**Project Overview**

**Sustainability Stars Awarded:**

- ★ Investigation Star
- ★ Investment Star

**Project Type:** Residential Community and Infrastructure

**Local Permitting Entity:** Harris County, City of Houston, TxDOT

**Project Cost:** $5.5 million

**Site Size:** 24 Acres

**Project Owner:** Bridgeland Development LP

**Project Engineers:** HR Green, Inc.

**SWA Group (Landscape Architect)**

**Sustainability Features:**

- Bio-Retention & Engineered Soil
- False inlets
- Vegetated Filter Strips
- Vegetated Swale

**Special Terms Defined:**

Low-Impact Development is a term used to describe a land planning, and engineering design approach to manage stormwater runoff as part of green infrastructure.

LID emphasizes conservation and use of on-site natural features to protect water quality. Green initiative is a term used to describe any initiative that will create a cleaner and healthier environment.
**INVESTIGATION STAR**

With a goal to enhance the community's natural environment within the Cypress Creek Watershed, Bridgeland Development LP chose to explore "green initiatives," in the design for two sections of Bridgeland Creek Parkway through Prairieland Village.

Bridgeland Development LP partnered with HR Green to develop low-impact and stormwater quality alternatives to be incorporated into the design for Bridgeland Creek Parkway.

HR Green developed multiple concepts to be evaluated, and the final alternative used false inlets that have an orifice directing flow into bio-swales, allowing for infiltration and sediment control prior to entering the bio-cell areas.

**INVESTMENT STAR**

The Bridgeland Creek Parkway project implements sustainable stormwater management concepts throughout the project area to provide the desired level of storm water conveyance and flooding protection within the street system.

The implementation of the "green initiative" design concepts, consisting of 18 bio-swales and approximately 88,000 cubic feet of storm water storage, in conjunction with the neighborhood roadways with false inlets and minimal storm sewer, results in the preservation and enhancement of the Prairieland Village characteristics.

**BENEFITS & ADDED VALUE**

The project embraces a sustainable and low impact design philosophy by implementing a sustainable stormwater conveyance and flood protection system with bio-swales. When compared with a conventional stormwater conveyance system, this "green initiative" system recognizes multiple benefits:

- Reduces modeled peak flows
- Reduces stormwater pollutants
- Increases stormwater infiltration and recharge
- Lowers construction estimates (10%)
- Preserves the community’s natural characteristics

---

**PLANT MATERIAL**

- *Eryngium yuccifolium* - Coarse, rough-stemmed wildflower
- *Cephalanthus occidentalis* - Delicious shrub, which reaches just 3 to 4 feet high and wide. This shrub tolerates wet soil, making it a good choice for poorly drained ground. It prefers full to part sun. Its compact size makes pruning it easy.
- *Muhlenbergia capillaris* - A plant branched and leafy in lower 2 ft. tall and has leaves 3-4 inches long. The plant has unbranched except at the top.
- *Rudbeckia hirta* - The "spiky golf ball" flowers that show up in July are a stiff erect stem that is unbranched except at the top.
- *Sorghastrum nutans* - A dominant species of the tallgrass prairie, but also grows 3-6 ft., finely textured, reddish purple seed heads. Switchgrass is one of the showy perennials that are 2-5 ft. tall, and nearly half of this is the flower spike. Extensive colonies. It is 1-2 ft. tall and has leaves 3-4 inches long. The central disk. It's sombrero-shaped flower head, are usually 1-2 inches across. All red or all yellow. The flowers central brown disk protrudes 1 inch from the white, fuzzy heads.

---

**BIO-RETENTION DETAILS**

- **BIORETENTION BASIN DETAIL**
- **POSITIVE OVERFLOW STRUCTURE - TYPE "E" CITY**
- **UNDERDRAIN PIPE**
- **8" SOLID PVC PIPE**
- **2" PEA GRAVEL**
- **SHARP SAND, 20% SANDY LOAM, ENGINEERED SOIL MEDIA - 80%**
- **2" PEA GRAVEL**
- **3" OF AGGREGATE UNDER PIPE**
- **24" RCP**
- **15"**
- **2" MIN. - 6' MAX.**
- **0.5% - 2%**
- **4:1 TO 10:1**
- **BIORETENTION SYSTEM IS FULLY INSTALLED**
- **PLANT PLANTING BEDS OUTSIDE**
- **BASIN DETAIL**
- **VERITCAL BASE**
- **BIO-RETENTION BASIN DETAIL**