



## EXECUTIVE SUMMARY

### Periodic Inspection Results for the Cedar River - Waterloo-Evansdale System: LDB Cedar River, IA Local Flood Control Project

The Waterloo-Evansdale System: LDB Cedar River, Iowa levee system is comprised of two federally authorized and non-federally operated and maintained urban, local flood protection project projects (LFPP) located in the two cities of Waterloo and Evansdale, Iowa. The Waterloo, Iowa LFPP was authorized by the Flood Control Act of 1965, Public Law 89-298, in accordance with the recommendations of the Chief of Engineers in House Document No. 166, 89th Congress, 1st Session. The Evansdale, Iowa LFPP was authorized in October 1976 under Section 201 of the Flood Control Act of 1965, in accordance with the recommendation of the Chief of Engineers in House Document No. 94-563, 94th Congress, 2nd session separately. The Waterloo-Evansdale System provides the cities of Waterloo and Evansdale, Iowa, protection from flood events along the Cedar River and Elk Run Creek. The system is on the east (left descending) bank of Cedar River.

The project segment within the city limits of Waterloo (Waterloo segment) is also known as Unit C levee which consists of 6 stages. The segment within the city limits of Evansdale (Evansdale segment) includes 2 stages as well as a segment of Highway I-380 embankment serving as part of the system.

As a point of clarification, the levee project in confines of Waterloo, Iowa is made up of four separate flood damage reduction systems. This Periodic Inspection specifically includes the Unit C levee segment, as well as the Blowers Creek Flood Damage Reduction Channel. The Evansdale, Iowa project is made up of one flood damage reduction segment. Both of the above-mentioned segments (Waterloo segment and Evansdale segment) collectively form the Waterloo-Evansdale System: LDB Cedar River providing protection to a defined area. In this system, the defined protected area is approximately the City of Waterloo bounded by Greenbrier Road on the west, Cedar River on the south, and the Waterloo-Evansdale City Limits on the east at approximately Lafayette Street and the Cedar River; as well as the City of Evansdale bounded by the Cedar River on the west, Highway I-380 on the south, and Elk Run Creek on the east, until it ties into high ground at U.S. Highway 20. Failure of either the Waterloo segment or the Evansdale segment as described above would constitute a failure of the entire Waterloo-Evansdale System: LDB Cedar River / IA. The entire system is rated as one entity (system).

The Cities of Waterloo and Evansdale are independently responsible for operating and maintaining the flood protection segments of the levee that comprise the system.

The five year Periodic Inspection of the Levee System occurred on May 3, 4, and 5, 2010. The local sponsors show active responses to operation and maintenance of the project; however, some deficiencies were noted and actions are required. The overall system rating recommended by the contractor who conducted the inspection was unacceptable based on the deficiencies identified in the report.

The Rock Island District received comments from the Sponsor in response to the draft Periodic Inspection Report. Those comments and responses were considered during the levee risk analysis used to determine the final inspection rating. Several deficiencies were determined to be temporary conditions allowing the rating of the system to be appropriately based on an engineering determination of risk.



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The Rock Island District has determined that the existing departures from USACE national standards identified during the Periodic Inspection result in an appropriate rating of the levee system as **Unacceptable**.

Issues that could impair the operation of the system located on the system and are in the most need of action:

- Severe degradation of a concrete culvert, coupled with the lack of physical inspection records of the extent of the degradation in that and other levee embankment conduit penetrations.
- Loss of freeboard was present at the river walk vicinity and in an area within the construction compromising the levee freeboard.
- Unwanted vegetation is present within the vegetation-free zone of the levee system as defined by ETL 1110-2-571.
- Sod cover was insufficient in certain locations.
- Encroachments occur frequently along the flood protection system project.
- Erosion was noted beneath a bench platform.
- Depressions/rutting were noted at several locations on the levee section.
- Multiple locations of animal burrows.
- A steep slope at one location of the levee riprap.
- Caulking was missing on monolithic joints.
- Excessive spalling of concrete at the pump stations.
- In the flood damage reduction channel, there are locations where the concrete slabs are broken or tilting and bank erosion was noted.
- Several culverts are silted closed.

The next annual Inspection will be scheduled after October 2011, with periodic inspections currently scheduled every five years.