

## CASE STUDY

# N-12<sup>®</sup> Conveys Stormwater from Norfolk Southern Intermodal Rutherford, PA

### OWNER

Norfolk Southern Railway Company, Atlanta, GA

### ENGINEER

Michael Baker Jr., Inc., Boon Township, PA

### CONTRACTOR

Independence Excavating, Cheswick, PA

### INSTALLATION DATE

2014

### PRODUCTS

9,720' (2,963 m) of 8" (200 mm) N-12 perf  
300' (91 m) of 12" (300 mm) N-12  
7,940' (2,420 m) of 18" (450 mm) N-12  
1,140' (348 m) of 24" (600 mm) N-12  
80' (24 m) of 30" (750 mm) N-12  
6,120' (1,865 m) of 36" (900 mm) N-12  
2,060' (628 m) of 42" (1050 mm) N-12  
2,080' (634 m) of 48" (1200 mm) N-12  
1,720' (524 m) of 60" (1500 mm) N-12

## CHALLENGE

To support the expansion of its Rutherford intermodal site, Norfolk Southern Railway needed a stormwater system that could carry stormwater runoff from the facility to the municipal storm sewer.

## SOLUTION

Norfolk Southern selected Advanced Drainage Systems' N-12 AASHTO high-density polyethylene (HDPE) pipe for the Rutherford intermodal expansion based on 2009 TTCI (now MxV Rail) research. The testing demonstrated the pipe's ability to withstand Cooper E80 live loads and burial depths up to 24' (7.3 m). N-12's proven strength allowed significant portions of the stormwater system to be installed directly beneath active railroad tracks.



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**ADS**

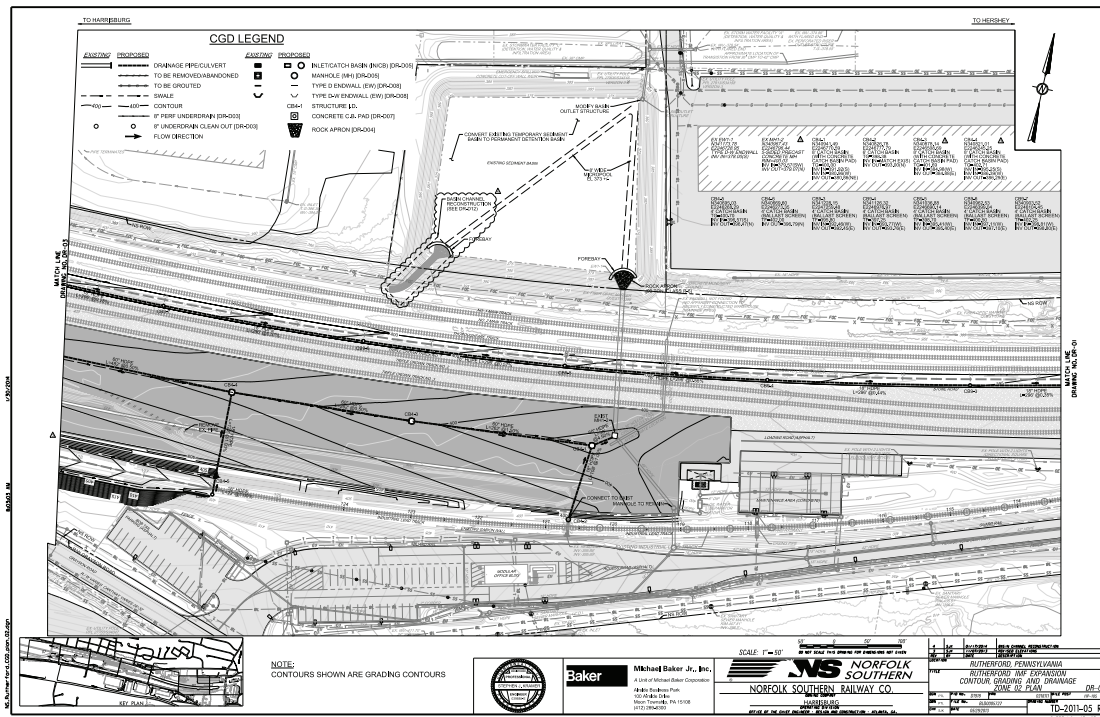
Beyond its structural capacity, N-12 pipe, which is approved by the American Railway Engineering and Maintenance-of-Way Association (AREMA), offered other advantages over traditional materials, including corrosion resistance, long-term durability and overall project value. ADS representatives provided on-site technical support and training prior to the installation.

The project utilized N-12 pipe in diameters ranging in size from 8"-60" (200-1,500 mm). The 60" (1,500 mm) pipe conveyed flow from an off-site drainage creek and meandered through the facility. The 8" (200 mm) pipe was perforated to collect and convey stormwater. To prevent infiltration into the pipe, it was wrapped in filter fabric and backfilled with washed stone. The 12"-60" (300-1,500 mm) pipe was installed using ASTM D2321 Class II sub-ballast backfill compacted to 95% SPD.

Following installation, ADS and Norfolk Southern conducted joint inspections of several large-diameter segments. All inspected sections performed as expected.

## PRODUCT DESCRIPTIONS

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.



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