

Great Yarmouth Third River Crossing

Application for Development Consent Order

Document 7.4d: Design Report: Appendix D - Lighting Report

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended) (“APFP”)

APFP regulation Number: 5(2)(q)

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Foreword

This Design Report: Appendix D - Lighting Report accompanies an application (“the Application”) submitted by Norfolk County Council (“the Applicant”) to the Secretary of State for a Development Consent Order (‘DCO’) under the Planning Act 2008[i].

If made by the Secretary of State, the DCO would grant development consent for the construction, operation and maintenance of a new bascule bridge highway crossing of the River Yare in Great Yarmouth, and which is referred to in the Application as the Great Yarmouth Third River Crossing (“the Scheme”).

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended) require that an application for a DCO be accompanied by the documents specified at Regulation 5(2)(a) to (r). This is one of those documents and is specified at Regulation 5(2)(q).

i) References to legislation in this document are to that legislation as amended at the date of this document

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Glossary of Abbreviations and Defined Terms

DNO	Distribution Network Operator
PCN	Private Cable Network
CMS	Central Management System
NCC	Norfolk County Council
DMRB	Design Manual for Roads and Bridges
LED	Light Emitting Diode

1 Introduction

1.1 This report analyses the impact of proposed road lighting scheme and make recommendations for the implementation of systems compliant with applicable standards and guidance. The effect on the local environment will be considered, to ensure the right light is provided, at the right place, at the right time. This document considers the following:

- The need for lighting;
- The standard of lighting that is appropriate;
- An overview of the highway lighting proposal.

2 Strategy and Design

2.1 The Need for Lighting

2.1.1 This section provides an overview of the objective and subjective influences that affect the introduction of lighting.

2.1.2 There is no statutory requirement on local authorities in the UK to provide public lighting, although it is good practice to provide efficient and useful lighting if a road is to be lit. The key legislative background is as follows:

- The Highways Act empowers highway authorities to light roads but does not place duty to do so;
- The local authority has a statutory duty under the Highways Act to ensure the safety of the highway and this includes the safe operation of any physical lighting equipment placed on the highway
- The Electricity at Work Regulations impose a duty on owners and operators of electrical equipment to ensure its safety

2.1.3 The Crime and Disorder Act states each local authority needs to do all it reasonably can to prevent crime and disorder and to ensure its services give due regard to crime and disorder. The provision of lighting may be considered good practice and adherence to the lighting levels defined in BS 5489-1:2013 Code of Practice for the Design of Road Lighting Part 1: Lighting of Road and Public Amenity Areas will prove that recognised guidance is being followed.

2.1.4 Based on the above information and the locality of the project to the town centre and residential properties it is considered that there is a need to provide street lighting.

2.1.5 An indicative design has been developed for the bridge, approaches, adjoining junctions and local access roads to support this report. This indicative design is described in this Lighting Report.

2.2 Lighting Classifications

2.2.1 Through dialogue with NCC's Street Lighting Service Provider, Amey Highways, the Applicant has agreed an indicative lighting class for each section of highway. The agreed indicative lighting classes have been taken from BS 5489-1:2013 Code of Practice for the Design of Road Lighting Part 1: Lighting of Road and Public Amenity Areas.

- 2.2.2 The chosen indicative lighting classes detailed in Table 2.1 below are based upon the specific parameters of each road including, road speed, pedestrian activity and road type.

Table 2.1: Agreed Lighting Classes

Road / Location	Lighting Class
William Adams Way Link	M3
William Adams Way Roundabout	C2
William Adams Way to Beccles Road/Southtown Road Junction	M3 / C2
Southtown Road	M4
Suffolk Road	M4
Queen Annes Road North	P2
Queen Annes Road Turning Head	P5
William Adams Way Roundabout link to Bridge Deck	M4
Bridge Deck to South Denes Road	C3
South Denes Road	M4
Southgates Road	M4

2.3 Colour Temperature

- 2.3.1 LED sources are generally available in three distinct colour temperature ranges: warm white (~3000K), neutral white (~4000K) and cool white (~5000K or above). It is recommended that a neutral white option is used for functional street lighting. This range reduces many of the disadvantages of very cool sources, whilst offering the benefits of a white light source to the interaction between different user groups. The outline design has utilised neutral white (~4000K).
- 2.3.2 A white light source will have the added advantage of being least at risk of being confused with signals for railways and waterways.

2.4 Variable Lighting Levels

- 2.4.1 BS 5489-1:2013 Code of Practice for the Design of Road Lighting Part 1: Lighting of Road and Public Amenity Areas section 4.4.4 Variable Lighting Levels provides guidance on increasing and decreasing lighting levels. Further guidance is available in PLG08 Guidance on the Application of

Adaptive Lighting within the Public Realm (Institution of Lighting Professionals, 2016).

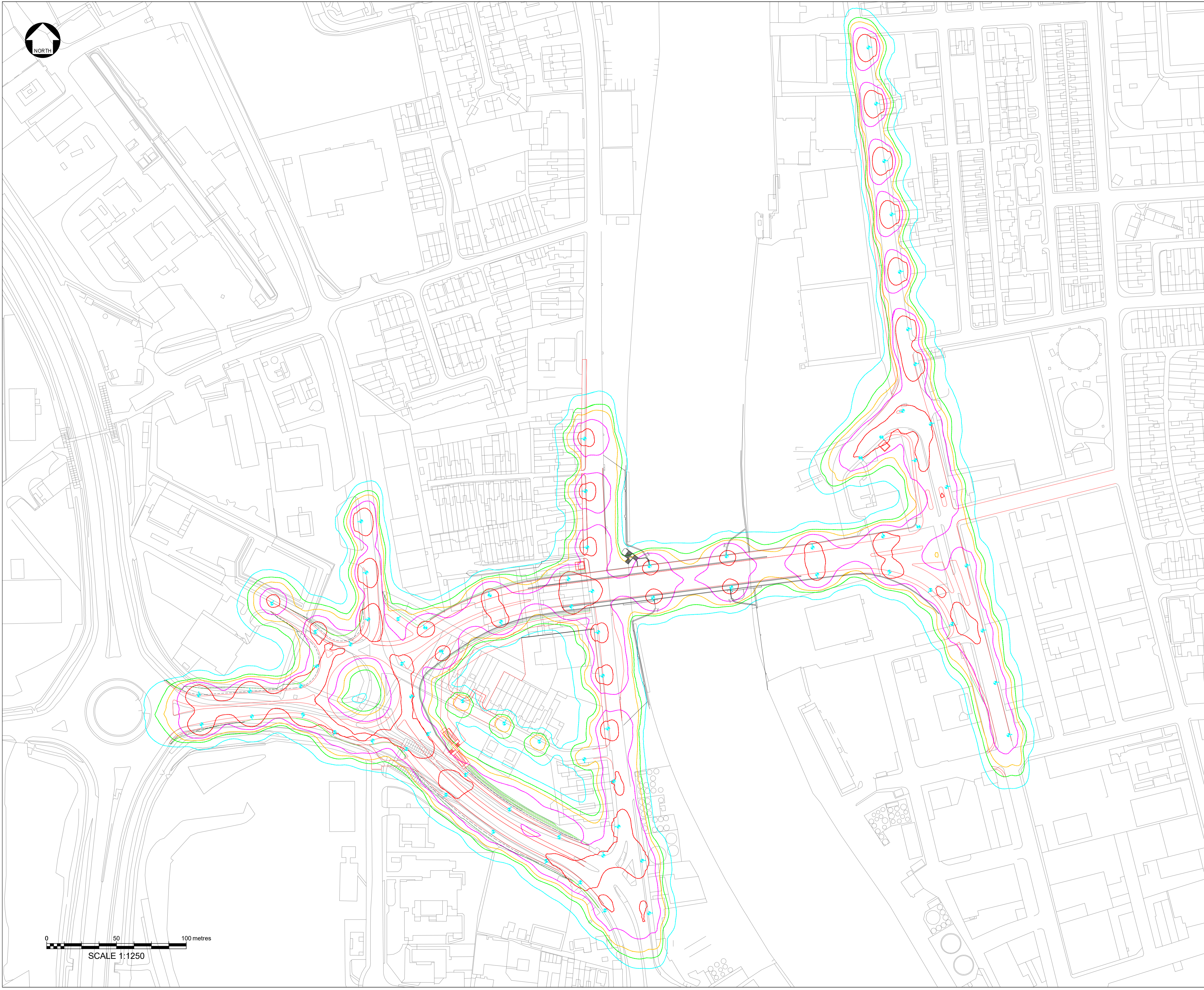
- 2.4.2 It has been agreed with NCC that the variable lighting can be applied to the proposed lighting units on this project. Through variable lighting, some of the roads can have energy usage reduced by up to 40% at certain times of the night. Any dimming regimes will be the responsibility of the Applicant, as highway authority.







2.5 Apparatus

- 2.5.1 The indicative street lighting design for the streets has been designed using a LED light source of various lumen outputs and configurations. The lumen is a measure of the total amount of visible light (to the human eye) from a lamp or light source. The higher the lumen rating the “brighter” the lamp will appear.
- 2.5.2 Luminaires of various sizes to suit the road type and usage would be mounted on 5m, 6m, 8m, 10m and 12m tubular steel lighting columns. The luminaires supplied shall be compatible with the Central Management System (CMS) currently utilised by NCC as highway authority.
- 2.5.3 Lighting column spacings have been maximised so no columns have been mounted on the opening section of the bridge.
- 2.5.4 Distribution Network Operator (DNO) service connections have been proposed to all apparatus except for any apparatus mounted on traffic islands and the proposed bridge.
- 2.5.5 It is anticipated the bridge lighting columns are to be supplied from the bridge control room via a Private Cable Network (PCN).
- 2.5.6 Apparatus installed on traffic islands, are all to be supplied via a PCN via DNO supplied Apparatus in the verge.
- 2.5.7 All distribution and road lighting cable would be run in orange UPVC duct.. Where road crossings are proposed, it is recommended to install a spare parallel orange duct for any future additional supplies or works.

3 Isolux Contour Plans

- 3.1 These following page contains an isolux contour plan of the illustrative road lighting layout.
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- Key:**
-  Indicative new lighting column.
 -  20 Lux
 -  10 Lux
 -  5 Lux
 -  3 Lux
 -  1 Lux

Notes:

- This plan should be read in conjunction with the Development Consent Order and the documents it refers to.

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 ROAD LIGHTING ISOLUX CONTOURS
 (REGULATION 5(2)(a) and (o))

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 FOR DCO APPLICATION

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