



# **USA EcoSystems - USA OPavers™ MP Technical Specifications**

## **SECTION 32 12 43 – Porous Flexible Paving**

### **PART 1 – GENERAL**

#### **1.1 Description of Work**

##### **A. Work included**

1. Provide and install sub-base material to provide adequate base support for project design load as shown on drawings or per recommended sub-base alternatives. See 2.2 Materials
2. Provide all USA OPavers™ MP products and installation per the manufacturer's instructions provided on this specification sheet and other available specification material.
3. Provide and install specified fill material for OPavers™ MP gravel and grass fill options.

##### **B. Related Work**

1. Subgrade preparation under Section 31 20 00 Earth Moving
2. Subsurface drainage materials – Section 33 46 00 Sub Drainage, when needed
3. Irrigation installation – Section 32 80 00 Irrigation, when needed.

#### **1.2 Quality Assurance**

- A. Follow Section 01 33 00 Submittal Procedures requirements.
- B. Installation as per specification here-in or accepted alternative specification.
- C. Certificates: Manufacturer signed certificate stating the product is MADE IN THE USA.
- D. Substitutions: No material will be considered as an equivalent to USA OPavers™ MP unless it meets all areas of specification here-in.

#### **1.3 Delivery, Storage, and Handling**

- A. Protect USA OPavers™ MP Permeable units from damage during delivery and unloading.

#### **1.4 Project Conditions**

- A. Review installation procedures and coordinate OPavers™ MP work with other work affected.
- B. All hard surface paving adjacent to USA OPavers™ MP Permeable Paver areas, including concrete walks and asphalt paving should be completed prior to installation of OPavers™ MP.

- C. Slopes exceeding 10 degrees where USA OPavers™ MP is installed may require staking to prevent installed units from shifting under load. See 2.2 Materials.
- D. In cold weather, do not use on frozen materials or materials mixed or coated with ice or frost, and do not build on a frozen base or wet, saturated or muddy subgrade.
- E. Protect partially completed paving against damage from other construction traffic when work is in progress.

## 1.5 Limited Warranty

- A. USA EcoSystems warrants to its purchasers that all products furnished will be free from defects in material and/or workmanship.
- B. This warranty shall extend for a period of (6) years following the date of shipment.
- C. Providing a written claim is presented USA EcoSystems within the warranty period and after inspection by USA EcoSystems showing the materials have failed under the warranty, all defective materials shall be refurbished under the warranty at no charge, excluding re-installation costs.

## PART 2 – PRODUCTS

### 2.1 Availability

- A. Acceptable Manufacturer:  
 USA EcoSystems, 1860 Sandy Plains Rd, STE 204 #136  
 Marietta, GA 30066  
 Phone: 1-844-438-4569  
 Email: [sales@usaecosystems.com](mailto:sales@usaecosystems.com) Website: [www.USAecosystems.com](http://www.USAecosystems.com)

### 2.2 Materials

- A. Base Course: USA OPavers™ MP was developed for multiple acceptable base materials. Locally sourced angular #57 stone/clean, sandy gravel material, crushed concrete, crushed shale, lime rock, and crushed lava are acceptable materials. Variations in permeability of aggregates should be considered.

1. Conforming to the following sieve analysis and requirements:

<u>% Passing</u>	<u>Sieve Size</u>
100	3/4"-1"
85	3/8"
60	#4
30	#40
< 3	#200

2. Sources of the material may include "pit run" or "crusher run". Crusher run material will typically require sand to be added (20 to 33 percent by volume) to ensure long-term

porosity. Should local sources not be available an alternative mixture can be created by mixing 2/3 crushed stone (0.75") with 1/3 sand as available.

- B. USA OPavers™ MP is injection molded plastic, made up of a cylindrical web grid structure with unique design elements for high ultimate load capacity. USA OPavers™ MP are produced from 100% recycled plastic, with 1.8" cell height, and pre-assembled in 4' x 2' sheets for quick installation. Sheets can be reconfigured if needed. (See USA GridPavers-MP Specifications Sheet for more specifications and information.) OPavers™ MP are designed to allow for drainage through cells into sub-base material and between cells through drainage features in cell walls to allow water to flow evenly throughout the system to prevent pooling if stoppage should occur in a localized area. USA OPavers™ MP are designed to be installed for erosion control on steep grades and contain specially designed staking locations for grades steeper than 10 degrees.
- C. Gravel Fill: Obtain clean, washed angular rock to fill the 1.8" tall USA OPavers™ MP cells and spaces between. OPavers™ MP can be filled to top of cells and exposed or overfilled to hide cells. Maximum rock should be 1" in diameter and below.
- D. Grass Fill: A sandy loam or loam soil should be used to fill the empty grass paver cells. The selection of sandy loam or loam soil should be made based upon the soil requirements of the turf variety selected for the project. Other soils if compatible with type of seed or sod are acceptable.

## **PART 3 – EXECUTION**

### **3.1 Limited Warranty**

- A. Examine sub-grade and base course installed conditions. Do not start USA OPavers™ MP installation until unsatisfactory conditions are corrected. Check for improperly compacted trenches, debris, and improper gradients.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance. If existing conditions are found unsatisfactory, contact Quality Control Manager for resolution.

### **3.2 Preparation**

- A. Place base course material over prepared sub base to grades shown on plans or from OPavers™ MP's recommended depths per application type, in lifts not to exceed 6", compacting each lift separately to 95% Modified Proctor. Leave minimum 1.8" for USA GridPavers-MP units. Fill to final grade.

### **3.3 Installation of USA GridPavers-MP**

- A. Install USA OPavers™ MP units by placing cells face up. Sheets come preassembled in 4'x2' sheets and connect with friction fit interlocking tabs. No tooling required to connect or disconnect USA GridPavers-MP units. (9) Individual 2'x1' pieces can be disconnected from each 4'x2' sheet and reconfigured as needed. Units can be cut around curves and organic shapes on the job site with any electrical handsaw. Maintain 1" clearance to any pre-installed object or surface structure. Top of cells shall be between .25" to .5" below the surface of adjacent hard-surface pavements.

- B. Rock or soil fill aggregate can be driven directly on pre-filled USA OPavers™ MP to be dumped and spread.

### **3.4 Installation of Gravel Fill: USA GridPavers-MP gravel fill applications only**

- A. Install Gravel into USA OPavers™ MP cavities by back dumping directly from dump truck or from buckets mounted to tractors. Hand shoveling fill gravel into the cells is also acceptable for smaller jobs. Directly exit the site by driving forward. While USA GridPavers-MP can handle high load capacities while empty, avoid sharp turns over unfilled cells. The gravel fill can then be spread from the pile using steer loaders, power brooms, blades, flat bottomed shovels, and/or wide “asphalt rakes” to fill the cells. The gravel should then be compacted when the cells are at capacity by using a roller for larger areas or a vibrating plate for smaller areas. If fully covering MP Eco Grid cells, typical coverage is .25” - .5” above cells.

### **3.5 Installation of Grass Fill: USA OPavers™ MP grass fill applications only – See Section 32 92 19 Seeding and 32 91 13 Soil Preparation. Choose either seed or sod.**

- A. Hydro seeding/hydro-mulching – A combination of water, seed and fertilizer are homogeneously mixed in a truck mounted tank. Coverage should be uniform and complete. Following germination of the seed, areas lacking germination larger than 8”x 8” must be reseeded immediately. Seeded areas must be fertilized and kept moist during development of the turf.
- B. Sod – Use 0.5” thick (soil thickness) rolled sod from a reputable grower. Species should be wear resistant, free from disease, and in excellent condition.

### **3.6 Protection**

- A. Gravel fill: Avoid sharp turns or “jack knives” in trailered vehicles when cells are empty. Damage due to buckling can occur.
- B. Grass Fill / Seeded: Seeded areas must be protected from any traffic, other than emergency vehicles, for a period of 4 – 6 weeks, or until the grass is mature to handle traffic. Avoid sharp turns or “jack knives” in trailered vehicles when cells are empty. Damage due to buckling can occur.
- C. Grass Fill / Sodded: Seeded areas must be protected from any traffic, other than emergency vehicles, for a period of 3 – 4 weeks, or until root system has been established.

### **3.7 Field Quality Control**

- A. Any damaged sections of OPavers™ MP during install can be removed and replaced with no evidence of replacement apparent.
- B. Remove all excess materials, debris, and equipment from site upon completion of install.

### **3.8 Maintenance**

- A. Grass Fill: Normal turf care procedures should be followed including as specified in Section 32 92 00 Manufacturers of Turfs and Grasses.
- B. Gravel Fill: If the install is one that is initially a cell covered install, raking gravel back over exposed cell tops may be necessary if over fill aggregate migrates.

- C. When snow removal is required, keep edged plow blade a minimum of 1" above the USA GridPavers-MP surface to avoid damage to the OPavers™ MP Grids Permeable Paver Surface.

**END OF SECTION 32 12 43**