Stormwater Friendly Driveways: Plastic Grid Systems

Plastic grid systems are made up of honeycomb-like grids of closed plastic cells, and are filled with gravel or sand/soil mix and grass after they are installed. These grid systems are primarily constructed from recycled plastic, and they help guard against soil compaction and rutting—thus also protecting water quality.

Installation of a plastic grid system begins with a base of existing or "native" soil (see schematic drawing on the next page). A crushed gravel subbase may be spread over the soil base to provide a reservoir that holds runoff, so that more can soak into the ground. Incorporating a gravel subbase increases the stormwater management benefits of using a plastic grid system, particularly in areas with poorly drained soils. A drainage layer of clean stone and a bedding course are then placed and lightly compacted. The grid is laid on the bedding course and filled with clean sand or sand/soil mix to the depth called for in the manufacturer's specifications. The cells are then filled with stone or seeded.

WATER QUALITY AND EROSION PREVENTION: The plastic grids hold gravel and turf in place, prevent erosion, allow water to infiltrate, and provide some stormwater filtration.

Schematic of the Invisible Structures Grasspave2 plastic grid system (invisiblestructures.com)

QUICKER SNOWMELT AND DRAINAGE: Increased drainage and surface texture mean snow melts more quickly and drains away, instead of re-freezing and creating slippery conditions. Plastic grid systems are compatible with snow shoveling and snow blowing since the grass roots are protected below the plastic grid.

FLEXIBLE SITE DESIGN: The flexibility of the plastic grid makes it better suited to uneven terrain than solid or turf pavers. Plastic grids can can be cut to fit any shape or area. The interlocking panels are quick and easy to install.

Installation of a plastic grid system with gravel fill (groundprotection.co.uk)

DURABILITY: Minimal maintenance is needed to ensure that the plastic cells stay properly filled with media and maintain their shape and stability.

CONSIDERATIONS: Plastic grid systems are not intended for high-traffic surfaces, or frequent use by heavy weight vehicles where the grids may become worn down or over-compacted. Mowing and otherwise maintaining the turf in your grid system is important to ensure continued high function. Care should be taken when applying deicers in the winter to avoid killing grasses.

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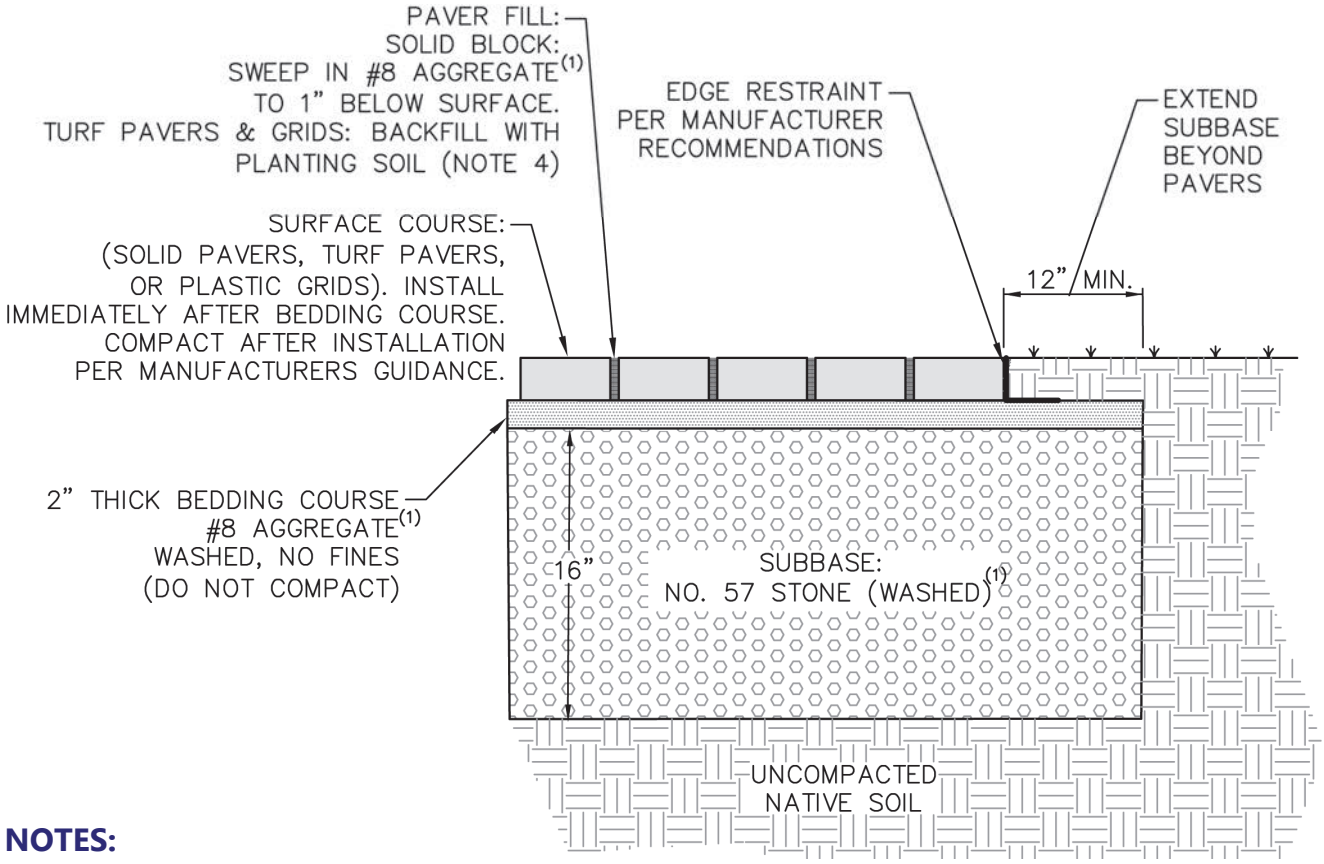
Plastic Grid Systems: Schematic Drawing (not to scale)



NOTES:

(1) Refer to the companion Local Vendors List for locally available products.

(2) Compact the subbase layer in minimum 6" lifts.

(3) All aggregates must be washed angular crushed stone. Do not use rounded stone.

(4) Planting soil mix for turf grassed grid systems to be 60:40 concrete sand/soil, or 70:30 concrete sand/compost (blend prior to placement).

(5) Subbase thickness dimension "D" is 10" for sandy, well drained soils, and 16" othersiwe. This subbase thickness is for residential driveways only. Locations that experience heavy vehicle loads or have soft soils will require subbase design by an engineer. Maximum driveway slope should not exceed 5%.

ESTIMATED INSTALLATION COSTS:

Plastic grid system installation costs start at $15 per square foot. This cost includes subbase installation, but not demolition of the existing driveway. Costs vary based on soil conditions, size of driveway, and contractor availability.

The typical cross sections provided herein are conceptual only and are not intended for use as construction documents. Refer to manufacturer for installation and maintenance requirements for all products. Modifications to the typical sections may be necessary based upon soil conditions and site suitability. Contact a qualified professional to verify suitability for each application.

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