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ADVANCED RESEARCH FOR POLLUTION CONTROL

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COST EFFECTIVE WASTEWATER COLLECTION AND TREATMENT COMBINED FOR SMALL COMMUNITY POLLUTION PROBLEMS



Cromaglass Corporation and *Myers Wastewater Pump Systems* have cooperated on design and supply of a total sewerage system that will utilize both firm's technical capabilities for collection and treatment of wastewater where topographical and environmental conditions make large municipal type wastewater treatment facilities not feasible.

CANE GARDEN BAY

The *Cromaglass* and *Myers* alternative provides a solution for wastewater management problems in small communities such as Cane Garden Bay in the beautiful British Virgin Islands.

Installation has been made where a pollution free environment is critical to the businesses and livelihood of the area's population.

Over many years several hotels, restaurants, and residential housing structures utilized septic tank/drain-fields for sewage disposal. However, in the peak tourist season of February 1997 beachgoers and tourists were diverted to other beaches due to high bacterial count of the naturally pristine blue waters of the Bay off the Caribbean Sea.

To provide a response for this sanitary and health compromising situation a Washington, D.C./ British Virgin Islands based company, Caribbean Basin Enterprises, combined the expertise of *Cromaglass* and Joe Poster of American Pump Systems, Inc., *Myers* pump distributor, for the processes necessary to complete the collection and treatment programs.

Projects of this type have three main components – the collection equipment, the pump stations, and the wastewater treatment equipment. Overall the plan for this small community wastewater collection and treatment program was to initially calculate necessary grade levels to enable best possible placement of the wastewater collection lines and pump stations which is determined by high groundwater conditions found

along a flat expanse of beach area surrounded by suddenly rising hills and mountains.

Engineering personnel from *Cromaglass, Myers*, and the contractor determined on site grade readings and this information was communicated to the *Myers Pump Company* offices where a complex computerized program permitted fast design for the collection and pumping system.

A special feature of this Virgin Islands project was the speed with which the design, equipment delivery, and installation was accomplished.

Time limits were mandatory due to the seasonal conditions for peak tourist arrivals. Accordingly, the British Virgin Islands government issued the contract fixing March 31, 1998 as the completion date.

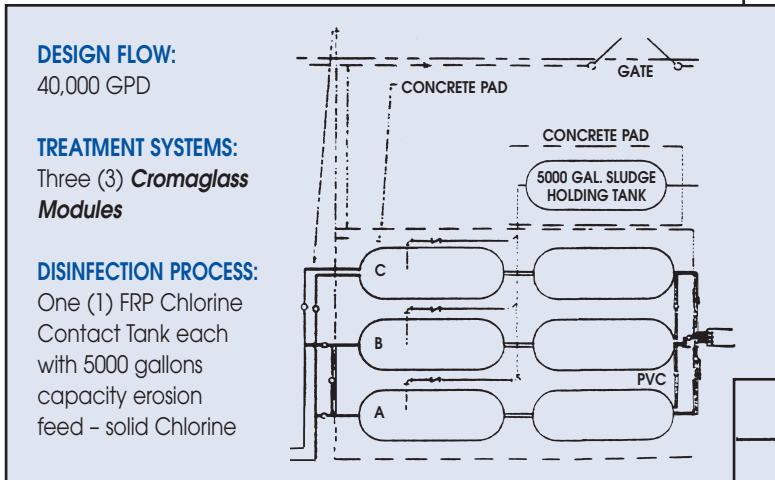
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CANE GARDEN BAY

Continued from Page 1

Site preparations were initiated with excavation and pouring of concrete base pads on which the **Cromaglass** Batch Treat Tanks would be located.



The **Myers** wastewater collection system, as supplied by American Pump Systems, Inc., is a low pressure collection process including gravity sewer lines from the buildings to each of 34 fiberglass pump stations. From here, 3" force mains transport wastewater to a splitter box located in front of the **Cromaglass** treatment modules, which divides the wastewater flow evenly among the three 15,000 gallons per day treatment modules.

Next step was to transport tanks from port to the limited access beach area and the placement of tanks on location.

Stainless steel tiedowns are utilized to secure the systems to the concrete pads to eliminate potential flotation problems. All electrical connections are made between the control panels and the junction box. Internal system wiring is pre-installed at the factory. When the fiberglass tanks have been stabilized onto the base, connections between the tank sections are made with PVC piping - 6" size for the bottom of the tanks and 2" at the top which are used for water flow between tanks. Finally, backfilling of the tanks is made utilizing select local materials.

Since the **Cromaglass** treatment systems, by government choice, are located on public school property it was a pre-requisite that there be no distracting noise or offensive odors.

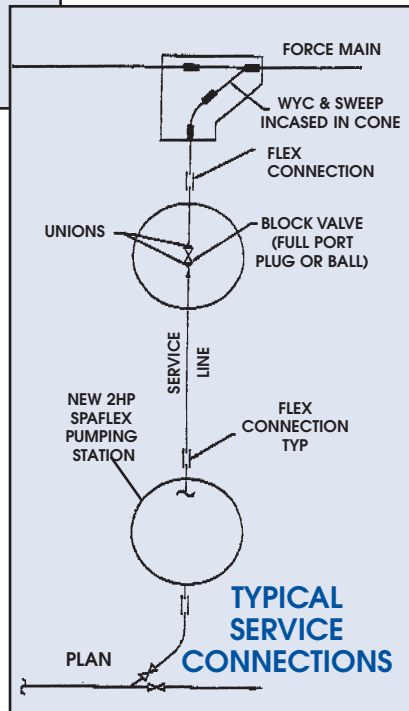
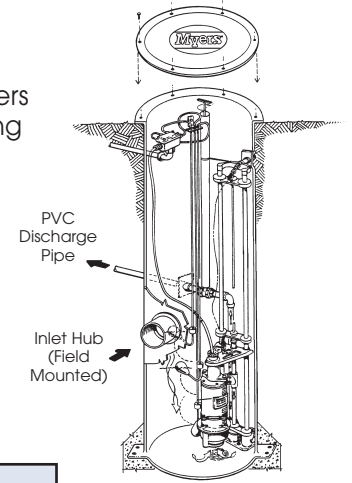


Wastewater treatment system located on public school grounds.

Delivery of fiberglass module to site.

PUMP STATION

As a result of a cooperative effort between manufacturers of wastewater handling and treatment componentry and a well established contractor, this small community has obtained a cost effective, environmentally proven system for pollution abatement.



Treated wastewater effluent from **Cromaglass** systems can be pumped through a filter system and disinfection componentry to provide recycle or reuse capability and quality.

For the Cane Garden Bay project local authorities have the option of recycling the treated water for irrigation in the area; distribution for reuse on neighboring community properties; or outfall to the adjacent Caribbean Sea.

CROMAGLASS WASTEWATER PROCESS SYSTEMS SPECIFIED FOR FLORIDA COMMERCIAL PROPERTIES

Being located outside of municipal sewage facilities in the State of Florida did not prevent commercial enterprises from meeting regulations for sewage disposal. Properties such as convenience markets and Interstate highway service plazas have found their solutions with consulting engineers specifying **Cromaglass Batch Treat Systems**.

Their decisions were based upon the proven technology in SBR units where fluctuating hydraulic and biological loading can be controlled to provide effluent qualities to meet necessary disposal or reuse standards.

SPEEDWAY SERVICE CENTER

Interstate 75 is a main transport artery through Florida leading to both West and East coasts – thus car and truck traffic are heavy requiring a major refueling and service hub. *Speedway* and *Hardees* combined near Ocala for a major center which found wastewater treatment a serious concern.



As a result their engineers, working closely with Gerber Pumps, Inc., utilized **Cromaglass Batch Treat Systems** as the major component in their wastewater management program. Following biological treatment and disinfection, effluent is pumped for state approved drip irrigation on a fenced grass field bordering the truck parking area.



HANDY WAY

Convenience stores often find their best locations outside of cities with available sewerage facilities where wastewater is collected and treated by the millions of gallons. But, what can be done when the only options are septic tanks that won't work due to poor soils and high water table?

Handy Way headquartered in Crescent City, FL found their solution with Gerber Pumps, Inc. of Winter Park. A longtime **Cromaglass** representative, Bert Gerber, helped design a system similar to those he had provided for State Parks, hotels, and other different type properties.

Sizing on this type of use was important – thus a 3,000 gpd batch process unit was chosen. The system operator is a Mr. R. White and the effluent disposal system is by sub-surface drainage using Infiltrators.



NEW MEXICO STATE PARK SELECTS CROMAGLASS

Caballo State Park chooses a **Cromaglass CA-60 Wastewater Treatment System** with denitrification and a 1,300 gpd Sludge Processing System for its Riverside Campground.

The system was chosen because of its ability to produce a high quality effluent with low nitrates.

Site location is in close proximity to the campground so noise and odor were considered by Earl Backenstow, Engineer for the New Mexico Parks and Recreation Division and Phil McClelland, Park Manager.

Caballo State Park borders the Rio Grande River in South Central New Mexico and Caballo Lake is a reservoir behind an earthen dam with Riverside Campground below the dam.

Influent from the campground is sent to the system via a lift station. Normal effluent discharge is to a subsurface drainfield and valving is set up to divert some of the discharge for irrigation.

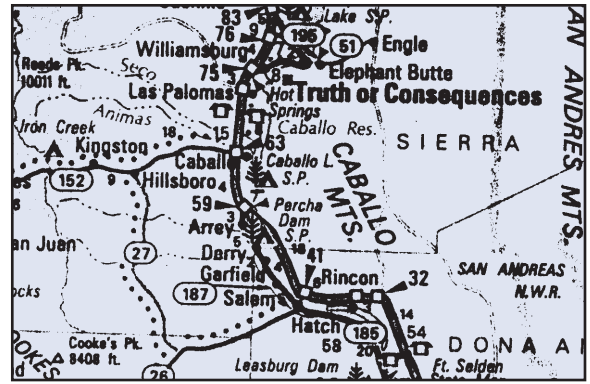


Excess sludge can be diverted to the Sludge Processing System for further aeration.

Decanted sludge can then be diverted either to a holding tank for eventual hauling or returned to the comminution chamber of the CA-60 for normal processing.

This feature gives park maintenance the much needed flexibility for sewage handling and processing for the heavy load influx during long holiday periods.

Cromaglass representative, Dick Conant, through his company, Rucon Enterprises, has very diligently assured that this park treatment system has been designed, installed, and operated with the same integrity as demanded of all **Cromaglass** products.



TEST RESULTS PROVE CROMAGLASS SUPERIORITY

As described in the Fall 1997 "**Cromaglass Digest**," Greenview Court, a luxury senior rental community is utilizing the patented **Cromaglass** Denitrification Wastewater Treatment Process. The results of the most recent monthly tests are illustrated below. These results confirm the effectiveness of this technology with reduction of total Nitrogen of 98%.

Performance evaluation programs have demonstrated the excellent efficiency of **Cromaglass Batch Treat Systems**, but recent field operating tests prove the point, that if operated effectively these systems are difficult to match.

Analysis of standard parameters is important but the ability of the equipment process to meet special tests is exceptional. **Cromaglass** has met the test by obtaining better than required field results from its denitrification process.

One instance of these "on location" studies has been in Suffolk County, Long Island, New York where the county and state have carefully monitored **Cromaglass** systems installed nearly one year ago. Key factor of approval in the county is the ability to provide an

effluent quality with a maximum total nitrogen of 10 mg/L - thereby protecting the subsurface water table and drinking water drawn from wells. Following fine tuning to program controls, on-site sampling has provided results as tabulated.

DATA: GREENVIEW COURT		DATE: 11/30/97
Parameter	Influent Values	Effluent Values
Ammonia as Nitrogen (N)	95.6 mg/L	2.23 mg/L
Nitrates as N	<0.01 mg/L	0.73 mg/L
Nitrite as N	<0.01 mg/L	0.30 mg/L
Organic N	12.4 mg/L	1.45 mg/L
Total Kjeldahl N	108 mg/L	3.68 mg/L
Total Nitrogen	108 mg/L	4.71 mg/L
BOD ₅	302 mg/L	12 mg/L
TSS	162 mg/L	26 mg/L
Alkalinity	42 mg/L	
pH		7.1 mg/L