T1

STANDARD BRIEF FOR PROFESSIONAL SERVICES

STRUCTURAL ASSESSMENT
DEPARTMENT of INFRASTRUCTURE, ENERGY and RESOURCES

STANDARD BRIEF FOR PROFESSIONAL SERVICES

STRUCTURAL ASSESSMENT  Juny 2000

CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1.1 SCOPE</td>
<td>1</td>
</tr>
<tr>
<td>T1.2 GENERAL</td>
<td>1</td>
</tr>
<tr>
<td>T1.3 CONDITION ASSESSMENT</td>
<td>1</td>
</tr>
<tr>
<td>T1.4 CONCRETE CONDITION ASSESSMENT</td>
<td>1</td>
</tr>
<tr>
<td>T1.5 STRUCTURAL ASSESSMENT</td>
<td>2</td>
</tr>
<tr>
<td>T1.6 LOAD TESTING</td>
<td>2</td>
</tr>
<tr>
<td>T1.7 NOTIFICATIONS TO PRINCIPAL’S REPRESENTATIVE</td>
<td>3</td>
</tr>
<tr>
<td>T1.8 CLIENT SUPPLIED PRODUCT</td>
<td>3</td>
</tr>
<tr>
<td>T1.9 HOLDPOINTS AND DELIVERABLES</td>
<td>3</td>
</tr>
</tbody>
</table>

APPENDICES:

T1.A  Schedule of Holdpoints and Deliverables
T1.1 SCOPE

This Standard Brief sets out the requirements for the condition assessment of existing bridges, box culverts and other significant structures.

T1.2 GENERAL

Reports shall be prepared for each structure under assessment in accordance with the Standard Planning Brief.

Additional requirements for the Issues Identification Report shall include, but not necessarily limited to, the results of:

i) Condition Assessment
ii) Concrete Condition Assessment
iii) Structural Assessment

Additional requirements for the Planning Report shall include, but not necessarily limited to:

i) Results of Load Testing
ii) Tabulations of loads, forces and effects of both serviceability and ultimate limit states
iii) Recommendations and associated costs of strengthening works to carry the load specified in the Project Brief
iv) Colour photographs or colour photocopies demonstrating all relevant aspects of the work.

T1.3 CONDITION ASSESSMENT

The Consultant shall undertake a comprehensive assessment of the physical condition of the structure with emphasis on any aspects identified in the Project Brief.

T1.4 CONCRETE CONDITION ASSESSMENT

The Consultant shall undertake a corrosion survey of the nominated structures that will include, but not necessarily be limited to:

i) defect mapping (includes cracking, delamination and reinforcement corrosion);  
ii) corrosion potentials;  
iii) concrete resistivities;  
iv) reinforcement covers - all data including summaries, individual measurements, their associated locations and specified covers shall be provided;  
v) analysis of concrete cores for carbonation, cement content, strength, water cement ratio, density, chloride profiles and sulphate profiles.
The Consultant shall clearly identify each element of the structures and relate survey results to these elements accordingly.

One core from each structure, desirably of 75 mm diameter, is to be supplied to the Principal’s Representative for testing for evidence of alkali aggregate reactivity and for permeability testing. The portion of core used for permeability testing shall include cover zone concrete.

The Consultant shall be responsible for all equipment required for access to and assessment of the structures, including concrete coring, and shall make provisions to allow simultaneous access for the Principal’s Representative.

The Consultant shall be responsible for reinstatement of core holes and other removed concrete with polymer modified cementitious repair mortars, used strictly in accordance with the Manufacturer’s Recommendations.

Based on the results of the corrosion survey, the Consultant shall assess the residual life of principal structural members.

**T1.5 STRUCTURAL ASSESSMENT**

The Consultant shall carry out a detailed structural analysis of the nominated structure(s).

Structural analysis shall be in accordance with Australian Bridge Design Code and Austroads: Guidelines for Bridge Load Capacity Assessment. Any interpretations and qualifications of the Code contained in Structural Design Standard Brief shall apply.

The results of any corrosion survey undertaken in accordance with Clause 3 of the Australian Bridge Design Code shall be taken into account.

**T1.6 LOAD TESTING**

A Load Testing Proposal shall be prepared where load testing is to be carried out. The Proposal shall include the determination of critical locations for instrumentation, an assessment of pre-existing stress levels, the determination of proof loads and rated loads for the structure.

Rating shall be in accordance with Austroads Guidelines for Bridge Load Capacity Assessment.
The Consultant shall carry out load testing of the nominated structures. This work shall include the provision of materials, plant, labour and ancillary services for:

(i) Supply and erection of scaffolding to undertake instrumentation;

(ii) Instrumentation of the structures;

(iii) Measurement of the static and dynamic responses induced by the various load combinations proposed in the Load Testing Proposal. All tests shall be subject to proof load calculations and risk assessment;

(iv) Measurement of the dynamic response of a sample of through traffic. The through traffic shall not be stopped for measurement or weighing;

(v) Measurement, recording and photography of defects including cracking;

(vi) Interpretation of results from instrumentation of the bridges and calibration of structural analysis models.

(vii) Determination of the effects of the loadings taking into account the above results and calibration.

T1.7 NOTIFICATIONS TO PRINCIPAL’S REPRESENTATIVE

On detecting significant defects, which may affect a structure’s capacity to carry normal traffic, the Consultant shall immediately advise the Principal’s Representative. Scaffolding shall not be removed until the Principal’s Representative has inspected the defects.

T1.8 CLIENT SUPPLIED PRODUCT

Electronic drawings of the structure(s) are included with the Project Brief.

T1.9 HOLDPOINTS AND DELIVERABLES

A Schedule of Holdpoints and Deliverables is attached as Appendix T1.A.
APPENDIX T1.A
Schedule of Holdpoints and Deliverables
STRUCTURAL ASSESSMENT

SCHEDULE OF HOLDPOINTS

<table>
<thead>
<tr>
<th>Description of Holdpoint</th>
<th>Nominated Work not to proceed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection of defects by Principal’s Representative</td>
<td>Dismantling of any scaffolding</td>
</tr>
<tr>
<td>Acceptance of Load Testing Proposal</td>
<td>Load testing of structure</td>
</tr>
<tr>
<td></td>
<td>(Two weeks shall be allowed for the review and holdpoint release)</td>
</tr>
</tbody>
</table>

SCHEDULE OF DELIVERABLES

<table>
<thead>
<tr>
<th>Name</th>
<th>Timing</th>
<th>No. of Copies in Format Shown</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Hard Copies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bound</td>
</tr>
<tr>
<td>Load Testing Proposal</td>
<td>At completion of structural analysis and determination of proof loads. To be incorporated in the Issues Identification Report</td>
<td>As per Standard Planning Brief</td>
</tr>
<tr>
<td>Issues Identifications Report</td>
<td>As per Standard Planning Brief</td>
<td></td>
</tr>
<tr>
<td>Planning Report</td>
<td>As per Standard Planning Brief</td>
<td></td>
</tr>
</tbody>
</table>