

# VARIOUS-VARIOUS DRAINAGE STUDIES AND HYDRAULIC REPORTS ILLINOIS DEPARTMENT OF TRANSPORTATION – DISTRICT 1



## CHALLENGE

*Complete various hydraulic reports and drainage studies at various locations that are requested from IDOT District 1 Hydraulics Section.*

HLR is under work order contract to complete various hydraulic tasks including:

- Hydraulic Reports
- Pump Stations Hydraulic Reports
- Location Drainage Studies
- Drainage Investigations
- Storm Sewer Televising
- Phase II plan preparation for drainage improvement projects

Authorization to proceed with contract to perform various Hydraulic reports and drainage studies is from 2009 to 2011.

## RESULTS

HLR has completed five work orders under the current contract and is preparing hydrologic and hydraulic analyses for a sixth work order. All work performed to date has been completed on time and within established budgets.

## SOLUTION

HLR was contracted to perform various hydraulic tasks. The work order performed so far include:

**Joliet Road over Flagg Creek, Hydraulic Report.** The scope of work for the existing bridge was superstructure removal and replacement. HLR prepared the Hydraulic Report that included a stream survey of Flagg Creek floodway and floodplain, development of stream cross sections, hydraulic analyses, bridge scour evaluation, development of Waterway Information Tables, HR data sheets and report narrative. The hydraulic modeling included both the effective FEMA WSP-2 and an independent HEC-RAS model to ensure accuracy of results.

**IL Route 176 at Shagbark Road, Drainage Investigation.** A business located at the intersection reported that the parking lot for his facility was experiencing flooding. HLR was contracted to investigate the cause and develop a proposed solution. The work order included storm sewer televising and a proposed drainage plan.

**IL Route 59 at Beach Grove Road, Drainage Investigation and Phase II plan preparation.** A resident living near the intersection reported that the property was experiencing flooding due to recent roadway improvements. HLR was contracted to investigate the cause of the flooding and design a proposed solution. The improvement included route surveying, sewer investigation, bid documents and Phase II plan preparation.

**IL Route 47 at Plato Road, Location Drainage Study.** HLR prepared a Location Drainage Study for the proposed intersection improvements. The Location Drainage Study is currently being prepared and includes delineation of existing watersheds, hydrology, culvert hydraulics, ditch design, Right of Way determination and outlet evaluations.

**IL Route 394 north of U.S. Route 30, Drainage Investigation.** The Bureau of Maintenance had discovered a sink hole developing within the median of IL Route 394. IDOT requested that HLR perform a drainage investigation into the cause of the sinkhole. The improvement included storm sewer televising and a proposed drainage plan and cost estimates.

**IL Route 176 drainage investigation in Lake Bluff.** The Village of Lake Bluff contacted IDOT concerning recent flooding in the viaduct along IL Route 176. HLR was contracted to investigate the condition of the existing storm sewer system along IL Route 176 including the outfall sewer for the roadway that is approximately 2,000 feet long. The work order included storm sewer televising and a proposed technical memorandum detailing the existing condition of the storm sewer system.