

# BANNER

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**A**s we worked our way through the tall grass a white tail doe spotted us and ran towards her two young fawns. This was the same location where earlier in the year we had seen several families of Canada geese swimming in one of the many ponds in the area. The doe kept watch for a brief moment then quickly disappeared into the foliage along with her two fawns. As we continued walking



through the park, we saw an elderly gentleman fishing on one of the larger ponds. He said he was new to Brookings and was out looking for places to fish. As we talked, a large blue heron flew overhead and landed on the other side of the pond. Even though we were in a city park we knew we were in a special place.

Brookings Southbrook Nature Park is located on a former city landfill site on the southern edge of the city limits. Many of the ponds on site were created from the mining operation to provide fill for the landfill. Currently, the South Dakota Department of Game, Fish and Parks monitors and stocks the ponds with rainbow trout, crappies and other game fish. The ponds are open to fishing with emphasis on youth fishing and catch-and-release.

Big Muddy Workshop, a landscape architectural design firm from Omaha, Nebraska along with Banner Associates completed a master plan for the 160 acre site. The master plan for the park includes improvements for fishing including accessible

floating fishing piers, walking and biking trails, mountain bike skills area and trail, a nature center building for outdoor education, prairie restoration to increase biologic diversity, and numerous other park amenities. Last year, the City of Brookings received a federal grant through the South Dakota Department of Game, Fish and Parks to make capital improvements for improving the fishing access to the existing (cont'd on pg 2)

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# Sioux Falls Transit Facility Improvements



The Sioux Falls Transit Facility is the operations center for Sioux Area Metro. It includes areas for vehicle storage, fueling and maintenance along with dispatch, administration and a drivers' lounge. The facility was constructed in 1982 and expanded in 2001. Some of the original materials were in need of repair or replacement and upgrades were necessary in the driveway paving to handle the heavy daily usage. The availability of Recovery money (ARRA) to fund the project prompted the City to address some of those needs. Banner,

along with its consultant Associated Consulting Engineers, Inc., provided design services which helped to make the improvements a reality.

Civil engineering services were provided to design stronger access driveways. Growing bus traffic has accelerated deterioration of the original pavement. A major portion of the work included converting an asphalt street with a concrete drive. Curb and gutter, parking lot approaches and the pavement were replaced. Excavation for the base uncovered bedrock close to the surface which was removed to provide a uniform base for the paving.

The windows in the office areas of the building were showing deterioration and the lintels above the windows were rusting. The windows were replaced and masonry was removed from around the steel lintels. The lintels were reinforced, as necessary, and after coating with a galvanizing paint, flashing was installed and the masonry reset.

Another significant area of building work was the addition of a rolling door at the main vehicle entrance. The existing folding doors were too cumbersome to operate the over 80 times a day the opening is used. The rolling door provides for better energy efficiency and eliminates drafts through the building. Replacement of inefficient unit heaters in the storage bays provided additional energy savings. Electrical upgrades will expedite future repairs and provide for a more immediate response to power outages were included as well.



**Brookings Southbrook Nature Park**  
(cont'd from pg 1)

ponds inside the Nature Park. The grant will be used for building accessible trails around the ponds and accessible fishing piers.

Recently, the construction documents for the fishing improvements and planning and the surveying of other portions of the overall project have been started. The goal for the City of Brookings is to have the Nature Park fully completed by the end of 2013.

## Pipestone WWTF Expansion

The Minnesota Pollution Control Agency (MPCA) imposed a sanitary sewer extension moratorium on the City of Pipestone until either the hydraulic load was reduced to the capacity of the existing four-cell stabilization pond system, or additional storage capacity was constructed. To date, the City had taken an aggressive approach to correct inflow and infiltration problems by replacing leaking sanitary sewer mains and manholes. Average sanitary sewer flows were on the decline, however not to the extent necessary to address the hydraulic over-load to the WWTF.



Upon receiving notice, the City advanced efforts to acquire land for the expansion culminating with the purchase of 77.2 acres of land southeast of the current facility in June of 2009. Concurrent with the land purchase, funding assistance was pursued which resulted in the use of a grant and loan from the Public Facilities Authority.

The resulting design consists of two 25-acre facultative lagoon cells, extension of the existing forcemain, 4 new control structures, and related modifications. The flows from the main lift station on the west side of the city will be directed to either of two influent structures via a new valve vault on the forcemain. The six cell design offers greater operational flexibility.

The onsite clay soils were suitable for an 18" clay liner and required over 400,000 cubic yards of earth to be moved. Additional work items



included; gravity discharge piping and structures, perimeter drain tile, pond rip-rap protection, gravel surfacing and safety fencing in addition to those listed earlier. The existing control structures had modifications including knife gate valves installed for redundancy in the discharge structures, new valves, and new aluminum slide gates. The expansion is currently under construction and scheduled for substantial completion in November 2011.



## Vermillion Main Wastewater Pump Station

As part of ongoing infrastructure improvements, the City of Vermillion replaced their 50 year old main wastewater pump station with a new pump station and added capacity and redundancy with a new parallel force main. The new wetwell/drywell station was constructed adjacent to the current station on the east bank of the Vermillion River at a cost of 1.5 million dollars.

The design of the new pump station includes; influent grinding, self-cleaning trench type wetwell, four VFD driven wetwell/drywell pumps, pump maintenance area, 250 KW emergency power generation, a fiber optic connection to the plant SCADA, room for two future equalization pumps and land area for a future wastewater equalization pond. With the current pumps the station achieves a firm pumping capacity of 4.5 MGD. The station is designed to allow expansion to 5.8 MGD.

Construction of the new facilities began the spring of 2009 and went online the summer of 2010. Since that time, the City has performed multiple successful cleaning operations that have kept the wetwell free of grit and debris.



## L&C Tea Reservoirs & Pump Station



Work started on the Tea Reservoirs in the fall of 2009. The project experienced a setback in 2010 when straight-line winds destroyed scaffolding that were erected to aid in roof construction for the reservoirs. Natgun was able to quickly replace the scaffolding and resume reservoir construction by late August 2010. At the present time, Natgun is filling and disinfecting the reservoirs.

The Tea Reservoirs and Pump Station are located at a critical juncture of Lewis & Clark's pipeline system. Water is pumped through 49.2 miles of 54" diameter steel pipeline from its Water Treatment facility north of Vermillion to the Tea Reservoirs. Two 36" diameter pipelines exit the Tea site - one line extends eastward and one pipeline extends to the north to serve Lewis & Clark member systems. The volume of water to be pumped to the north and east lines is approximately equal. The design calls for the pumping head to be the same to both lines.



The Tea Pump Station is located between the two reservoirs, on the site. Work on the Tea Pump Station started in May 2010. The

construction contractor is Eriksen Construction Company of Blair, Nebraska. The Tea Pump Station includes eight 350 horsepower vertical turbine pumps each capable of pumping 4,700 gpm, associated piping, valving, controls, chemical feed equipment, surge tank, with dedicated electrical VFD and switchgear equipment. This design permits delivery of up to 36 million gallons per day with five pumps operating. Currently, Eriksen is 80% complete with this \$8,480,000 project.



Banner's lead Project Engineer during the design and construction phases of both projects was David LaFrance. Construction engineering and administrative functions are being performed by David LaFrance, Chad Bachman and Joe Munson.

**The Lewis & Clark Regional Water System** is a massive undertaking that involves several key components to supply, treat, convey, store and pump water to its member systems. One of the key components is the Tea Reservoirs and Pump Station located on approximately 14 acres about a mile north and west of Tea, South Dakota.

Two pre-stressed concrete ground storage reservoirs are located on the site, each with a capacity of 7.5 million gallons. Each reservoir is approximately 65 feet in height (finish grade to top of the dome) and has an inside diameter of 164 feet. The construction contractor is Natgun Corporation who is 97% complete with the project. Natgun's contract also included installation of approximately 2,000 feet of 54- and 36-inch diameter steel piping including several concrete vaults and other related structures. The total construction contract is \$9,544,000.

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Bidding documents available at [www.bannerassociates.com](http://www.bannerassociates.com)

## Lewis & Clark RWS Update

**C**onstruction is in full swing for several Lewis & Clark projects as completion dates near. Lewis & Clark's goal is to begin delivering water to the first of its member systems by the summer of 2012.

Construction of the massive Phase 2 Water Treatment Plant project continues to make good progress. Work during summer 2011 has concentrated on concrete work for the main plant features, interior and yard piping, electrical, HVAC and equipment installation. Recently, Foley Company started construction on the administrative and maintenance areas and the sludge thickener.

The contractor for the 85th Street Water Tower, Landmark Structures, welded the bottom cone section and side walls for the 3 million gallon reservoir on the ground. The contractor hoisted the reservoir into place at the top of the pedestal in September. Construction is also well underway for the two 7.5 million gallons reservoirs at Tea and the Tea Pump Station (see related story).

Work is also progressing on several pipeline projects. Nitteberg Construction completed installation, pressure testing and disinfection of the 5-mile, 6" PVC Centerville line and the 13.8-mile, 10" PVC Parker line. Morgan Contracting completed installation of all 5 miles of 24" and 30" steel pipe on the Treated Water Pipeline Segment 10 (TWP-10) project near Sioux Falls. Morgan also installed the 8.4-mile, 24" diameter steel Minnesota TWP-1 pipeline. S.J. Louis completed installation and pressure testing of the 5-mile, 24" steel pipe on the TWP-11 project near Beresford. Judds Bros. Construction started initial activities and planning for the Pipeline Commissioning project. This project involves testing, flushing, disinfection and readying the treated water pipeline system for operation - some of this pipe was installed as early as 2005.

Welfl Construction completed installation of pumps, generators and related equipment to allow water to be pumped from six existing vertical and angle wells. They also completed drilling five new vertical wells and are constructing new pump buildings and vaults, piping and electrical equipment at Lewis & Clark well area south of Vermillion, South Dakota.

Hoogendoorn Construction is in various stages of two contracts: Meter Buildings Package 1 (meter building/pump stations for Centerville, Lennox, South Lincoln RWS and MCWC west) and Meter Buildings Package 2 (Beresford, Parker and Sioux Falls North). Three of the pre-fabricated meter buildings for Package 1 have been set on their foundations.

