

## **HR-314 Air Formed Arch Culvert Construction Crawford County**

**Key Words:** Air-Form Method, Arch Culverts, Bridge Replacement, Culverts, Inflated Balloon, Shotcrete

### **ABSTRACT**

Iowa's secondary road network contains nearly 15,000 bridges which are less than 12 m (40 ft) long. Many of these bridges were built several decades ago and need to be replaced. Box culvert construction has proven to be an adequate bridge replacement technique. An alternative to box culverts is the Air-Form method of arch culvert construction. The Air-Form method has several potential advantages over box culvert construction. The new technique uses inflated balloons as the interior form in the construction of an arch culvert. Concrete is then shotcreted onto the balloon form to complete the arch culvert.

The objective of research project HR-314 was to construct an air formed arch culvert to determine its applicability as an alternative county bridge replacement technique.

The project had the following results:

- The Air-Form method can be used to construct a structurally sound arch culvert.
- The method must become more economical if it is to compete with box culverts.