

## CASE STUDY

# Unique StormTech® Application Ends Neighborhood Flooding

## Oklahoma City, OK

### OWNER

City of Oklahoma City, OK

### ENGINEER

Olsson, Oklahoma City, OK

### CONTRACTOR

Cimarron Construction, Oklahoma City, OK

### INSTALLATION DATE

Spring 2026

### PRODUCTS

496 StormTech MC-3500 chambers  
655 StormTech SC-740 chambers  
294 StormTech DC-780 chambers  
226 StormTech SC-310 chambers  
3,640' (1,110 m) of 12" (300 mm) HP Storm pipe  
40' (12 m) of 18" HP Storm pipe  
1,800' (550 m) of 12" (300 mm) N-12® pipe  
3 30" (750 mm) Nyloplast® Drain Basins  
131 Nyloplast Inline Drains  
131 Inserta Tee®  
29,000 yd<sup>2</sup> (24,248 m<sup>2</sup>) 0601T nonwoven fabric  
12,000 yd<sup>2</sup> (10,034 m<sup>2</sup>) ADS Plus Woven fabric  
61 fabricated fittings

### CHALLENGE

An Oklahoma City residential neighborhood was transformed when older, small houses were torn down and replaced with larger, modern residences. The redevelopment caused unintended consequences as expanded rooftops, driveways and patios increased impervious surface areas, which caused localized flooding and made roads impassable.

To control the flooding, Olsson was retained as the project's engineer to develop an effective flood mitigation strategy. The University of Oklahoma (OU), led by Dr. Jason Vogel, P.E., partnered with Olsson and the city to utilize the project as a water quality research initiative.



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The challenge to fulfill each aspect required the system to fit within existing rights-of-way, function across varying site conditions, support OU's research and deliver long-term, maintainable performance for the municipality.

## SOLUTION

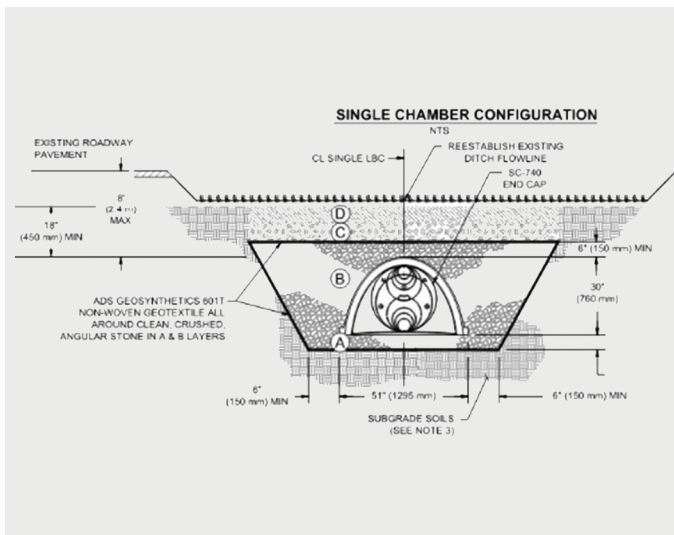
Olsson combined with OU to design a system of over 100 interconnected Linear Bioretention Cells (LBCs) that would integrate with roadside drainage ditches. The LBCs form a network that captures and conveys the stormwater to a centralized detention system.

After initially looking at other stormwater management choices, Olsson determined it was best to utilize Advanced Drainage Systems (ADS) StormTech chambers, along with HP Storm polypropylene pipe, N-12 high-density polyethylene pipe, Inserta Tee lateral connections, Nyloplast Inline Drains, Nyloplast Drain Basin and geotextiles.

ADS was able to provide a greater product range and flexibility and the engineering support required. ADS' Project Resource Center (PRC) provided a critical role as it developed a variety of layout configurations – each involving roughly 100 different systems – that would meet OU's water quality initiative and reduce flooding.

At the Sunnymeade site, stormwater is captured and treated through a layered bioretention process designed to mimic natural filtration. Water flows from the surface through sod and a clean soil layer, where sediments and floatables are removed. The water passes through a sand layer that effectively reduces nutrients, such as nitrogen and phosphorus.

Once filtered, the treated water enters a geotextile layer before moving into underlying stone beds and StormTech chambers. These chambers provide both detention and infiltration and convey stormwater through the interconnected system. Ultimately, water is routed downstream to a centralized regional detention system, which consists of MC-3500 chambers.



The LBC systems are installed in one- or two-row chamber configurations, which range from three to 10 chambers in length. The chambers are positioned parallel to roadways within the right-of-way. N-12 pipe is used beneath driveways, while HP Storm pipe is installed under public roadways, ensuring durability and hydraulic efficiency across different loading conditions. Both pipe systems also contribute additional storage capacity during peak storm events.

The centralized detention system, located on a city-owned corner lot, is designed for a neighborhood green space. The solution transformed critical infrastructure into a community asset.

To ensure long-term performance, the system incorporates accessible inspection ports connected to the chambers via Inserta Tees and surface-level Nyloplast inline drains. These features enable efficient maintenance to preserve system integrity. ADS Plus woven geotextile fabric further enhances durability by preventing erosion and protecting underlying stone layers from scour.

By combining LBCs with the StormTech chambers, the unique system reduced flooding, improved water quality, fit the footprint and provided long-term maintenance system. This innovative application of StormTech chambers as LBCs establishes a Best Management Practice (BMP) that municipalities can replicate for similar stormwater challenges.

### PRODUCT DESCRIPTIONS

StormTech chambers are designed to save valuable land, reduce flooding risks and protect water resources. The chambers provide a durable structural system and are designed in accordance with AASHTO LRFD Bridge Designspecification for HS-20 live loads. StormTech chambers are available in a variety of sizes to meet any project need and are injection molded for uniform wall thickness. The StormTech Isolator Row utilizes a layer of ADS Plus fabric in a designated inlet row to provide enhanced suspended solids and pollutant removal.



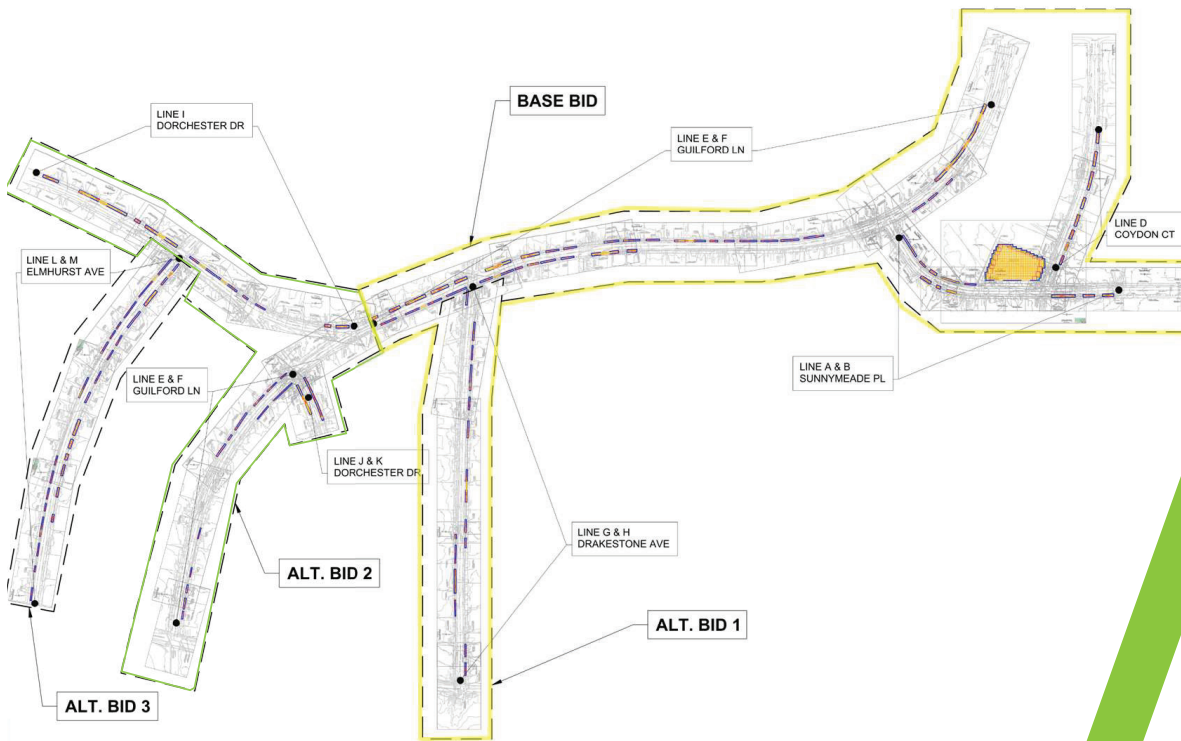
HP Storm polypropylene pipe provides superior pipe stiffness, longer bells and spigots and a premium joint performance for a longer service life. The smooth interior wall offers additional strength and high flow capacity. HP Storm pipe meets or exceeds the standards specified in ASTM F2881 and AASHTO M330 and the extended bell and spigot meets ASTM D3212. Polypropylene is an inert material and is resistant to the effects of chemicals, abrasion, hot soils and effluent. The lightweight product is easy to deliver and is readily available in convenient locations across North America to service local projects.

N-12 is manufactured for gravity-flow storm drainage applications. N-12, which is available in diameters from 4"-60" (100-1500 mm), offers exceptional hydraulics and strength. N-12 provides superior corrosion and abrasion resistance in a lightweight, corrugated design. A polyethylene bell minimizes joint distortion and eliminates chipping and cracking that is common to concrete bells. Available in 20' (6 m) lengths, N-12 provides lower installation costs and faster installation than traditional materials.

Nyloplast Engineered Surface Drainage products provide dependable, project-specific solution for stormwater management. The heavy-duty PVC structures and ductile iron grates deliver the strength and durability needed to meet site demands. With a range of structures from 8"-36" (200-900 mm), Nyloplast is tailored to project requirements. Seamless compatibility with plastic underground storm drain systems allow for smooth transitions between pipe sizes and materials, as well as adjustments in elevation and direction, supporting efficient installation and long-term performance.

Inserta Tee is a high-performance, easy-to-install lateral service connection, which consists of a PVC hub, rubber sleeve and stainless steel band. Inserta Tee's watertight seal provides superior performance and is used to connect ADS N-12 and PVC laterals to all known corrugated, solid wall, profile wall and concrete pipe, regardless of manufacturer.

Advanced Drainage Systems, Inc. provides a wide variety of geosynthetics to meet drainage, separation, stabilization and soil reinforcement needs. Woven and nonwoven fabrics prevent ruts in unpaved roads, stabilize the ground under waste ponds, and help keep silt and fine soil out of collector pipes. ADS Plus geotextile achieves over 80% total suspended solids (TSS) removal and maintains durability and sediment removal, while allowing for high water quality flow rates.



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