

## **STRUCTURE 28**

This structure is a reinforced concrete, gated spillway, with discharge controlled by two cable operated, vertical lift gates. Operation of the gates is automatically controlled so that the gate hydraulic operating system opens or closes the gates in accordance with the operational criteria. The structure is located in the City of Miami near the mouth of Canal 8 about a mile from the shore of Biscayne Bay.

### **PURPOSE**

This structure maintains optimum water control stages upstream in Canal 8; it passes the design flood (100 percent of the Standard Project Flood) without exceeding upstream flood design stage, and restricts downstream flood stages and discharge velocities to non-damaging levels; and it prevents saline intrusion during periods of high flood tides.

### **OPERATION**

This structure will be operated to maintain an optimum headwater elevation of 1.8 feet, when sufficient water is available to maintain this level. The automatic controls function as follows:

When the headwater elevation rises to 2.1 feet, the gates will open at six inches per minute;

When the headwater elevation rises or falls to 1.8 feet, the gates will become stationary;

When the headwater elevation falls to 1.5 feet, the gates will close at six inches per minute.

A special timing device has been installed at this site to protect manatees, during automatic gate operation. This device causes alternate gate operation. During this operation, when the upstream float sensor indicates that the gate should open, one gate opens a minimum of 2.5 feet. If this opening results in a headwater stage below the gate close level, as it often does, this gate will close. Whenever the headwater stage again rises to the open level, the other gate will open in a similar manner.

### Salinity Regulation

In addition to maintaining optimum upstream fresh water control, as described above, the automatic controls on this structure have an overriding control which closes the gates, regardless of the upstream water level in the event of a high flood tide, whenever the differential between the head and tailwater pool elevations reaches 0.3 feet.

During the simultaneous occurrence of high tide and heavy rainfall in the low-lying urban areas draining into C-8, the structure control is placed on manual and the gates open whenever the headwater exceeds that of the tailwater. This action is necessary because of the very critical situation caused by the fact that a considerable urban area lies at an elevation at or very near that of the high tide.

### **FLOOD DISCHARGE CHARACTERISTICS**

	Design
Discharge Rate	<u>3220</u> cfs
	<u>100%</u> SPF
Headwater Elevation	<u>2.3</u> feet
Tailwater Elevation	<u>1.8</u> feet
Type Discharge	<u>uncontrolled submerged</u>

### **DESCRIPTION OF STRUCTURE**

Type Fixed crest, reinforced concrete gate spillway

Weir Crest

Net Length 54.00 feet

Elevation -13.5 feet

Service bridge elevation 6.0 feet

Water level elevation which will by-pass structure 4.0 feet

Gates

Number 2

Size 17.5 feet high X 27.8 feet wide

Type Vertical lift

Bottom elevation of gates full open 3.5 feet

Top elevation of gates full closed 4.0 feet

Control Automatic, on-site upstream control with override differential water surface control sensed by bubbler system, and remote computer control.

Lifting mechanism

Normal power source commercial electricity

Emergency power source gasoline driven generator

Type Hoist direct drive electric motor gear, connected to gate drums

Date of Transfer: December 14, 1965

**ACCESS** Via private drive through Miami Shores Country Club from Grand Concourse and 8th Avenue NE in Miami Shores.

Points of possible flooding \_\_\_\_\_

#### **HYDRAULIC AND HYDROLOGIC MEASUREMENTS**

Water Level Remote digital headwater and tailwater recorder

Gate Position Remote digital recorder