

STRUCTURE G-56

This structure is a reinforced concrete gated spillway, with discharge controlled by three cable operated, vertical lift gates. Operation of the gates is automatically or telemetry controlled. The new structure was completed in 1991 to replace the old Deerfield Lock Structure. The structure is located near the mouth of the Hillsboro Canal, about two miles west of Deerfield Beach. The contract number of the new structure is C90-1017. The drawing number is G-56-002.

PURPOSE

This structure maintains optimum water control stages in the Hillsboro Canal. It passes flood flows while limiting the upstream stage, downstream stage and channel velocity.

OPERATION

If the structure is operated automatically, the gates will operate to maintain the optimum upstream water surface elevation as follows:

When the headwater elevation rises to 8.0 feet, the gates will open at six inches per minute.

When the headwater elevation rises or falls to 7.5 feet, the gate will become stationary.

When the headwater elevation falls to 7.0 feet, the gates will close at six inches per minute.

Under normal conditions, the structure maintains headwater elevation between 7.0 to 8.0 feet. During flood event or making regulatory releases from S-39, structure G-56 may maintain at a lower than normal headwater elevation.

During the dry period, the headwater elevation at the structure may be raised to 8.7 feet, top elevation of the full closed gate, for water conservation purposes.

When the headwater elevation rises to 8.7 feet, the gates will open at six inches per minute.

When the headwater elevation rises or falls to 8.5 feet, the gate will become stationary.

When the headwater elevation falls to 8.3 feet, the gates will close at six inches per minute

FLOOD DISCHARGE CHARACTERISTICS

	Design	Structure Protection Design
Discharge Rate	<u>3760</u> cfs	<u>5000</u> cfs
Headwater Elevation	<u>7.6</u> feet	<u>7.2</u> feet
Tailwater Elevation	<u>6.9</u> feet	<u>6.0</u> feet

The design discharge rate is based on the existing capacity of the old Deerfield Lock structure. The design flood frequency is unknown.

DESCRIPTION OF STRUCTURE

Type Fixed crest, reinforced concrete gated spillway

Weir Crest

Net Length 60 feet

Elevation -3.5 feet

Service Bridge Elevation 14 feet

Water Level which will by-pass structure 12 feet

Gates

Number 3

Size 12.2 feet high by 20 feet wide

Type Vertical slide gate

Top elevation of gate, full closed 8.7 feet

Bottom elevation gate, full open 9.8 feet

Control on-site, automatic with headwater elevation control
or telemetry remote control

Lifting Mechanism

Normal Power Source commercial electricity

Emergency Power Source on-site LP gas electric generator

Type of Hoist Hydraulic cable lift hoist

ACCESS: Structure is located just west of Military Trail

HYDRAULIC AND HYDROLOGY MEASUREMENTS

Water Level Staff gauge and remote digital recorder at
upstream and downstream of the structure

Gate Position Remote digital recorder at all gates

Rain Gauge Remote digital recorder

DEWATERING FACILITIES

Dewatering beam and aluminum needles are located at the structure maintenance facility in West Palm Beach.