

Recommendation and concept for a set of gates on the Bayou Courtableau - Bayou Ami - Borrow Pit Levee

A Cooperative Effort of the Acadian Group Sierra Club
and Dredge the Vermilion, Inc.
<https://lafayettesierraclub.org/>
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**Gates for the Bayou Courtableau - Bayou Ami - Borrow Pit Levee
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Overview of the Bayou Courtableau Watershed

The Bayou Courtableau watershed in St. Landry Parish at Washington LA is approximately 715 square miles. The entire Bayou Courtableau watershed is greater than 1000 square miles and includes areas both east and south of Washington. The watershed extends north to Boyce LA (North of Alexandria LA) and includes several wetland swamps (flood plains) in the southern part of the watershed. These flood plains in the southern watershed include Darbonne, Waukesha, Thistlewaite, Bayou Carron, and Dubisson. These lowland swamps provide a flood plain for excess water that enters the watershed from the north. There is an existing flood gate on Bayou Courtableau at the West Atchafalaya Floodway West Guide Levee approximately 1 mile south of US190. This gate drains some of the flood waters from the north and central part of the watershed into the floodway when water levels are low enough in the basin. Additionally, there are 2 overflow weirs immediately upstream of the gate that allow excessive but uncontrolled flood waters to drain into the West Atchafalaya Floodway West Guide Levee Borrow Pit and down to the flood plain at Lakes Dautrive and Fausse Pointe near Loreauville LA. There is a levee between Bayou Courtableau (see below) and Bayou Ami-Borrow Pit. In the levee is a 54" culvert (see below) that provides freshwater flow into Bayou Ami-Borrow Pit and connecting waterways to the south.

The Current Flood Risk

Basin levels dictate effectiveness of the existing Bayou Courtableau drainage gates in moving flood water from the northern part of the watershed into the West Atchafalaya floodway. As an example, the levels in the basin since Dec 2018 have been very high and are expected to remain high until this summer making these existing gates largely ineffective for managing flood waters.

Hurricane Barry in July 2019 proved the concept of pre-emptive lowering of the Bayou Courtableau natural retention swamps when a threat appears. Basin levels were too high to drain Courtableau into the basin rendering the existing gates useless for any pre-emptive lowering of Bayou Courtableau. Teche-Vermilion ceased pumping operations approximately 7 days prior to landfall. Bayou Courtableau fell 2 feet reestablishing retention and the Vermilion River fell to 3.6' at Surrey Street, the lowest level recorded in 37 years. This also drained the Cypress Island swamp establishing additional natural retention for the Vermilion river. NOAA forecast the river to crest at 15' but the pre-emptive actions resulted in a crest of only 12.6'. At a 15' crest hundreds of homes would have experienced flooding.

Water Quality in Bayou Ami-Borrow Pit and Waterways South

The Teche-Vermilion Freshwater District operates a 54" culvert gate that provides a freshwater flow from Bayou Courtableau into the Bayou Ami-Borrow Pit and connecting waterways to the south. The Teche-Vermilion Freshwater District has reported that St. Martin Parish downstream does not believe this freshwater resource is adequate and have indicated they would support adding a larger gate in the levee.

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The Proposed Gate

We are recommending adding a dual- purpose gate in the levee between Bayou Courtableau and Bayou Ami-Borrow Pit. The gate could provide both a flood mitigation resource as well as a water quality resource.

The gate if constructed would improve water quality in multiple parishes including St. Landry, St. Martin, Iberia, and St. Mary.

The gate would also provide a critically needed flood management resource for 10 parishes in the Courtableau-Teche-Vermilion Watershed.

Proposed Theory of Operation of Facilities during a Flood Risk Event

As necessary as soon as a Major Regional Rain Forecast (10" of greater) is made for the Teche-Vermilion Watershed

At least 72 hours but no less than 48 hours prior to the forecast beginning of the rain event begin draining Bayou Courtableau and it's nearby flood plains by fully opening both the existing gates in the West Atchafalaya West Guide Levee(if basin levels allow) and the new gates installed by the project.

Teche -Vermilion will also cease pumping operations.

The objective with this operational mode is to establish as much retention as possible in the Bayou Courtableau watershed to hold excess flood waters as well as doing the same for the Vermilion river and it's natural retention area in Cypress Island Swamp.

As the head difference between Bayou Courtableau and Bayou Ami-Borrow Pit is normally about 15 feet if sized adequately the proposed gates could be utilized exclusively if basin levels prevent utilization of the existing gates in the West Atchafalaya West Guide levee for flood waters management.

This was the situation during Hurricane Barry. If these proposed gates were available Courtableau could have been lowered even more saving some crops that were flooded during Barry.

Proposed Theory of Operation of To Manage Water Quality in Bayou Ami-Borrow Pit and Downstream Waterways

As Teche-Vermilion Freshwater District currently is responsible for managing water quality we recommend they continue to do so utilizing the new gate. The capacity of the proposed gate would greatly exceed the existing 54" culvert allowing sufficient freshwater flow into Bayou Ami, Catahoula Lake, and lakes Daurive and Fausse Pointe.

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Illustrations



Area Overview for Proposed Project



Existing 54" Gate at Bayou Courtableau That Provides Freshwater to Bayou Ami-Borrow Pit

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Bayou Ami-Borrow Pit (54" Culvert outlet in lower right)



To Lake Fausse Pointe

Bayou Courtableau -Bayou Ami-Borrow Pit Levee (location of proposed gate)

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Bayou Courtableau Typical Water Elevation

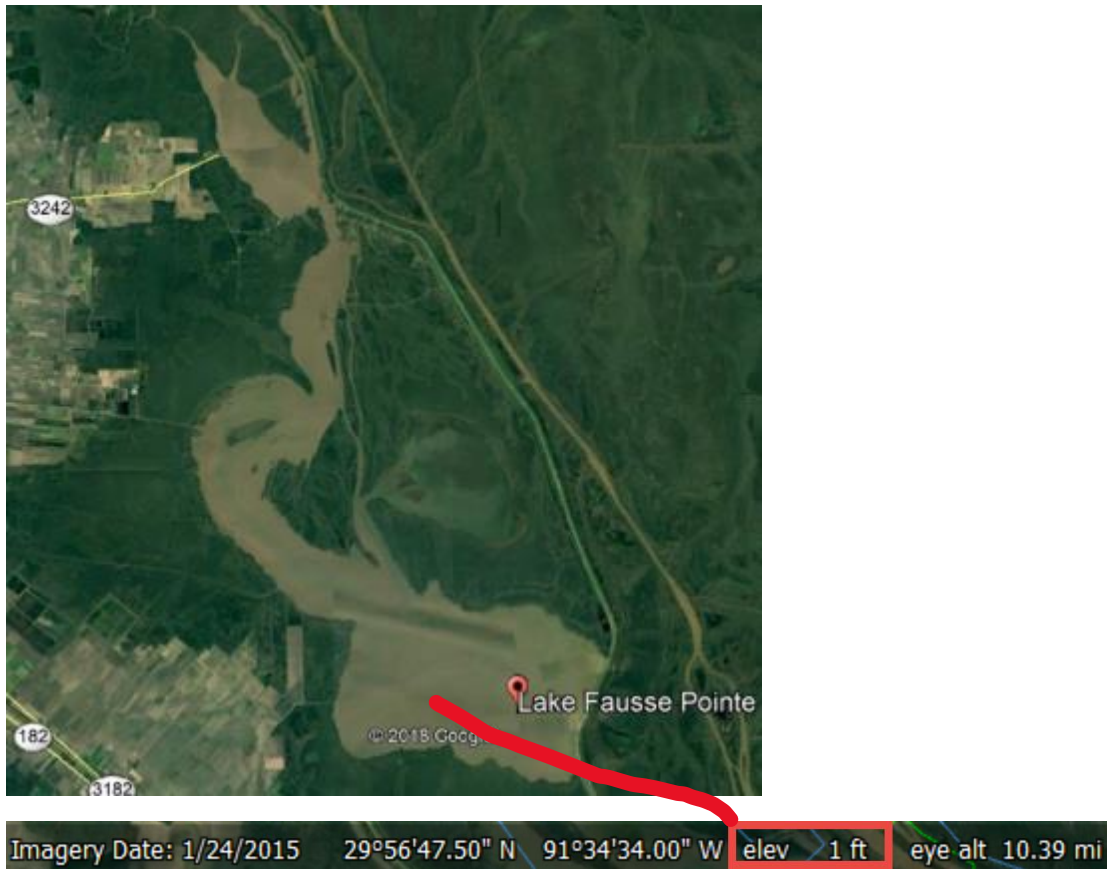


Borrow Pit Water Elevation



Near Port Barre LA - Bayou Courtableau Drainage Gates at Levee

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Lake Fausse Pointe – Our watershed’s main flood plain