

Drivable Grass® Technical Specification Guide

Drivable Grass® is a permeable, flexible and plantable pavement system. Drivable Grass® is designed to be installed over a properly prepared subgrade and compacted aggregate base structural section. Drivable Grass® is intended to be used in areas that are exposed to traffic and / or areas that will have exposure to small drainage flows. Drivable Grass® is designed to facilitate planting which will produce a vegetated pavement section. Depending on the base and subgrade structural section, Drivable Grass® can be used for loadings resulting from both light and heavy-duty traffic areas. The vegetated Drivable Grass® and compacted aggregate base section can also be used for biofiltration and as an underground detention basin.

Recommended Uses. Recommended uses include, but are not limited to the following:

Light Duty Applications

- a. Golf Cart Paths
- b. Service Roads
- c. Dog Parks
- d. Irrigation Pathways
- e. Pump Stations
- f. Trail Reinforcement
- g. Roadway Shoulders
- h. Residential Driveways
- i. Parking Lots
- j. Concrete Swale Replacements
- k. Overflow Parking Areas
- l. RV and Boat Access Drives and Parking Areas
- m. Truck & Cart Wash-Down Areas
- n. Outdoor Shower & Drinking Fountain Runoff Areas

Heavy Duty Applications

- a. Fire Access Lanes
- b. Emergency Vehicle Access Drives
- c. Service Vehicle Utility Roads
- d. Truck Maintenance and Equipment Yards
- e. RV and Car Sales Centers

Non-Traffic Applications

- a. V-Ditch Lining
- b. Linings for Ditches
- c. Energy Dissipater Aprons
- d. Low-flow stream linings
- e. Lining for roadside drainage features
- f. Bioswales / Trickle Channels
- g. Erosion Control on Slopes

Non-Recommended Uses

- a. Surfacing for Athletic Fields (baseball diamonds, football field, soccer field, under playground equipment....)
- b. Support of tread driven equipment (tread driven military equipment, tread driven construction equipment.....)
- c. Use in high velocity streams, rivers or channels
- d. Very steep grades unless secured via pins/staples or regular spaced mow curbs or strips

Turf Maintenance Comments:

1. Avoid the use of aeration, roto-tilling, and de-thatching equipment in area where Drivable Grass® pavement is installed.
2. The need for de-thatching can be minimized by planting turf varieties that resist thatch build-up, collecting grass clippings and adopting deep watering techniques.

Soil Definitions

1. **Coarse Sandy Loam** – 25% or more very coarse and coarse sand and less than 50% any other one grade of sand.
2. **Sandy Loam** - 30% or more very coarse, coarse and medium sand, but less than 25% very coarse sand, and less than 30% very fine or fine sand.
3. **Fine Sandy Loam** – 30% or more fine sand and less than 30% very fine sand or between 15 and 30% very coarse, coarse, and medium sand.
4. **Loamy Coarse Sand** – 25% or more very coarse and coarse sand and less than 50% any other one grade of sand.

5. **Loamy Sand** – 25% or more very coarse, coarse and medium sand and less than 50% fine or very fine sand.
6. **Loamy Fine Sand** – 50% or more fine sand or less than 25% very coarse, coarse, and medium sand and less than 50% very fine sand.
7. **Sand** – 25% or more very coarse, coarse and medium sand and less than 50% fine or very fine sand.
8. **Fine Sand** – 50% or more fine sand or less than 25% very coarse, coarse, and medium sand and less than 50% very fine sand.
9. **Very Fine Sand** – 50% or more very fine sand.

Drivable Grass[®] Installation Guidelines

1. Delivery, Storage and Handling

- a. Deliver materials to site in manufacturer's original palletized configuration with labels clearly identifying product style number, color, name and manufacturer.
- b. Check all materials upon delivery to assure that the proper type, grade, color, and certification have been received.
- c. Store materials in clean, dry area in accordance with manufacturer's instructions.
- d. Protect all materials from damage due to jobsite conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

2. Sub-grade Preparation

- a. Define boundary of proposed area to receive Drivable Grass[®] by using a string line, header board, existing hardscape, or other means of delineating the boundary shown on the construction drawings.
- b. Excavate to the lines and grades shown on the construction drawings.
- c. Proof roll foundation area as directed to determine if remedial work is required.
- d. Owner's representative shall inspect the excavation and approve prior to placement of base material or fill soils.
- e. Over-excavation and replacement of unsuitable sub-grade soils with approved compacted fill shall be compensated as agreed upon with the Owner.

3. Installation of Filter Fabric

- a. Install filter fabric on prepared sub-base. A filter-weave fabric by Mirafi Inc. or equal shall be used if required by contract documents.

4. Installation of Aggregate Base and Sand Setting Bed

- a. Install and compact base as required by the contract documents.
- b. Base aggregate shall consist of "Class II Permeable", "Crushed Miscellaneous Base" (CMB), crushed rock, or similar structural material normally used as a base course for pavement systems and meeting the gradation requirements shown on the construction drawings and specifications. Base layer shall be designed to carry the imposed loading as well as any stormwater storage considerations for the site. Base layer thickness to be determined by engineer of record for the project.
- c. Install subdrain as required by contract documents.
- d. Install, level and compact approximately 1" thick well graded sand bedding layer for non-planting applications. Install, level and compact approximately 1.5" thick well graded sand bedding layer for planting applications. Well graded sand to be comprised of a moderate percentage (20%) of organic or other plant nutrients for heavy duty applications and 30% organic material for light duty applications. A small amount of fertilizer may be added to facilitate grass growth.

5. Install Permeable, Flexible and Plantable Pavement System

- a. Install permeable, flexible, and plantable pavement system in accordance with the manufacturer's guidelines.
- b. Install system to the line, grades and locations required by the contract documents.
- c. Butt mats against each other leaving no significant gaps.
- d. Mats may be "fit" to the geometry of the site and obstructions by cutting with a concrete saw, or severing the polymeric reinforcement strands with a utility knife or other sharp cutting device.

Bending the mat over onto itself to expose the back side of the mats will facilitate exposure of reinforcing strands to be severed.

- e. Installations of Drivable Grass[®] (used for traffic loading) on grades steeper than 12% must be evaluated by a qualified engineer or architect.
- f. Use of geotextile pins or nails may be required for added stability of the mat on sloping terrain or as directed by contract documents. Industry practice suggests that 6 inch minimum length nails with 1.0 inch max diameter washers may work well in hard or rocky soils, while 12 to 18 inch long geotextile pins with 1.0 inch max diameter washers may work well in sandy soils. A qualified architect or engineer may be required to assess the need for securing devices.
- g. Anchoring frequency and pattern of securing devices (where required) should be as shown on the construction drawings or as specified by the engineer or architect. Anchoring is not required if mow strips / curbs are provided to confine the Drivable Grass[®] product.
- h. Installation of concrete mow strips / curbs: Mow curbs to be 4" x 4" (min.) thickness w/ (1) #4 rebar continuous or as directed by the specifications and drawings.

6. Fill Grooves of Drivable Grass with Infill

- a. Backfilling of Drivable Grass[®] must be conducted as soon after installation as practically possible. In no case shall Drivable Grass[®] be left un-filled for more than 30 days after installation unless specifically approved by the project architect or engineer.
- b. Backfill permeable, flexible and plantable pavement system with soil infill in accordance with the manufacturer's installation instructions. Soil in which grasses will be planted will have a moderate percentage of organic or other plant nutrients added to clean sand. Sand mixture to be 80% well graded sand and 20% organic material for heavy duty applications, and 70% well graded sand and 30% organic material for light duty applications. Infill not intended to support vegetation is likely to consist of decorative stone of varying color and quality, depending on application and aesthetic needs. A layer of landscape fabric installed below sand setting bed is recommended to deter weed growth in non-planted systems.
- c. Prepare for planting by sweeping or otherwise spreading soil infill uniformly across the mats.

7. Vegetate Mat System (Option 1 - Seeding)

- a. Install lawn with the planting materials and manner as specified in the construction drawings.
- b. Broadcasting seed may be done by hand or mechanical spreading device. It is also recommended to mix seed into fill material. A topper may be used on top of the seed to facilitate germination.
- c. Set irrigation system (where required) such that complete and adequate irrigation coverage is provided for the installation area. Proper irrigation will promote healthy vegetation growth. The irrigation system may need to be installed before the base for large areas.
- d. Root barrier systems should be provided around the perimeter of trees that exist or may be planted near Drivable Grass installation to minimize the potential for future tree root damage.

8. Vegetate Mat System (Option 2 - Top Dressing With Sod)

- a. Lay sod on backfilled Drivable Grass[®] system being sure to cut out sod where sprinkler heads exist. An additional 1" of soil infill should be used between the top of the Drivable Grass and the sod.
- b. Sod should be laid in a staggered pattern to ensure a stable sod matrix.
- c. Refrain from traversing sodded areas for about 30 days or until sod has been established.
- d. Irrigate in-place sod and set watering schedule.

9. Erosion Control

- a. Provide dust and erosion control protection plan in accordance with the contract documents.

10. Field Quality Control

- a. The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction. This does not relieve the Contractor from securing the necessary construction control testing during construction when required by the contract documents.
- b. Qualified and experienced technicians and engineers shall perform testing and inspections services.
- c. As a minimum, quality assurance testing should include sub-grade soil inspection, aggregate base quality, thickness, and compaction, and observation of construction for general compliance with design drawings and specifications.