

**SPRING MEADOW LAKE SITE  
HELENA, MONTANA**

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## **2.0 ENVIRONMENTAL SETTING**

The environmental setting of the Spring Meadow Lake site is provided in the following sections (Section 2.1 through 2.7). The references cited in Section 2.0 are presented in [Section 2.8](#).

### **2.1 SETTING**

The Spring Meadow Lake site is located on the western edge of the Helena, Montana city limits (Figure 1-1). The Spring Meadow Lake is situated at an elevation of approximately 3,950 feet above mean sea level (amsl) in Section 23, Township 10 North, Range 4 West, Montana principle meridian (Latitude North 46° 36' 30"; Longitude West 112° 04' 30"). The Spring Meadow Lake site is comprised of approximately 20 acres of mineral processing impacted land along the south and east shorelines of Spring Meadow Lake. A general location and topographic view of the site is presented in Figure 1-1 and a detailed site map of the entire project area is provided in Figure 4-1 (see Section 4).

### **2.2 CLIMATE**

The Spring Meadow Lake site is situated approximately 10 miles east of the Continental Divide at the western edge of the Helena Valley at an elevation of approximately 3,950 feet amsl. The main site lies in the valley of Tenmile Creek. The surrounding area consists of relatively flat floodplain to moderately sloped hillsides. The climate of the Spring Meadow Lake area is a modified continental climate similar to that of the Helena Valley. The cool air and general protection provided by the surrounding mountains contribute to less seasonal variation in temperature than would be typical of a true continental climate.

Climate information was obtained from the Western Regional Climate Center (WRCC) located at the Helena, Montana airport. Average monthly temperatures range from a high of 83°F to a low of 54°F in July and a high of 30°F to a low of 11°F in January. Average annual precipitation is roughly 12 inches a year. Average monthly precipitation exceeds 1 inch during May through September. The wettest months of the year are May and June. Precipitation is mostly in the form of snow in the winter months, snow and rain in the spring and fall, and rain in the summer.

## **2.3 GEOLOGY AND SOILS**

The Spring Meadow Lake site is located within the Tenmile Creek floodplain, approximately ¼ mile southeast of the current Tenmile Creek channel. The site is underlain by sands and gravels from mixed igneous, limestone, and sandstone formations that were deposited by glacial outwash during the Pleistocene age (USDA-NRCS 2003). The alluvium parent materials for the soils that developed at this site have been influenced by historic Tenmile Creek channel locations and by local depositional areas. The depth of sand and gravel at this site is variable but the depth of Spring Meadow Lake is approximately 40 feet.

The soil mapped at the Spring Meadow Lake site is the Meadowcreek-Fairway complex, 0-2% slopes (USDA-NRCS, 2003). This soil is classified as a fine-loamy over sandy-skeletal, mixed Fluvaquent Haplustolls and formed in relatively recently deposited sediments. These soils typically have seasonally high ground water at 2 to 4 feet below the surface and occupy the lower positions on flood plains. The surface soil horizon has a loam to silt loam texture and may be about 10 to 15 inches thick. Subsurface horizons have loam to sandy loam textures in the upper parts, grading to a very gravelly sand at about 60 inches deep.

Nearly the entire Spring Meadow Lake site has been disturbed by past mineral processing and sand and gravel mining activities. In areas where there were no excavations, waste materials and common fill was deposited.

## **2.4 HYDROGEOLOGY**

The Montana Bureau of Mines and Geology Groundwater Information Center (GWIC) database includes over 1,339 logs within a one-mile radius of the Spring Meadow Lake site. Most of these wells appear to be used to supply domestic water to surrounding residences.

Spring Meadow Lake was formed after sand and gravel mining ceased as groundwater inflows and surface water run-in filled the excavated pits. Helena Sand & Gravel Company ceased gravel mining operations in 1960. Spring Meadow Lake consists of an oval-shaped main lake connected to a circular-shaped north arm and an irregularly shaped east arm. The main lake is relatively deep with a reported depth of 40 feet. The east arm of the lake is shallow with a maximum depth of about five feet.

## **2.5 HYDROLOGY**

The Spring Meadow Lake site is located within the floodplain of Tenmile Creek. Storm water runoff from the site and other areas south and east of the lake flows into the lake. Seasonal overflow from the lake drains north from the east arm and flows into wet areas north and west of the Lewis and Clark County Fairgrounds and east of the Green Meadow Country Club.

## **2.6 VEGETATION AND WILDLIFE**

The Spring Meadow Lake site has areas with all stages of vegetation from manicured grass to bare ground. The State Park portion has grassed areas around the swimming portion of the lake, and riparian vegetation around the remainder of the lake perimeter. Numerous willow, cottonwood, speckled alder, and Russian olive trees have become established during the last 45 years. Native and introduced grasses are found growing on most areas of the site, including inland saltgrass, western wheatgrass, thickspike wheatgrass, needle-and-thread grass, smooth brome grass, and annual brome grass. Other shrubs and forbs are found in selected areas and include western snowberry, wild rose, yellow sweetclover, babysbreath, and spotted knapweed.

The Spring Meadow Lake site provides habitat for fish and other aquatic organisms, rabbits, rodents, and reptiles. Some white-tailed and mule deer may use the south end of the site on occasion. Many species of birds are found around the site throughout the year. No threatened or endangered species are known to frequent the area (Natural Heritage Program 2005).

## **2.7 LAND USE AND POPULATION**

The Spring Meadow Lake site is located within the city limits of Helena, Montana. Helena is an incorporated city with an estimated population of 26,000 (U.S. Census Bureau 2000). The primary land uses in the area include recreational, residential, and light commercial.

## **2.8 REFERENCES CITED**

Groundwater Information Center (GWIC). 2003. "Well Log List in T10N, R4W, Section 23, with a 1-Mile Buffer." Accessed on March 24, 2004. On-Line Address: <http://mbmgwic.mtech.edu/>

Natural Heritage Program. 2005. Database search for plant and animal species of special concern, Montana Natural Resource Information System, Montana State Library. March 4.

U.S. Census Bureau. 2000. "2000 U.S. Census Estimate".

U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). 2003. Soil Survey of Lewis and Clark County Area, Montana, Part 1 and 2.

Western Regional Climate Center (WRCC). 2005. "Helena, Montana Period of Record Monthly Climate Summary." Accessed on January 28, 2005. On-Line Address:  
<http://www.wrcc.dri.edu/summary/climsmmt.html>