

INSTALLATION GUIDE FOR ROADRAIN SYNTHETIC SUBSURFACE DRAINAGE LAYER — UNDER BASE

DELIVERY, STORAGE, AND HANDLING

1. The Contractor shall check the material upon delivery to verify that the materials received are the proper type and grade.
2. The SSDL rolls shall be stored in a clean and dry environment, off the ground and out of direct sunlight (materials should never be exposed to direct sunlight for more than 30 days), and shall be protected from excessive heat, cold, mud, dirt, and dust.
3. The contractor and the installer shall handle all SSDL in such a manner as to insure it is not damaged in any way.
4. SSDL shall be rejected if it has defects including holes, deterioration, or damage incurred during storage or transportation.

CONSTRUCTION SEQUENCE

Subgrade Preparation:

1. All vegetation should be cleared from the site and depending on the subgrade strength, low ground pressure equipment may be required. For stronger subgrade conditions, subgrade should be proof rolled.
2. If pockets of very weak or pumping soils are encountered, those spots should be excavated and replaced with granular fill to result in a firm, non-yielding subgrade. Per the direction of the engineer, other means of subgrade stabilization can be used.
3. The subgrade surface should be smooth and to the design grade.

SSDL Installation:

1. SSDL shall be installed and placed on a firm and prepared subgrade, with the design grade (typically 2% or greater) flowing towards the water collection system (edgedrain, perforated pipe, or other collection structure).
2. The Installer shall place the SSDL in the proper manner at the proper elevation and alignment as shown on the construction drawings and as directed by the Engineer.
3. In the presence of wind, all SSDL shall be weighted with sandbags or the equivalent. Such sandbags shall be placed during placement and shall remain until replaced with cover material. If necessary, the SSDL shall be positioned by hand after being unrolled to minimize wrinkles.

4. In order to prevent soil migration into the geonet core and clogging of the SSDL flow channels and its collection system, all the edges (except the one connected to edge drain or perforated pipe) shall be wrapped by a geotextile with minimum 18-inch width prior to the fill placement of base or subbase.

Granular Fill Placement Over SSDL:

1. Base or subbase fill material shall be back dumped onto previously placed fill from trucks or front-end loaders riding on top of the previously placed fill. No track equipment shall be allowed to drive directly across the geocomposite.
2. The specified fill material shall be placed and spread utilizing vehicles with a low ground pressure.
3. Heavy construction equipment shall not travel over the SSDL without a minimum fill thickness of 4 inches (after compaction) covering the SSDL placed on top of firm prepared subgrade; lighter equipment with low ground pressure can travel cautiously (minimize acceleration and deceleration) over the SSDL.

Seams for SSDL Roll Joined in the Field:

1. The SSDL rolls shall be placed along roadway direction, with the main flow direction orientated down slope towards roadway edge drain, as shown in Figure 1.

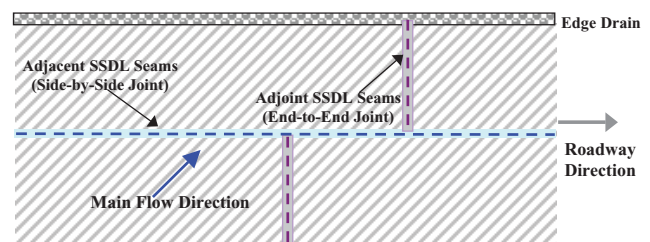


Figure 1 SSDL Panel Layout

2. Adjacent SSDL rolls (Side-by-Side joint) shall be overlapped as shown in Figure 2.

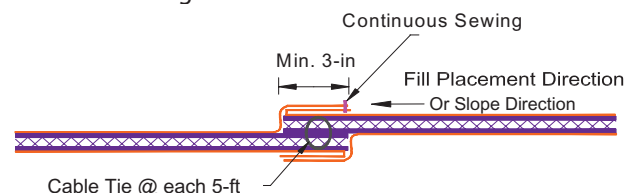


Figure 2 SSDL Panel Overlap Joint (Side-by-Side or End-to-End)

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1. Adjoint SSDL rolls (End-to-End joint) shall be overlapped or butted together, as shown in Figure 2 and 3. Typically, butt joint is recommended when the subgrade underneath is stiff and there is no drainage slope along roadway direct; overlap joint is recommended for other scenarios.

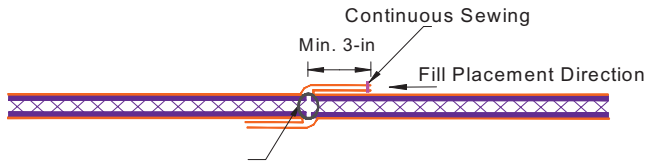


Figure 3 SSDL Panel Butt Joint (End-to-End)

2. The top geotextile layers shall be sewn together at the seams, or at the discretion of the Engineer may be heat bonded. Geotextile sewing seams to be used are Prayer, "J", or Butterfly, see details in Figure 4. The seam shall be a two-thread, double-lock stitch, or a double row of single-thread, chain stitch. If heat bonding is to be used, care must be taken to avoid burn through of the geotextile. It is important that the geotextiles be joined continuously along to the seams as to prevent any fugitive particle migration into the geonet core flow channels.

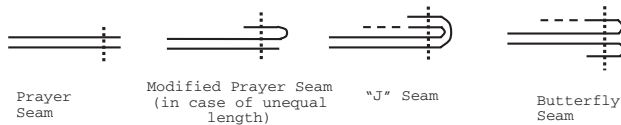


Figure 4 Geotextile Sewing Seams Details

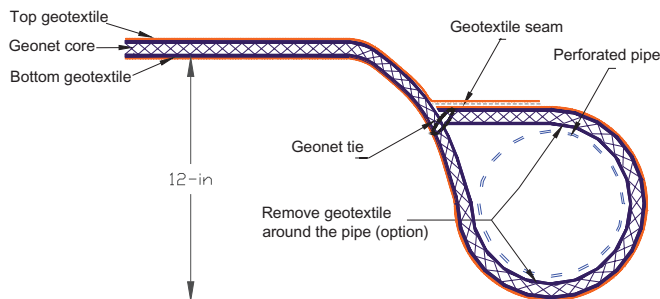
REPAIR

Prior to covering the deployed geocomposite, each roll shall be inspected for damage. Potential repair techniques will be separated for just geotextile damage and for damage resulting on the entire geocomposite (geonet damaged).

1. **Geotextile damage:** Small holes shall be patched with an 8" x 8" geotextile piece. Apply the spray adhesive (such as 3M Hi-Strength 90 adhesive) to one side of the 8x8" textile patch. Firmly press 8x8" textile patch over repair area. If the damaged area of the geotextile is greater than this patch size, a bigger patch is recommended. If the geotextile is damaged beyond 50 percent of the width of the roll, a continuous piece of fabric the same width as the repaired geocomposite may be cap-stripped directly to the adjacent seams by sewing a portion of new geotextile in place.
2. **Geocomposite damage:** If rip, tear or damaged area on the deployed geocomposite is more than 50 percent of the width of the roll, the damaged area shall be cut out and the two portions of the geonet shall be joined as explained above. Other rips, tears or damaged areas on the deployed geocomposite shall be removed and patched by placing a patch extending 12 inches beyond the edges of the damaged area. The patch shall be secured to the original geonet with cable ties.

EDGE DRAIN DETAILS

Option 1:



Option 2:

