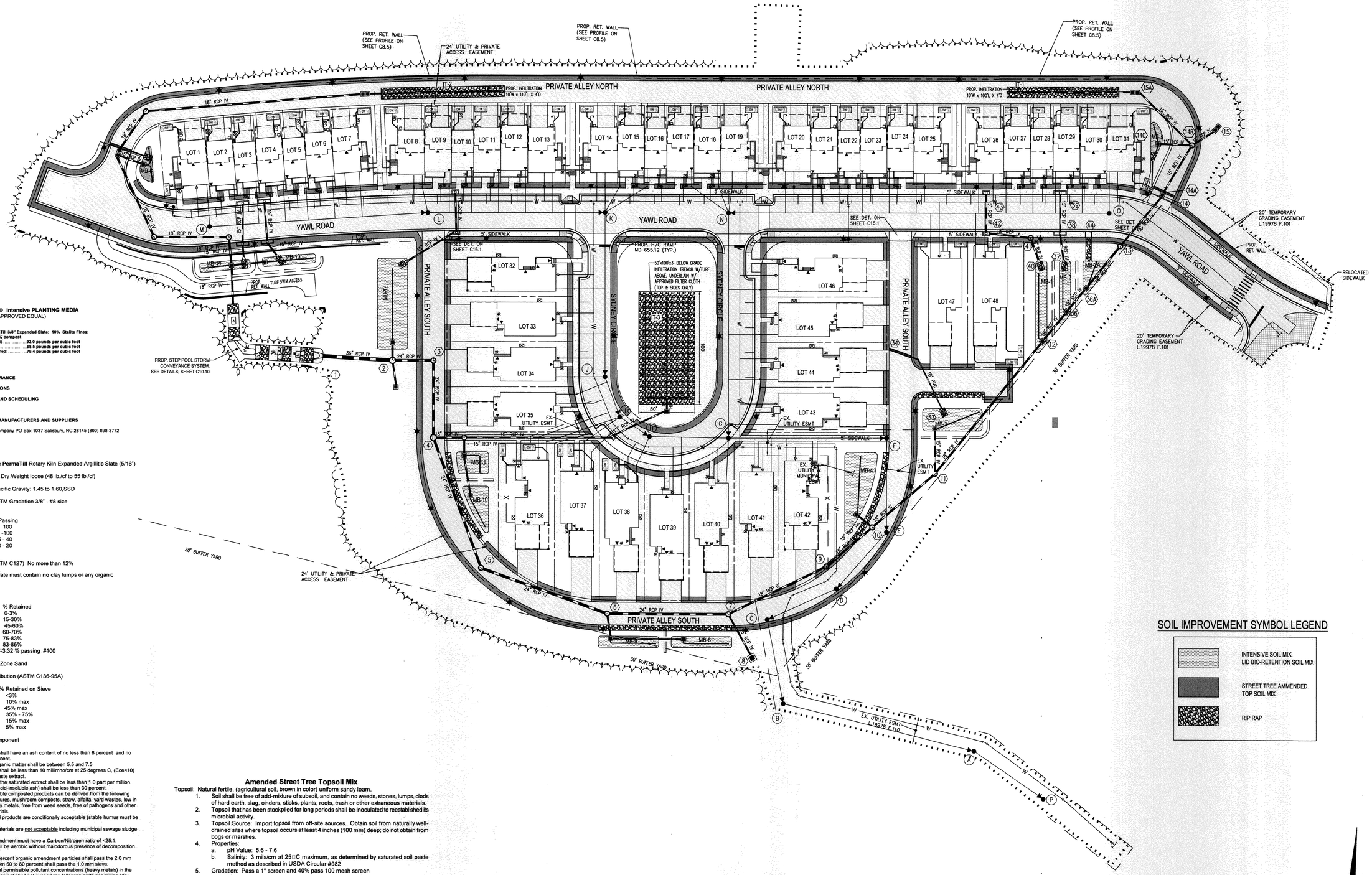

SOIL IMPROVEMENT SYMBOL LEGEND

- INTENSIVE SOIL MIX
  LID BIO-RETENTION SOIL MIX
- STREET TREE AMMENDED TOP SOIL MIX
- RIP RAP

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NORTH-DATE

N

Section 2932 PermaTill® Intensive PLANTING MEDIA
(OR APPROVED EQUAL)

A. Permatil Components

Estimated weight of 50% PermaTill 3/8" Expanded Slate: 10% Stalite Fines: 25% USGA Root Zone Sand: 15% compost

1 cubic foot saturated (not drained)	**93.0 pounds per cubic foot**
1 cubic foot tamped damp:	**68.5 pounds per cubic foot**
1 cubic foot tamped, wet and drained:	**78.4 pounds per cubic foot**

1.04 SUBMITTALS

1.05 QUALITY ASSURANCE

1.06 WORK CONDITIONS

1.07 SEQUENCING AND SCHEDULING

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS AND SUPPLIERS

A. Carolina Stalite Company PO Box 1037 Salisbury, NC 28145 (800) 898-3772

2.02 MATERIALS

A. 3/8" - #8 Stalite **PermaTill** Rotary Kiln Expanded Argillitic Slate (5/16")

1. ASTM C29 Unit Dry Weight loose (48 lb./cf to 55 lb./cf)

2. ASTM C127 Specific Gravity: 1.45 to 1.60,SSD

3. ASTM C330: ASTM Gradation 3/8" - #8 size

3/8" - #8

Sieve Size	% Passing
1/2"	100
3/8"	80 -100
#4	5 - 40
#8	0 - 20
#16 0 - 10	

4. Absorption (ASTM C127) No more than 12%

5. The expanded slate must contain no clay lumps or any organic impurities.

6. Fine Fraction

Sieve Size	% Retained
#4	0-3%
#8	15-30%
#16	45-60%
#30	60-70%
#50	75-83%
#100	83-86%
Fine Material	2.78-3.32 % passing #100

B. USGA Root Zone Sand

1. Grain Size Distribution (ASTM C136-95A)

Sieve Size	% Retained on Sieve
2.00 mm	<3%
1-2 mm	10% max
0.5 -1 mm	45% max
.25 -.5 mm	35% - 75%
.15 -.25 mm	15% max
.05 - .15 mm	5% max

C. Organic Component

1. Humus material shall have an ash content of no less than 8 percent and no more than 40 percent.
2. The pH of the organic matter shall be between 5.5 and 7.5
3. The salt content shall be less than 10 millimho/cm at 25 degrees C, (Ece<10) on a saturated paste extract.
4. Boron content of the saturated extract shall be less than 1.0 part per million.
5. Silicon content (acid-insoluble ash) shall be less than 30 percent.
6. Types of acceptable composted products can be derived from the following feed stocks: manures, mushroom composts, straw, alfalfa, yard wastes; low in salts, low in heavy metals, free from weed seeds, free of pathogens and other deleterious materials.
7. Composted wood products are conditionally acceptable (stable humus must be present).
8. Sludge-based materials are not acceptable including municipal sewage sludge bio-solids.
9. The organic amendment must have a Carbon/Nitrogen ratio of <25:1.
10. The compost shall be aerobic without malodorous presence of decomposition products.
11. From 75 to 100 percent organic amendment particles shall pass the 2.0 mm sieve size and from 50 to 80 percent shall pass the 1.0 mm sieve.
12. Maximum total permissible pollutant concentrations (heavy metals) in the organic amendment shall not exceed the following parts per million (dry weight) concentrations for constituents listed.

Arsenic:	20
Cadmium:	15
Chromium:	300
Cobalt	50
Copper	100
Lead	200
Mercury:	10
Molybdenum:	60
Nickel	100
Selenium	30
Silver:	10
Vanadium:	50
Zinc:	250

13. From 45 to 65 percent moisture measured via wet-weight basis.
14. Free of stones, debris, plant material.
15. Organic amendment must test between 5 to 8 on Solvita Maturity Test

Amended Street Tree Topsoil Mix

Topsoil: Natural fertile, (agricultural soil, brown in color) uniform sandy loam.

1. Soil shall be free of add-mixture of subsoil, and contain no weeds, stones, lumps, clods of hard earth, slag, cinders, sticks, plants, roots, trash or other extraneous materials.
2. Topsoil that has been stockpiled for long periods shall be inoculated to reestablished its microbial activity.
3. Topsoil Source: Import topsoil from off-site sources. Obtain soil from naturally well-drained sites where topsoil occurs at least 4 inches (100 mm) deep; do not obtain from bogs or marshes.
4. Properties:
   a. pH Value: 5.6 - 7.6
   b. Salinity: 3 mils/cm at 25□C maximum, as determined by saturated soil paste method as described in USDA Circular #982
5. Gradation: Pass a 1" screen and 40% pass 100 mesh screen
6. Mechanical Analysis:
   a. Sand: 50-60%
   b. Silt: 15-25%
   c. Clay: 10-15%
7. After requesting and receiving landscape architect's written approval, contractor shall implement soil test recommendations on type and quantity of additives required to establish satisfactory pH factor and supply of nutrients to bring soil to satisfactory level for planting.

THESE PLANS ARE BASED UPON PLANS TITLED 'ARIS ALLEN BOULEVARD, LLC MIXED RESIDENTIAL' CREATED BY BOWMAN CONSULTING, PORTIONS OF WHICH ARE USED HEREIN.

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NO.	DATE	REVISION	BY

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PROJECT

ARIS T. ALLEN BOULEVARD
RESIDENTIAL PLANNED DEVELOPMENT
PART 1 - LOTS 26 - 31, 47 & 48

TAX MAP/GRID: 51E/8 6TH ELECTION DISTRICT
CITY OF ANNAPOLIS, MARYLAND

STATE OF MARYLAND
PIERO VAN MELLITE
No. 21875
REGISTERED PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

License No.: 21875 Expiration Date: 2/12/16

SHEET TITLE

GRADING PERMIT NO.: GRD 14 - 0006

SOIL IMPROVEMENT PLAN

PROJECT NO.	130003.01
SCALE	AS SHOWN
DATE	5/30/2014
DRAWN BY	JDS/CLW
CHECKED BY	PVM/TJC
DRAWING NO.	L2.4

55 OF 66 SHTS

FILE NAME: P:\Proj130\130003.01 Aris T. Allen Property\10_Dwgs\CADD\Working\L2.4 SOIL IMPROVEMENT PLAN.dwg PLOT TIME: Mon, 02 Jun 2014 - 1:25pm LAST SAVE: Fri, 30 May 2014 - 3:25pm BY: JSlider