



SECTION 02910

ROOT AND WEED CONTROL SYSTEM

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Root control system.
- B. Weed control system.
- C. Underground structure root protection.

1.2 RELATED SECTIONS

- A. Section 02300 - Earthwork.
- B. Section 02620 - Subdrainage System.
- C. Section 02700 - Bases, Ballasts, Pavements, and Appurtenances.
- D. Section 02800 - Site Improvements and Amenities.
- E. Section 02810 - Irrigation System.
- F. Section 02900 - Planting.
- G. Section 02920 - Lawns and Grasses.

1.3 REFERENCES

- A. DOT Standards - _____ State Department of Transportation Standard Specifications.
- B. ASTM D 5261 - Test Method for Measuring Mass per Unit Area of Geotextiles
- C. ASTM D 4632 - Test Method for Grab Breaking Load and Elongation of Geotextiles
- D. ASTM D 4833 - Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products
- E. ASTM D 4533 - Test Method for Trapezoid Tear Strength of Geotextiles

- F. ASTM D 4491 - Test Method for Water Permeability of Geotextiles by Permittivity
- G. ASTM D 4751 - Test Method for Determining the Apparent Opening Size of a Geotextile
- H. ASTM D 4355 - Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)

1.4 PERFORMANCE REQUIREMENTS

- A. Physical and Chemical Requirements
 - 1. Fibers used in the manufacture of root control barrier substrate fabric shall consist of long chain synthetic polyolefins (at least 95 percent by weight) and a UV stabilizer. They shall be formed into a stable network such that the filaments or yarns retain their dimensional stability relative to each other.
 - 2. Nodules consisting of trifluralin, carbon black, and polyethylene compounded in a patented method utilizing time-released characteristics are permanently attached to the substrate fabric on 1-1/2 inch centers by a through injection molding process.
 - 3. All substrate property values, with the exception of apparent opening size (AOS), in these specifications represent minimum average roll values (MARV) in the weakest principal direction. The average test results of any roll in a lot sampled for conformance or quality assurance testing shall meet or exceed the minimum values provided herein. Values for AOS represent maximum average roll values.
 - 4. Property values for the trifluralin are average run values.
- B. Certification
 - 1. Manufacturer shall provide a certificate stating the name, product name, style number, chemical composition and other pertinent information to fully describe the product. Manufacturer shall assure compliance with the requirements of the specification. Documentation describing the quality control program shall be made available upon request.
 - 2. Manufacturer's certificate shall state that the root control product meets requirements of the specification as evaluated under the Manufacturer's quality control program.
 - 3. Mislabeling or misrepresentation of materials shall be reason to reject those products.
- C. Sampling, Testing and Acceptance
 - 1. Root control substrate product shall be subject to sampling and testing to verify conformance with this specification. Acceptance shall be based on manufacturer's certifications.
- D. Physical Properties
 - 1. Active Chemical: Trifluralin (a,a,a-Trifluoro 2,6 - dinitro - N,N, - Dipropyl - p - toluidine) 17.5%.
 - 2. Inert Ingredients: 100% Spunbonded Polypropylene, Polyethylene and Carbon 82.5%.
 - 3. Spunbond Fabric Unit Weight: 4 oz/yd² (130 g/m²) ASTM D 5261
 - 4. Grab Tensile Strength: 130 lbs (575 N) ASTM D 4632
 - 5. Elongation at Break: 60% ASTM D 4632
 - 6. Puncture Strength: 37 lbs (175 N) ASTM D 4833
 - 7. Trap Tear: 60 lbs (265 N) ASTM D 4533
 - 8. Permittivity: 0.7 sec. ASTM D 4491
 - 9. AOS (Max Value): 0.21 mm ASTM D 4751

10. Ultraviolet Stability: 70% @ 500 hrs ASTM D 4355

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Submit manufacturer's shop drawings including laying method and anchoring.
- D. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
 - 1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
 - 2. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
- E. Samples: Submit manufacturers samples of each product specified.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer with a minimum for five years documented experience with the products specified and with ISO Certification certifying material compliance..
- B. Installer Qualifications: Installer experienced in performing work of this section that has specialized in installation of work similar to that required for this project. Installer must also be able to provide skilled workman with satisfactory record of performance on landscaping or paving projects of comparable size and quality.
- C. Installer Qualifications: TYPAR Geosynthetics approved Installer experienced in performing work of this section and who has specialized in installation of work similar to that required for this project.
- D. Preinstallation Meetings:
 - 1. Convene a preinstallation meeting a minimum of two weeks prior to start of weed and root control systems.
 - 2. Verify project requirements, subbase and base conditions, manufacturer's installation instructions and coordination with other related work.
 - 3. Require attendance of parties directly affecting work of this section, including the Contractor, engineer, installer, and manufacturer's representative.
 - 4. Comply with Division 1 requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products undercover in manufacturer's unopened packaging with labels intact until ready for installation.

- B. Protect materials during handling and installation to prevent damage.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions recommended by manufacturer for desired results. Do not install products under conditions outside manufacturer's absolute limits.
- B. In cold weather, do not use frozen materials or materials coated with ice or frost, and do not build on frozen base or wet, saturated or muddy subgrade.
- C. Protect partially completed work against damage from other construction traffic when work is in progress.
- D. Protect work areas from traffic during installation.

1.9 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: TYPAR Geosynthetics, a division of Polymer Group, Inc., which is located at: 70 Old Hickory Blvd, Old Hickory, TN 37138. Tel: 1.800.541.5519. Email: geosales@pginw.com. Web: www.typargeosynthetics.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 MATERIALS

- A. Root control system. Biobarrier Root Control System is composed of a 4-ounce per-square-yard, TYPAR geo-textile fabric with a pattern of 7/16-inch hemisphere nodules through-injection-molded with trifluralin to the fabric on 1.5-inch centers. Trifluralin root inhibition herbicide.
 - 1. Width:
 - a. 12 inches.
 - b. 19.5 inches.
 - c. 24 inches.
 - d. 29 inches.
 - e. 39 inches.
 - f. 58.5 inches.
 - g. Provide to the widths indicated on the Drawings.
- B. Weed control system. Biobarrier II Weed Control System is composed of a 4-ounce-per-square-yard, durable, TYPAR geo-textile fabric with a pattern of 7/16-inch-hemisphere nodules through-injection-molded to the fabric on 1.5-inch centers. The nodules are injected with trifluralin root inhibition herbicide.

1. Width:
 - a. 29 inches.
 - b. 39 inches.
 - c. 58.5 inches.
 - d. Provide to the widths indicated on the Drawings.

- C. Root surround system. Biobarrier Surround System is composed of a 4-ounce per-square-yard, TYPAR geo-textile fabric with a pattern of 7/16-inch hemisphere nodules through-injection-molded with trifluralin to the fabric on 1.5-inch centers. Trifluralin root inhibition herbicide.
 1. Width:
 - a. 12 inches.
 - b. 19.5 inches.
 - c. 24 inches.
 - d. 29 inches.
 - e. 39 inches.
 - f. 58.5 inches.
 - g. Provide to the widths indicated on the Drawings.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Before beginning installation, verify site conditions are as indicated on the Drawings. Notify the Architect if site conditions are not acceptable. Do not begin preparation or installation until unacceptable conditions have been corrected.

3.2 PREPARATION

- A. Subgrade Preparation:
 1. Prepare subgrade as specified in Section 02700. Verify subgrade in accordance with manufacturer's instructions.
 2. Excavate area allowing for unit thickness and depth required.
 3. Provide adequate drainage from excavated area if area has potential to collect water, when working with in-place soils that have poor permeability.
 4. Ensure in-place soil is relatively dry and free from standing water.
 5. Uniformly grade base.
 6. Level and clear base of large objects, such as rocks and pieces of wood.

3.3 ROOT CONTROL SYSTEM INSTALLATION

- A. Install BIOBARRIER Root Control Fabric system in accordance with system manufacturer's instructions and under the direct supervision of a TYPAR Geosynthetics Approved installer or TYPAR Geosynthetics on-site representative.
- B. Follow the EPA label instructions when installing. Wear gloves during installation.
- C. Install at areas as indicated on the Drawings.
- D. Coordinate installation with adjacent work as required.
- E. Dig a trench a minimum of 4 inches wide and at least two times the tree's canopy plus 10 feet along the areas to be protected.

- F. Prune tree and shrub roots back flush with the trench walls on both sides of the trench.
- G. Place Root Control System in the trench between the area to be protected and all roots.
- H. Install and cover Biobarrier as soon as possible but within a maximum of 12 hours after opening the seal package.
- I. Secure the fabric with landscape pins provided. Secure it flush or slightly above surface grade the surface grade so roots don't grow over it and against the wall of the trench opposite the root source.
- J. Do not allow gaps in fabric during installation or backfilling. When joining two pieces use overlapping, construction adhesive may be used to further secure the overlap. when overlapping, seams should be overlapped at least 6 inches or 4 nodule widths.
- K. Backfill the trench with soil containing organic matter and tamp it to ensure there are no gaps in the soil. Smooth soil surface to final grade on the side opposite the root source.
- L. Beginning at one end of the trench, hold the product in place at the finished grade on the side of the trench adjacent to the hardscape and stake it into position. Secure with pins every 2 feet.
- M. Install hardscape over fabric as specified for the product to be used. Protect fabric from prolonged exposure until hardscape is placed.

3.4 WEED CONTROL SYSTEM INSTALLATION

- A. Install BIOBARRIER Weed Control Fabric system in accordance with system manufacturer's instructions and under the direct supervision of a TYPAR Geosynthetics Approved installer or TYPAR Geosynthetics on-site representative.
- B. Follow the EPA label instructions when installing. Wear gloves during installation.
- C. Install at areas as indicated on the Drawings.
- D. Coordinate installation with adjacent work as required.
- E. Remove unwanted vegetation (particularly green foliage) and materials that can puncture the fabric.
- F. Install Biobarrier over area to be protected. If trees or ornamental shrubs are already planted, just place the fabric around them. BIOBARRIER Weed Control Fabric affects only root tip growth, so pull it close to the tree or shrub trunk.
- G. Do not allow gaps in fabric during installation or backfilling. When joining two pieces use overlapping, construction adhesive may be used to further secure the overlap. When overlapping, seams should be overlapped at least 6 inches (or 4 nodule widths).
- H. Position and cut fabric for existing or new plants. Add width, if required, and secure in place with landscape pegs provided.

- I. Cover Biobarrier with a minimum of 2 inches of soil or mulch as soon as possible but within a maximum of 12 hours after opening the seal package.

3.5 TREE ROOT PROTECTION SYSTEM INSTALLATION

- A. Install BIOBARRIER Root Surround for underground infrastructure protection in accordance with system manufacturer's instructions and under the direct supervision of a TYPAR Geosynthetics Approved installer or TYPAR Geosynthetics on-site representative.
- B. Follow the EPA label instructions when installing. Wear gloves during installation.
- C. Install at areas as indicated on the Drawings.
- D. Coordinate installation with adjacent work as required.
- E. Protect underground tanks and vaults from root intrusion by placing Biobarrier across the top and sides of the structure before backfilling.
- F. Protect underground tanks and vaults from root intrusion by placing Biobarrier across the top, side and bottom of the structure before backfilling.
- G. Protect underground pipe and trench drains from root intrusion by placing Biobarrier to surrounding the trench around the pipe before backfilling. Wrap each cut-out for pipe penetrations snugly around each pipe and secure with industrial tape or ties leaving no gaps in the Biobarrier.
- H. Cover Biobarrier as soon as possible but within a maximum of 12 hours after opening the seal package.
- I. Do not allow gaps in fabric during installation or backfilling. When joining two pieces use overlapping, construction adhesive may be used to further secure the overlap. when overlapping, seams should be overlapped at least 6 inches (or 4 nodule widths).
- J. Backfill the trench with soil containing organic matter and tamp it to ensure there are no gaps in the soil. Smooth soil surface to final grade on the side opposite the rood source.

3.6 MAINTENANCE

- A. Maintain planting areas in accordance with manufacturer's instructions and as specified in Section 02900 - Planting.

END OF SECTION