Project Profile

M-53 over Weston Drain
CS 44031, JN 111804D
Imlay Township, Lapeer County, Michigan

Spalding DeDecker Associates, Inc. (SDA) performed a structure, right of way, road design and hydraulic survey for this structure over the Weston Drain. The work was performed through the ***Statewide As-Needed Design Surveys*** contract. It included performing a detailed structure survey for the single-span structure, mapping the approach 1,400 feet north of the bridge and 1,000 south of the bridge, computing the legal alignment and right of way, and performing a hydraulic survey for the Weston Drain. All drafting was performed using **Power GeoPAK.**

Part of this project was a **hydrographic survey** performed for MDOT. Work was done in **State Plane Coordinates** based upon the CORS adjustment of **NAD83;** elevations were based on **NAVD'88** vertical datum established from NGS benchmarks. We completed detailed bridge sections, requiring familiarity with **bridge structure survey and nomenclature.** Work was performed according to MDOT's *Standards of Practice.* Points collected were coded according to these standards, using MDOT's feature codes. The crews were required to identify **vegetation changes/friction points**, **top of water** elevations, and apparent high-water marks.

We provided deliverables according to MDOT's *Standards of Practice*. This included a stand-alone survey portfolio, and a surveyor's report specifically for the hydraulic survey. The data was collected electronically in the field using MDOT's feature code list, imported through Leica Geo-office, and processed into **Power Geopak** for manipulation. The final deliverable included ASCII text files, Geopak and Microstation files, cross-section location sketches, structure sketches, electronic photos for the structure and each cross-section, and other deliverables according to the *Standards of Practice.*

The project also included a detailed **structure survey** of both the bridge, and the approaches (1,400 feet to the north and 1,000 feet to the south). The scope included establishing intermediate control using GPS RTK observations based upon **state plane coordinates**, Michigan South Zone (2113), and international feet based upon the CORS adjustment of **NAD83**. The vertical datum was **NAVD'88,** based upon observations to adjacent NAVD'88 benchmarks, made using an **electronic Leica DNA03 digital level**. Details requested for the bridge included: computing an as-constructed centerline alignment, reference point locations and elevations, bottom of beam elevations, and other details on the abutments and other bridge details. **Traffic control** was required to obtain road centerline elevations.

OWNER / CLIENT
Michigan Department of Transportation

PROJECT START - END
May 2012 – July 2012

SDA PROJECT NO.
SM12029

SDA SERVICES
Hydraulic Surveys
Structure Surveys

Field mapping was performed using a robotic Leica TCRP1203 total-station, utilizing the electronic MDOT feature code list. Data was downloaded into Leica Geo-office, exported as an ASHTO cal file, and processed with **Power GeoPAK**. All drafting was performed in Power GeoPAK. We provided deliverables according to MDOT's *Standards of Practice*. The final deliverable included all items required according to the *Standards of Practice,* which was included in a **survey portfolio**. Mapping was included in the Power GeoPAK file, and specific details requested on the structure were marked in red pen on existing bridge plans, and included in the survey portfolio.