

CASE STUDY

12 Miles of Storm Drainage Pipe Integral Part of Intermodal Facility Charleston, SC

OWNER

South Carolina Ports Authority, Charleston, SC

ENGINEER

GFT Infrastructure, Inc., Charleston, SC

CONTRACTOR

Landmark Construction Company,
Charleston, SC

INSTALLATION DATE

June 2025

PRODUCTS

300' (91 m) of 4" (100 mm) N-12® AASHTO perf
8,200' (2,500 m) of 6" (150 mm) N-12 AASHTO perf
9,832' (2,996 m) of 8" (200 mm) N-12 AASHTO perf
800' (244 m) of 12" (300 mm) N-12 AASHTO solid
5,500' (1,676 m) of 15" (375 mm) N-12 AASHTO solid
500' (152 m) of 18" (450 mm) N-12 AASHTO solid
640' (195 m) of 18" (450 mm) HP Storm
1,160' (354 m) of 60" (1,500 mm) HP Storm
22 18" (450 mm) Nyloplast basin with 2'x2'
(0.6 x 0.6 m) Highway frame and grate
3,168' (966 m) of 18" (450 mm) Duraslot

DESCRIPTION

The completed Palmetto Railways Navy Base Intermodal Facility provides a near-port, dual-served rail yard on a 118-acre former Navy base. The facility handles up to 1 million rail "lifts" annually and has over 35,000' (10,668 m) of processing track, six electric gantry cranes and support infrastructure, including a dedicated port connector road.

By allowing container imports and exports to move efficiently between ship and inland markets by rail, it reduces reliance on trucks, alleviates highway congestion, lowers emissions and strengthens the Port of Charleston's competitiveness.



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ADS

To manage drainage, the project integrated extensive stormwater infrastructure, with over 12 miles of storm drainage pipelines.

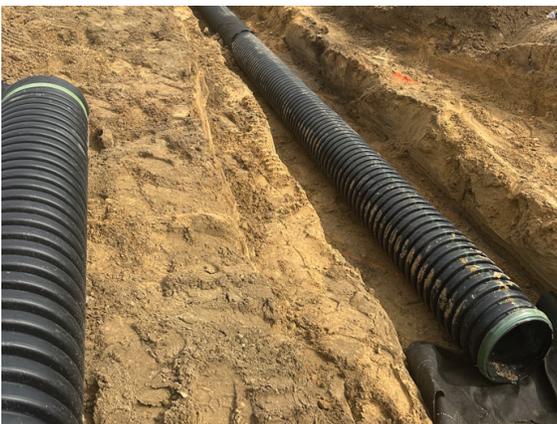
The stormwater conveyance was tailored to control surface runoff by utilizing ADS Duraslot XL Trench Drains to capture sheet flow, mitigate flooding and direct stormwater. The drainage pipe connected to the Duraslot XL was a combination of N-12 high-density polyethylene pipe and HP Storm pipe, which is manufactured using polypropylene. The storm sewer lines were tied together with Nyloplast drain basins as an alternate to typical precast concrete structures.

Duraslot XL trench drains provide superior hydraulic efficiency and flow capacity, while being engineered to handle heavy structural loads. The pipe is available in 6"-36" (150-900 mm) with 5" (125 mm) wide grates in either standard or pedestrian styles. Standard and variable slot height can be manufactured specifically for your project's needs. Duraslot is a cost-effective substitute for precast trench drains or cast-in-place trench drains with steel or cast iron grates.

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 4"-60" (100-1500 mm) diameters and in 20' (6 m) 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.

HP Storm polypropylene pipe, which is approved by American Railway Engineering and Maintenance-of-Way Association (AREMA), 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 resistant to the effects of chemicals, abrasion, hot soils and effluent.

Nyloplast drain basins and curb inlets were custom built for the project as they are for each application. Nyloplast products are more durable and corrosion resistant than precast basins and combine a rugged PVC structure with ductile iron grates. The basins can be easily adjusted in the field to meet the final grade. The structures are shipped with rubber gaskets to ensure a watertight connection.



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