

Forth Road Bridge
Strengthening of End Link Brackets For N.E. /
S.E. Towers
Application for Departures from Standards



SUBMISSION FOR VOLUME 1, 2 AND 3 DEPARTURE FROM STANDARDS

DEPARTURE FROM STANDARDS

Name of Works:

Strengthening of End Link Brackets For N.E & S.E Towers

(Bridges and other Highway Structures)

Name of Bridge or Structure: Forth Road Bridge

Structure Reference Number: N/A

OVERSEEING ORGANISATION NAME: Transport Scotland

APPLICATION FOR DEPARTURE FROM STANDARDS – DMRB Vol 1 Section 3 Part 14 BD 37/01

APPLICANT: Fairhurst

PROJECT TITLE: Strengthening of End Link Brackets For N.E & S.E Towers

DEPARTURE No: 005

STRUCTURE REF: Forth Road Bridge

SUBMISSION DATE: 19/11/15

1. List of supporting documentation

Standards: Design Manual For Roads and Bridges (DMRB) Volume 1 Section 3 Part 14 DB 37/01
Design Manual For Roads and Bridges (DMRB) Volume 1 Section 3 Part 14 DB 37/88

Drawings: None

Other: None

2. Description of proposed departure

(Include details of DMRB / Eurocode Standards and Clause numbers which are being departed from)

Reduced max wind gust speed of 50mph from BD37/88 Table clause 5.3. Calculating strictly in accordance with BD 37/88 then combinations comprising wind and live load would be based on a maximum wind gust speed of 78mph

3. Designer / Assessor justification

(Include reasons why existing DMRB / Eurocode Standards are inappropriate)

Where wind loading is applied in conjunction with live loading the wind load is based on a reduced maximum wind gust speed of 50mph and applied in accordance with BD37/88. The application of the wind loading is based on BD 37/88 as it allows for the greater loaded lengths considered in the assessment. The approach taken in BD 37/01 is different and the standard states that it is limited to spans up to 200m in length i.e. half the length of a side span of the Forth Road Bridge.

The load factors quoted in Table 1 of BD 37/01 will be adopted for the assessment. 50mph gust speed is based on the operational procedures which the Forth Road Bridge have in place under high wind situations. At wind speeds 50mph and above the Forth Road Bridge restrict traffic to cars and light vans. In this situation normal traffic loading represented by BSALL will not be achieved.

4. Cost implications

(Include an estimate of cost savings to Transport Scotland as well as the effect on future maintenance costs)

4.1. Construction costs

Adopting standard loading for the assessment of the bridge and design of strengthening works will lead to significant works across the bridge structure to achieve code compliance. Reducing the load factor for the bridge reduces the extent of interventions required. The approach proposed by this departure is considered a pragmatic response to the assessed structural issues

4.2. Maintenance costs

NA

5. Applicant design of the Works Team Leader Declaration:

I declare that reasonable professional skill and care have been exercised in the preparation of this Departure submission.

Signed:

Name:

C.A. Cunniff

Date:

15th Nov 2015

6. Overseeing Organisation Bridges Branch Comments and Recommendation:

I recommend that the above departure should be accepted / ~~rejected~~

Signed:

Name:

Date:

23-11-15.

7. Overseeing Organisation Recommendation

The above Departure is approved / ~~rejected~~.

Signed:

Name:

Date:

J.S.W. Hines
24 Nov 2015.