<b>H</b> ) .	RE	STORE STREAMS/WETLANDS	
		Historic drainage patterns have been restored by removing closed drainage systems,	
		daylighting buried streams, and/or restoring degraded stream channels and/or wetlands	ļ
		Removal of invasive species	
		Other	

#### **PART 3.** SUMMARY OF REMAINING STANDARDS

GROU	GROUNDWATER RECHARGE – MINIMUM STANDARD 2								
YES	NO								
$\boxtimes$		The project has been designed to meet the groundwater recharge standard.							
		If "No," the justification for groundwater recharge criterion waiver has been explained in the Narrative (e.g., threat of groundwater contamination or physical limitation), if applicable (see RICR 8.8.D);							
		Your waiver request has been explained in the Narrative, if applicable.							
	$\boxtimes$	Is this site identified as a Regulated Facility in Part 1, Minimum Standard 8: LUHPPL Identification?							
		If "Yes," has approval for infiltration by the OLRSMM Site Project Manager, per Part 1, Minimum Standard 8, been requested?							

#### **TABLE 2-1: Summary of Recharge (see RISDISM Section 3.3.2)** (Add or Subtract Rows as Necessary) LID Stormwater Credits (see Recharge **RISDISM Section Impervious Area** Total Rev Recharge Required by **Design Point Treated** Required 4.6.1) Provided by **Remaining BMPs** Portion of Rev (sq ft) (cu ft) BMPs (cu ft) (cu ft) directed to a QPA (cu ft) DP-1: SITE 271 13,011 271 1,133 DP-2: DP-3: DP-4: TOTALS:

### Notes:

- 1. Only BMPs listed in RISDISM Table 3-5 "List of BMPs Acceptable for Recharge" may be used to meet the recharge requirement.
- 2. Recharge requirement must be satisfied for each waterbody ID.

Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document,
page numbers, appendices, etc.):

WATE	WATER QUALITY – MINIMUM STANDARD 3							
YES	NO							
$\boxtimes$		Does this project meet or exceed the required water quality volume WQv (see RICR 8.9.E-I)?						
$\boxtimes$		Is the proposed final impervious cover greater than 20% of the disturbed area (see RICR 8.9.E-I)?						
		If "Yes," either the Modified Curve Number Method or the Split Pervious/Impervious method in Hydro-CAD was used to calculate WQv; or,						
$\boxtimes$		If "Yes," either TR-55 or TR-20 was used to calculate WQv; and,						
		If "No," the project meets the minimum WQv of 0.2 watershed inches over the entire disturbed area.						
		Not Applicable						
$\boxtimes$		Does this project meet or exceed the ability to treat required water quality flow WQf (see RICR 8.9.I.1-3)?						
	$\boxtimes$	Does this project propose an increase of impervious cover to a receiving water body with impairments?						
		If "Yes," please indicate below the method that was used to address the water quality requirements of no further degradation to a low-quality water.						
		RICR 8.36. A Pollutant Loading Analysis is needed and has been completed.						
		The Water Quality Guidance Document (Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters) has been followed as applicable.						
		BMPs are proposed that are on the <u>approved technology list</u> . If "Yes," please provide all required worksheets from the manufacturer.						
		Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result of a TMDL, SAMP, or other watershed-specific requirements.  If "Yes," please describe:						

TABLE 3-1: Summary of Water Quality (see RICR 8.9)									
Design Point and WB ID	Impervious area treated (sq ft)	Total WQ <sub>v</sub> Required (cu ft)	Credits (see RICR 8.18)  WQv directed to a QPA (cu ft)	Water Quality Treatment Remaining (cu ft)	Water Quality Provided by BMPs (cu ft)				
DP-1: SITE	13,011	1,084		1,084	1,133				
DP-2:									
DP-3:									
DP-4:									
TOTALS:									
Notes:  1. Only BMPs listed in RICR 8.20 and 8.25 or the Approved Technologies List of BMPs is Acceptable for Water Quality treatment.									

- treatment.
- For each Design Point, the Water Quality Volume Standard must be met for each Waterbody ID

	2. For each Design Folin, the water Quanty volume standard must be met for each waterbody 1D.						
	YES	This project has met the setback requirements for each BMP.					
$\boxtimes$	NO	If "No," please explain: Setback to surface water is not met due to site constraints.					
	Indicate where the pe	ertinent calculations and/or information for the above items are provided (i.e., name of report/document,					
	page numbers, appen	dices, etc.):					

CONV	CONVEYANCE AND NATURAL CHANNEL PROTECTION (RICR 8.10) – MINIMUM STANDARD 4										
YES	NO										
$\boxtimes$		Is this	s standard waived? If "Yes," please indicate one or more of the reasons below:								
			The project directs discharge to a large river (i.e., 4th-order stream or larger. See RISDISM Appendix I for State-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.								
		$\boxtimes$	The project is a small facility with impervious cover of less than or equal to 1 acre.								
			The project has a post-development peak discharge rate from the facility that is less than 2 cfs for the 1-year, 24-hour Type III design storm event (prior to any attenuation). (Note: LID design strategies can greatly reduce the peak discharge rate).								
		Conveyance and natural channel protection for the site have been met.									
		If	f "No," explain why:								

TABLE 4-1: Summary of Channel Protection Volumes (see RICR 8.10)											
Design Point	Receiving Water Body Name	Coldwater Fishery? (Y/N)	Total CPv Required (cu ft)	Total CPv Provided (cu ft)	Average Release Rate Modeled in the 1-yr storm (cfs)						
DP-1:											
DP-2:											
DP-3:											
DP-4:											
TOTALS:											
Note: The Channel	Protection Volume Standard must be met in	each waterbody I	D.								
□ YES □ NO	The CPv is released at roughly a uniform real Appendix D of the RISDISM).	ate over a 24-hou	r duration (see ex	camples of sizing	g calculations in						
☐ YES ☐ NO ☐ Do additional design restrictions apply resulting from any discharge to cold-water fisheries; ☐ NO ☐ If "Yes," please indicate restrictions and solutions below.											
☐ Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).											

	RBANK DARD		PROTECTION (RICR 8.11) AND OTHER POTENTIAL HIGH FLOWS – MINIMUM							
YES	NO									
	$\boxtimes$	Is this st	tandard waived? If yes, please indicate one or more of the reasons below:							
			The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for state-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.  A Downstream Analysis (see RICR 8.11.D and E) indicates that peak discharge control would not be beneficial or would exacerbate peak flows in a downstream tributary of a particular site (e.g., through coincident peaks).							
			Does the project flow to an MS4 system or subject to other stormwater requirements? f "Yes," indicate as follows:							
Note:	volum	es must b	ld be approved by RIDEM but not meet RIDOT or Town standards. RIDOT's regulations indicate that posteless than pre-volumes for the 10-yr storm at the design point entering the RIDOT system. If you have not approval for the discharge to an MS4, please explain below your strategy to comply with RIDEM and the							
			below which model was used for your analysis.  ΓR-55 □ TR-20 □ HydroCAD □ Bentley/Haestad □ Intellisolve  Other (Specify):							
YES	NO									
×		and con	e drainage design demonstrate that flows from the 100-year storm event through a BMP will safely manage vey the 100-year storm? If "No," please explain briefly below and reference where in the application further ntation can be found (i.e., name of report/document, page numbers, appendices, etc.)							
	$\boxtimes$	Do off-s	site areas contribute to the sub-watersheds and design points? If "Yes,"							
			the areas modeled as "present condition" for both pre- and post-development analysis?							
			Are the off-site areas shown on the subwatershed maps?							
		Does the drainage design confirm safe passage of the 100-year flow through the site for off-site runoff?								
	$\boxtimes$		Is a Downstream Analysis required (see RICR 8.11.E.1)?							
$\boxtimes$			Calculate the following:							
		$\boxtimes$	Area of disturbance within the sub-watershed (areas) = 39,441 sf							
		$\boxtimes$	Impervious cover $(\%) = 33\%$							
			breach analysis required (earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or a contributes to a significant or high hazard dam)?							
$\boxtimes$		Does th	is project meet the overbank flood protection standard?							

Table 5-1 Hydraulic Analysis Summary										
Subwatershed (Design Point)		ak Flow	•	ak Flow fs)	_	eak Flow fs)	100-yr Peak Flow (cfs)			
(Design 1 omt)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)		
DP-1: SITE	0.10	0.02	0.71	0.15	1.72	0.49	3.57	3.63		
DP-2:										
DP-3:										
DP-4:										
TOTALS:										

\*\* Utilize modified curve number method or split pervious /impervious method in HydroCAD.

<u>Note</u>: The hydraulic analysis must demonstrate no impact to each individual subwatershed DP unless each DP discharges to the same wetland or water resource.

Indicate as follows where the pertinent calculations and/or information for the items above are provided	Name of report/document, page numbers, appendices, etc.
Existing conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, and water surface elevations showing methodologies used and supporting calculations.	
Proposed conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, water surface elevations, and routing showing the methodologies used and supporting calculations.	
Final sizing calculations for structural stormwater BMPs, including contributing drainage area, storage, and outlet configuration.	
Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities).	

	Table 5-2 Summary of Best Management Practices											
BMP ID	DP#	BMP Type (e.g., bioretention, tree filter)	BMP Functions					Bypass Type	Horizontal Setback Criteria are met per RICR 8.21.B.10, 8.22.D.11, and 8.35.B.4			
			Pre- Treatment (Y/N/ NA)	Re <sub>v</sub>	WQv	CP <sub>v</sub> (Y/N/ NA)	Overbank Flood Reduction (Y/N/NA)	External (E) Internal (I) or NA	Yes/ No	Technical Justification (Design Report page number)	Distance Provided	
BIO	SITE	Bioretention	X	X	X	NA	X		N		15'<50'	
		TOTALS:										

	Table 5.3 Summary of Soils to Evaluate Each BMP										
		BMP Type (e.g., bioretention, tree filter)		Soils Analysis for Each BMP							
DP#	BMP ID		Test Pit ID# and Ground Elevation		SHWT Elevation	Bottom of Practice	Separation Distance	Hydrologic Soil Group	Exfiltration Rate		
			Primary	Secondary	(ft)	Elevation* (ft)	Provided (ft)	(A, B, C, D)	Applied (in/hr)		
SITE	BIO	Bioretention	Pond		112	116	4	С	0.50		
		TOTALS:									

<sup>\*</sup> For underground infiltration systems (UICs) bottom equals bottom of stone, for surface infiltration basins bottom equals bottom of basin, for filters bottom equals interface of storage and top of filter layer

LANI	LAND USES WITH HIGHER POTENTIAL POLLUTANTS LOADS (LUHPPLs) – MINIMUM STANDARD 8				
YES	NO	N/A			
			Describe any LUHPPLs identified in Part 1, Minimum Standard 8, Section 2. If not applicable, continue to Minimum Standard 9.		
			Are these activities already covered under an MSGP? If "No," please explain if you have applied for an MSGP or intend to do so?		
			List the specific BMPs that are proposed for this project that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in RISDISM Table 3-3, "Acceptable BMPs for Use at LUHPPLs." Please list BMPs:		
			Additional BMPs, or additional pretreatment BMP's if any, that meet RIPDES MSGP requirements; Please list BMPs:		
			Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).		

ILLIC	ILLICIT DISCHARGES – MINIMUM STANDARD 9					
	Illicit discharges are defined as unpermitted discharges to Waters of the State that do not consist entirely of stormwater or uncontaminated groundwater, except for certain discharges identified in the RIPDES Phase II Stormwater General Permit.					
YES	NO	N/A				
	$\boxtimes$		Have you checked for illicit discharges?			
			Have any been found and/or corrected? If "Yes," please identify.			
			Does your report explain preventative measures that keep non-stormwater discharges out of the Waters of the State (during and after construction)?			

SOIL	SOIL EROSION AND SEDIMENT CONTROL (SESC) – MINIMUM STANDARD 10					
YES	NO	N/A				
$\boxtimes$			Have you included a Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set?			
	$\boxtimes$		Have you provided a <b>separately-bound</b> document based upon the <u>SESC Template</u> ? If yes, proceed to			
			Minimum Standard 11 (the following items can be assumed to be addressed).			
			If "No," include a document with your submittal that addresses the following elements of an SESC Plan:			
			Soil Erosion and Sediment Control Plan Project Narrative, including a description of how the fifteen			
			(15) Performance Criteria have been met:			
			Provide Natural Buffers and Maintain Existing Vegetation			
			Minimize Area of Disturbance			
			☐ Preserve Topsoil			
			☐ Protect Storm Drain Inlets			
			☐ Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures			
			☐ Divert or Manage Run-On from Up-Gradient Areas			
			☐ Properly Design Constructed Stormwater Conveyance Channels			
			□ Retain Sediment On-Site			
			☐ Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows			
			☐ Install, Inspect, and Maintain Control Measures and Take Corrective Actions			
			☐ Qualified SESC Plan Preparer's Information and Certification			
			certify the SESC Plan upon selection and prior to initiating site activities			
			☐ Description of Control Measures, such as Temporary Sediment Trapping and Conveyance Practices,			
			including design calculations and supporting documentation, as required			

STORMWATER MANAGEMENT SYSTEM OPERATION, MAINTENANCE, AND POLLUTION PREVENTION PLAN – MINIMUM STANDARDS 7 AND 9			
Opera	tion a	nd Maintenance Section	
YES	NO		
$\boxtimes$		Have you minimized all sources of pollutant contact with stormwater runoff, to the maximum extent practicable?	
		Have you provided a <b>separately-bound</b> Operation and Maintenance Plan for the site and for all of the BMPs, and does it address each element of RICR 8.17 and RISDISM Appendix C and E?	
		Lawn, Garden, and Landscape Management meet the requirements of RISDISM Section G.7? If "No," why not?	
		Is the property owner or homeowner's association responsible for the stormwater maintenance of all BMP's? If "No," you must provide a legally binding and enforceable maintenance agreement (see RISDISM Appendix E, page 26) that identifies the entity that will be responsible for maintenance of the stormwater. Indicate where this agreement can be found in your report (i.e., name of report/document, page numbers, appendices, etc.).	
	$\boxtimes$	Do you anticipate that you will need legal agreements related to the stormwater structures? (e.g. off-site easements, deed restrictions, covenants, or ELUR per the Remediation Regulations).  If "Yes," have you obtained them? Or please explain your plan to obtain them:	

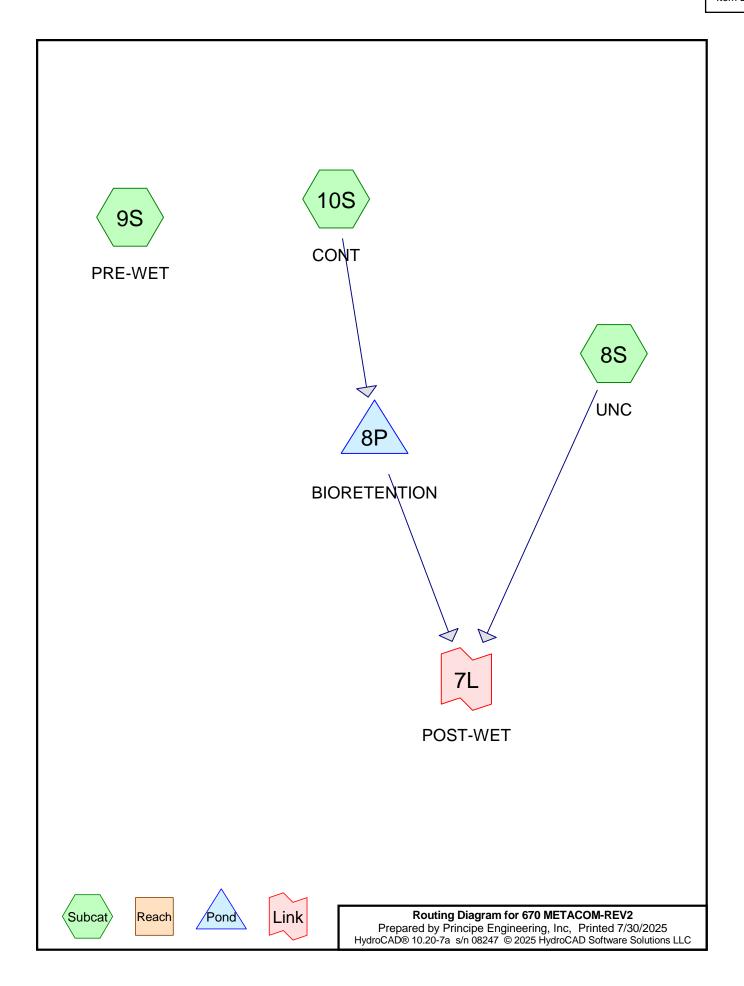
	$\boxtimes$	Is stormwater being directed from public areas to private property? If "Yes," note the following:		
		Note: This is not allowed unless a funding mechanism is in place to provide the finances for the long-term		
		maintenance of the BMP and drainage, or a funding mechanism is demonstrated that can guarantee the long-term maintenance of a stormwater BMP by an individual homeowner.		
Pollut	ion Pr	evention Section		
		Designated snow stockpile locations?		
		Trash racks to prevent floatables, trash, and debris from discharging to Waters of the State?		
$\boxtimes$		Asphalt-only based sealants?		
	$\boxtimes$	Pet waste stations? (Note: If a receiving water has a bacterial impairment, and the project involves housing units,		
		then this could be an important part of your pollution prevention plan).		
		Regular sweeping? Please describe:		
		De-icing specifications, in accordance with RISDISM Appendix G. (NOTE: If the groundwater is GAA, or this area		
		contributes to a drinking water supply, then this could be an important part of your pollution prevention plan).		
	$\boxtimes$	A prohibition of phosphate-based fertilizers? (Note: If the site discharges to a phosphorus impaired waterbody, then		
		this could be an important part of your pollution prevention plan).		

# PART 4. SUBWATERSHED MAPPING AND SITE-PLAN DETAILS

Existin	Existing and Proposed Subwatershed Mapping (REQUIRED)				
YES	NO				
$\boxtimes$		Existing and proposed drainage area delineations			
$\boxtimes$		Locations of all streams and drainage swales			
$\boxtimes$		Drainage flow paths, mapped according to the DEM <i>Guidance for Preparation of Drainage Area Maps</i> (included in RISDISM Appendix K)			
$\boxtimes$		Complete drainage area boundaries; include off-site areas in both mapping and analyses, as applicable			
		Logs of borings and/or test pit investigations along with supporting soils/geotechnical report			
		Mapped seasonal high-water-table test pit locations			
		Mapped locations of the site-specific borings and/or test pits and soils information from the test pits at the locations of the BMPs			
$\boxtimes$		Mapped locations of the BMPs, with the BMPs consistently identified on the Site Construction Plans			
	$\boxtimes$	Mapped bedrock outcrops adjacent to any infiltration BMP			
$\boxtimes$		Soils were logged by a:			
		<ul> <li>□ DEM-licensed Class IV soil evaluator         Name: Thomas J. Principe, III</li> <li>□ RI-registered P.E.         Name: Thomas j. Principe, III</li> </ul>			

Subwatershed and Impervious Area Summary					
Subwatershed (area to each design point)	First Receiving Water ID or MS4	Area Disturbed (units)	Existing Impervious (units)	Proposed Impervious (units)	
DP-1: SITE	Un-named pond	39,441	12,983	13,011	
DP-2:					
DP-3:					
DP-4:					
TOTALS:					

Site C	Site Construction Plans (Indicate that the following applicable specifications are provided)			
YES	NO			
		Existing and proposed plans (scale not greater than 1" = 40') with North arrow		
$\boxtimes$		Existing and proposed site topography (with 1 or 2-foot contours); 10-foot contours accepted for off-site areas		
$\boxtimes$		Boundaries of existing predominant vegetation and proposed limits of clearing		
$\boxtimes$		Site Location clarification		
$\boxtimes$		Location and field-verified boundaries of resource protection areas such as:		
		► freshwater and coastal wetlands, including lakes and ponds		
		► coastal shoreline features		
		Perennial and intermittent streams, in addition to Areas Subject to Storm Flowage (ASSFs)		
$\boxtimes$		All required setbacks (e.g., buffers, water-supply wells, septic systems)		
$\boxtimes$		Representative cross-section and profile drawings, and notes and details of structural stormwater management		
		practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include:		
		► Location and size of the stormwater treatment practices (type of practice, depth, area). Stormwater		
		treatment practices (BMPs) must have labels that correspond to RISDISM Table 5-2;		
		► Design water surface elevations (applicable storms);		
		► Structural details of outlet structures, embankments, spillways, stilling basins, grade-control structures,		
		conveyance channels, etc.;		
		► Existing and proposed structural elevations (e.g., inverts of pipes, manholes, etc.);		
		► Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and		
		downstream properties or drainage that could be affected by work in the floodplain;		
		► Planting plans for structural stormwater BMPs, including species, size, planting methods, and		
		maintenance requirements of proposed planting		
		Logs of borings and/or test pit investigations along with supporting soils/geotechnical report and corresponding		
		water tables		
		Mapping of any OLRSMM-approved remedial actions/systems (including ELURs)		
$\boxtimes$		Location of existing and proposed roads, buildings, and other structures including limits of disturbance;		
		<ul> <li>Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements;</li> </ul>		
		► Location of existing and proposed conveyance systems, such as grass channels, swales, and storm drains,		
		and location(s) of final discharge point(s) (wetland, waterbody, etc.);		
		<ul> <li>Cross sections of roadways, with edge details such as curbs and sidewalks;</li> </ul>		
		<ul> <li>Location and dimensions of channel modifications, such as bridge or culvert crossings</li> </ul>		
		Locations, cross sections, and profiles of all stream or wetland crossings and their method of stabilization		



Item B1.

### 670 METACOM-REV2

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# **Area Listing (all nodes)**

Area	CN	Description
(acres)		(subcatchment-numbers)
0.662	74	>75% Grass cover, Good, HSG C (8S, 9S, 10S)
0.293	96	Gravel surface, HSG C (9S)
0.207	98	Paved parking, HSG C (9S, 10S)
0.080	98	Roofs, HSG C (10S)
0.017	98	Sidewalk (10S)
0.015	98	Town Concrete sidewalk, HSG C (8S)
0.154	70	Woods, Good, HSG C (8S, 9S)
1.428	83	TOTAL AREA

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# Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
0.000	HSG A	
0.000	HSG B	
1.411	HSG C	8S, 9S, 10S
0.000	HSG D	
0.017	Other	10S
1.428		<b>TOTAL AREA</b>

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# **Ground Covers (all nodes)**

HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground	Subcatchment
 (acres)	(acres)	(acres)	(acres)	(acres)	(acres)	Cover	Numbers
0.000	0.000	0.662	0.000	0.000	0.662	>75% Grass cover, Good	8S, 9S,
							10S
0.000	0.000	0.293	0.000	0.000	0.293	Gravel surface	9S
0.000	0.000	0.207	0.000	0.000	0.207	Paved parking	9S, 10S
0.000	0.000	0.080	0.000	0.000	0.080	Roofs	10S
0.000	0.000	0.000	0.000	0.017	0.017	Sidewalk	10S
0.000	0.000	0.015	0.000	0.000	0.015	Town Concrete sidewalk	8S
0.000	0.000	0.154	0.000	0.000	0.154	Woods, Good	8S, 9S
0.000	0.000	1.411	0.000	0.017	1.428	TOTAL AREA	

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Type III 24-hr WQV Rainfall=1.20"

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Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: UNC Runoff Area=7,996 sf 7.95% Impervious Runoff Depth=0.12"

Tc=6.0 min CN=72/98 Runoff=0.02 cfs 0.002 af

Subcatchment 9S: PRE-WET Runoff Area=31,096 sf 0.75% Impervious Runoff Depth=0.23"

Flow Length=149' Slope=0.0170 '/' Tc=20.5 min CN=83/98 Runoff=0.10 cfs 0.013 af

Subcatchment 10S: CONT Runoff Area=23,100 sf 56.32% Impervious Runoff Depth=0.58"

Tc=6.0 min CN=74/98 Runoff=0.33 cfs 0.026 af

Pond 8P: BIORETENTION Peak Elev=116.07' Storage=332 cf Inflow=0.33 cfs 0.026 af

Discarded=0.05 cfs 0.026 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.026 af

Link 7L: POST-WET Inflow=0.02 cfs 0.002 af

Primary=0.02 cfs 0.002 af

Total Runoff Area = 1.428 ac Runoff Volume = 0.041 af Average Runoff Depth = 0.34" 77.68% Pervious = 1.109 ac 22.32% Impervious = 0.319 ac

Type III 24-hr WQV Rainfall=1.20"

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## **Summary for Subcatchment 8S: UNC**

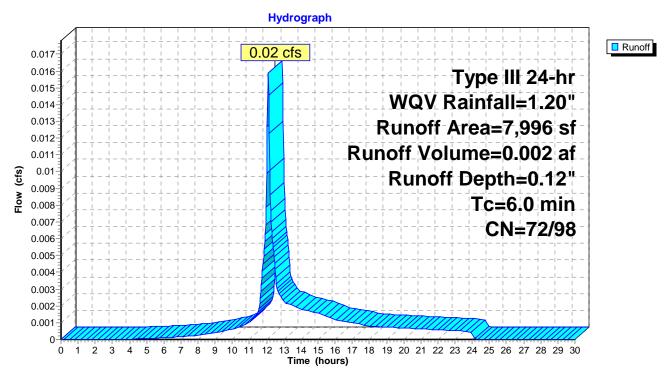
Runoff 0.02 cfs @ 12.09 hrs, Volume= 0.002 af, Depth= 0.12"

Routed to Link 7L: POST-WET

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-30.00 hrs, dt= 0.03 Type III 24-hr WQV Rainfall=1.20"

	Area (sf)	CN	Description	Description					
*	636	98	Town Conc	rete sidewa	valk, HSG C				
	3,625	74	>75% Gras	s cover, Go	Good, HSG C				
	3,735	70	Woods, Go	od, HSG C	${\mathbb C}$				
	7,996	74	Weighted A	verage					
	7,360	72	92.05% Pe	rvious Area	a				
	636	98	7.95% Impe	ervious Are	ea				
(mi	Гс Length n) (feet)	Slop (ft/i	•	Capacity (cfs)	•				
6	.0				Direct Entry,				

#### **Subcatchment 8S: UNC**



Type III 24-hr WQV Rainfall=1.20"

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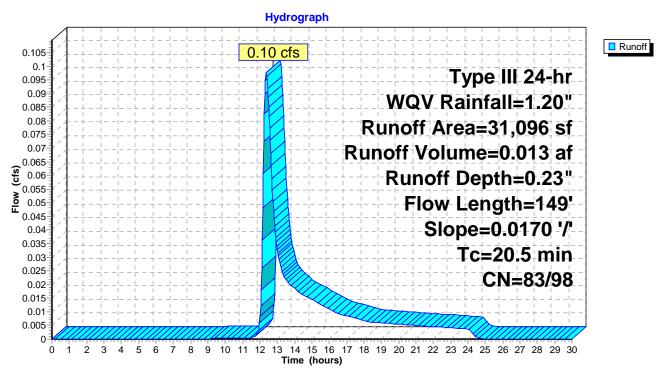
# **Summary for Subcatchment 9S: PRE-WET**

Runoff = 0.10 cfs @ 12.35 hrs, Volume= 0.013 af, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-30.00 hrs, dt= 0.03 Type III 24-hr WQV Rainfall=1.20"

	Area (sf)	CN	Description	Pescription					
	233	98	Paved park	ing, HSG C	;				
	12,750	96	Gravel surfa	ravel surface, HSG C					
	15,124	74	>75% Gras	5% Grass cover, Good, HSG C					
	2,989	70	Woods, Go	oods, Good, HSG C					
	31,096	83	Weighted A	verage					
	30,863	83	99.25% Per	vious Area	l				
	233	98	0.75% Impe	ervious Are	a				
To	: Length	Slope	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)					
20.5	149	0.0170	0.12		Sheet Flow,				
					Grass: Dense	n= 0.240	P2= 3.33"		

#### **Subcatchment 9S: PRE-WET**



Type III 24-hr WQV Rainfall=1.20"

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# **Summary for Subcatchment 10S: CONT**

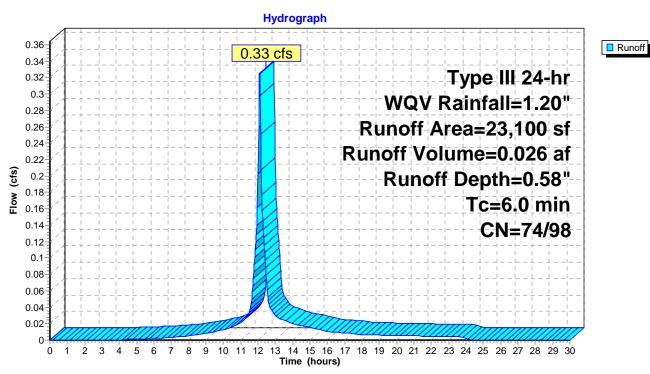
Runoff 0.33 cfs @ 12.09 hrs, Volume= 0.026 af, Depth= 0.58"

Routed to Pond 8P: BIORETENTION

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-30.00 hrs, dt= 0.03 Type III 24-hr WQV Rainfall=1.20"

	Α	rea (sf)	CN	Description							
		3,500	98	Roofs, HSG	Roofs, HSG C						
		8,788	98	Paved park	ing, HSG C	•					
*		723	98	Sidewalk	Sidewalk						
		10,089	74	74 >75% Grass cover, Good, HSG C							
		23,100	88	Weighted Average							
		10,089	74	43.68% Per	43.68% Pervious Area						
		13,011	98	56.32% Imp	ervious Are	ea					
	Tc	Length	Slop	e Velocity	Capacity	Description					
	(min)	(feet)	(ft/1	(ft/ft) (ft/sec) (cfs)							
	6.0					Direct Entry.					

#### **Subcatchment 10S: CONT**



Type III 24-hr WQV Rainfall=1.20"

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## **Summary for Pond 8P: BIORETENTION**

Inflow Area = 0.530 ac, 56.32% Impervious, Inflow Depth = 0.58" for WQV event

Inflow = 0.33 cfs @ 12.09 hrs, Volume= 0.026 af

Outflow = 0.05 cfs @ 12.57 hrs, Volume= 0.026 af, Atten= 83%, Lag= 29.0 min

Discarded = 0.05 cfs @ 12.57 hrs, Volume= 0.026 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link 7L: POST-WET

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Peak Elev= 116.07' @ 12.57 hrs Surf.Area= 4,642 sf Storage= 332 cf

Plug-Flow detention time= 44.6 min calculated for 0.026 af (100% of inflow)

Center-of-Mass det. time= 44.5 min (836.1 - 791.6)

Volume	Invert	Avail.Sto	rage Storage	Description	
#1	116.00	5,6	50 cf Custom	n Stage Data (Pri	ismatic) Listed below (Recalc)
Elevation (fee		urf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
116.0	00	4,470	0	0	
117.0	00	6,829	5,650	5,650 5,650	
Device	Routing	Invert	Outlet Device	es :	
#1	Discarded	116.00'	0.500 in/hr E	xfiltration over S	Surface area
#2	Primary	116.60'	10.0' long x	2.0' breadth Bro	ad-Crested Rectangular Weir
	-		Head (feet) (	0.20 0.40 0.60	0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.	50	
			Coef. (English	h) 2.54 2.61 2.6	61 2.60 2.66 2.70 2.77 2.89 2.88
			2.85 3.07 3.	20 3.32	

**Discarded OutFlow** Max=0.05 cfs @ 12.57 hrs HW=116.07' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

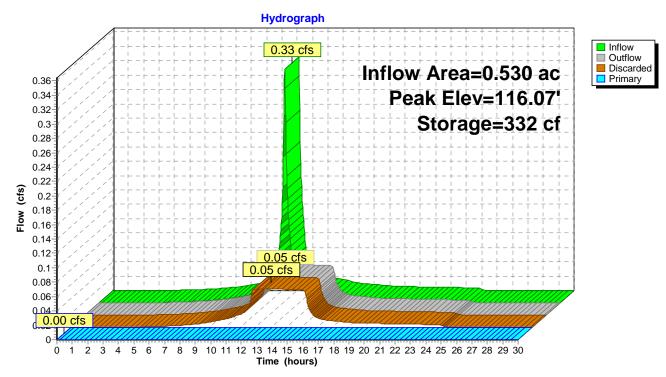
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=116.00' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Type III 24-hr WQV Rainfall=1.20" Printed 7/30/2025

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### **Pond 8P: BIORETENTION**



Type III 24-hr WQV Rainfall=1.20" Printed 7/30/2025

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# **Summary for Link 7L: POST-WET**

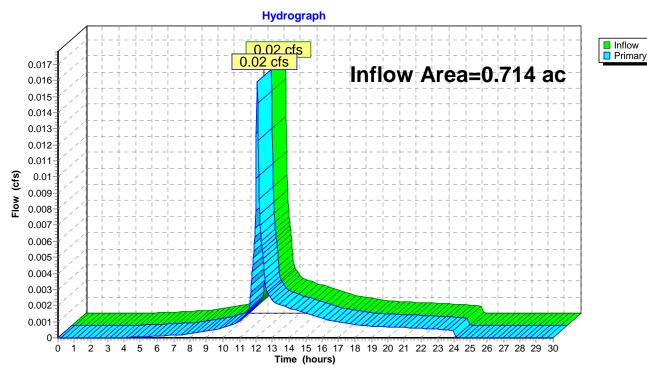
Inflow Area = 0.714 ac, 43.89% Impervious, Inflow Depth = 0.03" for WQV event

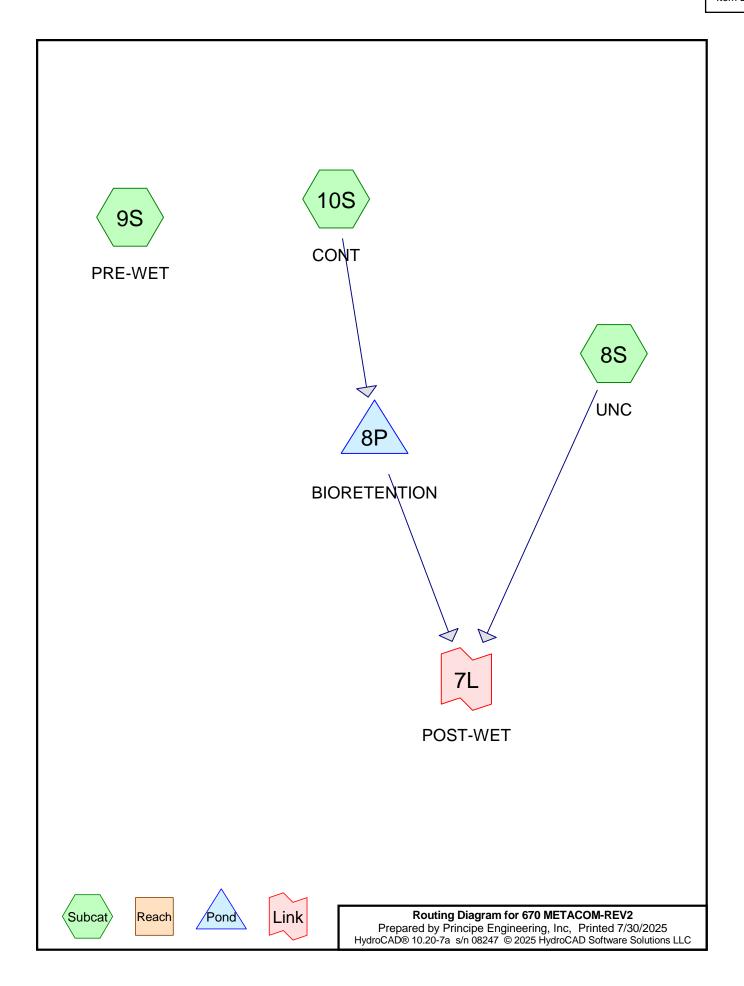
0.02 cfs @ 12.09 hrs, Volume= Inflow 0.002 af

0.02 cfs @ 12.09 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min Primary

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

## **Link 7L: POST-WET**





# 670 METACOM-REV2

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# **Rainfall Events Listing (selected events)**

Event#	Event	Storm Type	Curve	Mode	Duration	B/B	Depth	AMC
	Name				(hours)		(inches)	
1	1-yr	Type III 24-hr		Default	24.00	1	2.80	2
2	10-yr	Type III 24-hr		Default	24.00	1	4.90	2
3	25-yr	Type III 24-hr		Default	24.00	1	6.10	2
4	100-yr	Type III 24-hr		Default	24.00	1	8.60	2

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# **Area Listing (all nodes)**

Area	CN	Description
(acres)		(subcatchment-numbers)
0.662	74	>75% Grass cover, Good, HSG C (8S, 9S, 10S)
0.293	96	Gravel surface, HSG C (9S)
0.207	98	Paved parking, HSG C (9S, 10S)
0.080	98	Roofs, HSG C (10S)
0.017	98	Sidewalk (10S)
0.015	98	Town Concrete sidewalk, HSG C (8S)
0.154	70	Woods, Good, HSG C (8S, 9S)
1.428	83	TOTAL AREA

# 670 METACOM-REV2

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# Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
0.000	HSG A	
0.000	HSG B	
1.411	HSG C	8S, 9S, 10S
0.000	HSG D	
0.017	Other	10S
1.428		TOTAL AREA

# 670 METACOM-REV2

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# **Ground Covers (all nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.662	0.000	0.000	0.662	>75% Grass cover, Good	8S, 9S, 10S
0.000	0.000	0.293	0.000	0.000	0.293	Gravel surface	9S
0.000	0.000	0.207	0.000	0.000	0.207	Paved parking	9S, 10S
0.000	0.000	0.080	0.000	0.000	0.080	Roofs	10S
0.000	0.000	0.000	0.000	0.017	0.017	Sidewalk	10S
0.000	0.000	0.015	0.000	0.000	0.015	Town Concrete sidewalk	8S
0.000	0.000	0.154	0.000	0.000	0.154	Woods, Good	8S, 9S
0.000	0.000	1.411	0.000	0.017	1.428	TOTAL AREA	

670 METACOM-REV2

Type III 24-hr 1-yr Rainfall=2.80" Printed 7/30/2025

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Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 8S: UNC Runoff Area=7,996 sf 7.95% Impervious Runoff Depth=0.78"

Tc=6.0 min CN=74 Runoff=0.15 cfs 0.012 af

Subcatchment 9S: PRE-WET Runoff Area=31,096 sf 0.75% Impervious Runoff Depth=1.29"

Flow Length=149' Slope=0.0170 '/' Tc=20.5 min CN=83 Runoff=0.71 cfs 0.077 af

Subcatchment 10S: CONT Runoff Area=23,100 sf 56.32% Impervious Runoff Depth=1.64"

Tc=6.0 min CN=88 Runoff=1.01 cfs 0.073 af

Pond 8P: BIORETENTION Peak Elev=116.31' Storage=1,512 cf Inflow=1.01 cfs 0.073 af

Discarded=0.06 cfs 0.073 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.073 af

Link 7L: POST-WET Inflow=0.15 cfs 0.012 af

Primary=0.15 cfs 0.012 af

Total Runoff Area = 1.428 ac Runoff Volume = 0.161 af Average Runoff Depth = 1.35" 77.68% Pervious = 1.109 ac 22.32% Impervious = 0.319 ac

Type III 24-hr 1-yr Rainfall=2.80" Printed 7/30/2025

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## **Summary for Subcatchment 8S: UNC**

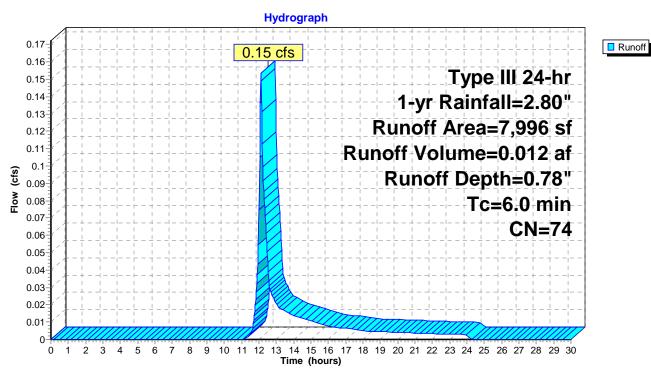
Runoff = 0.15 cfs @ 12.10 hrs, Volume= 0.012 af, Depth= 0.78"

Routed to Link 7L: POST-WET

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 1-yr Rainfall=2.80"

	Area (sf)	CN	Description					
*	636	98	Town Conc	rete sidewa	valk, HSG C			
	3,625	74	>75% Gras	75% Grass cover, Good, HSG C				
	3,735	70	Woods, Go	oods, Good, HSG C				
	7,996	74	Weighted A	verage				
	7,360	72	92.05% Per	92.05% Pervious Area				
	636	98	7.95% Impe	ervious Are	ea			
_		0.		•	<b>B</b> 1.4			
To	- 3	Slop	,	Capacity	· ·			
(min)	(feet)	(ft/1	ft) (ft/sec)	(cfs)				
6.0	)				Direct Entry,			

#### **Subcatchment 8S: UNC**



Type III 24-hr 1-yr Rainfall=2.80" Printed 7/30/2025

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## **Summary for Subcatchment 9S: PRE-WET**

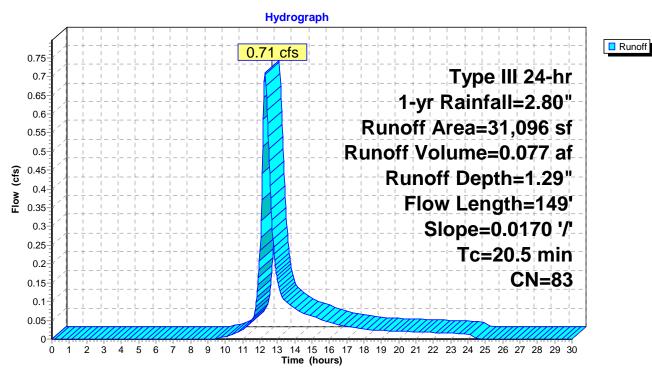
Runoff = 0.71 cfs @ 12.29 hrs, Volume= 0.077 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 1-yr Rainfall=2.80"

	Α	rea (sf)	CN	Description						
		233	98	Paved park	ing, HSG C	,				
		12,750	96	Gravel surf	ace, HSG (					
		15,124	74	>75% Gras	75% Grass cover, Good, HSG C					
		2,989	70	Woods, Go	/oods, Good, HSG C					
	31,096 83 Weighted Average									
		30,863	83	99.25% Pe	rvious Area					
		233	98	0.75% Impe	ervious Are	a				
	Tc	Length	Slope	e Velocity	Capacity	Description				
_	(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)					
	20.5	149	0.0170	0.12		Sheet Flow,				
						Grass: Dense	n = 0.240	P2= 3.33"		

ula a a t a la ma a mt AC. DDF WFT

### **Subcatchment 9S: PRE-WET**



Type III 24-hr 1-yr Rainfall=2.80" Printed 7/30/2025

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## **Summary for Subcatchment 10S: CONT**

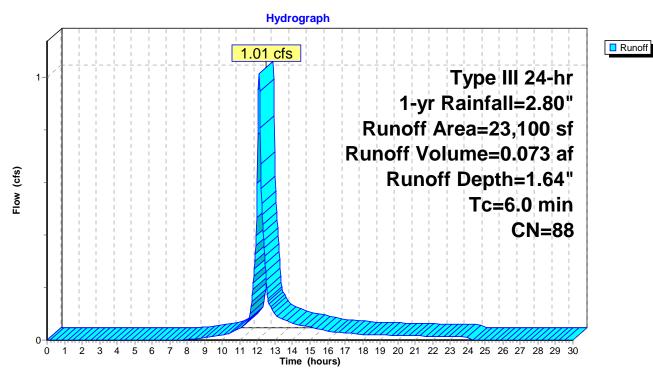
Runoff = 1.01 cfs @ 12.09 hrs, Volume= 0.073 af, Depth= 1.64"

Routed to Pond 8P: BIORETENTION

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 1-yr Rainfall=2.80"

	Α	rea (sf)	CN	Description	Description					
		3,500	98	Roofs, HSG	Roofs, HSG C					
		8,788	98	Paved parking, HSG C						
*		723	98	Sidewalk	_					
		10,089	74	>75% Grass	s cover, Go	Good, HSG C				
		23,100	88	Weighted Average						
		10,089	74	43.68% Per	vious Area	a				
		13,011	98	56.32% Imp	ervious Are	rea				
	_									
	Tc	Length	Slop	,	Capacity	•				
(	(min)	(feet)	(ft/1	ft) (ft/sec)	t) (ft/sec) (cfs)					
	6.0					Direct Entry.				

#### **Subcatchment 10S: CONT**



Type III 24-hr 1-yr Rainfall=2.80"

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## **Summary for Pond 8P: BIORETENTION**

Inflow Area = 0.530 ac, 56.32% Impervious, Inflow Depth = 1.64" for 1-yr event

Inflow = 1.01 cfs @ 12.09 hrs, Volume= 0.073 af

Outflow = 0.06 cfs @ 14.17 hrs, Volume= 0.073 af, Atten= 94%, Lag= 124.9 min

Discarded = 0.06 cfs @ 14.17 hrs, Volume= 0.073 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link 7L: POST-WET

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Peak Elev= 116.31' @ 14.17 hrs Surf.Area= 5,207 sf Storage= 1,512 cf

Plug-Flow detention time= 253.5 min calculated for 0.072 af (100% of inflow)

Center-of-Mass det. time= 253.4 min (1,074.1 - 820.7)

Volume	Invert	Avail.Sto	rage Storage	e Description	
#1	116.00'	5,65	0 cf Custon	n Stage Data (Pri	ismatic) Listed below (Recalc)
Elevatio	et)	urf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
116.0	-	4,470	0	0	
117.0	)()	6,829	5,650	5,650	
Device	Routing	Invert	Outlet Device	es	
#1	Discarded	116.00'	0.500 in/hr E	xfiltration over S	Surface area
#2	Primary	116.60'	Head (feet) ( 2.50 3.00 3.	0.20 0.40 0.60 ( .50 h) 2.54 2.61 2.1	pad-Crested Rectangular Weir 0.80 1.00 1.20 1.40 1.60 1.80 2.00 61 2.60 2.66 2.70 2.77 2.89 2.88

**Discarded OutFlow** Max=0.06 cfs @ 14.17 hrs HW=116.31' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.06 cfs)

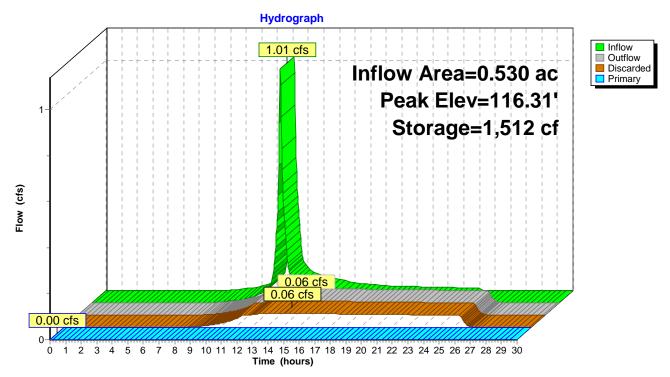
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=116.00' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Type III 24-hr 1-yr Rainfall=2.80" Printed 7/30/2025

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### **Pond 8P: BIORETENTION**



Type III 24-hr 1-yr Rainfall=2.80" Printed 7/30/2025

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# **Summary for Link 7L: POST-WET**

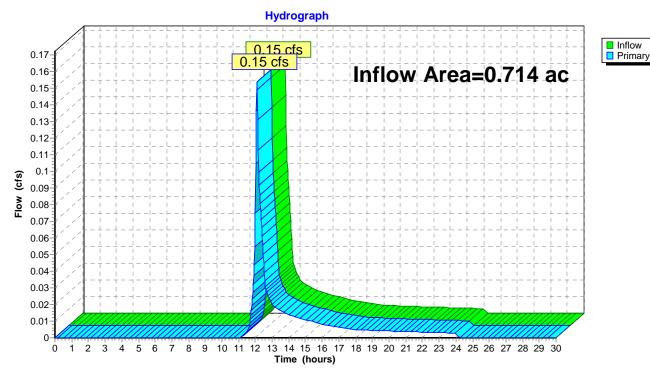
Inflow Area = 0.714 ac, 43.89% Impervious, Inflow Depth = 0.20" for 1-yr event

Inflow = 0.15 cfs @ 12.10 hrs, Volume= 0.012 af

Primary = 0.15 cfs @ 12.10 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

## Link 7L: POST-WET



670 METACOM-REV2

Type III 24-hr 10-yr Rainfall=4.90"

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Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 8S: UNC Runoff Area=7,996 sf 7.95% Impervious Runoff Depth=2.28"

Tc=6.0 min CN=74 Runoff=0.49 cfs 0.035 af

Subcatchment 9S: PRE-WET Runoff Area=31,096 sf 0.75% Impervious Runoff Depth=3.08"

Flow Length=149' Slope=0.0170 '/' Tc=20.5 min CN=83 Runoff=1.72 cfs 0.183 af

Subcatchment 10S: CONT Runoff Area=23,100 sf 56.32% Impervious Runoff Depth=3.57"

Tc=6.0 min CN=88 Runoff=2.16 cfs 0.158 af

Pond 8P: BIORETENTION Peak Elev=116.64' Storage=3,336 cf Inflow=2.16 cfs 0.158 af

Discarded=0.07 cfs 0.113 af Primary=0.19 cfs 0.024 af Outflow=0.26 cfs 0.137 af

Link 7L: POST-WET Inflow=0.49 cfs 0.058 af

Primary=0.49 cfs 0.058 af

Total Runoff Area = 1.428 ac Runoff Volume = 0.376 af Average Runoff Depth = 3.16" 77.68% Pervious = 1.109 ac 22.32% Impervious = 0.319 ac

Type III 24-hr 10-yr Rainfall=4.90" Printed 7/30/2025

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## **Summary for Subcatchment 8S: UNC**

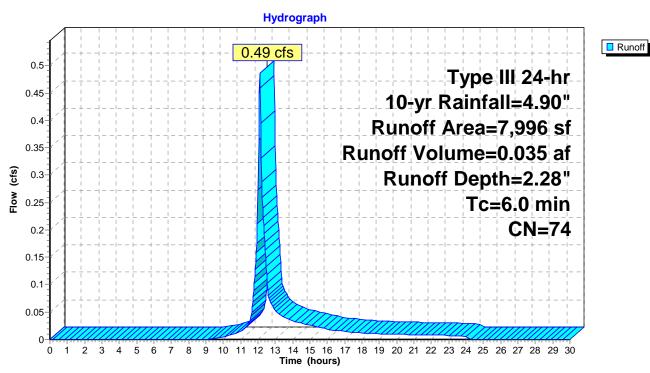
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 2.28"

Routed to Link 7L: POST-WET

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description	Description							
*	636	98	Town Conc	Town Concrete sidewalk, HSG C							
	3,625	74	>75% Gras	>75% Grass cover, Good, HSG C							
	3,735	70	Woods, Go	od, HSG C	$\mathbb{C}$						
	7,996	74	Weighted A	Veighted Average							
	7,360	72	92.05% Per	vious Area	a						
	636	98	7.95% Impe	rvious Are	ea						
To	c Length	Slop	e Velocity	Capacity	Description						
(min	) (feet)	(ft/1	it) (ft/sec) (cfs)								
6.0	)				Direct Entry,						

#### **Subcatchment 8S: UNC**



Type III 24-hr 10-yr Rainfall=4.90"

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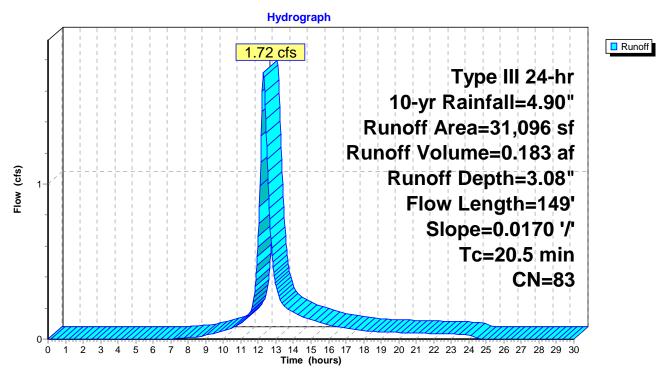
## **Summary for Subcatchment 9S: PRE-WET**

Runoff = 1.72 cfs @ 12.28 hrs, Volume= 0.183 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 10-yr Rainfall=4.90"

_	Α	rea (sf)	CN	Description					
		233	98	Paved park	king, HSG C	)			
		12,750	96	Gravel surf	ace, HSG (				
		15,124	74	>75% Gras	s cover, Go	ood, HSG C			
		2,989	70	Woods, Go	od, HSG C				
		31,096	83	Weighted A	Average				
	30,863 83 99.25% Pervious Area					1			
		233	98	0.75% Imp	ervious Are	a			
	Tc	Length	Slop	•	Capacity	Description			
_	(min)	(feet)	(ft/ft	(ft/sec)	(cfs)				
	20.5	149	0.017	0.12		Sheet Flow,			
						Grass: Dense	n = 0.240	P2= 3.33"	

### **Subcatchment 9S: PRE-WET**



Type III 24-hr 10-yr Rainfall=4.90" Printed 7/30/2025

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## **Summary for Subcatchment 10S: CONT**

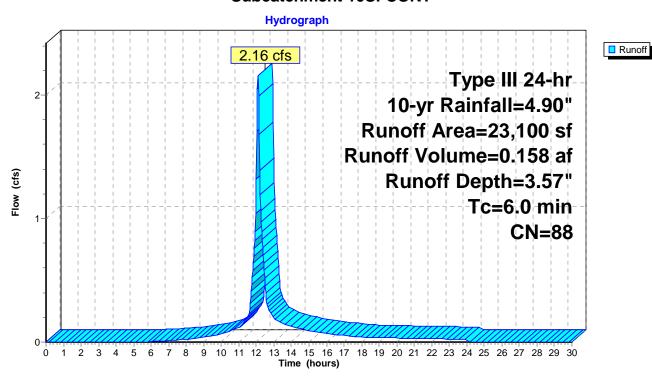
Runoff = 2.16 cfs @ 12.09 hrs, Volume= 0.158 af, Depth= 3.57"

Routed to Pond 8P: BIORETENTION

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 10-yr Rainfall=4.90"

	Α	rea (sf)	CN	Description	Description						
		3,500	98	Roofs, HSC	Roofs, HSG C						
		8,788	98	Paved park	ing, HSG C	C					
*		723	98	Sidewalk	_						
		10,089	74	>75% Gras	s cover, Go	lood, HSG C					
		23,100	88	Weighted A	Weighted Average						
		10,089	74	43.68% Pe	rvious Area	a					
		13,011	98	56.32% Imp	pervious Are	rea					
	Tc	Length	Slop	e Velocity	Capacity	Description					
(	min)	(feet)	(ft/1	ft) (ft/sec)	(cfs)						
	6.0					Direct Entry.					

### **Subcatchment 10S: CONT**



Type III 24-hr 10-yr Rainfall=4.90"

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## **Summary for Pond 8P: BIORETENTION**

Inflow Area = 0.530 ac, 56.32% Impervious, Inflow Depth = 3.57" for 10-yr event

Inflow = 2.16 cfs @ 12.09 hrs, Volume= 0.158 af

Outflow = 0.26 cfs @ 12.70 hrs, Volume= 0.137 af, Atten= 88%, Lag= 36.8 min

Discarded = 0.07 cfs @ 12.70 hrs, Volume= 0.113 af Primary = 0.19 cfs @ 12.70 hrs, Volume= 0.024 af

Routed to Link 7L: POST-WET

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Peak Elev= 116.64' @ 12.70 hrs Surf.Area= 5,977 sf Storage= 3,336 cf

Plug-Flow detention time= 354.0 min calculated for 0.136 af (86% of inflow)

Center-of-Mass det. time= 294.5 min (1,093.1 - 798.6)

Volume	Invert	: Avail.Sto	rage Storage	Description	
#1	116.00	5,65	50 cf Custon	n Stage Data (Pri	ismatic) Listed below (Recalc)
Elevation (fee		urf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
116.0	00	4,470	0	0	
117.0	00	6,829	5,650	5,650	
Device	Routing	Invert	Outlet Device	es	
#1	Discarded	116.00'	0.500 in/hr E	xfiltration over S	Surface area
#2	Primary	116.60'	Head (feet) (2.50 3.00 3.	0.20 0.40 0.60 .50 h) 2.54 2.61 2.	61 2.60 2.66 2.70 2.77 2.89 2.88

**Discarded OutFlow** Max=0.07 cfs @ 12.70 hrs HW=116.64' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.07 cfs)

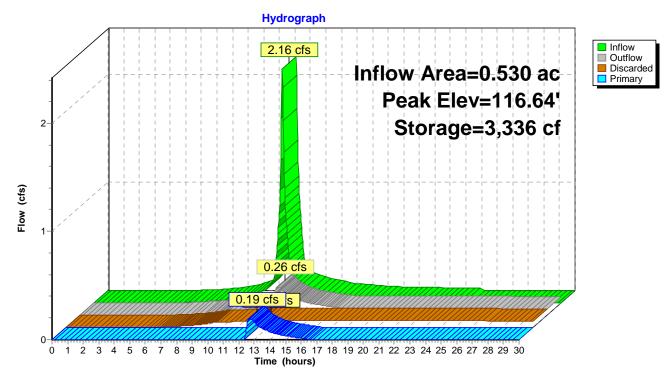
Primary OutFlow Max=0.19 cfs @ 12.70 hrs HW=116.64' (Free Discharge) 2=Broad-Crested Rectangular Weir (Weir Controls 0.19 cfs @ 0.50 fps)

Type III 24-hr 10-yr Rainfall=4.90" Printed 7/30/2025

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### **Pond 8P: BIORETENTION**



Type III 24-hr 10-yr Rainfall=4.90" Printed 7/30/2025

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# **Summary for Link 7L: POST-WET**

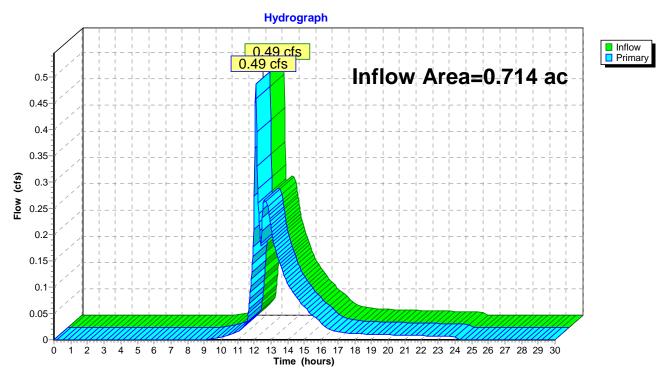
0.714 ac, 43.89% Impervious, Inflow Depth = 0.98" for 10-yr event Inflow Area =

Inflow 0.49 cfs @ 12.09 hrs, Volume= 0.058 af

0.49 cfs @ 12.09 hrs, Volume= Primary 0.058 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

#### **Link 7L: POST-WET**



670 METACOM-REV2

Type III 24-hr 25-yr Rainfall=6.10"

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Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 8S: UNC Runoff Area=7,996 sf 7.95% Impervious Runoff Depth=3.27"

Tc=6.0 min CN=74 Runoff=0.70 cfs 0.050 af

Subcatchment 9S: PRE-WET Runoff Area=31,096 sf 0.75% Impervious Runoff Depth=4.18"

Flow Length=149' Slope=0.0170 '/' Tc=20.5 min CN=83 Runoff=2.32 cfs 0.249 af

Subcatchment 10S: CONT Runoff Area=23,100 sf 56.32% Impervious Runoff Depth=4.72"

Tc=6.0 min CN=88 Runoff=2.82 cfs 0.209 af

Pond 8P: BIORETENTION Peak Elev=116.71' Storage=3,746 cf Inflow=2.82 cfs 0.209 af

Discarded=0.07 cfs 0.118 af Primary=0.88 cfs 0.064 af Outflow=0.95 cfs 0.183 af

Link 7L: POST-WET Inflow=1.15 cfs 0.114 af

Primary=1.15 cfs 0.114 af

Total Runoff Area = 1.428 ac Runoff Volume = 0.508 af Average Runoff Depth = 4.27" 77.68% Pervious = 1.109 ac 22.32% Impervious = 0.319 ac

Type III 24-hr 25-yr Rainfall=6.10" Printed 7/30/2025

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### **Summary for Subcatchment 8S: UNC**

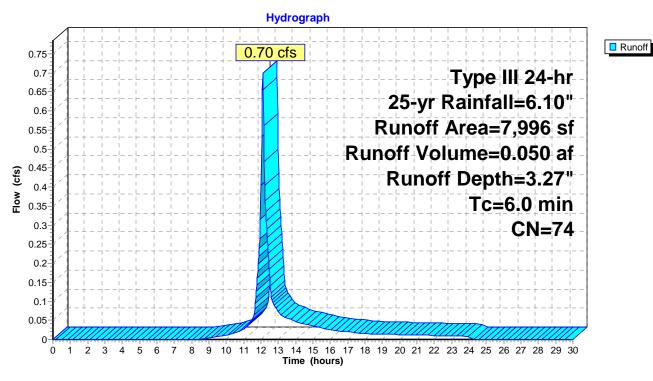
Runoff = 0.70 cfs @ 12.09 hrs, Volume= 0.050 af, Depth= 3.27"

Routed to Link 7L: POST-WET

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 25-yr Rainfall=6.10"

	Area (sf)	CN	Description	Description							
*	636	98	Town Conc	Town Concrete sidewalk, HSG C							
	3,625	74	>75% Gras	>75% Grass cover, Good, HSG C							
	3,735	70	Woods, Go	Woods, Good, HSG C							
	7,996	74	Weighted A	Weighted Average							
	7,360	72	92.05% Per	vious Area	a						
	636	98	7.95% Impe	ervious Are	ea						
T (mir	c Length	Slop (ft/f	•	Capacity (cfs)	·						
6.	0				Direct Entry,						

#### **Subcatchment 8S: UNC**



Type III 24-hr 25-yr Rainfall=6.10" Printed 7/30/2025

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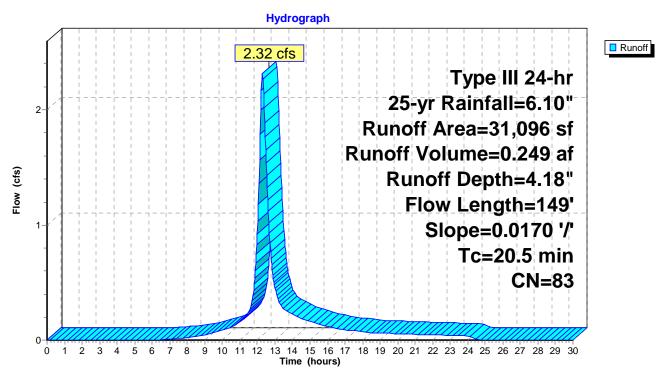
## **Summary for Subcatchment 9S: PRE-WET**

Runoff = 2.32 cfs @ 12.28 hrs, Volume= 0.249 af, Depth= 4.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 25-yr Rainfall=6.10"

	Α	rea (sf)	CN	D	Description					
	233 98 Paved parking, HSG C						;			
		12,750	96	G	ravel surfa	ace, HSG C				
		15,124	74	>	75% Grass	s cover, Go	ood, HSG C			
		2,989	70	W	oods, Go	od, HSG C				
	31,096 83 Weighted Average									
	30,863 83 99.25% Pervious Area					vious Area				
		233	98	0.	75% Impe	ervious Area	a			
	Tc	Length	Slop	е	Velocity	Capacity	Description			
(	min)	(feet)	(ft/f	t)	(ft/sec)	(cfs)				
	20.5	149	0.017	<b>7</b> 0	0.12		Sheet Flow,			
							Grass: Dense	n = 0.240	P2= 3.33"	

#### **Subcatchment 9S: PRE-WET**



Type III 24-hr 25-yr Rainfall=6.10" Printed 7/30/2025

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# **Summary for Subcatchment 10S: CONT**

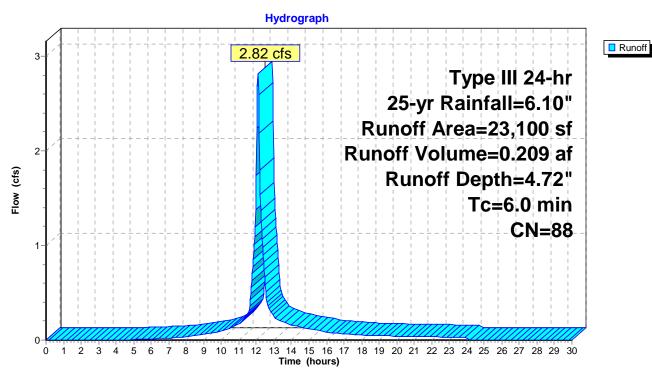
Runoff 2.82 cfs @ 12.09 hrs, Volume= 0.209 af, Depth= 4.72"

Routed to Pond 8P: BIORETENTION

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 25-yr Rainfall=6.10"

	Α	rea (sf)	CN	Description	Description						
		3,500	98	Roofs, HSG	Roofs, HSG C						
		8,788									
*	t	723	98	Sidewalk	_						
		10,089	74	>75% Grass	s cover, Go	ood, HSG C					
		23,100	88	Weighted A	Weighted Average						
		10,089	74	43.68% Per	vious Area						
		13,011	98	56.32% Imp	ervious Are	ea					
	Tc	Length	Slop	e Velocity	Capacity	Description					
_	(min)	(feet)	(ft/f	t) (ft/sec) (cfs)							
	6.0					Direct Entry.					

#### **Subcatchment 10S: CONT**



Type III 24-hr 25-yr Rainfall=6.10"

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## **Summary for Pond 8P: BIORETENTION**

Inflow Area = 0.530 ac, 56.32% Impervious, Inflow Depth = 4.72" for 25-yr event

Inflow = 2.82 cfs @ 12.09 hrs, Volume= 0.209 af

Outflow = 0.95 cfs @ 12.37 hrs, Volume= 0.183 af, Atten= 66%, Lag= 17.2 min

Discarded = 0.07 cfs @ 12.37 hrs, Volume= 0.118 af Primary = 0.88 cfs @ 12.37 hrs, Volume= 0.064 af

Routed to Link 7L: POST-WET

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Peak Elev= 116.71' @ 12.37 hrs Surf.Area= 6,136 sf Storage= 3,746 cf

Plug-Flow detention time= 276.2 min calculated for 0.182 af (87% of inflow)

Center-of-Mass det. time= 219.9 min (1,010.8 - 790.9)

<u>Volume</u>	Invert	Avail.Sto	rage Storage	Description	
#1	116.00'	5,65	50 cf Custom	Stage Data (Prismat	tic) Listed below (Recalc)
Elevation (fee		urf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
116.0	00	4,470	0	0	
117.0	00	6,829	5,650	5,650	
Device	Routing	Invert	Outlet Device	5	
#1	Discarded	116.00'	0.500 in/hr Ex	filtration over Surfa	ce area
#2	Primary	116.60'	Head (feet) 0	.20 0.40 0.60 0.80	rested Rectangular Weir 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.9 Coef. (English 2.85 3.07 3.2	) 2.54 2.61 2.61 2	.60 2.66 2.70 2.77 2.89 2.88

**Discarded OutFlow** Max=0.07 cfs @ 12.37 hrs HW=116.71' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.07 cfs)

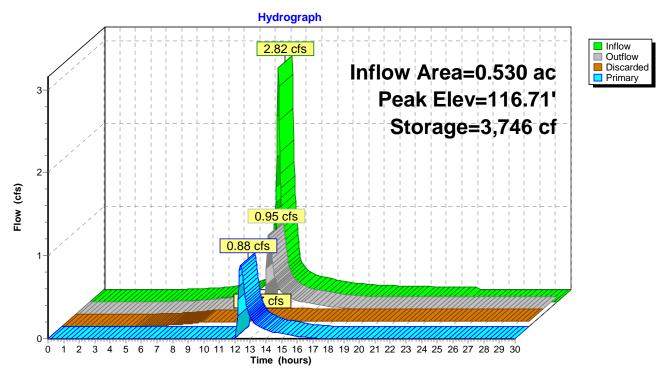
Primary OutFlow Max=0.88 cfs @ 12.37 hrs HW=116.71' (Free Discharge) 2=Broad-Crested Rectangular Weir (Weir Controls 0.88 cfs @ 0.83 fps)

Type III 24-hr 25-yr Rainfall=6.10" Printed 7/30/2025

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## **Pond 8P: BIORETENTION**



Type III 24-hr 25-yr Rainfall=6.10"

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# **Summary for Link 7L: POST-WET**

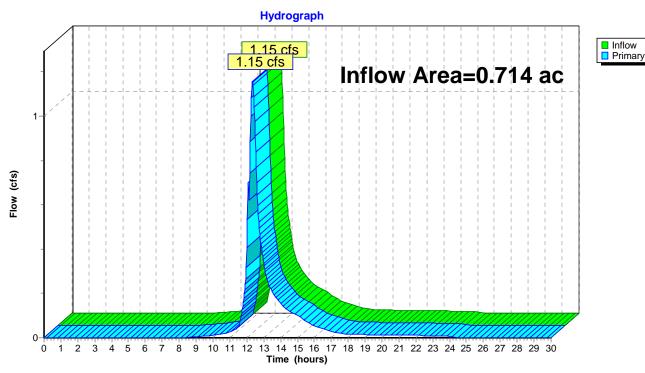
Inflow Area = 0.714 ac, 43.89% Impervious, Inflow Depth = 1.92" for 25-yr event

Inflow = 1.15 cfs @ 12.34 hrs, Volume= 0.114 af

Primary = 1.15 cfs @ 12.34 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

## **Link 7L: POST-WET**



670 METACOM-REV2

Type III 24-hr 100-yr Rainfall=8.60"

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Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 8S: UNC Runoff Area=7,996 sf 7.95% Impervious Runoff Depth=5.47"

Tc=6.0 min CN=74 Runoff=1.16 cfs 0.084 af

Subcatchment 9S: PRE-WET Runoff Area=31,096 sf 0.75% Impervious Runoff Depth=6.55"

Flow Length=149' Slope=0.0170 '/' Tc=20.5 min CN=83 Runoff=3.57 cfs 0.390 af

**Subcatchment 10S: CONT**Runoff Area=23,100 sf 56.32% Impervious Runoff Depth=7.16"

Tc=6.0 min CN=88 Runoff=4.17 cfs 0.316 af

Pond 8P: BIORETENTION Peak Elev=116.83' Storage=4,501 cf Inflow=4.17 cfs 0.316 af

Discarded=0.07 cfs 0.127 af Primary=2.75 cfs 0.156 af Outflow=2.83 cfs 0.283 af

Link 7L: POST-WET Inflow=3.63 cfs 0.239 af

Primary=3.63 cfs 0.239 af

Total Runoff Area = 1.428 ac Runoff Volume = 0.790 af Average Runoff Depth = 6.64" 77.68% Pervious = 1.109 ac 22.32% Impervious = 0.319 ac

Type III 24-hr 100-yr Rainfall=8.60" Printed 7/30/2025

#### 670 METACOM-REV2

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# **Summary for Subcatchment 8S: UNC**

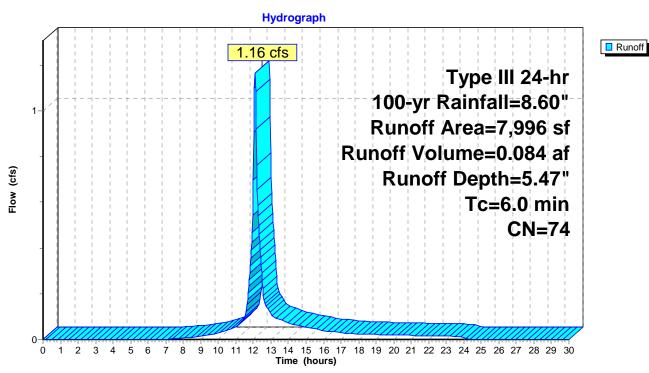
Runoff = 1.16 cfs @ 12.09 hrs, Volume= 0.084 af, Depth= 5.47"

Routed to Link 7L: POST-WET

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 100-yr Rainfall=8.60"

	Area (sf)	CN	Description		
*	636	98	Town Conc	rete sidewa	valk, HSG C
	3,625	74	>75% Gras	s cover, Go	Good, HSG C
	3,735	70	Woods, Go	od, HSG C	
	7,996	74	Weighted A	verage	
	7,360	72	92.05% Per	vious Area	a
	636	98	7.95% Impe	rvious Are	ea
To	c Length	Slop	e Velocity	Capacity	Description
(min	) (feet)	(ft/1	ft) (ft/sec)	(cfs)	
6.0	)				Direct Entry,

#### **Subcatchment 8S: UNC**



# Type III 24-hr 100-yr Rainfall=8.60" Printed 7/30/2025

670 METACOM-REV2

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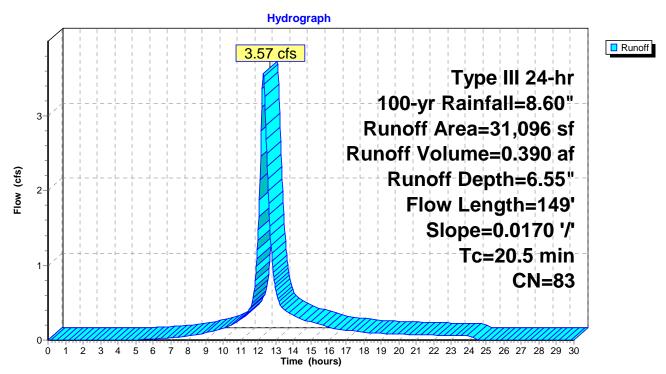
# **Summary for Subcatchment 9S: PRE-WET**

Runoff = 3.57 cfs @ 12.27 hrs, Volume= 0.390 af, Depth= 6.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 100-yr Rainfall=8.60"

	Area (sf)	CN	Description					
	233	98	Paved park	ing, HSG C	;			
	12,750	96	Gravel surfa	Gravel surface, HSG C				
	15,124	74	>75% Gras	s cover, Go	ood, HSG C			
	2,989	70	Woods, Go	od, HSG C				
	31,096	83	Weighted A	verage				
	30,863	83	99.25% Per	rvious Area	l			
	233	98	0.75% Impe	ervious Are	a			
Tc	Length	Slope	e Velocity	Capacity	Description			
(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)				
20.5	149	0.0170	0.12		Sheet Flow,			
					Grass: Dense	n = 0.240	P2= 3.33"	

## **Subcatchment 9S: PRE-WET**



Type III 24-hr 100-yr Rainfall=8.60"

#### 670 METACOM-REV2

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# **Summary for Subcatchment 10S: CONT**

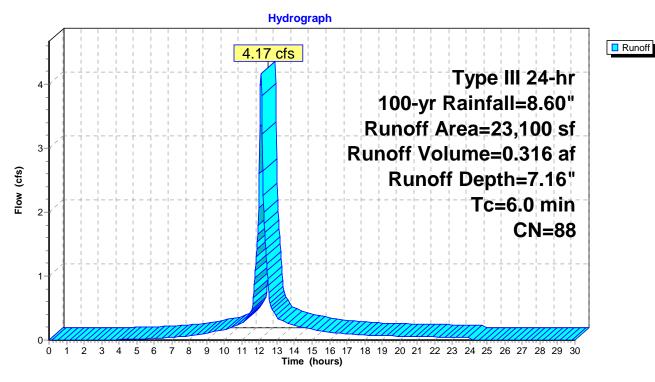
Runoff = 4.17 cfs @ 12.09 hrs, Volume= 0.316 af, Depth= 7.16"

Routed to Pond 8P: BIORETENTION

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Type III 24-hr 100-yr Rainfall=8.60"

	Α	rea (sf)	CN	Description	ı	
		3,500	98	Roofs, HSC	G C	
		8,788	98	Paved park	ing, HSG C	C
*		723	98	Sidewalk	_	
		10,089	74	>75% Gras	s cover, Go	ood, HSG C
		23,100	88	Weighted A	verage	
		10,089	74	43.68% Pe	rvious Area	a
		13,011	98	56.32% Imp	pervious Are	rea
	Tc	Length	Slop	e Velocity	Capacity	Description
(	min)	(feet)	(ft/1	ft) (ft/sec)	(cfs)	
	6.0					Direct Entry.

## **Subcatchment 10S: CONT**



#### 670 METACOM-REV2

Type III 24-hr 100-yr Rainfall=8.60"

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# **Summary for Pond 8P: BIORETENTION**

Inflow Area = 0.530 ac, 56.32% Impervious, Inflow Depth = 7.16" for 100-yr event

Inflow = 4.17 cfs @ 12.09 hrs, Volume= 0.316 af

Outflow = 2.83 cfs @ 12.17 hrs, Volume= 0.283 af, Atten= 32%, Lag= 5.3 min

Discarded = 0.07 cfs @ 12.17 hrs, Volume= 0.127 af Primary = 2.75 cfs @ 12.17 hrs, Volume= 0.156 af

Routed to Link 7L: POST-WET

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs Peak Elev= 116.83' @ 12.17 hrs Surf.Area= 6,420 sf Storage= 4,501 cf

Plug-Flow detention time= 193.6 min calculated for 0.283 af (89% of inflow)

Center-of-Mass det. time= 142.7 min (922.5 - 779.9)

<u>Volume</u>	Invert	Avail.Sto	rage Storage	Description	
#1	116.00'	5,65	50 cf Custom	Stage Data (Prismatic) Liste	d below (Recalc)
Elevation (fee		urf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
116.0	00	4,470	0	0	
117.0	00	6,829	5,650	5,650	
Device	Routing	Invert	Outlet Device	) 	
#1	Discarded	116.00'	0.500 in/hr Ex	filtration over Surface area	
#2	Primary	116.60'	Head (feet) 0	.0' breadth Broad-Crested F 20 0.40 0.60 0.80 1.00 1.3	•
			2.50 3.00 3.9 Coef. (English 2.85 3.07 3.2	2.54 2.61 2.61 2.60 2.66	2.70 2.77 2.89 2.88

**Discarded OutFlow** Max=0.07 cfs @ 12.17 hrs HW=116.83' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=2.74 cfs @ 12.17 hrs HW=116.83' (Free Discharge) 2=Broad-Crested Rectangular Weir (Weir Controls 2.74 cfs @ 1.21 fps)

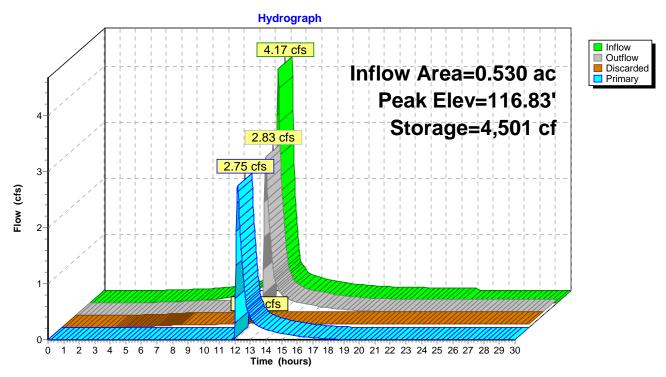
**670 METACOM-REV2** 

Type III 24-hr 100-yr Rainfall=8.60" Printed 7/30/2025

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# **Pond 8P: BIORETENTION**



## 670 METACOM-REV2

Type III 24-hr 100-yr Rainfall=8.60" Printed 7/30/2025

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Inflow

Primary

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# **Summary for Link 7L: POST-WET**

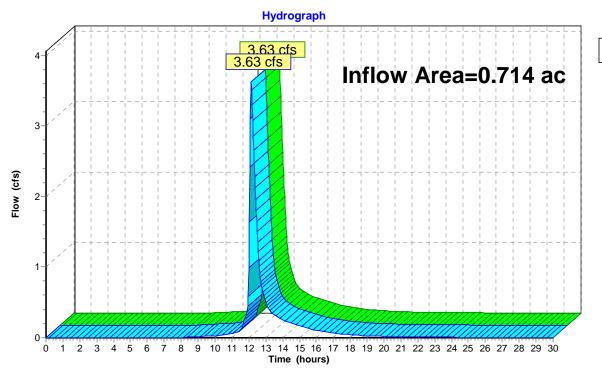
Inflow Area = 0.714 ac, 43.89% Impervious, Inflow Depth = 4.02" for 100-yr event

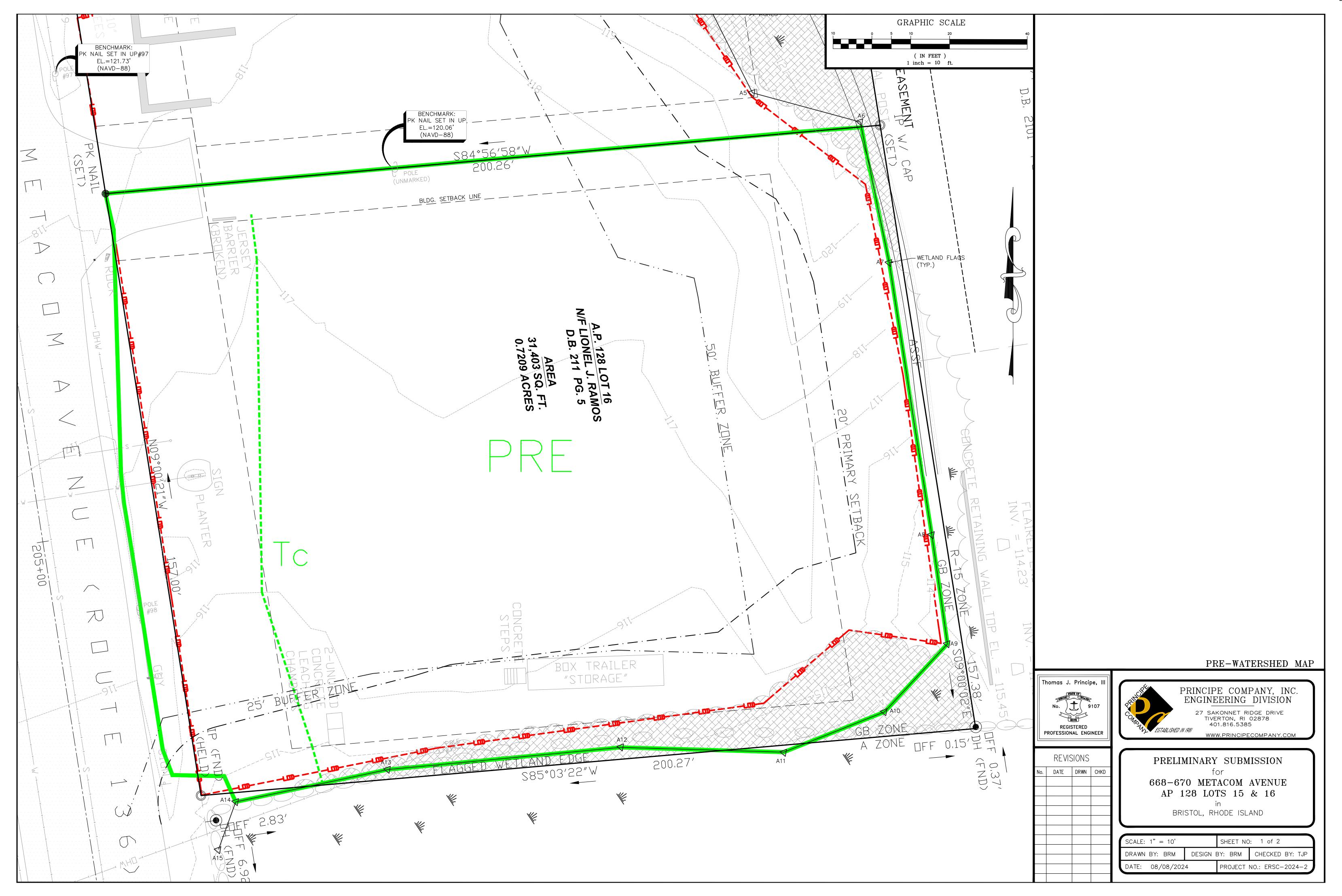
Inflow 3.63 cfs @ 12.15 hrs, Volume= 0.239 af

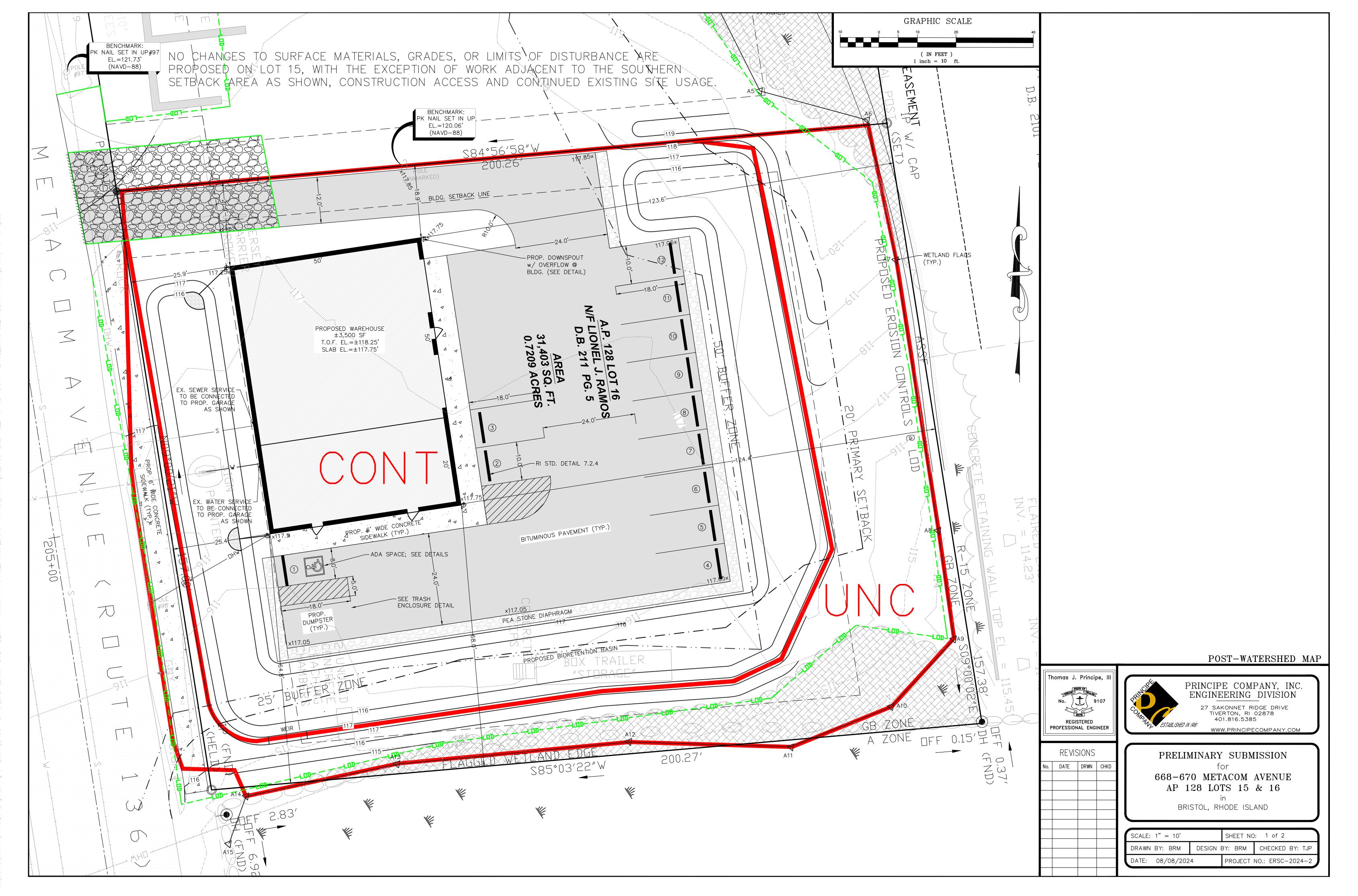
3.63 cfs @ 12.15 hrs, Volume= Primary 0.239 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

# **Link 7L: POST-WET**









# LONG TERM OPERATION AND MAINTENANCE PLAN AUGUST 8, 2025

# AP 128, LOTS 15 & 16 668-670 METACOM AVENUE BRISTOL, RI

Prepared For:

David J. Ramos 12 Ruth Avenue Bristol, RI 02809 Prepared By:

Principe Engineering, Inc. 27 Sakonnet Ridge Drive Tiverton, Rhode Island



In order to minimize the stormwater management system deterioration, the owner shall adhere to the following Operation and Maintenance Plan as well as any additional requirements pertaining to inspection and maintenance measures for this site provided in Appendices E and G of the Rhode Island Stormwater Design and Installation Standards Manual.

#### **Snow Disposal**

Improper snow disposal can be a threat to public health and the environment. Disposal shall consider site selection, site preparation and maintenance, and emergency snow disposal locations and procedures. Refer to DEM's Snow Disposal Policy for more details on these topics. Snow storage in the bioretention basin is not allowed.

#### **Bioretention Basin**

A legally binding and enforceable maintenance agreement shall be executed between the facility owner and the responsible authority to ensure the following: -Trash and debris shall be removed as necessary. Silt/sediment shall be removed from the filter bed when the accumulation exceeds one inch. When the filtering capacity of the filter diminishes substantially (i.e., when water ponds on the surface of the filter bed for more than 48 hours), the top few inches of discolored material shall be removed and shall be replaced with fresh material. The removed sediments shall be disposed in an acceptable manner at an approved and permitted location.

For unique installations in extremely tight sites or redevelopment/infill projects where pretreatment strips have been downsized, enhanced maintenance shall be required through more frequent inspections, more frequent sediment removal, and enhanced landscape maintenance.

During the six months immediately after construction, filter practices shall be inspected following at least the first two precipitation events of at least 1.0 inch to ensure that the system is functioning properly. Thereafter, inspections shall be conducted on an annual basis and after storm events of greater than or equal the 1- year, 24-hour Type III precipitation event.

#### **APPENDIX:**

- A. Checklists
- B. BMP Location Plan
- C. Maintenance Agreement

# Bioretention Operation, Maintenance, and Management Inspection Checklist

Project:		
Location:		
Site Status:		
Date:		
Time:		
Inspector:		

	r	
Maintenance Item	SATISFACTORY / UNSATISFACTORY	COMMENTS
Debris Cleanout (Annual, Annual)	After Major Storms)	
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Annual, After Ma	ajor Storms)	
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 10 inches		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Su	ımps (Annual, After Ma	jor Storms)
No evidence of sediment buildup		
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Semi-annually)		
Dewaters between storms		
No evidence of standing water		
5. Sediment Deposition (Annua	I, after Major Storms)	
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		
6. Outlet/Overflow Spillway (Annual,	After Major Storms)	
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
7. Integrity of Filter Bed (Annual, At	ter Major Storms)	
Filter bed has not been blocked or filled inappropriately		

Amended March 2015

Comments:			
Actions to be Taken:			

Rhode Island Stormwater Design and Installation Standards Manual

# Sample Stormwater Facility Maintenance Agreement

THIS AGREEMENT, made and entered into this between (Insert Full Name of Owner)	day of	, 20, by and
,	her	einafter called the
"Landowner", and the [Local Jurisdiction], hereing WITNESSETH, that WHEREAS, the Landowner described as (Tax Map/Parcel Identification Num	is the owner of	_ ,_
as recorded by deed in the land records of [Local	Jurisdiction] De	eed Book
Page, hereinafter called the "Proper	ty".	
WHEREAS, the Landowner is proceeding to build WHEREAS, the Site Plan/Subdivision Plan know, (Name	n as	
called the "Plan", which is expressly made a part by the [Town/City], provides for detention of storr property; and	hereof, as appr	roved or to be approved
WHEREAS, the [Town/City] and the Landowner, any homeowners association, agree that the hea		<b>3</b> .

of [Local Jurisdiction] require that on-site stormwater management facilities be constructed and maintained on the Property; and

WHEREAS, the [Town/City] requires that on-site stormwater management facilities as shown on the Plan be constructed and adequately maintained by the Landowner, its successors and assigns, including any homeowners association.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

- 1. The on-site stormwater management facilities shall be constructed by the Landowner, its successors and assigns, in accordance with the plans and specifications identified in the Plan.
- 2. The Landowner, its successors and assigns, including any homeowners association, shall adequately maintain the stormwater management facilities in accordance with the required Operation and Maintenance Plan. This includes all pipes, channels or other conveyances built to convey stormwater to the facility, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing their design functions. The Stormwater Best Management Practices Operation, Maintenance and Management Checklists are to be used to establish what good working condition is acceptable to the [Town/City].

- 3. The Landowner, its successors and assigns, shall inspect the stormwater management facility and submit an inspection report annually. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the entire facilities, berms, outlet structure, basin areas, access roads, etc. Deficiencies shall be noted in the inspection report.
- 4. The Landowner, its successors and assigns, hereby grant permission to the [Town/City], its authorized agents and employees, to enter upon the Property and to inspect the stormwater management facilities whenever the [Town/City] deems necessary. The purpose of inspection is to follow-up on reported deficiencies and/or to respond to citizen complaints. The [Town/City] shall provide the Landowner, its successors and assigns, copies of the inspection findings and a directive to commence with the repairs if necessary.
- 5. In the event the Landowner, its successors and assigns, fails to maintain the stormwater management facilities in good working condition acceptable to the [Town/City], the [Town/City] may enter upon the Property and take whatever steps necessary to correct deficiencies identified in the inspection report and to charge the costs of such repairs to the Landowner, its successors and assigns. This provision shall not be construed to allow the [Town/City] to erect any structure of permanent nature on the land of the Landowner outside of the easement for the stormwater management facilities. It is expressly understood and agreed that the [Town/City] is under no obligation to routinely maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the [Town/City].
- 6. The Landowner, its successors and assigns, will perform the work necessary to keep these facilities in good working order as appropriate. In the event a maintenance schedule for the stormwater management facilities (including sediment removal) is outlined on the approved plans, the schedule will be followed.
- 7. In the event the [Town/City] pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner, its successors and assigns, shall reimburse the [Town/City] upon demand, within thirty (30) days of receipt thereof for all actual costs incurred by the [Town/City] hereunder.
- 8. This Agreement imposes no liability of any kind whatsoever on the [Town/City] and the Landowner agrees to hold the [Town/City] harmless from any liability in the event the stormwater management facilities fail to operate properly.
- 9. This Agreement shall be recorded among the land records of [Local Jurisdiction] and shall constitute a covenant running with the land, and shall be binding on the Landowner, its administrators, executors, assigns, heirs and any other successors in interests, including any homeowners association.

WITNESS the following signatures and seals:
Company/Corporation/Partnership Name (Seal)
Ву:

Rhode Island Stormwater Design and Installation Standards Manual

(Type Name and Title)

The foregoing Agreement was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_.

NOTARY PUBLIC
My Commission Expires: \_\_\_\_\_

By: \_\_\_\_\_

(Type Name and Title)

The foregoing Agreement was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by \_\_\_\_\_

NOTARY PUBLIC
My Commission Expires: \_\_\_\_\_

Approved as to Form:

[Town/City] Attorney Date

Trip Generation Statement 08/07/25

668 & 670 Metacom Avenue AP 128 Lot 15 & 16 Bristol, RI 02809

> Prepared For: David J. Ramos 12 Ruth Avenue Bristol, RI 02809



Prepared By: Principe Engineering, Inc. 27 Sakonnet Ridge Drive Tiverton, RI, 02878

The above-referenced site currently has a gravel parking area. The proposed project will include the construction of 70 FT x 50 FT warehouse. The warehouse will have access/egress from Metacom Avenue in Bristol, RI. This trip generation statement has been prepared to contemplate any potential impacts of the proposed development. The proposed project is not projected to adversely affect the level of service for Metacom Avenue relative to the build year 2025/2026.

The trip generation calculations are based on data compiled in Trip Generation (10th edition, an informational report published by the Institute of Transportation Engineers (ITE). Trip Generation is a tool for planners, transportation professionals, zoning boards, and others who are interested in estimating the number of vehicle trips generated by a proposed development or land use. This document is based on more than 5,500 trip generation studies submitted to the Institute by public agencies, developers, consulting firms, and associations.

The anticipated change in number of trips to be generated by the new construction of a 70 FT x 50 Ft warehouse was determined by using ITE Trip Generation Land Use Code 151 (Mini Warehouse). ITE Trip Generation Land Use Code 151 sets forth trips generated at developments similar to the proposed facility. The increased volume anticipated to be generated by the proposed warehouse during the morning (am) and evening (pm) peak hours can be found in Table 1. The proposed project will increase traffic by approximately one (1) vehicle in the AM Peak and one (1) vehicle in the PM Peak.

# Table 1: Trip Generation Summary

Code 151 – Mini Warehouse (Proposed 3.5 KSF)

Independent Variable (X) = KSF

AM Peak	Directional Dist	ribution 55% En	tering, 45% Exiting
	T = 0.14 (X)	Enter:	1
	T = 0.14 (3.5)	Exit:	0_
	T = 1	Total =	1

PM Peak	Directional Dist	ribution 50% Enterir	ng, 50% Exiting
	T = 0.26 (X)	Enter:	0
	T = 0.26 (3.5)	Exit:	1_
	T = 1	Total =	1

Total AM Peak: 1 vehicle Total PM Peak: 1 vehicle

Principe Engineering, Inc.

Thomas J. Principe, III

1 9107

REGISTERED
PROFESSIONAL ENGINEER

Thomas J. Principe III, P.E.



# Town of Bristol, RI

WATER POLLUTION CONTROL DEPARTMENT

2 PLANT AVENUE BRISTOL, RI 02809-3015 (401) 253-8877 fax: (401) 253-2910

Jose' J. Da Silva, Superintendent

TOWN HALL 10 COURT STREET BRISTOL, RI 02809 (401) 253-7000

8/21/2025

To: Planning Board

Re: Minor Land Development 670 – 688 Metacom Avenue Plat 128, Lot 15 & 16 Bristol, RI 02809

Access to the Towns sanitary sewer system is available for the above location. There is a sanitary main on Metacom Avenue, records indicate that there is a lateral in place for connection on the property.

Respectfully,

Jose' Da Silva Superintendent Bristol WPCF

 $\label{eq:Cc:DianeWilliamson-Director} Cc: Diane\ Williamson-Director\ of\ Community\ Development$