

**PROJECT STAKEHOLDERS**

- Stuckey's LLC
- KB Homes

**CHALLENGES**

- 500-year flood design
- Poor soil: 8.5 pH and < 1% organic matter
- Multiple regulatory agencies involved

**APPLICATION**

- ProGanics® BSM™: 3,500 lb/ac (3,920 kg/ha)
- ProMatrix™ EFM™: 3,500 lb/ac (3,920 kg/ha)
- GreenArmor System™
  - o Futerra® 7010 TRM
  - o Flexterra® HP-FGM®: 3,000 lb/ac (3,360 kg/ha)
- 13-13-13 Fertilizer
- Bermuda Grass

**RESULTS**

- The combination of ProGanics soil building properties and the reinforced turf solution provided excellent vegetation and a strong root system
- This solution stood up to the extreme rains and winds of Hurricane Harvey



*A failed embankment emptied into a nearby creek*

Construction of a residential development site in Conroe, Texas increased the amount of water being diverted to nearby Cayden Creek. Due to the increased water flow, a spring storm caused a levy on the creek to break and overflow into detention ponds. Profile® and the contractor began working with the developer, the Municipal Utility District, the Texas Commission on Environmental Quality and the U.S. Army Corps of Engineers to create a solution. Rather than working against nature, developers chose to let water continue to flow into the ponds and created a parallel drainage system. The developer needed to further reinforce the overflow zone against high shear and velocity forces, plus establish sustainable vegetation throughout the drainage

system. They determined the best solution would be Profile's GreenArmor System™, a vegetated and environmentally superior means of protecting high-discharge waterways and steep slopes. Soil tests showed poor quality of the existing soil, so Stuckey's LLC first applied ProGanics® Biotic Soil Media™ (BSM™), an Engineered Soil Media™ (ESM™). ProGanics restores soils by providing the organic and biological components needed to establish sustainable vegetation. Stuckey's LLC installed the GreenArmor System on the floor of the channel by laying Futerra® 7010 Turf Reinforcement Mats (TRMs) and infilling them with Flexterra® High Performance-Flexible Growth Medium® (HP-FGM®). For the remaining area above the high-water line that would not be subjected to concentrated flow, ProMatrix™ Engineered Fiber Matrix™ (EFM™) was hydraulically applied to provide erosion protection. Within two months, the site was fully vegetated. Over the spring and summer, the site saw more than 94 inches (2,388 mm) of rain — including a 60-inch (1,524 mm) deluge from Hurricane Harvey. Through it all, the site held up and the contractor was able to translate this success into more projects.



*Installation of TRM reinforces root systems to withstand more severe flow*



*Vegetation on the site two months later*