SPECIFICATION

SECTION 3.0: Intensive Lightweight Soil Mix for On-Structure Planting Area's

3.1 Description:

This work shall consist of preparing a lightweight, free draining soil containing all the physical, chemical, and biological properties to create a sustainable landscape. This mix will be pre-blended offsite and delivered ready for installation.

3.2 Materials (component specifications)

The materials will consist of the three components listed below which must meet the corresponding testing standards for each component.

A: 3/8"-3/16" Hydrocks Rotary Klin Expanded Clay (34% by volume)

1. ASTM C-29 Dry Loose Unit Weight: (28 lb./cf to 34 lb./cf)
2. ASTM C-127 Specific Gravity: 1.12 to 1.20, SSD
3. ASTM C-127 Absorption: 25% to 33%
4. ASTM C-136 Sieve Analysis #3/8 to 0

3/8"- 0 (3/8-3/16)

Sieve Size	% Passing	ASTM Specification
½ in.	100	100
3/8 in.	99.5	80-100
#4	23.3	5-40
#8	4.2	0-20
#16	1.4	0-10

5. Only non-hazardous fuels such as coal or natural gas may be used to process the clay.
6. The amount of clay lumps shall not exceed 2% by dry weight.

B: Nutrient Grade Compost: Quality compost must be manufactured by a composter enrolled in the **U**nited **S**tates **C**ompost **C**ouncil's (USCC) **S**eal of **T**esting **A**ssurance (STA) Program. (33% by volume)

1. Compost must meet following parameters as tested by an STA approved lab using the Test Methods for Evaluating Compost and Compost Manufactures method.

		TMECC
2. Plant Nutrients	%, dry weight basis	Method
Nitrogen	>1.2	4.02D
Phosphorus	>0.50	Calc.
Potassium	>0.50	Calc
Calcium	>0.90	4.05
Magnesium	>0.20	4.05
Organic Matter Content	>50%	5.07-A
3. Soluble Salts dS/m (mmhos/cm)	<4.0	4.08-A
4. Particle Size % under 9.5 mm	95% or greater	2.02-B
5. Stability Indicator (respirometry)		
CO_2 Evolution mg CO_2-C/g OM/day	<2	5.08-F777
6. Maturity Indicator (bioassay)		
Percent Emergence	85% or greater	5.05-A
Relative Seedling Vigor	85% or greater	
7. Select Pathogens	Pass	Standard
(pass/fail per US EPA Class A standard, 40 CFR 503.32(a))		Method 9221E

C: Blackened Top Soil (33% by volume)

1. Must be aged, processed bark/humus based topsoil that is friable, and free of weed seeds and containments.

2. Must be screened to 3/8”

3.3 Mixing

A. Insure that all components meet the requirements of Part 3.2 of this specification.
B. Saturate the lightweight aggregate with water and mechanically mix in the topsoil and compost at the required volumes until sufficiently blended.
C. To maintain the integrity of the mix, cover all stockpiled material after delivery to the jobsite.

3.4 Lightweight Mix (specifications)

The final mix shall be tested to insure that the following requirements are meet.

A. Maximum Acceptable Unit Weights- ASTM E2399

1. Saturated Density Loose = 76 pcf. wet weight
   Rodded = 82 pcf. wet weight
2. Drained Density Loose = 42 pcf. wet weight
   Rodded = 51 pcf. wet weight

B. Permeability- ASTM D2434 4 in/hr or greater.

C. Plant Sustainability requirements- The Lightweight Soil Mix shall meet the following requirements:

1. Organic Matter	4.0% rate or better
2. Soil pH	6.0-7.0
3. Cation Exchange Capacity	7.5 or better
4. Estimated Nitrogen Release	medium or higher as tested by soil analysis
5. Potassium	medium or higher as tested by soil analysis
6. Magnesium	medium or higher as tested by soil analysis
7. Calcium	medium or higher as tested by soil analysis

3.5 Drainage Layer Hydrocks Coarse

A. Install drainage layer of Hydrocks Coarse over drainage system to meet specified depth for fill layer.

B. Install a filter cloth over drainage layer before placing Lightweight soil or additional cover material.

End of Section