

**TRANSPORT AND WORKS ACT 1992
TRANSPORT AND WORKS (INQUIRIES PROCEDURES)
RULES 2004
THE NETWORK RAIL (OXFORD STATION PHASE 2
IMPROVEMENTS (LAND ONLY) ORDER)**

**ENGINEERING
SUMMARY PROOF OF EVIDENCE
Lawrence Walton MEng (Oxon) GMICE**

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THE NETWORK RAIL (OXFORD STATION PHASE 2 IMPROVEMENTS (LAND ONLY)) ORDER

Summary Proof of Evidence – Engineering

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1. INTRODUCTION

- 1.1. I am Lawrence Walton, MEng (OXON) GMICE. I am a Designated Project Engineer at Network Rail having been employed in the railway industry since 2009, having worked on Reading Station, the Crossrail Stockley Flyover Project and Enhanced Stations West Drayton, Hayes and Harlington and Southall.
- 1.2. I have been the lead Designated Project Engineer for the Oxford Station Phase 2 Improvements Project (hereinafter referred to as the 'OSP2 Project') since March 2021, having taken over from Andy Willson who developed the design from Option Selection stage through to the end of Approval in Principle.
- 1.3. The Oxford Station Phase 2 Improvements (Land Only) Order is required to facilitate the improved capacity and capability on the 'Oxford Corridor' (Didcot North Junction to Aynho Junction) to meet the Strategic Business Plan objectives for capacity enhancement and journey time improvements. The OSP2 Project forms part of a package of rail enhancement schemes which deliver significant economic and strategic benefits to the wider Oxford area and the country. The enhanced infrastructure in the Oxford area will provide benefits for both freight and passenger services, as well as enable further schemes in this strategically important rail corridor including the introduction of East West Rail services in 2024.
- 1.4. The works comprised in the OSP2 Project can be summarised as follows:
- A new through platform on the west side of Oxford Station to form a second face to the existing Platform 4, including additional waiting facilities, toilets, retail units and construction of a new canopy along the platform length. This will be known as Platform 5.
 - New track connections to the line from Platform 5, which will allow trains to leave both Platform 4 and 5 at the same time, both northbound and southbound.
 - A new western station entrance from Cripsey Road, off Botley Road.
 - A new span over Botley Road to accommodate the additional downside platform line. This will incorporate highways improvements to provide dedicated cycleway and footpaths and improve the road gradient and clearances below the bridge to allow the use of normal height double decker buses, as well as passive provision for an additional rail span to the east.

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- Re-routing of Roger Dudman Way, removing the junction where it joins Botley Road and creating a new access onto Cripsey Road, to make space for the western entrance.
- A new rail span over Castle Mill Stream to facilitate the Platform 5 line.
- Replacement of road span of Sheepwash Bridge and adjoining footbridge structure on a new alignment.

2. STRUCTURE OF THE PROOF OF EVIDENCE

2.1 My Proof of Evidence will provide the technical background and engineering justification for the OSP2 Project and will cover the matters set out below:

2.1.1 The state of the railway system in Oxford prior to implementation of the OSP2 Project.

2.1.2 A statement of the technical improvements to the railway system delivered by the OSP2 Project.

2.1.3 Safety requirements and statement for how these are discharged.

2.1.4 Consideration of the relevant Objections with engineering justification showing how compulsory purchase under the Order has been minimised.

3. TECHNICAL CONSIDERATIONS

3.1 The state of the railway system in Oxford prior to implementation of the OSP2 Project

3.1.1 Oxford Railway Station sits on the Didcot Chester Line (DCL), about 850m west of Carfax Tower in Oxford city centre. It is bounded by Botley Road to the south, the Oxford University Said Business School to the east, Castle Mill Stream (also known as Sheepwash Cut) to the north, and Roger Dudman Way road to the west.

3.1.2 All lines are currently unelectrified, therefore trains in regular service are powered by diesel fuel.

3.1.3 Oxford Station consists of four operational platforms. On the east side of the station, platform 1 and 2 are bay platforms for route to the north of Oxford, where trains turn back once arrived at Oxford. Platforms 3 and 4 are through platforms. In addition to the platforms there are two through lines where freight and other non-stopping trains can pass each other and other trains stopped in the platform.

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3.2 A statement of the technical improvements to the railway system delivered by the OSP2 project

3.2.1 Feasibility Report 122151 CP5 Oxford Corridor Phase 2 from April 2014 looked at the options for the whole of Oxford Phase 2 (**C16**), including two track options for the Island Platform 4/5, focusing on the track alignment to the south.

3.2.2 Option Selection Report “Oxford Corridor CP5 - Phase 2 Option Selection Report” by TSP, reference W1002B-TTS-REP-EMG-000002 (November 2014) (**C3**) undertook a more technical consideration of the options, alternatives and constraints specifically for Oxford Phase 2. This looked at:

- Track alignment.
- Sheepwash Bridge.
- Geotechnical considerations.
- Botley Bridge highway geometry.
- Botley Road has had three options for form explored including constructability:
 - Single 19m Orthotropic Steel Deck;¹
 - 10m Orthotropic Steel Deck with RC Walkways;
 - Three Span Orthotropic Steel Deck.
- Other options for platform capacity were explored as noted in the Sponsor Proof by Christopher Nash at section 3.5.12.
- Options for canopy position (to platform 4, or platform 4/5) and platform building construction.
- Options for the Western Entrance have been explored including road access to drop off areas and the alignment of Roger Dudman Way and Cripsey Road.

3.2.3 Following the option stages, a single option was decided on based on the evidence provided in the Feasibility Study and Option Selection Report and was developed, as summarised below.

¹ Efficient structural steel bridge deck with deck plate stiffened in one primary direction

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3.2.4 There will be a new platform 5, 275m long. The provision of an additional ‘through’ platform 5 will allow more trains to run and improve reliability. The new track layout will allow for two trains to leave Platform 4 and 5 simultaneously, either northbound or southbound. The platforms will have the capability of splitting and joining trains (e.g. two class 80x 5 car Intercity Express Train at 130m each).

3.2.5 The new Western Entrance building will provide a secondary entrance to the station, relieving passenger congestion in the existing station, particularly at paid gatelines and when waiting to cross the railway via the existing bridge, which enables faster platform clearance times for improved safety and comfort.

3.2.6 Cycle parking close to the new Western Entrance will be provided, for up to 360 cycles.

3.2.7 Future rail service provision of the station is for East West Rail train services to Milton Keynes, Bedford and Cambridge and for further train capacity improvements proposed in the longer term via the Oxfordshire County Oxford Rail Corridor Strategy, including new services to Cowley, potentially new services to the south west, additional trains to Birmingham and Worcester, and additional freight trains.

3.2.8 The provision of a new platform 5 triggers the need to provide a new rail bridge over Botley Road and Sheepwash Bridge, as there is no span currently on the new track alignment, and significant alterations to the west of the platform including Roger Dudman Way Road are required.

3.2.9 Platform 4/5 is configured for step-free access from the Western Entrance, with lift facilities from the western subway to the platform level. Platform 4/5 also gains extended canopies for improved passenger comfort that are also designed to accommodate overhead line electrification.

3.2.10 Botley Road is the primary route from the centre of Oxford to the west of the city and is often heavily congested, with poor cycling/pedestrian provision at the bridge location. The opportunity is therefore being taken to provide significant highway improvements at the same time as the rail scheme, at this critical location.

3.2.11 The OSP2 Project is being designed with passive provision for overhead line electrification works to be completed by others in the future, in support of the Department for Transport’s Decarbonisation Strategy for net zero CO2 emissions for the Railway by 2050.

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3.3 Safety Requirements of the Scheme

3.3.1 It will be necessary to go through the necessary regulatory process and obtain a safety authorisation before the scheme can be operated. These are standard requirements and there is no suggestion that there will be any issues in terms of achieving compliance. I briefly describe the process and authorisations as follows.

3.3.2 Network Rail complies with Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS) (S.I. 2006/599) (**B22**). This was introduced to put the requirements of the 2004 European Railway Safety Directive (**B23**) into practice in Great Britain. The Directive aims to continue to remove barriers to providing international transport services by creating a common framework for railway safety across the European Union and Great Britain.

3.3.3 Under ROGS, Network Rail is required to apply the Common Safety Method for Risk Evaluation and Assessment (CSM-REA) so that a 'suitable and sufficient' risk assessment is undertaken on technical, operational or organisational changes made to the railway that could significantly affect safety. This safety authorisation needs to be undertaken for CSM REA as the OSP2 Project has been assessed as being "CSM Significant" due to the level of complexity of the system change. This instigates third party authorisation and checks throughout the lifecycle of the project, which will be undertaken by the National Certification Body, an independent company under the Network Rail Group.

4. ENGINEERING CONSIDERATION OF OUTSTANDING OBJECTIONS

4.1 Introduction

4.1.1 This section in my main proof of evidence identifies each outstanding objection that requires an engineering response, as cross-referenced from John Dawe Lane's Property Proof of Evidence. These are listed below, and in my main proof the engineering response is given. The responses are not summarised here as each element of the engineering response is designed to be read as a whole.

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4.2 OBJ/3 – David Bradbury

4.3 OBJ/4 – Select Service Partner Limited ('SSP')

4.4 OBJ/6 – The Chancellor Masters and Scholars of the University of Oxford ('Oxford University') & OBJ/7 Oxford University Fixed Assets Limited ('OUFAL')

4.5 OBJ/22 Property: Kenmare Estates Limited (Co-op') The Co-op Children's Nursery, 1 Roger Dudman Way, Oxford, OX1 1HW. OBJ/09 - OBJ/16 & OBJ/18 - OBJ/28 – Osney Lane/Mill Street, Cemetery Footbridge

5. CONCLUSIONS

5.1.1 I am satisfied that the technical design of the scheme is appropriate, will achieve the scheme's objectives, and complies with best engineering practice.

5.1.2 The scheme has been developed to date to yield the most appropriate engineering solution taking into account all stakeholders, landowners, operational constraints and technical limitations.

5.1.3 Network Rail have sought to minimise the impact of the OSP2 Project upon the objectors through engineered solutions.

5.1.4 Alternatives have been considered but are not feasible, including the substantial remodelling of Sheepwash Bridge to avoid land take from the Co-op nursery. Sequencing of the Sheepwash Bridge remodelling has been considered to avoid road closures, with a fall back option of alternative access from the north. Staging and constructability issues have been considered, as well as the facilities for passengers and staff, and for the location of the Pumpkin café during the works.

6. WITNESS DECLARATION

6.1 Statement of declaration

6.1.1 I hereby declare as follows:

6.1.2 This proof of evidence includes all facts which I regard as being relevant to the professional opinion which I have expressed and I have drawn the inquiry's attention to any matter which would affect the validity of that opinion.

6.1.3 I believe the facts which I have stated in this proof of evidence are true and that the opinions are correct.

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Signature

A handwritten signature in blue ink, appearing to read 'Law', is positioned above the name Lawrence Walton.

Lawrence Walton

05/11/2021