

PART I. EXECUTIVE SUMMARY

The City of Northport is located in Alabama in the County of Tuscaloosa across the Black Warrior River just north of Tuscaloosa, Alabama. Northport is approximately 60 miles west-southwest of Birmingham, AL along the I-59 corridor. Before the construction of impoundments in the Warrior River, Northport was the most upstream navigation point; hence the name "Northport". Further upstream navigation was blocked by a large waterfall. Navigation dams with locks have been developed along the river system since the late 1800's, with several upgrades and now navigation can reach near Birmingham, AL. Oliver Lock and Dam is located immediately downstream of Northport, Alabama.

The levee project at Northport, Alabama was originally constructed under Section 205 of the Flood Control Act of 1948. The first cost for the project was estimated at \$3,115,000. Of this amount \$1,891,000 was the federal share and \$1,305,000, which includes \$81,000 for PL 91-646 Assistance, was the non-federal share. The contract number for the Levee construction was DACW01-97-C-0079 Z and was awarded in September of 1995 and was completed in August 1999.

This periodic levee inspection was performed on 13 July 2010. The local sponsor showed an active response to operation and maintenance of the project. Deficiencies were found and remedial actions are required before the next periodic inspection to insure more efficient operation of the levee system.

The following were some of the project deficiencies:

1. Encroachments consisted of some power and light poles on the levee embankment landside. Recommend that Sponsor moves poles to clear the 25 foot requirement from the toe.
2. Culverts have not been visually inspected by means of using video cameras. Recommend that Sponsor performs a visual inspection using a video camera and maintain a video record of the inspection.
3. A structural crack was found in the land side wing wall at Culvert #4 near sluice gate. The crack in the wall reduces the design strength of the wall and could lead to erosion of back fill material which could result in slope failure at this location along the levee. Recommend that Sponsor repairs as soon as possible.
4. There is a broken concrete wing wall at Culvert #1 at river side toe Sta.15+00. Recommend that Sponsor repairs as soon as possible.
5. Throughout the inspection considerable damage to the levee slopes from the mowing tractor was observed. It appears that this has led to significant erosion on the slopes in some



locations and has suppressed development of a good grass surface in many sites. The Sponsor should use lighter type mowing equipment. Recommend that sponsor repairs the levee surface and take measures to promote healthy turf.

6. There is erosion, tunneling on the surface and caving on the levee landside slope at Culvert #6. The ruts are approximately 2 feet deep. Erosion should be repaired and grass re-established.
7. Observed significant surface erosion on the landside slopes of the levee in the area of Culvert #6. This erosion should be repaired and grass re-established.
8. All eight culvert sluice gates were partially closed. There is concern with culvert gates being partially closed. Recommend that Sponsor follows the instruction O&M Manual.
9. Between culvert #8 and the upstream lumber yard, cracks in the levee crown were noticed by the inspection team. At some points a voids of at least 10" below the crack in the pavement were observed. The riverside slope of the levee appeared to have a light bulge, indicating some movement toward the river of a portion of the levee. After some discussion, it was concluded that the levee is in the process of a subsurface failure. From a surface inspection, it cannot be determined if the failure is within the levee structure, the levee foundation or even further below the system. Further investigation is warranted. At the end of the inspection Mr. Dennis Mekkers of the Mobile District Office notified the District Office and the necessary investigation procedures were put in motion.
10. Riprap appears to have settled at Culvert #2 on levee river side from Sta. 35+00 to Sta. 36+10. Recommend that an investigation be done to Culvert #2 to determine the cause of settlement.
11. A safe walkway is recommended to improve access to the intake sluice gate at Culvert #1. Access now requires walking over the riprap down the slope of the levee.

Overall engineering determination concludes that some of the deficiencies could possibly prevent the system from performing as intended under the current established level of flood protection of 100-year (1.0%/year). A total of eight culvert gates being partially closed and the cracks in the levee crown from Sta 95+00 to Sta 97+00 could indicate serious problems with the performance and structural integrity of the levee system. These situations should be investigated and analyzed immediately and remedial actions should be taken accordingly. The next periodic inspection is scheduled for FY 2015.