



WAYNE COUNTY, MICHIGAN

Downriver Sewer Interceptor Project

The following pages show the installed Accusonic Series 7500 Flowmeter System and flow data hydrographs from several wet-weather periods collected for the Wayne County, Michigan Downriver Project. The system comprises a 3-path Accusonic flowmeter at the RD-1 Site off Alkali St., in a 72-in-dia interceptor sewer. The flowmeter transducers and auxiliary sensors were installed in September 1995 via a 27-ft vertical manhole shaft. Flow in the sewer was not diverted during installation, running about 18-in deep with 2-3 ft/sec flow velocity, as shown.

This was considered to be a challenging installation, but proceeded smoothly during two successive work periods. The transducers were mounted using collapsible stainless steel bands that were lowered down the 48-in-dia. manhole shaft and expanded into place within the sewer. Horizontal PVC bars were used to maintain spacing and alignment of the band-mounted transducers. The attached photographs show some of the details of the initial sewer installation and the as-found condition of the transducers one year later.

All of the in-sewer velocity and water level transducers are certified for Class I, Division 1, Group C Hazardous Atmosphere applications, and the installation included specialized cable conduit and fittings to meet this requirement.

The flow hydrographs illustrate two separate rain events during late October-early November. The data plots show flowrate (cfs), water level (ft), and flow velocities (ft/sec) from the 3-path measurement system. Note that the full-pipe surcharging level is 6 ft. Indicated levels greater than 6 ft. correspond to surcharging head. Flowrate measurement accuracy under high-flow conditions with all three paths submerged is within $\pm 3\%$ of true flow.

This system and a similar one at the County's P-1 Site have been in operation since September 1995, continuously collecting and logging high-accuracy flow data at the two sites. Telephone modems were included with the flowmeter systems, allowing remote dial-up access for viewing real-time flow conditions and down-loading recorded data by project personnel.

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Initial installation under wet conditions in 72-inch sewer.

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As-found condition of sewer flowmeter transducers one year after installation.
No maintenance nor cleaning had been performed.

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