



CONDITION SURVEY AND LOAD ASSESSMENT OF HIGHWAY STRUCTURES

Project involving the collection of data on approx. 150 Bridges and Culverts

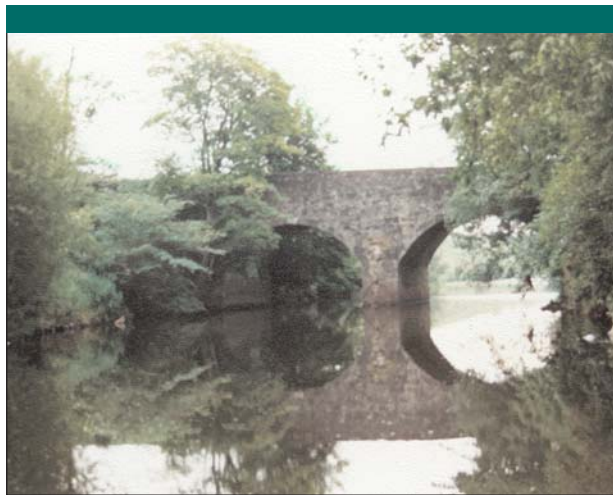
Client: Department of the Environment Northern Ireland, Craigavon

SUMMARY:

Status: Complete

Services Provided:

Bridge Inspection
Bridge Assessment



SCOPE OF PROJECT

The project involved the inspection, cataloguing of defects, dimensional survey and recording of survey data, collection of material data required for condition assessment and structural load assessment of approximately 150 bridges and culverts over a three year period. The type of construction included masonry arch, modified masonry arch, steel, reinforced concrete and prestressed concrete.

METHODOLOGY

Survey :

A dimensional survey of each bridge was carried out and a record drawing produced.

Inspection :

A visual inspection was carried out at each bridge site. All defects in the structures were logged by position, extent, severity and urgency of remedial action. Data was collected to enable a structural assessment to be carried out.

Outline Report :

At this point an outline report on the structure was prepared detailing the results of the visual inspection and identifying areas where further detailed investigation, specialist testing and opening up was required.

Site Testing :

Contract documents were then prepared based on the recommendations contained in the outline report for opening up and for further specialist testing. Tenders were invited from selected contractors and the investigation carried out.

Final Condition Report :

From the results of the visual inspection and the site testing a full condition report was compiled and submitted to the client along with record drawings and a standard bridge inspection record. On the basis of this report a structural load assessment may then be required by the Client.

LOAD ASSESSMENT :

Load assessments were carried out in accordance with the Highways Agency Technical Memoranda. Masonry arch bridges were assessed for 40 tonne loading and for HB loading. The MEXE technique was used initially and where required collapse mechanism analysis was carried out using the "ARCHIE" and MULTI" computer programmes. Analysis of concrete bridges was carried out using the "LEAP5" programme with grillage or finite element analysis as appropriate. A detailed report including calculations was produced giving the load capacity of the bridge.

