

## **2.0 SCOPE**

The proposed project is defined as upgrading of the existing emergency flood protection berms to provide an effective and minimal maintenance long-term flood protection at Fishing Lake, Saskatchewan. This will consist of reshaping and raising the berms with increased erosion protection to upgrade the existing temporary Fishing Lake berms to provide permanent protection to the 1:500 year EPWL.

Investigations of alternative long-term flood control measure for Fishing Lake have been previously undertaken <sup>(4, 5, 6)</sup>. Supplemental land surveys of the existing berms were conducted during July and August 2009 and a detailed geotechnical investigation consisting of berm consolidation assessment, overall berm stability and stability of existing rip-rap is proposed to be completed by October 2009. Following the geotechnical investigation, it is proposed to complete the final detailed design for construction by the end of March 2010 and commence construction of the berm upgrades by the beginning of June 2010 with all construction works completed by October 31, 2012.

### **2.1 SCOPE OF THE PROJECT**

The scope of the project includes design, construction and maintenance of the upgraded berms to provide long-term flood protection at Fishing Lake. Upgrading the existing temporary Fishing Lake berms will consist of reshaping so that they meet the design specifications of a lakeside slope of 6H:1V and increasing the height by 0.1 to 0.6 m so that the top of berm is at El. 531.6 masl to provide permanent protection to the 1:500 year EPWL. The proposed berm upgrade project also includes increased erosion protection. The project scope does not include the addition of new berms or the removal of existing berms unless directed to do so by the regulatory agencies.

Major project activities include borehole drilling; dewatering; excavating soils; hauling and stockpiling soil, rock, and granular materials; placing soil materials; shaping and compacting soil materials; placing rock and granular materials; placing topsoil; and seeding grass.

## 2.2 SCOPE OF THE ASSESSMENT

The scope of the assessment for the proposed flood control berm upgrading includes identification, assessment and mitigation of adverse environmental effects of the project, and evaluation of the significance of residual environmental effects. The scope includes consideration of direct and indirect biophysical and socio-economic effects, including cumulative environmental effects. Assessment of potential construction effects will focus on activities to upgrade the berms from the existing temporary berms and not include the effects of initial construction of the temporary berms. However, as the berms were originally to be removed, the assessment of potential effects of retaining the berms permanently will evaluate the system changes compared to the pre-emergency conditions. The assessment considered comments received from government reviewers, stakeholders and the public. The need for the project, alternatives to the project and requirements for a follow-up program are also considered in the assessment.

The spatial boundary of the environmental assessment is the project study area and regional study area (Figure 1). The project study area includes Fishing Lake and a 1 km area of shore adjacent to the lake, whereas the regional study area includes the area within a radius of approximately 10 km extending from near the middle of Fishing Lake. Direct and indirect biological and physical effects of the project are considered within the project study area, while socio-economic and cumulative environmental effects are considered in the regional study area. The assessment covers a period of 40 years to allow for an assessment of the effects of retaining the berms permanently through a full hydraulic cycle from wet to dry years.

As per the 'authorization for works or undertakings affecting fish habitat and the destruction of fish by means other than fishing' for the harmful alteration, disruption or destruction of fish (HADD) issued by DFO number RE07-1291-2 the SWA was preparing a compensation plan to address the disturbance and loss of fish habitat as a result of construction of the temporary berms. This plan was to provide compensation in the form of creating or improving habitat that will directly benefit the fish populations of Fishing Lake and was due September 2009. However, as the proposed project is to permanently retain the berms the compensation plan will need to be modified to address the potential disturbance and loss of fish habitat compared to the pre-emergency condition associated with the berms being permanent structures.

During the temporary berm construction there was erosion and sedimentation of the emergency berms. An assessment of turbidity accumulation, adjacent the turbidity curtains, was conducted at all of the beaches as requested by DFO, and a strategy was developed to remove the identified deposits. The SWA is working with DFO separately from this proposed berm upgrading project to address and provide compensation for the effects identified from the temporary berm construction. These previous effects that occurred associated with construction of the temporary berms and the applicable mitigation are not included in the scope of this assessment.