

## **C5. CIVIL DESIGN.**

C5.1 Levees. A combination levee/T-wall will tie in the new lock into the existing levee protection system. See Section C6, "STRUCTURAL DESIGN", for additional information on these features. Geotechnical information and data regarding levee design is included in Section C3, "GEOTECHNICAL INVESTIGATIONS AND DESIGN".

### **C5.2 Channel Design.**

C5.2.1 The Bayou Sorrel Lock Replacement Project consists of a new lock and connecting channels adjacent to the existing lock and over adjacent lands currently used as perpetual maintenance dredging disposal areas. Three new channels will connect the replacement lock to existing channels. The forebay channel will connect the new lock with the Gulf Intracoastal Waterway (G.I.W.W.) Port Allen – Morgan City Alternate Route channel through a land cut 5,000 feet in length over the currently held government disposal and lock reservation. The new lock tailbay channel will connect the replacement lock to the existing alternate route channel through a land cut 3,250 feet long over the lock reservation. A typical forebay and tailbay channel section used for the connecting channels is shown in Annex 4, Figure 1. The design for the connecting channels will require dredging a channel with a bottom width of 125 feet and elevation -12 feet MLG (-12.8 NGVD). The channel will have side slopes of 1V on 3H from the bottom to the top of ground. The connection of Atchafalaya Basin East Access channel will be through a new land cut 6,000 feet long over currently held government disposal area. The design for the connecting east access channel will require dredging a channel with a bottom width of 80 feet and elevation -7 feet MLG (-7.8 NGVD). The channel will have side slopes of 1V on 3H from the bottom to the top of ground. A typical east access channel section used for the connecting channel is shown on Annex 4, Figure 2. The channel right-of-way is 500-foot wide for both connecting channels and east access channel.

C5.2.2 The construction disposal areas cover lands currently held as perpetual easements for the deposit of maintenance dredging material or previously used levee construction borrow pit areas. Approximately 2,320,000 cubic yards of soil will be removed from the new lock forebay and tailbay channels and the new east access channel. The approximately 490,000 cubic yards excavated for the new lock tailbay channel will be placed in borrow pits located about 1 mile east

of the lock site along the Lower Grand River. Excavation of approximately 750,000 cubic yards for the new lock forebay channel will be placed on portions of lands currently used for the deposit of maintenance dredging material. Approximately 1,080,000 cubic yards of soil will be removed from the maintenance dredging disposal area for construction of the new Atchafalaya Basin East Access channel. This material will be placed as an earthen closure of the existing G.I.W.W. Alternate Route channel. Excavation for the channels will be performed with cutterhead pipeline dredges discharging to confined disposal areas. Effluent will be returned to the G.I.W.W. for the new lock forebay channel and to the Lower Grand River for the tailbay channel. With completion to the new lock and connecting channels construction will be sequenced for closures of the existing G.I.W.W. Alternate Route and the east access channel. These closed areas of the existing channels including the existing lock chamber will provide disposal areas for construction and future maintenance dredging requirements.

### C5.3 Relocations.

C5.3.1 General. The information contained in this section is presented to the detail required for this feasibility report. Data was gathered by researching permits, visiting the site, and initial contact with the affected facility owner. The only facility that will be impacted by the proposed project is an existing 10-inch Florida Gas Transmission pipeline north of Bayou Sorrel Lock in Iberville Parish.

C5.3.2 Description of Existing Facility Affected by the Project. We identified the facility affected by the project as a gas pipeline. The location of the impacted facility depicted on Plate G2 was obtained from the 1990 Louisiana Parish Pipeline and Industrial Atlas Maps of Iberville Parish, field reconnaissance, and data provided by the facility owner. For purpose of this feasibility study, the impacted facility is referenced to the proposed excavation for the widening of the existing channel. The location of the facility as presented on the plate is accurate to within 100 feet.

C5.3.3 Description of Existing Facility. The Florida Gas Transmission Company (FGT - see Plate G2) owns a 10-inch diameter natural gas pipeline (P-1) that traverses the study area. This steel pipeline, which transports high-pressure natural gas, is north of the existing lock, and traverses both the Gulf Intracoastal Waterway and the Lower Grand River. The pipeline will be affected by excavation of the access channel to the new lock as well as the excavation and

improvements proposed for the access channel east of the existing and proposed lock locations. Cover over the pipeline generally is around 2 to 3 feet, but is in some locations is as much as 15 to 20 feet. As the pipeline travels underwater across both channels, it rests along the channel bottoms with very little cover.

C5.3.4 Relocation Status. Contact with the owner of this facility was made during this study phase. The owner has notified the Government of their intention to remove this pipeline from service and take out the portion of pipeline affected by the proposed project. Coordination for removal of this pipeline will be done at a point closer to actual construction of the project.

C5.3.5 Impact to Facilities Crossed by Access Roads to Construction Site. Prior to construction, access roads to the construction job site will be determined, and facilities traversing these roads will be identified and the appropriate owners contacted. Impacts to these facilities due to heavy construction equipment passing over will also be investigated. At that time, a determination will be made, with the owners input, as to whether or not the facility requires protection. Such protection will be installed prior to or concurrent with construction.