

CASE STUDY



PROJECT DETAILS

Project Name:

Copper Ridge
Housing Development

Location:

Woodbury, MN

Property Owner:

D.R. Horton

General Contractor:

Northwest Asphalt

Project Engineer:

Bolton & Menk, Inc.

Product Manufacturer:

County Materials
Corporation

Date:

2017

Key Products:

Reinforced Concrete Pipe,
Precast End Sections,
Span-Arch, Precast Inlet
Box, Manhole Risers
(covers and bases)

Developers Switch to Reinforced Concrete Pipe and Reap Structural and Cost Benefits

Solutions: Reinforced Concrete Pipe installation reduced the construction schedule while offering cost and prolonged life cycle benefits.

The Twin Cities housing market exploded in 2017 with the rapid development of new neighborhoods and homes. Of seven substantial housing projects, Copper Ridge fulfilled the need for single-family homes and townhouses in suburb, Woodbury, MN. Developer D.R. Horton, the largest home construction company in the United States, designed the development to include almost 200 single-family homes and 185 townhouses, 69 of which are free standing detached units. In addition to several housing options, the neighborhood offers a park filled with walking trails and sports facilities.

Construction of Copper Ridge began with the installation of sanitary and storm water infrastructure. Originally, both polypropylene pipe and reinforced concrete pipe were specified in the project's design and left to the discretion of project contractor, Northwest Asphalt of Shakopee, MN. The project plan called for nearly 12,500 lineal feet of pipe of varying diameters from 12 inches to 60 inches and additional flared end sections and manhole systems. Northwest Asphalt planned to install over 10,000 lineal feet of polypropylene pipe and the remaining 2,500 lineal feet with reinforced concrete pipe.

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As Northwest Asphalt analyzed the design with cost savings in mind, they reconsidered their material preference prior to installation. In their meetings with the concrete pipe manufacturer, County Materials, Northwest Asphalt learned there are substantial installation and performance differences between polypropylene pipe and reinforced concrete pipe. The project specifications required mandrel testing on all polypropylene pipe after installation because of flexible pipe's tendency to flex under pressure. If the internal diameter of the pipe were to be reduced by more than 5 percent, the pipe would have to be replaced. Northwest Asphalt realized field testing would create additional work and could be disastrous to project timelines and their own bottom line if even one plastic pipe needed to be replaced. With these considerations in mind, Northwest Asphalt decided to use reinforced concrete pipe for the entire project.

Components used in underground storm water management systems require testing and assurance practices to ensure the material will last and meet expectations over a prolonged period of time. ASTM standards for reinforced concrete pipe require factory testing to verify strength and consolidation. Unlike polypropylene, concrete is ridged and does not bend under pressure, making it the preferred choice of contractors.

As Northwest Asphalt had discovered, reinforced concrete pipe is tested prior to delivery, ensuring only quality ready-to-install pipe arrives on site. Once installed, concrete pipe serves an extended service life of 70-100 years with minimal maintenance, further reducing life cycle costs. County Materials' Reinforced Concrete Pipe is built to last and meet the specifications of any job.



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