

CASE STUDY

StormTech® Provides Needed Volume at Hillcrest Park

Concord, CA

OWNER

City of Concord, CA

ENGINEER

NCE Engineering & Environmental Services,
Richmond, CA

CONTRACTOR

Ghilotti Bros., Inc., San Rafael, CA

INSTALLATION DATE

October 2022

PRODUCTS

1,544 SC-160LP StormTech Chambers
1 StormTech Inspection Port
40' (12 m) of 8" (200 mm) N-12® Watertight Pipe
280' (85 m) of 4" (100 mm) N-12 Watertight Pipe

CHALLENGE

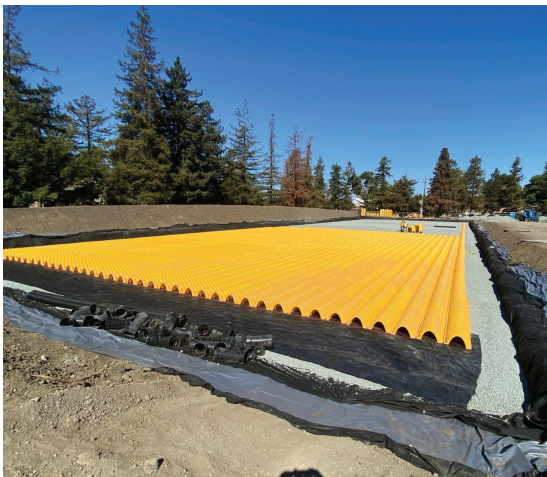
Caltrans (the California Department of Transportation) awarded the City of Concord a grant to build an infiltration system. The City, in conjunction with Contra Costa County and Caltrans District 4, used the funding to create a stormwater capture, convey, storage and reuse system.

The city wanted the system to harvest rainwater for dust mitigation in the surrounding area and potentially as irrigation for Hillcrest Park landscape. Construction dust is monitored by the California Air Resources Board and the reclaimed water can be loaded into trucks for dust suppression.

A key design challenge was the site's high groundwater table, which constrained the system's depth.

SOLUTION

NCE Engineering & Environmental Services evaluated whether StormTech chambers or a concrete vault would be the most effective detention solution. Using San Francisco's Francisco



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Park, where StormTech chambers support a capture and reuse system, as a proof of concept, NCE determined that StormTech SC-160LP chambers would meet the required storage volume and could be installed above the high groundwater level.

Advanced Drainage Systems (ADS) personnel collaborated with NCE to test multiple layout options using the StormTech Design Tool. With NCE's feedback, the final system footprint was determined and provided 192,000 cubic feet (5,426 cubic meters) of stormwater storage.

Prior to installation, ADS personnel identified the originally specified liner would not retain the stormwater. After identifying the problem, ADS was able to resolve the issue by selecting an impermeable system liner.

To remove suspended solids, a large trash screen and a trash grinder pump were installed upstream of the StormTech chambers. If any debris skirted the trash screen, the pump grinds it and conveys it to the StormTech Isolator® Row, which contains the debris until maintenance removes it through a StormTech Inspection Port. A downstream pump was added to pull water from the system and fill construction trucks.

The system is located at the west side of Hillcrest Park. Irrigation lines were replaced in the park to allow future use of the stored water for park irrigation.

N-12 dual-wall high-density polyethylene (HDPE) pipe was utilized in 4" and 8" (100 and 200 mm) diameters to convey captured stormwater to the system.

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 Design specification 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. Isolator Row is a NJCAT-tested and NJDEP-approved practice for stormwater pre-treatment.

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 200-900 mm (8"-36"), 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.

N-12 Dual Wall Pipe has a corrugated exterior and smooth interior wall that provide exceptional hydraulics, strength and corrosion resistance. N-12 is available in 100-1500 mm (4"-60") diameters and in 6 m (20') lengths to provide faster installation and lower installation costs. The integrated inline bell design allows for easy installation and eliminates chipping and cracking that is common to concrete bells. N-12 addresses subsurface and stormwater gravity-flow drainage needs.

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