

## STRUCTURE 44

This structure is a reinforced concrete, gated spillway with discharge controlled by two stem operated, vertical lift gates. Operation of the gates is automatically controlled remotely or on-site. In the latter case, the gate operating system opens or closes the gates in accordance with the established operational criteria. The structure is located on Canal 17, about 250 feet downstream of U.S. Highway A1A bridge.

### PURPOSE

This structure maintains optimum upstream water control stages in Canal 17; it passes the design flood (60% of the Standard Project Flood) without exceeding the upstream flood design stage, and restricts downstream flood stages and channel velocities to non-damaging levels; and it prevents saline intrusion.

### OPERATING CRITERIA

This structure normally operates automatically to maintain an optimum headwater elevation which varies seasonally from a low of 6.6 feet during the flood season to 7.1 feet during the dry season, when sufficient water is available. The automatic controls on the gates function as follows:

#### Low Range

When the headwater elevation rises to 6.8 feet, the gates begin to open at six inches per minute.

When the headwater elevation rises or falls to 6.6 feet, the gates become stationary.

When the headwater elevation falls to 6.2 feet, the gates begin to close at six inches per minute.

#### High Range

When the headwater elevation rises to 7.3 feet, the gates begin to open at six inches per minute.

When the headwater elevation rises or falls to 7.1 feet, the gates become stationary.

When the headwater elevation falls to 6.8 feet, the gates begin to close at six inches per minute.

Normally, the site is operated at high range. The automatic operation can be changed to low range temporarily if basin conditions require.

During major storm events, to improve the operation of the secondary system, the gates are operated remotely (or manually on-site) so as to lower the headwater stage, but with the following limitations:

STAGE (feet)	HEADWATER CONTROL MAXIMUM Q (cfs)	EROSION HYDRAULIC CAPACITY
9.0	2070	2140
8.0	1797	1555
7.0	1542	1045
6.0	1297	620
5.0	1064	290
4.0	843	66

#### FLOOD DISCHARGE CHARACTERISTICS

	Design	Standard Project Flood
Discharge Rate	<u>2070</u> cfs	<u>3430</u> cfs
	<u>60</u> % SPF	<u>100</u> % SPF
Headwater Elevation	<u>9.0</u> feet	<u>10.2</u> feet
Tailwater Elevation	<u>-3.1 to +3.9</u> feet	<u>-3.1 to 3.9</u> feet
Type Discharge	free <u>uncontrolled</u>	free <u>uncontrolled</u>

NOTE: Flow not affected by tailwater

#### DESCRIPTION OF STRUCTURE

Type reinforced concrete, gated spillway

Weir Crest

Net Length 40.

Elevation 3.3 feet

Service Bridge Elevation 16.5 feet

Water Level which will by-pass structure 12.0 feet

Gates

Number 2

Size 3.3 ft. high by 20.7 ft. wide

Type vertical lift gates

Bottom elevation of gates, full open 10.5 feet

Top elevation of gates, full closed 6.5 feet

Control On-site, automatic headwater actuated and  
remote computer controlled.

Lifting Mechanism

Normal power source commercial electricity

Emergency power source on-site LP gas driven electric generator

Type Hoist direct drive electric motor, gear connected to  
screw stem lifts.

Date of Transfer: April 9, 1958

**ACCESS:** Structure located on U.S. Highway A1A

Points of possible flooding Lake Catherine area along Riverside Drive

**HYDRAULIC AND HYDROLOGIC MEASUREMENTS**

Water Level Remote digital upstream and downstream recorders

Gate Position Recorder Remote digital recorders on both gates

Rain Gauge Remote digital recorder

**DEWATERING FACILITIES**

Storage West Palm Beach Field Station

Type stop logs

Size and Number (per bay) \_\_\_\_\_

Upstream only 7 each 12" X 12" X 21' -0 long