

RCP Drains Provide Immediate Health, Safety and Economic Benefits

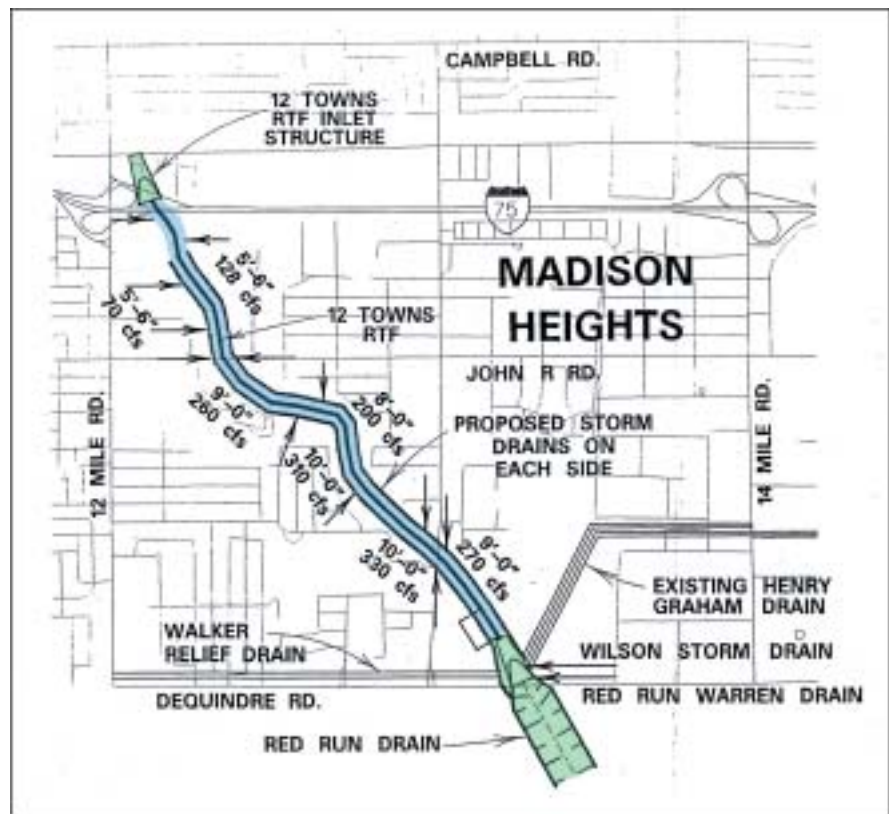
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Lake St. Clair's Metropolitan Beach in Macomb County Michigan was closed most of the summer in 1994 due to persistent readings of high levels of Escherichia Coliform (E. Coli). Although the cause of the E. Coli was not conclusively identified, it had been alleged that some of this pollution could be attributed to Combined Sewer Overflow (CSO) coming from the Red Run Drain.

The Federal Clean Water Act of 1977 mandates that all discharges of pollutants into the waters of the United States must be authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The South-eastern Oakland County Sewer District System (SOCSDS) Twelve Towns Retention/Treatment Facility (RTF), was originally authorized to discharge treated combined sewer overflows (CSOs) into the Red Run Drain, a tributary of the Clinton River that flows to Lake St. Clair, an international waterway. This 2.2 mile-long RTF was one of the first CSO control projects constructed in the U.S.A. When completed in 1973, it was considered state-of-the-art.

Time, however, revealed many deficiencies. While the storage volume of the facility approaches the standards now accepted by the Michigan Department of Environmental Quality (MDEQ), the configuration was insufficient to protect the environment. Rainfall events that exceed 1/2" to 3/4" inches in depth can gener-

ate large overflow volumes. Due to the mixing of sanitary and storm water, this discharge is inevitably contaminated with human, commercial and industrial wastes. The CSOs that are discharged from the Twelve Towns RTF were thought to have contributed to the high levels of E. Coli found at Metropolitan Beach.



Political pressure to address these deficiencies led to a solution known as the George W. Kuhn Drainage Improvement Projects. Through the cooperative effort between the Oakland County Drain Commissioner and the 14 communities that now make up the George W. Kuhn Drainage District, a mutually agreeable program was developed to upgrade the

RTF to improve the water quality of the Clinton River and Lake St. Clair.

Contract One of the new drainage improvement project dealt specifically with removing and rerouting storm water inflow from the Twelve Towns RTF, thus reducing the frequency of overflow of sewage to the Red Run Drain. The new reinforced concrete pipe (RCP) system was designed to intercept existing combined flows from a 60-inch and 72-inch line that previously discharged directly into the retention treatment facility without benefit of pre-treatment. The system rerouted flow to a point upstream for future connection to the treatment facility proposed as a part of Contract Four.

Construction of Contract One, started in October of 2000 and was completed in July of 2002. The project consisted of the installation of two new storm drains that run parallel to the RTF. These two parallel drains are known as the North Drain and South Drain. Construction of the North Drain included installation of approximately 9,600 linear feet of main line ranging in size from 78-inch to 126-inch diameter RCP. Construction of the South Drain included approximately 8,100 linear feet ranging in size from 66-inch to 126-inch diameter RCP.

Numerous impediments were encountered during construction of the new drains. Additional time and energy was spent snaking the

pipe around utilities so that services were not disrupted. To limit impact on local traffic, construction through the road crossings was performed during weekends.

Coordination of construction activities was crucial around a recreation facility known as the Red Oaks Wave Pool. While the North Drain followed the property line of the wave pool complex, the South Drain went directly through the facility's parking lots. Work on this portion of the project was completed during

Two new parallel drain lines included Class IV RCP from 66-inch to 126-inch diameter.



The North Drain and South Drain followed the property line of a popular water theme park. Spoils from the project were used to renovate the Red Oaks Golf Course.

fall and winter to ensure the opening of the complex in the spring.

Due to lack of space, and fear of damaging the existing RTF, soils from the excavation of the new storm lines could not be placed on or near the RTF. A solution to the temporary storage and disposal of excavated soils was found at the Red Oaks Golf Course where construction was to proceed through the facility. When the newly restored Red Oaks Golf

Course opens in the spring of 2004, golfers will face a new and more challenging course constructed with the spoils of the Kuhn Drainage Improvement Projects. Public concern arose, however, over the soils that were being excavated since a portion of the golf course covered an area that was once used as a landfill and incinerator. In conjunction with the MDEQ, the Oakland County Drain Office, held numerous public meetings informing and educating the public on the monitoring and dust suppression programs which were in use during this portion of the project.

Forty-two major storm drains were disconnected from the RTF and reconnected to the North and South Drains. Storms and flooding of the construction site were a major concern for the contractor, so a warning system was established that sounded an alarm when rainstorms were approaching. This allowed time to get people out of the RTF before the storm.

The George W. Kuhn Drainage Improvement Projects provide immediate local health, safety, and economic benefits. Additional contracts for the Twelve Towns Retention/Treatment Facility will contribute to healthier boundary waters between the United States and Canada.

The precast concrete pipe was supplied by the Premarc Corporation. Nowak & Fraus was contracted to prepare the engineering plans and specifications for Contract One of the 5 contracts. Hubbell, Roth & Clark, Inc. and NTH Consultants, Ltd., were subcontracted to complete the plans and specifications. Ric-Man Construction, Inc., was awarded the contract for the Contract One. Jerry Matthews of Natural Course Design was contracted for the golf course improvements.

Improvements to the Twelve Towns RTF included 15 projects under 5 separate contracts. All of the projects were incorporated into the facility's NPDES permit. The estimated project cost for these 15 projects is nearly \$144 million. ☺

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Project:	George W. Kuhn Drainage Improvement Projects Macomb County, Michigan
Owner:	The Southeastern Oakland County Sewer District System
Consulting Engineer: (specifications)	Nowak & Fraus Royal Oak, Michigan
Engineering Subconsultants: (plans and specifications)	Hubbell, Roth & Clark, Inc. Bloomfield Hills, Michigan NTH Consultants, Ltd. Farmington Hills, Michigan
Contractor:	Ric-Man Construction, Inc., Sterling Heights, Michigan
Quantities:	9,600 feet of 78-inch to 126-inch diameter Class IV RCP (North Drain) 8,100 feet of 66-inch to 126-inch diameter Class IV RCP (South Drain)
Producer:	Premarc Corporation Durand, Michigan

The Premarc Corporation is a leading manufacturer of concrete products for the construction industry. Founded in 1927 in Durand, Michigan by the Marsh family, the company operated primarily in the Flint and Lansing area. In the past 15 years, it has expanded its sales territory with facilities in Cadillac, Traverse City, Grand Rapids, and Clarkston. Premarc's delivery fleet supplies the entire lower peninsula of Michigan and extends into Indiana. Premarc's manufactured product line includes all shapes and sizes of precast reinforced concrete sanitary and storm sewer pipes, manholes, catch basins, wet wells, and pump stations. For more information, see www.premarc.com.