Neither Rain, nor Sleet, nor Snow...

Impedes the Use of Precast Concrete Pipe

By Douglas J. Trangsrud,
VP - Engineering
Royal Concrete Pipe, Inc.
Stacy, Minnesota
651-462-2130

When the cold weather and snow of December arrives in Minnesota, thoughts of playing hockey on a frozen pond, skiing and sliding down hills of fluffy powder come to mind. Usually, those chilly thoughts do not include the placement of reinforced concrete pipe (RCP). Contrary to popular belief, the concrete pipe industry does business year-round – and that is true, even in the 'frozen tundra' of the Twin Cities.

The Twin Cities metropolitan area (Minneapolis-St. Paul and surrounding suburbs) has experienced tremendous growth in the last 20 years. To handle this expansion, the Metropolitan Council – Environmental Services (MCES) has been designing and expanding the sanitary sewer system throughout the outlying areas. Woodbury, a large southeast metro suburb, has been one of the fastest growing communities during the 1990s.

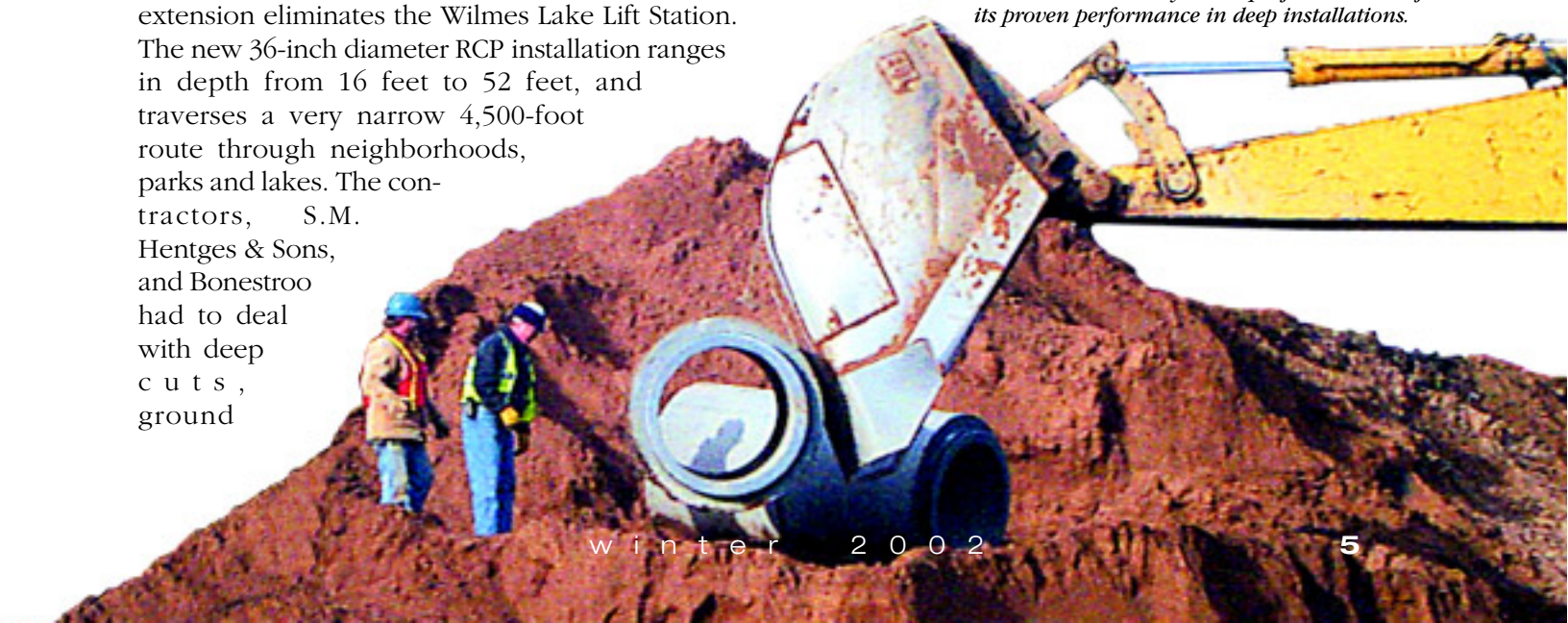
Following the vision of the MCES, the City of Woodbury has developed a plan to expand its sanitary trunk system to tie in with future expansion. The sanitary sewer system, known as the Wilmes Lake to Park Crossing project, would convey effluent to a proposed treatment facility in Cottage Grove, Minn., to the south.

Bonestroo Rosene Anderlik & Associates (Woodbury's consulting engineer firm) developed a tie-in for the Wilmes Lake trunk to an existing 36-inch diameter RCP sanitary stub that services the northeast sector of Woodbury. The new trunk extension eliminates the Wilmes Lake Lift Station. The new 36-inch diameter RCP installation ranges in depth from 16 feet to 52 feet, and traverses a very narrow 4,500-foot route through neighborhoods, parks and lakes. The contractors, S.M. Hentges & Sons, and Bonestroo had to deal with deep cuts, ground water, community concerns of the work being done in an environmentally sensitive area, and cold weather – and it all had to be done in a timely manner.

The 36-inch diameter pipe designed to handle the loads caused by the deep installation of this project consisted of Class V, 4000D and 5000D RCP. As with metro sanitary projects the MCES and Bonestroo required that the pipe pass a 100-gallon/mile/in.-diameter infiltration test in the field. Reinforced concrete pipe was selected for the project because of its proven performance in deep installations and inherent strength.

Royal Concrete Pipe, Inc., Stacy, Minnesota, manufactured the reinforced concrete pipe for this project according to ASTM and MNDOT standards, as well as project specifications. It was produced in a new Shlusselbauer Exact 2500 production plant, with a Transexact robotic system. The new plant produces pipe up to 60 inches in diameter. The joint used by Royal is the offset or step joint. Royal vacuum tested and laser stenciled the pipe on the Shlusselbauer machine, and coated the bells and spigots with epoxy ester as the pipe left the production area. The epoxy ester coating on the bells and spigots of the pipe is a specification of Bonestroo and Metro Council (not a design parameter of Royal) that may provide a more uni-

Reinforced concrete pipe was selected for the Wilmes Lake sanitary sewer project because of its proven performance in deep installations.



form mating surface for the gaskets. To assure watertightness, the joints for pipe and manholes are gasketed with the Hamilton Kent's Tylox® SuperSeal™ gaskets. The manholes are fitted with Press Seal flexible manhole to pipe connectors.

S.M. Hentges, one of the largest dirt/utility contractors in the upper Midwest, is using a two-backhoe system to place the RCP in this deep, and narrow cut through Woodbury. S.M. Hentges is no stranger to deep sanitary lines. Two years ago they placed a reinforced concrete pipe sanitary line that was 72 feet deep. The completion date for this project is the middle of February 2002.

The Woodbury trunk extension is a small part of a larger picture in the scheme of the southeast metro sanitary sewer development. The MCES is examining the prospect of a new trunkline and associated tie-ins to a new sewage treatment facility in Cottage Grove. According to the engineers, this preliminary concept includes seven miles of new trunkline that averages 54-inch diameter pipe.

Concrete pipe is an excellent choice for communities who are upgrading or expanding their infrastructure because it has a known return on investment. The concrete pipe industry has a legacy of supplying products for a dependable infrastructure, and is now building the nation's future on the strength of new products and manufacturing technology. RCP is a product that can be used in any environment, including the northern regions of the United States and Canada. You might say; "Neither rain, nor sleet, nor snow shall impede the progress of development using reinforced concrete pipe." And you thought the Postal Service was the only industry that worked through harsh conditions!

Royal's new Shlusselbauer Exact 2500 production plant produced the 36-inch diameter RCP used for the Wilmes Lake Sanitary Sewer Trunk deep installation project.

Project:	Wilmes Lake to Park Crossing Trunk Sanitary Sewer Improvements – 2001
Owner:	City of Woodbury Woodbury, Minnesota David Jessup, Public Works Director
Designer:	Bonestroo Rosene Anderlik & Associates St. Paul, Minnesota Thomas A. Syfko, P.E., Project Engineer
Contractor:	S.M. Hentges & Sons Jordan, Minnesota Steve Hentges, Owner Gary Zajac, Project Manager
Quantities:	764 feet – 36-inch diameter Class V RCP 2854 feet – 36-inch diameter 4000D RCP 516 feet – 36-inch 5000D RCP
Producer:	Royal Concrete Pipe, Inc. Stacy, Minnesota Jim Swanson, Vice President & General Manager Jerry Swanson, P.E., Vice President – Sales

Royal Concrete Pipe, Inc., a long-time member of the American Concrete Pipe Association has been manufacturing and supplying reinforced concrete pipe, precast manholes, precast box culverts, stormwater treatment systems and other utility products for the Twin Cities metropolitan and statewide areas since 1990. The company is associated with two additional companies, Royal Environmental Systems and Royal Erosion Control Systems. Royal Environmental offers an extensive line of manhole infrastructure products, while Royal Erosion offers articulated concrete block revetment systems used to resist erosive water forces. For more information about Royal Concrete Pipe and related companies, visit www.royalenterprises.net.