

Carnelian-Marine Watershed District

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TURTLE LAKE WEIR, OPERATIONAL PLAN

For

BIG MARINE LAKE – TURTLE LAKE CONTROLS

REVISED APRIL, 2004

by

CARNELIAN MARINE WATERSHED DISTRICT MANAGERS

Managers

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OPERATIONAL PLAN
BIG MARINE-TURTLE LAKE CONTROLS

A. DISCHARGE RATE CONTROL

1. Control of the discharge rate has been established at two points:
 - a. Big Marine Lake Weir: This weir has no provisions for manipulation of flow rate. All discharge control has been designated into the weir length. No operational manipulation is contemplated beyond ice and floating bog control.
 - b. Turtle Lake Weir: This weir has two 7-foot stop log bays with a total depth of 1.33 feet. Twelve inches of “permanent” stop logs will be installed all year and one four inch “removable” log is provided to be installed and removed according to the flow control procedures identified in paragraph “C”. Once all the stop logs are removed the flow from Turtle Lake is controlled by the channel grade and 36-inch x 58-inch RCP arch culverts under 155th Street and the downstream driveway. During extreme flood events, high water levels will be experienced throughout the watershed district regardless of the control exercised at Turtle Lake. This is due to additional inflows from the Carnelian Creek Watershed, and the reduction in outflow from Big Marine Lake caused by restrictions at the culvert under 155th Street.

B. AGREEMENTS WITH MN DNR

1. The Minnesota Department of Natural Resources requires the “permanent” installation of 12 inches of stop logs at in the Turtle Lake Weir at all times. These logs can only be removed after the Carnelian-Marine Watershed District Managers receive a request from the Minnesota Department of Natural Resources and pass a resolution calling for their removal. Any resolution for the removal of these logs must include provisions for their reinstallation within 90 days of their removal
2. There is no expiration date set for this plan. There is also no requirement to revise the plan. The plan may be revised by the Carnelian-Marine Watershed District Managers and submitted for approval by the Minnesota Department of Natural Resources any time the Watershed Managers deem necessary.

C. FLOW CONTROL PROCEDURE

1. PURPOSE:

- a. The purpose of this procedure is to maintain as free an outflow over the Big Marine weir as possible while still maintaining the integrity of the wetlands located between the Turtle Lake weir structure and County Road 4. It is understood that due to the hydrology of the watershed, water may flow north into Big Marine Lake for periods of time following significant runoff events.

2. SUMMER FLOW CONTROL OPERATIONS:

- a. Summer shall be defined as April 1st through November 30th.
- b. Head-water (Big Marine Lake) and tail-water (south of Co. Rd. 4) elevations are monitored at least once every two weeks at the Big Marine weir. Stop logs are then added or removed from the Turtle Lake weir structure according to the procedures below.
- c. When the surface elevations for the Big Marine weir have fallen to point where there is no outflow from Big Marine Lake, the “removable” stop logs will be added to each bay of the Turtle Lake structure.
- d. When the Big Marine weir tail-water surface elevation has risen to a point where there outflow from Big Marine Lake, the “removable” stop logs will be removed each bay of the Turtle Lake structure.
- e. The channel from Big Marine Lake to May Avenue will be maintained on a constant basis. The watershed district will approve a plan and fund the maintenance to do so. The Minnesota Department of Natural Resource (MN DNR) will be informed on these activities.
- f. The process of removing and adding stop logs will continue on a biweekly basis throughout the summer.

3. WINTER FLOW CONTROL OPERATIONS:

- a. Winter shall be defined as December 1st through March 31st.
- b. The “removable” stop logs will be removed for the winter season.
- c. The “permanent” stop logs will remain in place for the winter season.