

The existing water main for the city of Oxbow has a connecting loop that would be located on the unbenefited side of the levee. To maintain the loop, a pipe running parallel to the levee along the golf course that ties the water lines at Riverbend Road and Oxbow Drive together is included. The proposed Oxbow addition would tie into the existing water main located near the intersection of Sunset Drive and Riverbend Road.

The existing storm system generally slopes from west to east and ultimately outfalls into the Red River. To reduce the number of pipes crossing the levee, two separate pipe network systems are proposed, one that utilizes the existing storm pipe network and one that would be for the proposed Oxbow addition. Both systems would outfall into a proposed ponding area within the benefited area. The proposed ring levee does not create conflicts with the sanitary, water, or transportation infrastructure for the Hickson or Bakke communities.

2.3 Oxbow Golf Course

The proposed Oxbow, Hickson, and Bakke ring levee would create a need to re-configure the golf course as well as relocate the clubhouse and other facilities provided by the Oxbow Country Club. Eight golf holes and the driving range would need to be relocated and three other golf holes require alterations to accommodate the proposed ring levee. Interior drainage would be designed to convey water to a proposed retention basin. Sanitary sewer, storm sewer, water lines, and parking lots needed to service the Oxbow Country Club, the golf course, and the other amenities offered by the country club would be tied into the new urban infrastructure along the proposed Sunset Drive alignment.

2.4 Internal Drainage

The internal drainage for the Oxbow, Hickson, and Bakke ring levee would be comprised of a combination of open channels, storm sewer, a stormwater ponding area, and a storm sewer pump station. The combination of the available storage and pumping capacity of the pump station would be sized to prevent internal flooding during a river flood event when the gravity outfall is inoperable. The ponding area would be located east of the Bakke addition and northwest of the Cass County Highway 81.

The existing conditions in the city of Oxbow include a storm sewer network and overland drainage on the golf course. These systems both ultimately outfall into the Red River and would need to be altered to accommodate the proposed ring levee. The proposed storm sewer system would be routed to outfall into the proposed ponding area. The drainage in the proposed Oxbow addition would be part of a separate storm sewer system that would outfall into the proposed ponding area. The Bakke addition and the Hickson area currently use open ditches to accommodate their storm water runoff. Both areas would use the existing channels to accommodate runoff to the proposed ponding area. As a part of the storm water detention system, there would be a pump station located on the north end of the proposed ponding area, which, during times of flooding, would pump water out of the ponding area and into the Red River. The pump station design would include a sluice gate to allow the gravity system to be positively closed during periods of flooding to prevent back flow of floodwater.