PROJECT AWARDS

ACEC 2013 National Recognition Award

ACEC Indiana 2013 Honor Award Winner, Waste and Stormwater

Indiana Chapter of the American Concrete Institute 2012 Outstanding Achievement in Concrete, Project of the Year

Indianapolis Chamber of Commerce Monumental Affair 2012 Honor Award, **Community Development**

Indiana Water Environment Association, Collections Systems Committee 2012 Large Facility Award

Associated Builders and Contractors of Indiana 2011 Judges' Special Award, **Public Works Environmental**

ACEC Indiana 2010 Honor Award Winner, Advanced Facility Plan

al **INNOVATIVE SOLUTIONS** sustaining communities



BELMONT NORTH RELIEF INTERCEPTOR Indianapolis, Indiana



Clark)ietz

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Clark Dietz Engineering Quality of Life"



Lift Station 164

OWNER **Citizens Energy Group**

LEAD DESIGN FIRM Clark Dietz, Inc.



CLARK DIETZ PARTNERS WITH CITIZENS ENERGY TO SOLVE LARGE SCALE SSO PROBLEM

The City of Indianapolis was experiencing major problems with the existing Crooked Creek Interceptor sewer. It was no longer adequate to safely serve a growing population of more than 75,000 in Wayne, Pike, and Washington Townships. During wet weather conditions, the sewer exceeded its capacity causing sanitary sewer overflows (SSOs), which presented health hazards to residents and degraded water quality in surrounding waterways. In addition, over 2,000 homes in the area were being served by failing septic systems and were in urgent need of sewering.

The City's initial plan to alleviate the SSOs suggested a gravity relief sewer that followed the valley of Crooked Creek, where the existing interceptor is located. This route would have resulted in the loss of significant portions of the creek's riparian vegetation and would have negatively impacted many adjacent homes. The gravity sewer option would also require running the relief sewer through three city-owned golf courses, causing them to close for approximately two years during construction, resulting in lost revenue and significant restoration costs.



COLLABORATION ENSURES SUCCESS

We understand the importance and benefit of collaborating with other industry professionals. By forming a partnership with Citizens Energy Group, 10 specialty consulting firms, and multiple city departments, we were able to ensure the most beneficial design solution for key stakeholders.

Our collaboration began during the conceptual design stage with a Value Engineering Workshop to investigate design alternatives. After considering numerous options, Clark Dietz recommended an innovative Advanced Facility Plan that incorporated both a lift station and a force main component in lieu of the originally proposed large diameter, deep gravity sewer.

Value Engineering Results in \$50 Million Savings

As a result of the Value Engineering process, we were able to overcome the social, economic, and environmental challenges presented. The efficiency of the design saved \$50 million in project costs, reduced the impact on the golf courses, and preserved the riparian vegetation along Crooked Creek.

Key Design Features

- Trenchless construction in select areas allowed commerce and traffic to continue normally
- A dipping tube surge vessel, new technology in the US, protects the system from hydraulic transients
- Redundant odor control minimizes impact to adjacent parks and residential areas
- Citywide SCADA system provides remote monitoring and operation
- Lift station building incorporates a new, attractive community center and playground

A Unique Design: Constructed in Four Phases

Due to its magnitude, complexity, and the unique combination of design techniques used, the Belmont North Relief Interceptor was constructed in four phases.



5,900 feet of 72-inch tunneled gravity sewer



,000 feet of 48-inch open cut gravity sewer plus a vortex drop unit



28,400 feet of 42-inch PCCP



38 MGD lift station in Juan Solomon Park with community room and playground

SUSTAINABLE "GREEN" FEATURES

- Pervious concrete
- Porous unit pavers
- Rain gardens
- "Green" vegetative roof
- Recycled materials
- Energy efficiencies
- Natural stone exterior

NEW COMMUNITY SPACE

Since the new lift station is located in Juan Solomon Park, special consideration was given to make the lift station an amenity to the public. The city park was transformed into a vibrant community space by incorporating a community room within the building, adding new playground equipment, and performing extensive landscaping.



The 38 MGD lift station pumps into a five mile long, 42" diameter force main, conveying wastewater from higher to lower elevations to its outlet at a 35' high receiving standpipe, needed to maintain consistent back pressure and prevent the force main from draining.

exceeding expectations

"My wastewater operations group was very impressed that we did not have any (zero) overflows upstream of the new lift station and relief sewer from Juan Solomon Park (Belmont North Relief Sewer Project) this past weekend. Historically a 3" rain event would have resulted in numerous overflows in the area. This is further pleasing given the new STEP projects that have also been added to the system in the area."

- Jamie Dillard - Director, Wastewater Operations, Citizens Energy Group



