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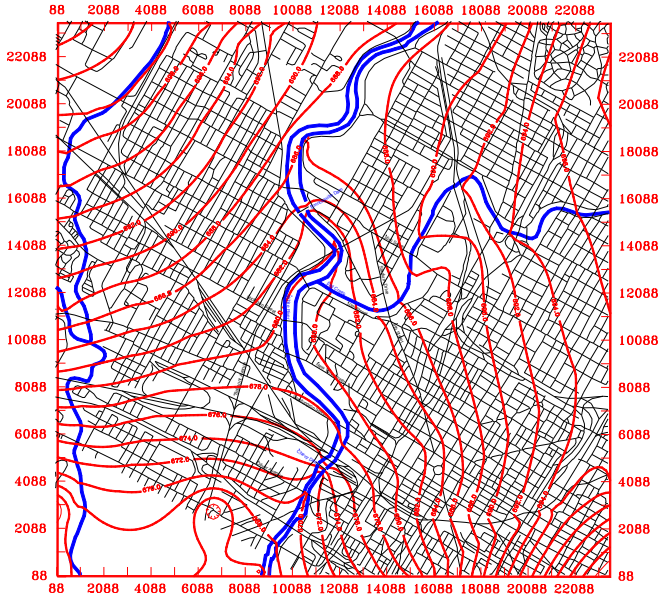
CASE HISTORY

Groundwater Hydrology Assessment - Central Indianapolis Waterfront Project

Challenge:



The comprehensive schematic master plan and design development plan for the White River State Park near the downtown area of Indianapolis, Indiana called for the consideration of increasing the visibility of the White River by increasing the existing river level. To accomplish this, an evaluation of the potential impact of this increase on the nearby groundwater system and vicinity subsurface structures was required. MUNDELL & ASSOCIATES, INC. (MUNDELL) was part of the technical team to perform the geologic, hydrogeologic, hydrologic and area data evaluations. A groundwater model was completed that was capable of predicting expected steady-state and transient groundwater level increases resulting from the river level increase and potential flood events that might also occur.

Action:

To accomplish this, MUNDELL and the technical team reviewed existing published data related to the White River drainage basin. New information along with historical area pumping rates and flooding conditions was used to construct and calibrate a regional groundwater flow model of the entire surface water/groundwater system. A comprehensive inventory was conducted of the location and depth of nearby subsurface structures including basements, sub-basements, elevator pits, transformer rooms, and parking garages.

Results:

The evaluation and analyses demonstrated the strong connection between the river and the extensive glacial outwash sand and gravel deposits in the area. The extent and severity of potential groundwater level changes relative to the proposed river level increase were estimated, as well as the behavior of the system during flooding conditions. Specific subsurface structures were identified that might be sensitive to river level changes, and an evaluation of possible remedial measures to mitigate the effects of increasing the river level were provided.