

# BIO-AQUIFER STORM SYSTEM

## Specifications for Construction

### PART 3 – EXECUTION

#### 3.01 – SUBGRADE

The installer shall verify that the subgrade has been shaped and compacted in conformance to the lines, grades and cross-sections shown on the plans, to provide for the construction of the Bio-Aquifer Storm System pavement structure.

Site grades can be raised to the design subgrade elevation using clean native earth fill (free of deleterious material). This fill should be placed in lifts not exceeding six inches (6”) and compacted to a minimum of ninety-five percent (95%) Standard Proctor density. The final subgrade profile should be uniformly compacted to a minimum of ninety-eight percent (98%) Standard Proctor density and proof-rolled to delineate soft areas. Removing the unstable soil and replacing with clean, dry compacted earth fill shall be performed to repair these areas.

The requirements to include sub-drains in the pavement design would depend on the subgrade soil conditions. It is recommended that an experienced, qualified geotechnical engineer determine the requirements for sub-drains. If required, the sub-drain pipe shall consist of a four-inch (4”) diameter PVC perforated pipe. The pipe would be placed at subgrade elevation and surrounded with a minimum of four inches (4”) of approved open-graded stone. The sub-drain shall drain into a catch basin or other frost-free positive outlet.

#### 3.02 – PLACEMENT OF SUB-BASE COURSE

The thickness of the sub-base course layer will depend upon the subgrade soil conditions and the anticipated traffic loadings. It is recommended that a site assessment be carried out by an experienced, qualified geotechnical engineer to determine the requirements of the base course.

The sub-base course shall consist of a minimum thickness of twelve inches (12”) and be compacted using a vibratory 15 ton smooth-drum roller. It shall be installed in lifts not to exceed twelve inches (12”). Upon completion of the sub-base course installation, the area shall be proof-rolled using a heavy rubber-tired vehicle (such as a loaded tandem truck) to identify any areas requiring additional compaction. The sub-base course shall be installed to the elevation and cross-section per the plan documents.

#### 3.03 – PLACEMENT OF BASE COURSE

The base course shall consist of a thickness of 2"-3", (not to exceed 4"), placed in one lift, and be compacted using a vibratory 15 ton smooth-drum roller. The base course shall be installed to the elevation and cross-section per the plan documents (+/- 1/4").

### 3.04 – PLACEMENT OF BEDDING COURSE

The bedding course shall be spread loose in a uniform layer to provide a depth after paver compaction of the paving units of 1"-2". The contractor shall screed the bedding course using either an approved mechanical screed apparatus or by the use of screed guides and boards.

The screeded bedding aggregate shall not be subjected to any traffic by either mechanical equipment or pedestrian use prior to the installation of the paver units. The voids left after the removal of the screed rails shall be filled with loose aggregate as the paver bedding course proceeds. The setting bed material should not be compacted until the pavers are installed and then compacted.

### 3.05 – PLACEMENT OF ECOLOGICAL PERMEABLE PAVERS

All edge restraints shall be constructed as shown on the plans and in place prior to the installation of the pavers and base course. Poured-in-place concrete curbs are recommended for the Bio-Aquifer Storm System.

The pavers shall be installed in approximately the order in which they were manufactured. No cluster shall be installed next to a cluster that was manufactured more than 1,000 cycles before or after.

Lay pavers in the pattern as shown on the drawings. Lay pavers away from the existing laying face or edge restraint in such a manner as to ensure that the pattern remains square and straight. Chalk lines shall be used upon the bedding course to maintain straight joint lines. Joint spacing between pavers shall be between 1/8" and 1/4"; however, the joint width may need to be increased to 3/8" (if necessary) to maintain straight joint lines. Lines and grades shown on the plans shall be established and maintained during the installation of the ecological permeable pavers.

Pavers shall be cut using a masonry saw. Block splitting shall not be permitted. All cut faces shall be vertical. Dry cutting of the pavers shall be performed utilizing a dust collection system. If wet cutting method used, paver surface must be washed while still wet to remove cement dust and slurry.

Once the pavers have been placed upon the bedding course and all cut pavers have been inserted to provide a full and complete surface, inspect the pavers for damaged units and remove and replace those units. Once all pattern lines have been straightened, initially compact the pavers and then place void filler into the

paver openings to the top of the chamfer on the pavers and the surface swept broom clean.

The pavement surface shall be compacted to achieve consolidation of the bedding course and paving stones and brought to design levels and profiles by two passes of a suitable plate compactor. Compaction of the pavers shall be accomplished by the use of a vibratory plate compactor capable of a minimum of 5,000 pounds of compaction force. No compaction shall be permitted within five feet (5') of unrestrained edges of the pavement.

On completion of vibration after void filling, after compaction, inspect the pavers for damaged units and remove and replace those units. The surface tolerances shall be plus or minus 1/2" from finish levels and the pavers shall be flush to 1/4" above edge restraints.

Additional void filler material shall be swept in the paver voids to within 1/4" from the bottom of the chamfer on the paving stones. Upon completion, the wearing course surface shall be swept clean of all excess materials. Remove from the site all surplus materials, equipment and debris resulting from these operations.

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