

**PROOF OF EVIDENCE OF STEPHEN BARKER
ENGINEERING**



THE CHILTERN RAILWAYS (BICESTER TO OXFORD IMPROVEMENTS) ORDER

TRANSPORT AND WORKS ACT 1992

**TRANSPORT AND WORKS (APPLICATIONS AND OBJECTIONS PROCEDURE)
(ENGLAND AND WALES) RULES 2006**

Chiltern Railways

24 SEPTEMBER 2010

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1. QUALIFICATIONS AND EXPERIENCE

- 1.1. My name is Stephen Barker. I am employed by The Chiltern Railway Company Ltd (“Chiltern Railways”) as the Infrastructure Interface Manager for the Evergreen 3 project. I have a MEng in Civil Engineering and am a Graduate Member of the Institution of Civil Engineers.
- 1.2. I have worked in the field of railway infrastructure engineering for over 18 years. During this time, I have undertaken roles in research and development, infrastructure asset management, business development and design and specification of railway upgrade schemes.
- 1.3. My employment with Chiltern Railways commenced in 2001. During my time with the company I have provided engineering advice to the company and others within the DB Regio UK Group. I have advised on the design and specification of many of the infrastructure upgrade projects undertaken by the company on Network Rail infrastructure. I have also provided consultancy services to a range of external clients (through Chiltern’s former parent company, Laing Rail), primarily on schemes for new stations and for reopening disused railways.
- 1.4. I first became involved with the Bicester – Oxford Improvement scheme in 2003, providing advice on the engineering issues associated with the various route options then under consideration. I went on to provide advice on the preferred option scheme and developed this option to provide an outline scope of work for the scheme.
- 1.5. In 2006, I was involved in the development of the East West Rail Link scheme, undertaking a significant proportion of the engineering and operational development work that formed part of the “Grip 2” study into that project.
- 1.6. Since late 2008 I have been working full time on the engineering and operational development of the Bicester to Oxford Improvements scheme and have been responsible for many of the decisions that have shaped the proposed scope of works.

2. SCOPE AND NATURE OF EVIDENCE

- 2.1. I am presenting evidence on behalf of Chiltern Railways.
- 2.2. My evidence describes the scope of proposed infrastructure works and the development process that was undergone to determine that scope. It also describes the option development process that was undergone in respect of the main elements of the project.
- 2.3. The Secretary of State has set out the Matters (X/4) about which he particularly wishes to be informed. My evidence will address the following Matters or aspects of them:
 - The justification for the particular proposals in the draft TWA Order, including the anticipated transportation, regeneration, environmental and socio-economic benefits of the scheme. (2)
 - The main alternative options considered by Chiltern Railways and the reasons for choosing the proposals comprised in the scheme (3)
 - Whether there is a compelling case in the public interest for conferring on Chiltern Railways powers to compulsorily acquire and use land for the purposes of the scheme (14)
- 2.4. My evidence also addresses matters raised by objectors to the Chiltern Railways (Bicester to Oxford Improvements) Order (CD/1.2) to the extent that these relate to the engineering and operational development and the construction of the scheme.
- 2.5. My proof is accompanied by 2 appendices. Appendix 1 (CRCL/P/6/B1) comprises a book of photographs, which illustrate the route of the scheme as it currently is. Appendix 2 (CRCL/P/6/B2) comprises, in section 1 annotated plans and in section 2, which help the reader understand the relative locations of various features of the route and describe particular aspects of the scheme. Where my text refers to a photograph or figure, these can be found in these two appendices.
- 2.6. A substantial part of my evidence consists of the Engineering Description of the Scheme. This section of my evidence can be made available as a standalone document if required.

3. SCHEME DEVELOPMENT

- 3.1. In this section of my evidence, I will describe the development of detailed features of the Order scheme. The strategic development of the scheme, including the selection of the route and specific station locations is described in the evidence of Mr Allan Dare (CRCL/P/2/A)
- 3.2. The decision to use the existing Bletchley – Oxford line between Bicester and Oxford as the means of reaching Oxford from the London Marylebone – Birmingham Moor Street line was taken in 2002/03.
- 3.3. At that time, some initial work was undertaken to examine how the railway might be configured in order to deliver the proposed train services.
- 3.4. Between 2003 and 2008, relatively little work was undertaken to develop the scheme further.
- 3.5. In mid 2008, work on the scheme re started in earnest. The first stage of the work was to define the engineering specification for the scheme. As with all railway schemes, this was an iterative process that involved the examination of various train service timetables, their impact on expected revenues and the level of infrastructure required to deliver each timetable robustly. This work was undertaken in parallel with work to define the scope of works for the upgrade of London Marylebone – Birmingham Moor Street line that is presently in construction.
- 3.6. By the end of 2008, it had been concluded that in order to deliver the proposed train service timetable robustly and to provide flexibility to accommodate future timetable changes, a double track railway should be provided over much of the route. The proposal therefore included double track from the proposed junction with the London Marylebone – Birmingham Moor Street line through to the Wolvercote area. It was decided that a single track would be constructed over the final 2 miles of route in order to allow for a connection of suitable length to the existing railway at Oxford North Junction and to allow for continued vehicular access (for maintenance purposes) along the presently disused railway alignment south of Oxford North Junction.
- 3.7. During the first quarter of 2009, efforts were focused on developing options for the station sites and level crossings. During January, a range of concept options were developed for each of the station sites. These options considered a range of alternative layouts for each site, including alternative siting of car parks, platforms and buildings.
- 3.8. A panel of experts gathered in early February 2009 to review the options. Many of the options were dismissed because they did not provide an operationally suitable layout or because they had unacceptable impacts in terms of environmental, planning or land and property acquisition. A short-list of options was therefore produced for Oxford, Water Eaton Parkway and Islip stations. Development of the options at Bicester Town lagged behind the other stations while work was undertaken to determine if a viable solution existed for the closure and removal of London Road level crossing. The proximity of the station to the crossing means that the position of the platforms (and hence other facilities) is dictated by the signalling associated

with the crossing. Also, any bridge built to replace the crossing could impact on the arrangement of the station site.

- 3.9. By mid February 2009, it had been concluded that the closure of London Road level crossing was not viable and development of station layout options was then able to progress.
- 3.10. In addition to the work on Bicester London Road level crossing, an initial level crossing closure strategy was formulated in February 2009. This set out a range of mitigation options. This strategy was reviewed in March and again in April 2009 and a preferred package of measures was concluded that took into account all relevant factors at each site, to the extent that it had been possible to establish them at that time.
- 3.11. During April 2009, a number of public consultation exhibitions were held. At these exhibitions, the station options were displayed and public views on them sought. The strategy for level crossing closures was also set out.
- 3.12. The views expressed at the public meetings were used to refine the level crossing strategy and select preferred options for the station sites.
- 3.13. In parallel with the development of the stations and level crossing proposals, detailed engineering studies of the existing railway commenced in February 2009. Two “walk through” surveys were undertaken in February and March 2009 during which engineers of all relevant disciplines walked along the railway corridor from Bicester to Oxford inspecting the condition of the existing railway infrastructure. This exercise was the starting point for the outline design process which continued into late 2009 and culminated with the submission to Network Rail of outline designs for the major engineering features of the scheme for approval in principle.
- 3.14. As a result of the early engineering design and investigation work, it became apparent that the capital cost of the scheme was likely to be higher than originally envisaged. This was largely due to the condition of the existing infrastructure throughout the route being worse than expected and because of the complexities of providing a workable means of access to the MoD site at Bicester. An exercise was undertaken in May 2009 to examine options for reducing the cost of the scheme. This resulted in some refinement of the scope of work of the scheme and the decision that the scheme should be divided into phases such that provision of the infrastructure that would only be necessary to facilitate future East West Rail services would be deferred until the remainder of the East West Rail project proceeds.
- 3.15. Following discussions with the Department for Transport, it was subsequently decided to divide the East West Rail works into two parts, such that the disruptive works associated with facilitating operation of freight traffic could be undertaken in advance of the remainder of the East West Rail works, thereby generating the possibility to achieve a reduction in disruption and cost by undertaking these works concurrently with the initial phase of the scheme.
- 3.16. By the end of 2009, when the Order application was in preparation, the scheme had evolved to a stage where:
 - The condition of the existing railway infrastructure was well understood;

- Track and signalling layouts had been devised and computer modelling had been undertaken to test these layouts against various train service timetable patterns;
- A range of options for each station site had been developed and reviewed and a preferred option identified and developed;
- The options for mitigating level crossing closures had been explored and reviewed by relevant experts and a package of mitigation measures had been assembled;
- The main engineering features of the scheme had been designed in outline and submitted to Network Rail for approval in principle.

3.17. In this section I have set out evidence in relation to Statement of Matters 3 and my conclusions are that Chiltern Railways has considered an extensive and appropriate range of options in relation to specific engineering features during the development of the scheme. Chiltern Railways has, in each case, included in the Order scheme the option that best provides for the safe and efficient construction, maintenance and operation of the scheme while providing the level of functionality required to meet the scheme objectives and taking into account the various constraints, physical or otherwise, affecting each part of the scheme.

4. ENGINEERING DESCRIPTION OF THE SCHEME

4.1. This section of my evidence describes the principle engineering features of the Order scheme. I commence this section with an overview of the Order scheme and then deal specifically with:

- Stations
- Level crossings and bridges to be provided in lieu
- The proposed widening of the existing railway bridge over the Sheepwash Channel (Rewley Abbey Stream) in Oxford.

SCHEME OVERVIEW

4.2. I will now proceed to describe the scheme, starting at the eastern (Bicester) end and proceeding towards the western (Oxford) end. In so doing, I will defer to later certain details regarding the engineering features.

4.3. My description of the works will make reference to individual tracks of the railway using the standard railway terms of “Up” and “Down”. The term “Up” describes the direction that is towards London. “Down” is the direction that is away from London. Hence, on double-track sections of railway the Up line is the line predominantly used by trains heading towards London. It should be noted that in the vicinity of Oxford, for the reinstated line proposed by this scheme the “Up” direction is north while for the existing Didcot – Banbury line “Up” is south.

4.4. My description of the scheme will make reference to the phases in which it is intended to implement the scheme. Phase 1 consists of those elements required to allow the operation of Chiltern Railways’ proposed London Marylebone – Oxford service together with the freight services that currently operate on the Bletchley – Oxford line between Bicester and Oxford. This phase consists of the construction of approximately 1km of new railway in Bicester, the complete reconstruction of the existing Bletchley – Oxford railway from Bicester to Oxford North Junction (including the construction of new and reconstructed stations at Bicester, Islip and Water Eaton, construction of new road in connection with the diversion of rights of way from level crossings that will be closed and other ancillary works), the reinstatement of approximately 2km of railway on the former course of the Bletchley – Oxford railway between Oxford North Junction and Oxford and works to the existing railway and station at Oxford to provide two platforms for the use of the proposed passenger services.

4.5. Phase 2A is a package of additional works associated with the proposed East West Rail Link and consists of a series of enhancements to provide for the operation of W12 gauge freight trains (i.e. trains used to transport large inter-modal containers) and to provide adequate clearances beneath structures over the railway to allow for overhead electrification of the railway at some future date.

4.6. Since the application for the Order was prepared, it has been confirmed by DfT that funding for this phase will be made available to allow the works to be undertaken at the same time as Phase 1 is being implemented. The reason for undertaking these works at the same time as Phase 1 is that certain

aspects of the work entail engineering operations that would be particularly disruptive to the operation of the railway. By undertaking these works at the same time as the railway is closed for the construction of Phase 1, the need for separate closures of the railway to undertake this work is avoided. This reduces the cost of undertaking the Phase 2A works and removes the risk of substantial harm being caused to Chiltern Railways' business as a result of extensive line closures during the early years of operation of the new London Marylebone – Oxford services. It should be noted that Phase 2A is the only part of the scheme that is dependent on public funding.

- 4.7. Phase 2B consists of further enhancements to the Bicester – Bletchley railway between Bicester and Oxford North Junction to provide additional capacity and increased operational flexibility required for the operation of additional passenger and freight services associated with the proposed East West Rail Link. It is expected that Phase 2B will be implemented subsequent to the completion of Phases 1 and 2A. The works have been designed to minimise the disruption to the operating railway that will be caused by the implementation of Phase 2B.
- 4.8. Figures 1.1, 1.2 and 1.3 (Appendix 2, pages 49 to 51) show the track layout as it currently is and as proposed in Phases 1 and 2B respectively.
- 4.9. My description will commence with the works that will be undertaken in Phases 1 and 2A.
- 4.10. When reading my description, understanding will be made easier by reference to the photographs and annotated plans included in my appendices to this proof (CRCL/P/6/B1 and CRCL/P/6/B2). The photographs are referenced to plans based on the sheets of the Deposited Plans. The annotated plans are also based on the sheets of the Deposited Plans. I have therefore included headers within my text to indicate which sheet of the deposited plans the subsequent description refers to. Not all sheets are directly referenced in the text. Due to the size and complexity of this section of my evidence, readers will find it easier to comprehend if read in sections, based around three or four of the Deposited Plan sheets.

DESCRIPTION OF PHASES 1 AND 2A

Sheet 1 (Appendix 1, pages 2 and 3 / Appendix 2, page 3)

- 4.11. The scheme commences at a new junction, provisionally named “Bicester South Junction” that will be created on the existing London Marylebone – Birmingham Moor Street line approximately 70m to the northwest of the bridge carrying the railway over the Bicester Eastern Perimeter Road.
- 4.12. At this junction, a new double-track railway (“Work No. 1”) will commence. This section of railway, sometimes referred to as “the Bicester Chord”, will connect the existing London Marylebone – Birmingham Moor Street railway to the existing Bletchley – Oxford railway.
- 4.13. The two existing railways intersect by means of a bridge located approximately 750m to the northwest of the proposed Bicester South Junction. At this point, there is a level difference of around 8m with the Bletchley – Oxford line being situated at roughly the same level as the surrounding land and the London Marylebone – Birmingham Moor Street

being carried through Bicester on a high embankment. The proposed Bicester Chord line will therefore fall from the proposed Bicester South Junction towards the junction with the Bletchley – Oxford line.

- 4.14. The Bicester South Junction will consist of a pair of facing turnouts¹ laid into the existing Down line of the London Marylebone – Birmingham Moor Street line, interspersed with a trailing crossover connecting the Down line to the Up line. The proposed track layout is shown diagrammatically in Figure 2 (Appendix 2, page 53).
- 4.15. A small, fenced access compound (of around 1100m²) will be created at the foot of the embankment on the southwest side of the railway adjacent to Bicester South Junction. Vehicular access into the compound will be provided from the A4421 Bicester Eastern Perimeter Road², adjacent to the existing bridge carrying the railway over that road. Steps will be provided from road level to railway level. The compound will facilitate access to the railway for maintenance staff and will allow their road vehicles to be parked securely. The compound has been located to provide safe access to the equipment associated with the new Bicester South Junction.
- 4.16. The new Up line of the Bicester Chord will be signalled for use in either direction but the new Down line will only be available for use by trains towards Oxford. Both lines will be designed for 40mph running.

Sheet 2 (Appendix 1, pages 4 and 5 / Appendix 2, page 4)

- 4.17. Figures 3.1 to 3.10 (Appendix 2, pages 55 to 64) show the proposed earthworks associated with the Bicester Chord. (It should be noted that the proposed access road for maintenance purposes that is shown on some of these drawings has been removed from the scheme since the drawings were produced).
- 4.18. For the first 550m, as it begins in descent to the level of the Bletchley – Oxford line, the new railway will be located on a terrace approximately 10.4m wide formed in the side of the existing of the London Marylebone – Birmingham Moor Street railway. The works to create this terrace will involve re-profiling of the existing embankment above the terrace and the construction of a berm of imported fill material below the terrace. The existing open ditch that provides toe drainage to this embankment will be filled in and replaced by a piped filter drain along the realigned toe. Over this length, the majority of the works are contained within the existing railway boundary.
- 4.19. At a point approximately 480m to the northwest of the proposed Bicester South Junction, a brook (Langford Brook) passes through the existing railway embankment in a brick lined culvert. This culvert will be extended on the southwest side of the railway to carry the new section of line over the brook. The extension will take the form of a reinforced concrete box culvert. The culvert works are shown in Figures 3.8 to 3.10 (Appendix 2, pages 62 to 64).

¹ “Turnout” is the technical term for a set of points. Turnouts are described as “facing” if, in the normal direction of travel, they cause two lines to diverge and “trailing” if they cause two lines to converge.

² At the site of the proposed access point, the Bicester Eastern Perimeter Road is known as Gavray Drive. Gavray Drive is also the name given to the section of road running northwest from the Bicester Eastern Perimeter Road towards the boundary of the Bletchley – Oxford railway.

(As noted above, the access road and associated bridge over the brook shown in these drawings have been removed from the scheme).

- 4.20. The initial stretch of new line is followed by a 300m radius curve which takes the new railway from a broadly southeast-northwest alignment to the northeast-southwest alignment of the Bletchley – Oxford line. This curve extends beyond the existing railway boundary into land which is mostly designated under the Local Plan as being for transport use.
- 4.21. As the new line diverges from the London Marylebone – Birmingham Moor Street line, it moves onto what is in effect a separate embankment. This will be formed of imported fill material with side slopes at a gradient of 1 (v) in 2.5 (h). The top of the embankment will be approximately 10.4m wide.
- 4.22. A new footbridge (“Work No. 8”) is proposed to cross the new section of railway approximately 780m from the junction with the London Marylebone – Birmingham Moor Street railway. This footbridge accommodates the diversion of an existing unmade public footpath which intersects the course of the railway at this point. This bridge is described further in 4.269 to 4.272 below.

Sheet 3 (Appendix 1, pages 6 to 11 / Appendix 2, page 6)

- 4.23. The new section of railway returns to the confines of the existing railway land boundary in the vicinity of the northwestern end of Gavray Drive. From this point to the end of Work No. 1, the line gradually merges into the alignment of, and forms a junction with the existing Bletchley - Oxford railway.
- 4.24. At the northwestern end of Gavray Drive the existing redundant highway stub will be utilised to form a further access compound for railway maintenance staff. This compound will cover an area of approximately 400m² and, in common with the rest of the railway in the built up area of Bicester, will be surrounded by steel palisade fencing. Vehicular access will be provided directly from the end of Gavray Drive. The compound will provide a secure parking area and safe means of staff access to the railway infrastructure associated with the junction between the new and existing lines.
- 4.25. The junction between the new railway and the existing Bletchley – Oxford line is provisionally named “Gavray Junction”. At this junction, a turnout will connect the new Up line of the Bicester Chord to the existing single-track line from Bletchley. There will be no direct connection at this point between the line from Bletchley and the new Down line in Phase 1. Between Gavray Junction and the end of Work No. 1 both lines will be operated at a maximum speed of 50mph. The proposed track layout is shown diagrammatically in Figure 4.1 (Appendix 2, page 66).
- 4.26. A further new footbridge (“Work No. 9”) crosses Work No. 1 at the site of the present Tubbs Lane foot crossing of the Bletchley – Oxford railway. This bridge replaces Tubbs Lane foot crossing, which will be closed and provides for the diversion of the public right of way.
- 4.27. Work No. 1 terminates approximately 70m to the southwest of Tubbs Lane crossing, the new railway having fully merged with the existing Bletchley – Oxford line by this point.

- 4.28. Work No. 2 commences at the termination of work No. 1 and consists of the reconstruction of the existing Bletchley – Oxford railway between this point and Oxford North Junction.
- 4.29. The reconstruction of the existing railway at this point will consist of the removal of the existing single track and the construction of two tracks on the existing track bed. The new Down line will be available only to trains towards Oxford. The new Up line will be signalled such that it can be used by:
- Trains to and from Claydon L&NE Junction (on the Bletchley – Oxford line east of Bicester);
 - Trains from the Oxford direction towards London Marylebone; and
 - Trains from the London Marylebone direction towards Oxford
- 4.30. It should be noted that the last of these will not regularly operate on this track.
Sheet 4 (Appendix 1, pages 12 to 17 / Appendix 2, page 7)
- 4.31. Continuing towards Oxford, the double track railway will cross London Road by means of an upgraded level crossing (see 4.294 below) before reaching Bicester Town station. The existing Bicester Town station will be demolished and replaced by an entirely new facility that is described in 4.168 *below*.
Sheet 5 (Appendix 1, pages 18 to 21 / Appendix 2, page 8)
- 4.32. Embankment stabilisation works will be carried out to the embankment slope on the northwest side of the railway over a length of approximately 250m from the southern wing wall of the A41 overbridge at Bicester (overbridge OXD38A) extending to the northeast abutment of underbridge OXD39 which carries the railway over a brook.
- 4.33. These stabilisation works will consist of embankment regrading with a toe berm constructed at the foot of the embankment using site-won arisings. A new toe drain will be provided at the foot of the regraded embankment. Over the 30m or so closest to underbridge OXD39, an existing field drain will be realigned approximately 1m to the northwest to place it clear of the proposed works. This drain will serve as the toe drain and therefore no separate toe drain will be provided over this length. Erosion protection will be provided to the foot of the embankment over this length. These works require the permanent acquisition of a narrow strip of third party land that currently comprises agricultural land. (See Figure 5.2 (Appendix 2, page 70)).
- 4.34. The railway will revert to a single track by means of a turnout located approximately 220m to the southwest of the A41 overbridge at Bicester. This location has been provisionally named “Highfield Junction”. From the commencement of Work No. 2 to Highfield Junction, the railway will be operated at a maximum speed of 50mph. The track layout at Highfield Junction is shown diagrammatically in Figure 6.2 (Appendix 2, page 78).
- 4.35. Between Highfield Junction and a point provisionally named “Mill Stream Junction” and located approximately 250m to the southwest of the present Mill Lane level crossing in Islip, the existing single track railway will be reconstructed as a single track suitable for the operation of trains at up to 100mph.

- 4.36. The reconstruction of the existing railway will entail a combination of new and refurbished track and formation. Extensive track renewal works were undertaken on parts of this section of line in 2003. Initial surveys indicate that the track installed as part of those works is largely fit for reuse within the upgraded railway. Additional surveys will be undertaken to confirm the extent of existing track and formation that can be retained. Where the existing track is retained, localised minor realignment will be undertaken to make the alignment of the track suitable for use at the proposed higher speeds.
- 4.37. Where the track is not suitable for reuse, existing rail and sleepers will be removed. Where necessary, the existing ballast will also be removed and replaced with a new ballasted formation, typically having a depth of 300mm beneath the underside of the sleepers. New sleepers and rails will then be installed.
- 4.38. Throughout this section, the final track position (both horizontal and vertical) will closely match that of the existing railway, such that the single track will largely remain on one side or other of the double track formation. This will facilitate easier construction of the additional track that forms part of the Phase 2B works, described later. The exception to this is described at the end of this section.
- 4.39. All existing level crossings will be removed from this section of railway as described in 4.260 *below*.
- 4.40. A second track will be reinstated over a length of approximately 1075m of this section. This is described in 4.44 *below*.
- 4.41. The existing connection to the Bicester Military Railway (BMR) (“the eastern MOD connection”) located approximately 325m to the southwest of the A41 overbridge in Bicester, together with the associated headshunt³, that presently extends to a point just short of London Road level crossing, will be removed. The existing connection is shown diagrammatically in Figure 6.1 (Appendix 2, page 77).
- 4.42. The stub end of the connection from the Bicester Military Railway will be retained as a locomotive headshunt and the existing security fence will be realigned to contain the resulting headshunt within the MOD’s secure site.
- Sheet 6 (Appendix 1, pages 22 to 25 / Appendix 2, page 9)*
- 4.43. A replacement for the existing connection to the BMR will be provided in the form of Work No. 5. This entails the reinstatement of a former connection located to the southwest of the Exchange Sidings of the BMR. Work No. 5 will consist of a single track of railway, approximately 245m in length, constructed on the earthwork of the former railway. Work No. 5 will commence with a new turnout in the section of single track railway forming part of the BMR, immediately to the southwest of the Exchange Sidings. It will terminate by means of a direct connection into the end of the second track at Langford Lane East Junction described below. Work No. 5 will pass

³ The term “headshunt” is used to describe a siding that is provided to allow a train or locomotive to perform a shunting manoeuvre from one running line or siding to another, usually parallel, siding or running line. The manoeuvre involves drawing the train forward from the origin line into the headshunt and then changing direction to move back onto the destination line.

through the MOD security fence and a manually operated gate will be provided in the fence that will be operated by MOD staff to permit the passage of trains.

- 4.44. In order to form a freight loop that will be used in connection with the link to the Bicester Military Railway, the former second track of the Bletchley – Oxford line will be reinstated over a length of approximately 1075m. This second track will commence with a turnout located approximately 610m to the northeast of the present Langford Lane level crossing and terminate with a turnout located approximately 490m to the southwest of the present Langford Lane level crossing. These two points are provisionally named “Langford Lane East Junction” and “Langford Lane West Junction” respectively.
- 4.45. The new connection and the freight loop are shown in Figure 6.2 (Appendix 2, page 78).
- 4.46. Underbridge OXD40 is located within the length of the second track, approximately 470m to the northeast of the present Langford Lane level crossing. The bridge carries the Bletchley – Oxford railway over a brook. Although originally constructed as a two-track structure, the bridge deck was reconstructed around 1973 to provide a single-track deck, that being all that was required for the then single-track railway. The existing deck will be widened to restore the double-track capability of the bridge. The original bridge abutments will be retained and strengthened as necessary.
- 4.47. The existing structure and the proposed widening are shown in Figures 7.1 and 7.2 respectively (Appendix 2, pages 81 and 82).

Sheet 7 (Appendix 1, pages 26 to 29 / Appendix 2, page 10)

- 4.48. In connection with the reinstatement of the second track, the railway embankment will be widened over a length of approximately 740m starting near the proposed Langford Lane East junction and terminating approximately 240m to the southwest of the present Langford Lane level crossing. The embankment will be widened on the southeast side of the railway by approximately 1.5m to 2.5m to remedy erosion that has occurred since the second track was removed in the 1970s and to provide for the construction of a walkway for maintenance staff in compliance with modern safety standards. The widening will be achieved by regrading the embankment slope within the confines of the existing railway boundary. The exact form of construction will vary over the length of these works to suit local conditions and in some places it will be necessary to provide a toe wall. Where necessary, a new toe drain will be provided along the foot of the embankment slope. Minor alterations will be required to certain culvert headwalls and bridge abutments that interface with the regraded embankment slope. (See Figure 5.2 (Appendix 2, page 70)).

Sheet 8 (Appendix 1, pages 30 to 33 / Appendix 2, page 11)

- 4.49. Between the present Langford Lane level crossing and the viaduct carrying the railway over the River Cherwell at Islip (underbridge OXD 46) there is a number of badger setts located within the railway embankment. These setts are undermining the stability of the track. It is therefore proposed to provide a number of artificial setts sufficiently removed from the railway, on third-party

land. The existing setts will then be closed and destroyed. Both slopes of the railway embankment will be covered with wire mesh over the majority of the length between Langford Lane and the M40 motorway to prevent re-infestation.

- 4.50. A new overbridge, forming part of Work No. 11, will pass over the railway at a location approximately 830m to the southwest of the present Langford Lane level crossing. A new vehicular maintenance access point will be created immediately adjacent to the eastern corner of this bridge.

Sheet 10 (Appendix 1, pages 36 to 41 / Appendix 2, page 12)

- 4.51. A new footbridge (being Work No. 12) will cross the railway approximately 200m to the northeast of the overbridge (overbridge 40C) carrying the M40 motorway over the railway.

4.52. *Sheet 12 (Appendix 1, pages 46 to 49 / Appendix 2, page 20)*

- 4.53. A new overbridge (being part of Work No. 13) will pass over the railway at approximately 390m to the southwest of the existing Holts Farm occupation level crossing.

Sheets 14 and 15 (Appendix 1, pages 54 to 61 / Appendix 2, pages 25 and 26)

- 4.54. A new overbridge (being part of Work No. 14) will pass over the railway approximately 150m to the northeast of Oddington level crossing.

Sheet 16 (Appendix 1, pages 62 to 65 / Appendix 2, page 28)

- 4.55. A new footbridge (being Work No. 15) will pass over the railway at the site of the present Oddington No. 5 footpath level crossing.

- 4.56. These new overbridges and footbridges, all of which are being provided to mitigate the closure of certain level crossings, together with the associated ancillary works, are described in 4.308 to 4.397 below.

Sheet 18 (Appendix 1, pages 70 to 75 / Appendix 2, page 31)

- 4.57. The existing Islip station is located approximately 150m to the northeast of the overbridge carrying the B4027 Bletchingdon Road over the railway. This station will be retained and enhanced as described in 4.194 *below*.

- 4.58. The existing overbridges carrying Bletchingdon Road (overbridge OXD42) and Kidlington Road (overbridge OXD43) will be subject to routine maintenance works but will be otherwise unaffected by the works.

Sheet 19 (Appendix 1, pages 76 to 81 / Appendix 2, page 32)

- 4.59. Approximately 125m to the northeast of the existing Mill Lane level crossing in Islip, a new footbridge (being part of Work No. 16) will pass over the railway. This footbridge and the associated ancillary works are described in 4.404 to 4.419 below.

- 4.60. Approximately 300m to the southwest of the present Mill Lane level crossing, the junction provisionally named Mill Stream Junction is located.

- 4.61. Mill Stream Junction will be configured such that the Down trains will be able to pass from the single track section from Langford Park Junction onto the

new Down line (i.e. the track that will be on the southeast side of the formation) at speeds of up to 100mph. Up direction trains will be able to pass from the Up line (i.e. the line on the northwest side of the formation) from Peartree Junction onto the single track section at speed of up to 70mph. The lower speed in the Up direction reflects the speed likely to be obtained by a train formed of Class 168 rolling stock⁴ that has called at the proposed Water Eaton Parkway station.

- 4.62. The configuration of Mill Stream Junction will require the single track section to be slewed to the opposite side of the railway formation (compared to its present location) over a length of around 350m between a point approximately 50m to the northeast of the present Islip (Mill Lane) level crossing and Mill Stream Junction.
- 4.63. The proposed track layout at Mill Stream Junction is shown diagrammatically in Figure 8 (Appendix 2, page 84).
- 4.64. From Mill Stream Junction to a point provisionally named “Peartree Junction” and located approximately 175m to the south of the present Gosford & Water Eaton No. 10 footpath level crossing, the reconstructed railway will be formed of two tracks (except at the aggregates depot near Water Eaton as described below).
- 4.65. The track on the northwest side of the railway, being the Up line, has been designed for speeds of up to 70mph. The other track, being the Down line, has been designed for speeds of up to 100mph between Mill Stream Junction and a point approximately 1km to the northeast of the proposed Water Eaton Parkway station (described below). From that point, the Down line will, prior to the implementation of Phase 2B, be limited to 75mph.
- 4.66. Approximately 400m to the southwest of Islip (Mill Lane) level crossing, an existing viaduct carries the railway over the bed of a former watercourse. This viaduct is known as “Mill Stream Viaduct” (underbridge OXD44). Some records refer to this structure as “Mill Stream Viaduct No. 1”.
- 4.67. The existing viaduct is composed of four skewed spans with the railway crossing the watercourse at an angle of approximately 48 degrees. The total skew-span of the structure (i.e. the span measured along the railway) is approximately 50m. The viaduct dates from 1881, being a replacement for an earlier structure constructed for the opening of the railway in 1850. The substructure consists of brick abutments and three intermediate brick piers. The abutments and piers are founded on timber piles. The superstructure is formed of a series of wrought iron girders that support a deck consisting of wrought iron plates. The existing single track over the viaduct consists of a pair of rails supported on longitudinal timbers. The speed of trains over the viaduct is presently limited to 20mph due in part to the condition of the existing structure and in part to the difficulty in maintaining the track in its present form to an alignment suitable for a higher speed.

⁴ Class 168 is the official name used to describe the Diesel Multiple Unit (DMU) trains that will, under normal circumstances, be used by Chiltern Railways to operate the proposed London Marylebone – Oxford service. This type of rolling stock is presently used by Chiltern Railways on the majority of its longer distance services on the Birmingham – London corridor.

- 4.68. Substantial works are required to this structure to make it suitable for carrying two tracks operating at the proposed speeds and to make it compliant with modern requirements in respect of the safety of railway maintenance staff.
- 4.69. Detailed design work is on going. However, at present it is envisaged that the substructure will be underpinned and the existing superstructure will be removed and replaced with a new superstructure composed of steel plate girders supporting a reinforced concrete deck. Steel walkway structures will be cantilevered from both sides of the viaduct to provide a safe means of access for railway maintenance staff. The walkways will incorporate ducts for railway signalling and telecommunications cables.
- 4.70. The existing and proposed structures are shown in Figures 9.1 and 9.2 (Appendix 2, pages 86 and 87).

Sheet 20 (Appendix 1, pages 82 to 85 / Appendix 2, page 33)

- 4.71. Approximately 130m to the southwest of the southwest abutment of Mill Stream Viaduct, a small arch bridge (underbridge OXD 45) passes beneath the railway, having originally been provided as a means of access between the land located either side of the line. This structure will be subject to maintenance repairs, primarily concerned with arresting movement that is occurring within the brickwork abutments.
- 4.72. A second viaduct is located approximately 110m to the southwest of underbridge OXD45. This viaduct is known as River Cherwell Viaduct (underbridge OXD46). Some records refer to this structure as "Mill Stream Viaduct No. 2". This structure consists of eight spans carrying the railway over the River Cherwell and its floodplain. The spans are perpendicular to the railway. The total length of the viaduct is approximately 68m.
- 4.73. The eight spans are numbered from 1 (at the northeast end) to 8 (at the southwest end). Span 1 dates from 1881 and consists of three wrought iron main girders with cross girders and a timber deck. The rails over this span are carried on longitudinal timbers as on Mill Stream Viaduct. Spans 2 to 6 date from 1910 and consist of steel main girder with cross girders and concrete jack arches. The track over these spans is of conventional ballasted, cross-sleepered construction. Span 8 dates from 1959 and comprises welded steel main and cross girders with railbearers and a steel plate deck carrying conventional ballasted track.
- 4.74. The substructure consists of brick abutments with seven intermediate brick piers. The pier between spans 7 and 8 has been subject to previous stabilisation works which were undertaken in connection with the reconstruction of span 8 in 1959.
- 4.75. Structural assessment of the viaduct, undertaken in 2009, has shown that the superstructure of span 1 is inadequate to support the loads from a two-track railway of the speeds proposed and must be reconstructed. The assessment also showed that spans 2 to 8 are adequate to carry the proposed increased loads. The existing abutments and piers are thought to be adequate for the increased loads based on the investigations carried out to date. However, during the detailed design phase, further work will be undertaken to confirm

the sufficiency of these elements. Routine maintenance repairs will be carried out to the piers and abutments.

- 4.76. The reconstruction of span 1 will involve the removal of the existing superstructure and its replacement with a new steel structure that will allow conventional ballasted track to be installed on this span.
- 4.77. In addition to the reconstruction of span 1, steel walkway structures will be provided to all spans on both sides of the structure. These walkways will provide safe access to the railway for maintenance staff and will incorporate ducts to carry railway signalling and telecommunications cables. Spans 2 to 8 will also have additional works undertaken to improve their resistance to derailment loads, i.e. the loads that might be expected to be imposed upon the structure if a train were to derail while traversing it.
- 4.78. The existing structure and the proposed alterations are shown in Figures 10.1 and 10.2 (Appendix 2, pages 89 and 90).
- 4.79. Over the length of railway between the southwest abutment of Mill Stream Viaduct and a point approximately 20m to the southwest of the southwest abutment of River Cherwell Viaduct, the crest of the embankment requires widening on the southeast side of the line to remedy slippage that has occurred since the removal of the second track in the 1970s and to provide a safe walking route for maintenance staff, in compliance with current safety standards. This widening will be achieved by regrading the existing earthworks and either widening the footprint of the embankment. A new toe drain will be constructed to replace the existing drainage arrangement. This form of construction necessitates the acquisition of a narrow strip of third-party land, typically 2 to 3m in width. (See Figure 5.3 (Appendix 2, page 71)).
- 4.80. Immediately to the southwest of this section of line, the railway passes from embankment into cutting. Over a length of approximately 400m, this cutting is of insufficient width for two tracks with safe walkways for maintenance staff access. This is due partly to the original dimensions of the cutting and the subsequent erosion of the cutting slope leading to a build up of eroded material at the base of the slope. Over this length, the face of the cutting will be trimmed and the arisings removed. These works will be contained within the existing railway land boundaries. (See Figure 5.3 (Appendix 2, page 71)).
- 4.81. Approximately 30m to the southwest of the River Cherwell Viaduct, a private access road is carried over the railway by means of an existing overbridge known as "Northfield Farm Bridge" (overbridge OXD47). The existing bridge consists of a single-span steel girder superstructure supported on brickwork abutments. The present headroom beneath the bridge (approximately 4.3m) does not provide adequate clearance for W12 gauge trains and overhead electrification equipment. This bridge will therefore be demolished and its functionality will be replaced by a new overbridge that is proposed to be constructed approximately 700m further to the southwest together with a new section of private access road. The new overbridge forms part of Work No. 17 (on sheet 21) and is described in 4.425 to 4.438 below.
- 4.82. From a point, commencing approximately 250m to the northeast of the present Water Eaton No. 5 level crossing, further embankment widening works are required on the southeast side of the railway. Over this length, the

widening will be achieved by regrading the embankment slope. This work will necessitate the permanent acquisition of a narrow strip of third party land, typically 2 to 3m in width. (See Figure 5.3 (Appendix 2, page 71)).

Sheet 21 (Appendix 1, pages 86 to 89 / Appendix, page 34)

- 4.83. Adjacent to and to the northeast of Water Eaton No. 5 level crossing, a pond is present at the toe of the embankment. In order to avoid infilling this pond, the toe of the regraded embankment slope will be retained by means of a low wall. It is presently intended that this wall will be constructed from sheet piles although alternative forms of construction will be considered during the detailed design stage.
- 4.84. This section of embankment works will terminate at a point approximately 150m to the southwest of Water Eaton No. 5 level crossing, at the interface with the earthworks associated with the construction of Work No. 6.

Sheet 22 (Appendix 1, pages 90 to 93 / Appendix 2, page 36)

- 4.85. Work No 6 comprises a siding and associated run-round loop⁵ that will be provided as a direct replacement for the existing Banbury Road freight sidings. The siding will commence at a point approximately 275m to the northeast of the present Gosford & Water Eaton No. 4 level crossing and terminate approximately 230m to the southwest of that crossing. Towards the southwest end of the siding, it will be connected to the new Down line of the reconstructed Bletchley – Oxford line (i.e. Work No. 2) by means of a crossover⁶. A further crossover immediately to the southwest of the first will provide access from the new Up line into the siding.
- 4.86. This second crossover will also permit Down direction passenger trains to run into the Up platform of the proposed Water Eaton Parkway station for the purposes of terminating and returning in the Up direction. The proposed track layout is shown diagrammatically in Figure 11 (Appendix 2, page 92).
- 4.87. The non-railway facilities associated with the aggregate depot that presently utilises Banbury Road sidings will be replicated alongside Work No. 6. These facilities comprise aggregate stockpiles, road vehicle loading areas and access road, a weighbridge, staff accommodation and office facilities.
- 4.88. The provision of these facilities will be accommodated by widening the railway embankment by up to 60m on the southeast side of the line from a point approximately 50m to the northeast of the commencement of Work No. 6 to the point where this widening merges with the earthworks associated with the present aggregates depot and sidings.

Sheet 23 (Appendix 1, pages 94 to 99 / Appendix 2, page 89)

- 4.89. The existing siding and depot will be removed to facilitate the construction of the proposed new Water Eaton Parkway station. The need for the relocation is explained further in section of my evidence describing the new station in 0

⁵ i.e. a length of track, connected at both ends to an adjacent siding, which allows a locomotive to be uncoupled from its train and run past that train to facilitate either the release of the locomotive for other duties or its coupling to the other end of the train.

⁶ A crossover consists of a pair of turnouts (q.v.) placed back to back to allow a train to pass from one track to another, immediately adjacent track.

below 4.235 below. Details of the arrangements for road vehicle access to the replacement depot and sidings are also described in that section.

- 4.90. The new station will occupy a site extending from a point immediately to the southwest of the termination of Work No. 6 to the overbridge carrying the A4165 Oxford Road over the railway (overbridge OXD47A).
- 4.91. The level of the new tracks beneath overbridge OXD47A will be approximately 100mm lower than the existing track level. The track is being lowered to provide adequate clearance beneath the bridge for W12 gauge trains and overhead electrification equipment. This track lowering can be achieved without the need for works to the bridge.
- 4.92. The lowering of the track beneath this bridge will be run out either side of the bridge. To the northeast of the bridge, the run out extends through the platforms of the proposed new station. Undertaking the track lowering at the same time as the construction of the station avoids the need for the platforms to be reconstructed at a later date.

Sheet 24 (Appendix 1, pages 100 to 103 / Appendix 2, page 39)

- 4.93. Approximately 670m to the southwest of overbridge OXD47A, at the site of the present Gosford and Water Eaton No. 10 level crossing, a new footbridge will be constructed over the railway, this being Work No.18. This footbridge is described in 4.446 to 4.450 below.
- 4.94. Peartree Junction will be located approximately 175m to the southwest of this proposed new footbridge. From Peartree Junction to a point 70m to the south of the existing overbridge carrying First Turn over the railway (overbridge OXD49) and provisionally named "Woodstock Road Junction", the reconstructed railway will consist of a single track, suitable for 75mph running in both directions.
- 4.95. Peartree Junction will consist of a turnout configured such that trains in both directions can operate at 70mph. The layout has been designed for this speed to suit the acceleration and braking profiles of trains braking to or accelerating away from a stop at Water Eaton Parkway station.
- 4.96. The proposed track layout at Peartree Junction is shown in Figure 12.1 (Appendix 2, page 94).

Sheet 26 (Appendix 1, pages 106 to 109 / Appendix 2, page 41)

- 4.97. The existing Wolvercot⁷ Tunnel is located on this section of line, the northern portal being located approximately 900m to the south of the proposed Peartree Junction.
- 4.98. The tunnel is approximately 140m in length (measure from portal to portal along the centre line of the existing track). The tunnel dates from the opening of the railway in 1851. It was constructed by the "cut and cover" method

⁷ The tunnel name is shown as "Wolvercot Tunnel" on all railway records although the area in which is located is now known as "Wolvercote". Historical documentation suggests that various spellings have been used for the name of the locality over the years. For consistency, throughout the documentation for this scheme, the name "Wolvercot" has been used in relation to the tunnel and "Wolvercote" when referring to the locality in which the tunnel is situated.

whereby an open cutting was dug, the tunnel constructed and the ground above restored.

- 4.99. The tunnel has straight sidewalls with a 5-ring segmental arch spanning between. The northern headwall is constructed in engineering brick while the southern portal is finished in a mixture of brick and local stone, reported to have been sourced from the cutting through Islip. The tunnel is lined in brick towards the northern end while at the southern end the lining is of stone with brickwork patches. Record information suggests that there is around 1.5m of cover to the tunnel roof.
- 4.100. Contemporary reports suggest that difficulties were encountered with the construction of the tunnel leading to localised collapses both of the partially constructed work and the finished tunnel. It is reported that spells of particularly heavy rain preceded the two recorded collapses and that this was a significant factor in both incidents.
- 4.101. A major road junction now occupies much of the land above the tunnel. Known as the Wolvercote Roundabout, this is where the A40, A44 and two local roads intersect.
- 4.102. The tunnel previously carried two tracks. Following the singling of the route between Bicester and Oxford in 1973, the remaining single track was positioned in the centre of the formation through the tunnel. In this position, there is adequate clearance for containerised freight (to W8 gauge⁸) to pass through the tunnel.
- 4.103. While the current arrangement is adequate for the needs of the Phase 1 scheme (i.e. it is adequate to operate the proposed half-hourly London Marylebone – Oxford service together with existing levels of freight traffic), it will be necessary to provide a double track railway through the tunnel to cater for the traffic levels likely to materialise as part of the East West Rail Link scheme. There is inadequate headroom within the tunnel to maintain clearance to W8 freight traffic with two tracks at the level of the existing single track. It is also intended to operate W12 gauge freight traffic over the route once the East West Rail Link is completed and to electrify the route using overhead electrification equipment at some future date.
- 4.104. In order to provide adequate clearance for these proposed future uses, it will be necessary to lower the level of the track within the tunnel and on the approaches to it. This work will be highly disruptive to the railway and requires the closure of the line for several months. In order to avoid disruption to the new London Marylebone – Oxford services within the first few years of operation and to avoid the additional cost of carrying out the works separately at a later date, the Department for Transport has agreed to fund the undertaking of track lowering works through the tunnel in advance of the remainder of the East West Rail Link. These works, which together with works to certain other structures over the railway form Phase 2A of the scheme, will be undertaken during the period the railway is closed for the construction of Phase 1 works.

⁸ "W8" is one of a number of standard gauges that are used to describe the clearance envelope that exists between the railway and the structures adjacent to and over it. W8 gauge provides clearance for certain containerised freight traffic.

- 4.105. Although the track bed will be lowered in readiness for the installation of the second track, it is presently intended that prior to the implementation of Phase 2B, only one track will be installed, this being the one located on the eastern side of the tunnel and its approaches. This will be positioned such that the second track can be installed at a later date without the need to realign the first track through the tunnel.
- 4.106. At the time of writing, structural and geotechnical investigations in relation to the tunnel are ongoing. These will inform the final design of the structural works to the tunnel and the design of the lowered track. Based on the experience of similar works at other tunnels, it is likely that the work will entail the construction of a concrete trough at the base of the tunnel. This trough will underpin the existing foundations, provide lateral support to the side walls and provide a new invert for the tunnel, incorporating new drainage. The new invert might also include the necessary fixings for directly-fixed track⁹ if it is necessary or desirable to minimise the depth of excavation within the tunnel or if track design considerations either side of the tunnel dictate such a track form.
- 4.107. Excavation and construction of the trough will probably be undertaken using the “hit and miss” technique, where by discrete short lengths of the existing tunnel invert are excavated and the new trough constructed. The existing invert is left in place between these sections to provide lateral stability to the side walls. Once the new trough sections are complete and the concrete has reached adequate strength, the remaining sections of invert are removed and the remainder of the trough is constructed.
- 4.108. If the current investigations prove it to be necessary, ground anchors will be installed through the existing tunnel side walls to prevent inward movement during and following the works.
- 4.109. The track lowering works will extend for a considerable distance either side of the tunnel (the exact length will be confirmed during the detailed design phase) in order to maintain suitable gradients. As a result, the track lowering will extend beneath the existing First Turn overbridge (overbridge OXD49), which is located approximately 190m to the south of the southern tunnel portal. This bridge consists of an arch constructed from a mixture of local stone and brickwork. The bridge has been subject to previous stabilisation works. It is likely that the foundations of the bridge will need to be underpinned as part of the track lowering works. This will be confirmed on completion of structural investigations that are presently on going and final track design works. First Turn overbridge will also be subject to a series of routine repairs and maintenance works as part of this scheme.
- 4.110. 70m to the south of First Turn bridge, a further turnout will be located. This location is provisionally named “Woodstock Road Junction”. The railway to the south of this point towards the present Oxford North Junction will be double tracked. However, the two tracks will be operated as two independent

⁹ Directly fixed track, which is sometimes referred to as “slab track” involves the direct fixing of rails to a concrete slab structure. This is sometimes used in preference to conventional ballasted, cross-sleepered track especially where construction depth is an issue. More complex forms of direct fixed track are sometimes used to mitigate noise and or vibration in certain circumstances but the use of such track forms for this purpose is not always appropriate.

single lines. The proposed track layout at Woodstock Road Junction is shown in Figure 12.1 (Appendix 2, page 94).

- 4.111. The track on the eastern side of the formation will be used for the proposed London Marylebone – Oxford passenger services and, on completion of the East West Rail Link, may be used by some or all of the proposed East West Rail passenger services. This track will be suitable for use by trains travelling at speeds of up to 75mph.
- 4.112. The track on the western side of the formation will link to the existing Didcot – Banbury line (by means of Work No. 7 described below), at the existing Oxford North Junction. This track will be used by existing and future freight services together with any passenger service to and from destinations beyond Oxford. Such services are only likely to materialise following completion of the East West Rail Link from Bletchley. The western track will be suitable for trains travelling at speeds of up to 30mph. This track between Woodstock Road Junction and Oxford North Junction will act as a “firebreak” between the Bletchley – Oxford line and the Didcot – Banbury line, allowing a train to be held clear of both routes while awaiting an onward path. This is a particularly important feature of the scheme and the way in which it seeks improve the reliability of operation of the railway as whole by avoiding opportunities for delays to one train to be compounded and spread to others.
- 4.113. As an example of how this “firebreak” works in practice, consider a freight train operating from Bicester to Didcot. Delays were occurring, for whatever reason, on the Didcot – Banbury line, the train might be held just prior to Oxford North Junction to until a path over the line towards Didcot became available. This might ordinarily mean that a subsequent passenger service from London Marylebone to Oxford would be delayed, waiting for the freight train to proceed onto the Didcot – Banbury line and clear the Bletchley – Oxford line. The passenger train would then be late arriving at Oxford and, depending on the magnitude of the delay, its next departure to London might also be delayed. As a result, a delay that occurred on the Didcot – Banbury line would have spread to the Marylebone route. With the proposed track layout, the freight train can wait in the “firebreak” without blocking the Bletchley – Oxford line, therefore allowing other services to operate as normal.
- 4.114. The turnout at Woodstock Road Junction will be configured to allow trains running between the single track from Peartree Junction and the western track to the south of the turnout to travel at speeds of up to 30mph. Trains to and from the eastern line will be able to operate at speeds of up to 70mph.
- 4.115. The proposed junction is located within a cutting. Although previously a double track railway, the base of the cutting is no longer wide enough to accommodate a two-track railway and access paths for maintenance staff that comply with modern standards. This is due in part to the build up of eroded material from the cutting slopes and the increased widths demanded by compliance with modern safety standards.

Sheet 27 (Appendix 1, pages 110 to 111 / Appendix 2, page 42)

- 4.116. From the junction to the end of the cutting approximately 400m to the south, the width of the base of the cutting therefore needs to be widened. The

extent to which the cutting is to be widened varies over the length of the cutting but the dimension is up to a maximum of approximately 2.5m on each side of the railway. The widening will be achieved by regrading the existing cutting slopes and a the construction of a retaining wall at the toe of the slope. The retaining wall will be formed of rock-filled gabion baskets and will typically be 1 to 2m in height. New filter drains will be constructed at the crest and toe of the reconstructed slope.

- 4.117. Approximately 700m to the south of the proposed Woodstock Road Junction, the railway passes over the Oxford Canal on an existing underbridge (underbridge OXD50). The superstructure of this bridge was reconstructed in 1938 and the bridge now consist of steel main girders and cross girders with a concrete in-fill deck, The superstructure is supported on brickwork abutments, believed to date from the opening of the railway. A structural assessment of this bridge has been carried out. This showed the bridge to be capable of supporting the loads that will be imparted by the reconstructed railway. Routine maintenance works, including repainting of the steelwork will be carried out on this structure as part of the reconstruction of the railway.
- 4.118. Either side of underbridge OXD50, embankment stabilisation works are required to the western embankment slope of the railway. These works extend from the end of the cutting 400m south of the proposed Woodstock Road Junction to the point where the embankment of the Bletchley – Oxford railway meets that of the Didcot – Banbury railway, approximately 200m to the south of underbridge OXD50. The land adjoining the railway over this length is classified as a Site of Special Scientific Interest (SSSI). The works will therefore be contained with the existing railway land boundaries and will be designed to be constructed with minimal physical disturbance to the SSSI. The stabilisation works over this length is likely to take the form of a regarded slope with a retaining wall at the toe of the slope. The wall will be constructed from rock-filled gabion baskets and a filter drain will be provided to the embankment toe to replace the existing toe drainage. (See Figure 5.4 (Appendix 2, page 72)).

Sheet 28 (Appendix 1, pages 116 to 121 / Appendix 2, page 44)

- 4.119. From the point where the embankment of the Bletchley – Oxford line meets the earthworks of the Didcot – Banbury line extending southwards for a distance of 500m, the embankment of the Bletchley – Oxford line will be widened to accommodate the proposed two-track railway and associated walkways for maintenance staff. The widening will be undertaken on the western side of the embankment and will consist of the regarding of the embankment slope, resulting in the partial in-filling of the ditch that presently exists between the two existing railway embankments. The drainage function of the existing ditch will be replaced by a new filter drain on the same alignment as the present ditch.
- 4.120. At a point 200m to the north of the existing Oxford North Junction (where the Bletchley – Oxford line presently joins the Didcot – Banbury line), Work No. 2 terminates. The railway continues south from this point as Work No. 3 and Work No.7.

Sheet 29

- 4.121. Work No. 7 connects to the westernmost of the two tracks of Work No. 2 and continues as a single track connection to the Didcot – Banbury line by means of the existing connection at Oxford North Junction. The construction of Work No. 7 will entail the relaying and / or realignment of the existing track occupying the alignment of this work and forming the present connection between the Bletchley – Oxford and Didcot – Banbury railways. The existing turnouts and crossovers that form Oxford North Junction will not be reconfigured as part of this scheme and will therefore operate at the existing speed limit of 25mph for trains to and from the Bletchley – Oxford line.
- 4.122. Work No. 3 forms a continuation of the eastern track of Work No. 2 and provides a route for trains on the Bletchley – Oxford line into Oxford station that is independent of the present route via the Didcot – Banbury line.
- 4.123. This independent route is being created in order to provide a level of reliability of train services in excess of that which could be provided if the new London Marylebone – Oxford services were routed via the Didcot – Banbury line tracks. The improved level of reliability derives from the separation of the new services from those on the Didcot – Banbury route and the avoidance of so-called “knock-on” delays whereby one late running train disrupts others using the same tracks. Routeing the new services via the existing tracks between Oxford North Junction and Oxford station would create the opportunity for transfer of delays between the Marylebone and Paddington / Midlands – South Coast corridors.
- 4.124. The section of Work No. 3 south from its commencement to a point to the south of the Castle Mill Stream (to the south of Walton Well Road) consists of the reinstatement of a single track railway on the formation of the former Bletchley – Oxford line alignment. This former railway corridor runs adjacent and parallel to the Didcot – Banbury line, being typically located approximately 10 to 12m to the east of the easternmost rail of the Didcot – Banbury line.
- 4.125. As originally constructed, the Bletchley – Oxford line served a separate station in Oxford to the Didcot – Banbury line. This separate station, known as “Rewley Road” remained in use for passengers until in 1951. Following the nationalisation of the railways, passenger services were concentrated on the adjacent former Great Western Railway station on the Didcot – Banbury line. Passenger services to and from the Bletchley – Oxford line were routed via a junction between the two railways that had been formed during World War II just to the south of Castle Mill Stream. In 1973, as part of the rationalisation and resignalling of the railways in the Oxford area, the junction between the two lines was moved further north to the present Oxford North Junction site. The Rewley Road station site and the tracks leading to it from the Bletchley – Oxford line remained in use for goods traffic until the mid-1980s.
- 4.126. Following the abandonment of the Rewley Road station, the tracks leading to it from Oxford North Junction were lifted. Between Castle Mill Stream and a

point to the north of the Sheepwash Channel¹⁰, the complex of sidings that had previously existed between the two railways was rearranged and expanded to take over the alignment of the former railway. To the north of that point, the alignment of the former railway has remained in the ownership of the railways, while to the south, the alignment has mostly be sold and redeveloped.

- 4.127. The reinstated track over this section will consist of conventional ballasted railway track suitable for speeds of up to 75mph. Where practicable, the reinstated track will be positioned on the western side of the formation in order to keep the track further from adjoining residential properties and to maintain a vehicular access route alongside the track for maintenance purposes.
- 4.128. Approximately 400m to the south of its commencement, Work No. 3 intersects a private right of way between Aristotle Lane to the east of the railway and the Trap Ground Allotments to the west of the railway. This right of way presently crosses the Banbury – Didcot railway line by means of a pedestrian level crossing (known as “Aristotle Lane crossing”). A separate crossing previously existed over the former Bletchley – Oxford line tracks at this location. In compliance with present standards, it is not intended to create a new foot crossing over the reinstated railway at this point. Instead, it is proposed to divert the right of way via the adjacent Aristotle Lane footbridge (bridge OXD51 / DCL29), which will be retained and refurbished in connection with this diversion. This is discussed further in 4.456 to 4.477 below.

Sheet 30 (Appendix 1, pages 122 to 125 / Appendix 2, page 45)

- 4.129. Approximately 500m to the south of Aristotle Lane footbridge, Walton Well Road is carried over the former railway alignment and the alignment of the present Banbury – Didcot line by means of a multi-span overbridge (overbridge OXD52 / DCL28). The reinstated single track will pass through the easternmost span of this bridge, which will be retained in its present form. Routine minor maintenance repairs will be undertaken to this span of the bridge at the time of scheme construction.
- 4.130. 50m to the south of this bridge, the existing and former railways pass over a watercourse known as “Castle Mill Stream”. Separate three-span underbridges are provided exist carrying the present and former railways. The bridge carrying the former Bletchley – Oxford line alignment (underbidge OXD53) will be retained and reused for the reinstated single track. The bridge consists of steel plate main girders and cross girders with brick jack arches. The bridge was reconstructed in 1909. The reinstated track will pass over the western side of this bridge. Minor strengthening works will be undertaken to certain of the cross girders in order to provide adequate load bearing capacity for the reinstated railway.
- 4.131. To the south of Castle Mill Stream underbridge, a series of sidings, known as the “Up Carriage Sidings”, together with certain ancillary buildings and structures now occupy the alignment of the former Bletchley – Oxford running

¹⁰ The Sheepwash Channel is a navigable waterway that passes beneath the railway and which connects the Oxford Canal to the River Thames (or Isis). The Sheepwash Channel is sometimes referred to as the Rewley Abbey Steam.

lines. These sidings are connected to the Didcot – Banbury line and are used for the stabling¹¹ and cleaning of rolling stock used by First Great Western.

- 4.132. Heading south from the Castle Mill Stream underbridge, Work No. 3 skirts around the eastern side of the Up Carriage Sidings before crossing the Sheepwash Channel to reach two new platforms at the present Oxford station. Immediately to the north of the Sheepwash Channel, Work No. 3 splits into two single tracks, each serving one of the two new platforms. For the purposes of the Order, the easternmost of these two tracks is designated Work No. 3A while the westernmost is a continuation of Work No. 3. Both of these Works terminate approximately 7m to the north of the existing main station building at Oxford station.
- 4.133. In order to provide an unobstructed alignment past the Up Carriage Sidings for the reinstated single track, it will be necessary to relocate certain of the ancillary buildings and structures associated with the sidings and to realign the existing hardened vehicular access route. The reinstated single track, relocated buildings and structures and realigned access road will all be accommodated within land to the east of the sidings that is presently within railway ownership and which was previously occupied by sidings associated with the former Bletchley – Oxford line.

Sheet 31 (Appendix 1, pages 186 to 131 / Appendix 2, page 46)

- 4.134. At the south end of the sidings, the maximum speed of trains operating on the reinstated single track will reduce to 25mph. From here, the single track leaves the former Bletchley – Oxford line alignment and takes up a new alignment immediately to the east of and adjoining the Didcot – Banbury line tracks. The single track will closely follow the alignment of the easternmost siding and its connection to the running lines just to the north of the bridge over the Sheepwash Channel. In order to facilitate this, the existing headshunt at the south end of the Up Carriage Sidings will be removed.
- 4.135. On the approach to the bridge over the Sheepwash Channel, the tracks of the Didcot – Banbury line are elevated (by up to approximately 2m) above the level of the headshunt. A retaining wall presently exists between the easternmost running line and the headshunt. The centreline of the proposed new single track will roughly follow the line of this retaining wall and the level of part of the land on which the headshunt is currently located will be raised such that the new single track will be located at the same level as the running lines of the Didcot – Banbury line.
- 4.136. The Bletchley – Oxford line formerly crossed the Sheepwash Channel to the east of and at a lower level than the Didcot – Banbury line. In order to maintain the Rewley Abbey Stream as a navigable waterway, a swing bridge was provided that could be opened to allow the passage of boats. This swing bridge remains in situ in a semi-derelict state, immediately to the east of the bridge carrying the Didcot – Banbury line over the waterway.

¹¹ The term “stabling” is used to describe the parking of a train or locomotive when not required for service. It is particularly applied to the overnight parking of trains although it is equally applicable to other times of day.

- 4.137. The swing bridge structure, although isolated from the present railway and in spite of its present semi-derelict state is designated a “Scheduled Ancient Monument” (SAM).
- 4.138. In order to provide a route for the new single track into the proposed new platforms at Oxford station, it will be necessary to widen the existing Didcot – Banbury line bridge over the Sheepwash Channel (underbridge DCL27). The details regarding the design of the existing and widened structures and the factors that have influenced the design of this element of the scheme are described in detail in 4.479 to 4.495 below. In summary, the widening will entail the removal of one of the existing superstructures that make up this bridge and replacing it with two new bridge spans. To support the additional width of the two new spans, the existing bridge abutments will be widened.
- 4.139. A small single-storey brick building accommodating an electricity substation and associated equipment is located immediately to the south of the bridge over the Sheepwash Channel. This building will be demolished and the substation relocated to the north of the Sheepwash Channel on land presently occupied by the headshunt described above.
- 4.140. The proposed two additional platforms at Oxford station will be constructed on the site presently occupied by the former parcels docks, former parcel depot buildings (which are now used for other purposes associated with the station) and the short-stay station car park. This aspect of the scheme is described in detail in 4.236 to 4.259 below.

DESCRIPTION OF PHASE 2B

- 4.141. I will now describe the additional works that will be undertaken in Phase 2B of the scheme.
- 4.142. The additional works comprising Phase 2B will provide a range of enhancements to the infrastructure provided in Phase 1. Together with the works comprising Phase 2A, which, as described above, will be undertaken at the same time as Phase 1, the Phase 2B works will provide the additional functionality and capacity required to operate the additional freight and passenger services proposed as part of the East West Rail Link scheme.
- 4.143. The East West Rail Link route from Milton Keynes meets the infrastructure forming Phase 1 of this scheme at the proposed Gavray Junction in Bicester. The railway to the east of Gavray Junction presently consists of a single track. A second track was previously provided but this was removed in 1985. In Phase 1, Gavray Junction will be configured to work with the existing single track layout to the east of the junction. However, the geometry of the junction has been designed to facilitate the installation of the three additional turnouts that are required to make the junction compatible with a double track railway to the east. Although a final decision on the track layout to the east of Gavray Junction has yet to be taken, all three of the infrastructure layouts tested and reported in the recent GRIP 4 Outline Business Case prepared on behalf of the East West Rail Consortium incorporated double track between Gavray Junction and Claydon L&NE Junction to the east. Phase 2B therefore provides for the installation of the required additional turnouts at Gavray Junction. The anticipated track layout at Gavray Junction in Phase 2B is shown in Figure 4.2.

- 4.144. Between Highfield Junction and Mill Stream Junction, the second track that previously existed on this section of line will be reinstated. The junctions at each end of this section that will be created in Phase 1 will be abolished and removed in Phase 2B (although the proposed junction between Work No. 2 and Work No. 4 will be located close to the site of Highfield Junction)
- 4.145. Between Langford East Junction and Langford West Junction, this second track will occupy the part of the railway formation that accommodates the proposed Phase 1 freight loop associated with the operation of the connection to the MoD site. It will therefore be necessary to relocate this freight loop. The track of the loop will form part of the reinstated second track between Highfield Junction and Mill Stream Junction. The crossovers forming Langford East and Langford West Junctions will be removed.
- 4.146. Due to the presence of the Alchester Roman Town Schedules Ancient Monument, which extends either side of the railway corridor in the vicinity of the Phase 1 freight loop, the option of constructing a replacement freight loop parallel to the existing railway was ruled out.
- 4.147. Instead, Work Nos. 4 and 4A will be provided as a replacement for the loop. Work No. 4 consists of siding that will be constructed on the southeast side of the railway. It will commence at a point immediately to the south of the proposed Down (Oxford-bound) platform of Bicester Town station that will be constructed in Phase 1. From here, it will run adjacent and parallel to the existing railway for a length of just over 700m, where it will join the Down line of Work No. 2 by means of a trailing turnout. This turnout will be located approximately 120m to the southwest of underbridge OXD39, which carries the railway over a brook. This location is to the southwest of Highfield Junction and therefore on the section of line that will be doubled in Phase 2B. A facing crossover will be provided immediately to the southwest of this turnout to facilitate access to the siding from the Up line.
- 4.148. The proposed layout of the access to the MoD site is shown in Figure 6.3 (Appendix 2, page 79).
- 4.149. Approximately 20m to the southwest of underbridge OXD39, Work No. 4A will commence by means of a turnout from the siding forming Work No. 4. The track provided as part of Work No. 4A will connect the siding of Work No. 4 to the headshunt at the northwest end of the MoD Exchange Sidings, created in Phase 1, effectively reinstating the current access point into the MoD site.
- 4.150. At the time of preparing this Proof of Evidence, no decision has been made as to whether the southern access to the MoD site that is proposed to be formed in Phase 1 (i.e. Work No. 5) will be retained in Phase 2B.
- 4.151. The construction of the siding and reinstated connection to the MoD site will entail widening of the existing railway embankment on the southeast side over the full length of Work No. 4. In addition, underbridges OXD 37, 38 and 39 will need to be widened together with overbridge OXD38A.
- 4.152. Over the length of the work to the rear of the Talisman Business Park, the embankment widening will be achieved by the construction of a retaining wall immediately within and adjoining the railway land boundary and the infilling of the space between this wall and the existing railway embankment. Over the

remainder of the length of the work, the widening will be achieved by the construction of additional embankment. This will require the permanent acquisition of a strip of land, the width of which varies to suit the alignment of the new siding and the height of the embankment.

- 4.153. Underbridge OXD37 carries the railway over Langford Brook. This bridge will be widened by the construction of an additional span on the southeast side of the bridge. The exact form of this span will be confirmed during the next phase of development of the Phase 2B scheme.
- 4.154. Underbridge OXD38 is a former cattle creep¹². It is believed that the route beneath the structure is now redundant. The possibility of in-filling the structure is therefore being investigated. It is known that utility pipes pass through the bridge beneath ground level. This may prevent, or make undesirable, the infilling of the bridge. If this is the case, the bridge will be widened in a similar manner to underbridge OXD37.
- 4.155. Overbridge OXD38A carries the A41 road over the railway. To provide for the new siding, it is envisaged that an addition span will be created immediately to the southeast of the existing span of this bridge. In order to construct this span, it is proposed that a temporary road deck be provided above the site of the new span. At certain points in the construction sequence it is anticipated that it will be necessary to reduce the width of the road by approximately 50%. This is likely to result in the need for single lane working with temporary traffic lights. The construction methodology will be refined during the next phase of development work for Phase 2B with a view to minimising disruption to road traffic.
- 4.156. Underbridge OXD39 carried the railway over a brook. This bridge will be widened by means of the construction of an additional span on the southeast side of the line, in a similar manner to the widening proposed for bridge OXD37.
- 4.157. Between Highfield Junction and Mill Stream Junction, the second track will be reinstated alongside the single track from Phase 1. The Phase 1 single track is mostly located on the northwest side of the two track railway formation. However, between a Merton footpath level crossing and Yew Tree Farm footpath crossing, the track is located on the opposite side of the formation. As the existing track over this section is of relatively recent construction (2003), in good condition and suitable for the proposed increased train speeds, it will not be relayed in Phase 1 and will therefore remain in its current position. Over this section, the Phase 2B track will therefore be installed on the northwest side of the formation while over the remainder of the section between Highfield Junction and Mill Stream Junction the Phase 2B track will be installed on the southeast side of the formation.
- 4.158. It is proposed that any earthworks stabilisation and widening works required on this section of line to support the Phase 2B track will be carried out in Phase 1.

¹² A cattle creep is a bridge beneath the railway which provides a link between two parcels of agricultural land and permits the passage of livestock between those parcels of land.

- 4.159. All new bridges over this section of the railway will provide adequate clearance for two tracks. All existing bridges passing over or beneath the railway on this section are already suitable for two tracks with the exception of underbridge OXD40, which will be widened in Phase 1.
- 4.160. The existing single platform at Islip station is located on the formation of the proposed second track. As part of Phase 2B, Islip station will be reconstructed to provide two new platforms, one for each track. This work is described in 4.206 to 4.211 below.
- 4.161. Between Mill Stream Junction and Peartree Junction, no works will be undertaken in Phase 2B.
- 4.162. Between Peartree Junction and Woodstock Road Junction, the railway will remain single tracked following the completion of Phase 1. In Phase 2B, the second track will be installed, this being located on the western side of the formation. This includes the installation of the second track through Wolvercot Tunnel on the formation that will have been lowered and prepared as part of the Phase 2A works.
- 4.163. Further work is required to determine the optimum positions of crossovers between Water Eaton Parkway and Oxford North Junction for the Phase 2B scheme. The chosen locations will depend in part on the precise nature of the train service that will be operated. However, from work completed to date, it is likely that Peartree Junction will be abolished. Woodstock Road Junction is likely to be retained. The existing turnout is likely to be replaced by a pair of crossovers. This layout is shown diagrammatically in Figure 12.2 (Appendix 2, page 96).
- 4.164. To the south of Woodstock Road Junction, no works are proposed as part of Phase 2B of this scheme. The railway south of this point to Oxford North Junction will continue to operate as two separate single lines. It is possible that the existing Oxford North Junction might be upgraded at the time of the Phase 2B works but, if so, this will be done under existing powers and the work will not form part of the Order scheme.

STATIONS

- 4.165. In this part of my evidence, I describe the works that will be undertaken at station sites, both new and existing, as part of the Order Scheme.
- 4.166. The scheme involves four stations of which three are existing stations and one is a new station. The existing stations are Bicester Town, Islip and Oxford. The new station has been provisionally named "Water Eaton Parkway" and is located adjacent to the existing Water Eaton Park and Ride site on the northern outskirts of Oxford.
- 4.167. The work to select sites for station had previously been described in 3 above and in the evidence of Mr Allan Dare (CRCL/P/2/A). This section of my evidence therefore focuses on the facilities to be provided at each station and the layout of each station site.

BICESTER TOWN

- 4.168. The existing Oxford – Bicester Town train services terminates at Bicester Town station. The station is located on Station Approach, a partly private

road leading from a junction with London Road to the south of the town centre. This station, which was previously known as Bicester London Road, opened in 1850 but closed when passenger services on the route were withdrawn at the end of 1967. The station was reopened as Bicester Town in 1987 when passenger services recommenced between Bicester and Oxford. However, only minimal facilities are provided at the reopened station. Although the original station building survived the period of closure, it was not brought back into use when the station was reopened and it was subsequently demolished.

- 4.169. The present station comprises a single platform with a useable length of 68m, making it suitable for trains of a maximum length of 2-cars (based on 23.5m vehicles and assuming the full length of the train is to be accommodated within the platform).
- 4.170. A waiting shelter is provided at the entrance to the platform and benches are provided on the platform. There is a clock located on the platform and automated announcements are made regarding the destination of each train but there are no Customer Information System displays¹³.
- 4.171. There are no ticket issuing facilities at the station and passengers buy their tickets onboard the train or at their destination.
- 4.172. There is no CCTV coverage of the station or its approaches. A passenger help point is provided on the platform for the provision of information and to summon emergency assistance.
- 4.173. A footpath links the station to the nearby Bicester Village retail development.
- 4.174. Pedestrian access between the station and the rest of the town is provided via station approach. A footway is provided on one side only of Station Approach. This changes from one side of the road to the other part way along the road.
- 4.175. No specific provision is made for access to the station by cycle although cycle racks are provided at the end of the platform. These racks provide covered parking for up to 8 cycles.
- 4.176. Parking is provided on Station Approach for 16 cars. 40 additional parking spaces were previously available Monday to Friday at the northeast end of the Bicester Village car park. Since July 2010 this has been superseded by the provision of 213 spaces that are also available for rail users Monday to Friday within Bicester Village's new car park that has been built on the site of the former station goods yard¹⁴.
- 4.177. A bus stop is provided on Station Approach but due to the width and layout of the road, this can only be served by small single deck buses and these have to perform a three point turn in order to return along Station Approach to London Road.

¹³ i.e. electronic departure boards.

¹⁴ It should be noted that the 260 spaces within the Bicester Village car parks are not controlled by Chiltern Railways or by the operator of the existing Bicester Town – Oxford service (First Great Western) and are provided under an agreement between the freehold owners of the Bicester Village car park site and BRB Residuary to which neither Chiltern Railways or First Great Western are a party.

- 4.178. The proposed layout of the rebuilt Bicester Town station is shown in Figure 13 (Appendix 2, page 97).
- 4.179. A signal protecting London Road level crossing is presently located at the northeast end of the station platform. The distance from this signal to the level crossing is just less than 50m. As part of the new signalling system that will be installed between Bicester South Junction and Oxford, this signal will be replaced by a signal set 180m back from the level crossing. This provides greater protection to the crossing in recognition of increased speed of trains and in compliance with current standards. As it is not permissible to place a platform between the crossing and the protecting signal, the platform for Up direction trains must be relocated to the southwest of the new signal. In order to provide the driver of a train standing at the platform adequate visibility of the signal, the platform needs to be set back from the signal by 20m. A new Up platform will therefore be constructed starting at a point 200m to the southwest of London Road level crossing. The new platform will be initially constructed to a length of 147m, which is the length required to accommodate a 6-car train. Provision will be made for the future extension of the platform at the southwest end by 48m to allow 8-car trains to be accommodated.
- 4.180. A new platform will be constructed to serve the new Down line. The location of this platform is not constrained by the signalling and level crossing in the same way as the Up platform. A small triangle of vacant land on the southeast side of the railway bordered the railway, London Road and the northeast end of the Talisman Business Park will be used to create a secondary access to Bicester Town station. In order to provide direct access from this entrance onto the new Down platform and avoid the need for a footpath along the railway corridor to link the entrance to the platform, this platform will not be positioned directly opposite the new Up platform. Instead, it will commence at a point approximately 85m from the level crossing. The platform will extend for 147m to the southwest of this point. Provision will be made for a 48m extension at the northeast end of the platform, extending towards the level crossing.
- 4.181. Covered waiting areas will be provided on both platforms.
- 4.182. The secondary access to the station on the southeast of the line will incorporate a small forecourt area with pick up / drop off facilities and a limited quantity of parking. The parking area will provide 4 disabled parking spaces and 23 standard spaces. Parking for 10 cycles will also be provided in this area. A ticket vending machine will be provided on the station forecourt and provision will be made for the installation of automatic ticket gates.
- 4.183. Two new highway accesses will be constructed on London Road to provide vehicular routes in and out of the forecourt.
- 4.184. A footbridge is proposed to link the two platforms. This bridge will be accessed by stairs and a lift will be provided on each side of the railway to facilitate access for the mobility impaired. A clearance of 5.5m will be provided between the bridge soffit and the top of the rails. The bridge deck will be perpendicular to the line of the railway and will be located approximately 200m to the southwest of London Road level crossing.

- 4.185. A station building will be provided on the northwest side of the line close to the northeast end of the new Up platform. This building will accommodate a ticket office, passenger toilets and a small retail outlet (for the sale of refreshments and newspapers etc). It will also provide a covered waiting area. The station building will be constructed on land that currently forms part of the recently constructed Bicester Village car park on the site of the former station goods yard.
- 4.186. It is proposed to redevelop the area in front of the new station building to provide a station car park, substantially improved bus interchange and a safer, more attractive approach to the station for pedestrians and cyclists. This will entail the acquisition of a number of parcels of third-party owned land and the demolition of the properties which currently occupy these land parcels.
- 4.187. As part of the redevelopment, Station Approach will be realigned at the southwest end to approximately follow the alignment of the present access road within the McKay Trading Estate. The junction with London Road will be moved approximately 20m south from its current location. This will facilitate improvements to the junction to ease traffic flows in and out of Station Approach. The realigned Station Approach will feature a continuous footway on the southeast side of the road. Due to the need to maintain access to the various industrial premises located to the northwest of the realigned road, it is not possible to provide a similar footway on the northwest side of the road.
- 4.188. At the southwest end of the realigned Station Approach, a gated pedestrian and vehicular access will be provided into the land owned by Bicester Village. This will replace the gate located at the end of the present Station Approach. The access will be constructed to facilitate the future provision of through bus services from Station Approach to Pingle Drive.
- 4.189. Immediately to the northeast of the access, a loop of road will run perpendicularly from Station Approach towards the railway. This loop will provide a turning facility for full-sized buses. Two bus stops will be located on the loop in front of the station entrance. Drop off / pick up facilities and a taxi rank will also be provided on this loop.
- 4.190. Parking will be provided for 60 bicycles on the paved area between the end of the loop road and the fence separating the forecourt from the railway.
- 4.191. Parking for 30 motorcycles will be provided.
- 4.192. The area of land bordered by the loop road, Station Approach, the railway and the existing access road to the rear of the former bus depot building that fronts onto London Road, will be utilised for station parking. Initially, an at-grade car park providing 300 spaces (including 14 spaces for disabled passengers) will be provided. The car park will be arranged to allow for the construction of a deck above it at a future date. This will provide a net increase of around 200 spaces.
- 4.193. The layout of the car park, Station Approach and bus turning loop provides:
- a safe layout that largely separates cars buses and pedestrians

- an arrangement of parking spaces that can be efficiently decked in the future
- an attractive approach to the station
- improved sight lines for both road vehicles and pedestrians leading to enhanced personal security
- a car park that will be under the direct control of the train operator that will be of adequate size to cope with predicted weekday and weekend demand for station parking

ISLIP

- 4.194. Islip station is an existing station located roughly halfway between Bicester Town and Oxford. The station originally opened in 1850 and was, briefly, the terminus of the line from Bletchley prior to the opening of the section southwest from Islip a few months later. In common with the station at Bicester, Islip was closed at the end of 1967 when the Bletchley – Oxford passenger service ceased. Following closure, the station was demolished.
- 4.195. In 1989, two years after the Bicester Town – Oxford passenger service was reinstated, the present Islip station opened. Today, the station consists of a single 2-car platform, constructed on the alignment of the former Down line.
- 4.196. The station has a small car park that provides 32 parking spaces, although usage of the car park is low around 80% of spaces being vacant most of the time.
- 4.197. The station is reached by means of a private approach road that descends from a junction Bletchingdon Road located immediately to the south of the bridge carrying that road over the railway. This approach road is narrow and does not have a separate footway. At the lower end of the road, a small forecourt area exists. This provides a pick up / drop off area and turning circle. Access to the car park also leads off of this area.
- 4.198. The station has no ticket vending facilities, CCTV or Customer Information System displays. An automated system announces the destination of each train as it arrives. A help point is provided on the station enabling passengers to obtain information or to summon emergency assistance. A waiting shelter is located on the platform and a covered cycle rack is located by the entrance to the platform.
- 4.199. When the station reopened in 1989, it was intended to serve the local community. Anecdotal evidence suggests that the station was also proposed to serve as a park and ride facility for people travelling to Oxford. The presence of signage to the station on the A34 dual carriageway around 1 mile from the station would appear to back up this theory. However, the park and ride traffic never materialised, no doubt because of the very sparse train service.
- 4.200. The station at Islip will be retained and enhanced as part of the Order scheme. It is intended that the station will retain its role as a facility for the local community and the train service levels will remain broadly the same as the present.
- 4.201. In Phase 1 of the scheme the existing station will remain largely unchanged. The existing platform will be extended towards Bicester by approximately

97m. This will make the platform suitable for use by trains of up to 6 cars in length. This work will necessitate the permanent removal of a strip, around 0.5m in width, from the car park although it will be possible to retain the existing number of parking spaces.

- 4.202. A ticket vending machine will be installed together with a full public address system and customer information system displays. CCTV cameras will be installed around the station site.
- 4.203. The existing waiting shelter will be retained and refurbished.
- 4.204. The Phase 1 layout is shown in Figure 14.1 (Appendix 2, page 99).
- 4.205. The station is not affected by the Phase 2A works.
- 4.206. In Phase 2B, the second track through the station will be reinstated. This will necessitate the removal of the existing platform (and its Phase 1 extension). The existing platform will be replaced by two new platforms, one to serve each track. Each platform will be 147m in length with provision for future extension (at the northeast end) to 195m length.
- 4.207. The construction of the new Down platform will result in the loss of a further strip of land from the station car park. As a result, it will not be possible to retain the existing number of parking spaces although by use of an alternative arrangement of spaces, parking for 23 cars plus two motorcycles will be provided.
- 4.208. A footbridge will be provided to give access between the two platforms and to provide a route between the station car park and the new Up platform. The footbridge will have stairs but lifts will not be provided because of the difficulty of providing satisfactory supervision and emergency response at an unstaffed site.
- 4.209. An alternative, step-free route between the platforms will be created via the station approach road, the Bletchingdon Road bridge and a new ramped footpath that will be constructed leading from Bletchingdon Road to the new Up platform. To improve pedestrian safety, a separate footway will be constructed along the northeast side of the station approach road and on the east side of Bletchingdon Road over the railway bridge.
- 4.210. To minimise the distance that disabled passengers that arrive at the station by car must travel to reach the platforms, two disabled parking spaces will be created at the Bletchingdon Road end of the station approach road. These spaces will be created on land that is currently in third-party ownership. The land in question is presently used as an access route to an agricultural field behind the houses that front onto Bletchingdon Road. The land is of adequate width to accommodate the parking spaces and the existing access although the option exists to provide an alternative access to the field from the station approach road.
- 4.211. The proposed Phase 2B layout is shown in Figure 14.2 (Appendix 2, page 100).

WATER EATON PARKWAY

- 4.212. A new station is proposed to be constructed in Phase 1 on a site in Water Eaton. This station is to be known as “Water Eaton Parkway”. The station

will be located adjacent to the existing Water Eaton park and ride site operated by Oxfordshire County Council. The station will be constructed on the site of the present Banbury Road sidings and associated aggregate depot (which will be relocated immediately to the northeast of the station site as discussed in 4.85 above) and a derelict former grain silo building (which will be removed).

- 4.213. As suggested by its proposed name, the station is intended to act as a park and ride (or “parkway”) station to serve areas of Oxford and Oxfordshire that currently have poor road access to the rail network. The station is also intended to also act as a local facility for north Oxford and Kidlington.
- 4.214. The location for the station has therefore been selected on the basis of accessibility from the highway network for private car users together and access by public transport and non-motorised methods for those unable to or not wishing to use a car. The process of site selection is discussed in the evidence of Mr Allan Dare. The process of determining the layout of the station site is described in 3 above.
- 4.215. The proposed layout of the station is shown in Figure 15 (Appendix 2, page 102).
- 4.216. The station will have two platforms. These will be located immediately to the northeast of the bridge carrying the A4165 Oxford Road over the railway. The platforms will be 147m in length (adequate for 6-car trains) but with provision to extend at the northeast end to 195m (adequate for 8-car trains).
- 4.217. The platforms will be linked by footbridge located approximately 20m to the northeast of the Oxford Road bridge. The footbridge will have stairs and a lift to each platform.
- 4.218. A number of covered waiting areas will be provided on each of the platforms.
- 4.219. A two-storey station building will be provided. The lower storey of this building will be at the level of the platforms and the station car park and will house a ticket office, passenger toilets and a small retail outlet (for the sale of refreshments and newspapers etc). The upper storey will be at the level of Oxford Road and will provide direct access from the northeast side of Oxford Road into the station. A ramped footpath will provide step-free access from Oxford Road to the station entrance at the lower level.
- 4.220. In addition to the staffed ticket office, ticket vending machines will be provided within and outside the station building.
- 4.221. Customer Information System displays will be provided around the station together with a public address system.
- 4.222. The station site, including the car parks, will be covered by a CCTV system.
- 4.223. New bus stops will be provided on Oxford Road in the vicinity of the station entrance. The stop on the southbound side of the road will be located in the existing bus lane. In the northbound direction there is just a single traffic lane. The new bus stop on this side of the road will therefore be situated in a new bus lay-by that will be built out from the embankment that supports the road approach to the bridge over the railway and the adjacent A34 dual carriageway. The construction of this lay-by will require the acquisition of a

small parcel of third party owned land to the southwest of Oxford Road together with access over adjoining land in the same ownership.

- 4.224. A new pedestrian crossing will be provided on Oxford Road to facilitate access between the northbound bus stop and the station.
- 4.225. A car park and station forecourt area will be provided on land to the southeast, east and northeast of the station building, at the level of the railway. The forecourt will consist of large paved area and a circle of road that will provide pick up / drop off facilities and a taxi rank, arranged around a large, circular traffic island. The island will be landscaped and parking for 100 cycles will be provided on one side of the island.
- 4.226. A pedestrian route from the station building to the existing park and ride bus terminal will be routed across the island with pedestrian crossings being provided on either side of the island.
- 4.227. To the southeast and northeast of the island, two large areas of at-grade parking will be provided. These will provide a total of 840 spaces including 40 spaces for disabled users. It is proposed that a further 160 spaces will be constructed at a later date in the form of a deck over the northeast part of the car park.
- 4.228. Parking will also be provided for 75 motor cycles.
- 4.229. Access to and egress from the station car park and forecourt will be provided by a new road that will be constructed around the perimeter of park and ride site, linking the existing park and ride access road to the northeast end of the station site. This new road will also provide access to the relocated aggregates depot to the northeast of the station site. The construction of the new access road will require localised remodelling of the existing park and ride car park. The length of the existing park and ride access road that is to be incorporated into the new access road will be strengthened and upgraded as necessary to make it suitable for use by heavy vehicles accessing the aggregates depot.
- 4.230. In addition, subject to the agreement of Oxfordshire County Council, an additional means of vehicular access will be provided by way of a direct link from the presently bus-only road within the park and ride site to the station forecourt road. This road will provide a shorter route into the station site and is considered necessary to prevent car users from attempting to drop off passengers at locations other than the station forecourt. Egress from the station site will not be available via this route as this would lead to congestion on the bus-only road on the approach to its junction with the park and ride access road / new perimeter road that would result in unacceptable delays to bus traffic.
- 4.231. The existing access road from Oxford Road serving the aggregates depot and grain silo site will be stopped up and removed. This access road presently connects to Oxford Road by means of a complex traffic light controlled junction arrangement that incorporates the junction between Oxford Road and the park and ride access road. As a result of the stopping up of the aggregate depot / grain silo access road, the junction layout will be simplified.

- 4.232. The existing cycle route access to the park and ride site will be utilised to provide access to the station site. This route presently runs via the aggregate depot / grain silo access road and then alongside the bus-only road within the park and ride site. The route will be diverted to run alongside the park and ride access road instead to the aggregate depot / grain silo access road.
- 4.233. Soft and hard landscaping will be provided around and within the station site to provide a welcoming feel to the station and to minimise the visual impact of the site on the surrounding areas.
- 4.234. The Water Eaton Parkway site has been set out to maximise ease of access to the site by all modes. Particular attention has been paid to providing good access to and from existing bus services operating along Oxford Road as well as those services using the park and ride bus terminal. Access into the station site and also the relocated aggregates depot has been designed to minimise conflicts with the operation of the existing park and ride site and to ensure that traffic on Oxford Road is not adversely affected by the presence of the station. The station will be provided with the facilities expected of a modern multi-modal interchange by the broad range of users expected at the site.
- 4.235. No changes will take place at Water Eaton Parkway station in connection with the Phase 2B works.

OXFORD

- 4.236. Services from Bicester Town currently terminate at Oxford station. This station is located to the west of Oxford city centre, and is accessed via the junction between Botley Road and Frideswide Square. In addition to the Bicester Town – Oxford service, the station is served by trains to a range of destinations including London Paddington, Reading, Southampton, Bournemouth, Worcester and destinations in the midlands and the north of England.
- 4.237. The present layout of the station area is shown in Figure 16.1 (Appendix 2, page 104).
- 4.238. There are four tracks passing through the station. The centre tracks are used by freight services and do not have platforms. The outer tracks have platforms numbered 1 and 2. Platform 1 serves the track used primarily by southbound trains towards Reading, London and the south coast and is located on the east side of the four tracks. Platform 2 serves the track used by northbound trains to Worcester, Banbury, Birmingham and beyond as well as trains terminating at Oxford from the south. Platform 2 is located on the west side of the four tracks.
- 4.239. A bay platform¹⁵ is located on the east side of platform 1, at the north end of the station. This platform is numbered platform 3 and is used by trains terminating from and returning to stations to the north of Oxford. The platform

¹⁵ A bay platform is a platform which trains can only access from one end and which is therefore used by terminating services. The term “bay platform” is usually only applied to a platform located at the side of a through platform (i.e. one accessible from both ends) which is accessed from the through route. The term “terminal platform” is used for a platform at the end of a route where there trains cannot be routed via an adjacent through platform.

is primarily used by local services to and from Banbury, Bicester Town or the Cotswold line towards Worcester.

- 4.240. To the east of platform 3, two further tracks exist. These tracks were previously used for parcels traffic and a dock¹⁶ is provided between the two tracks. The track adjacent to platform 3 is now used for shunting purposes. The other of the two tracks is used to store two former parcels vans that now provide ancillary storage facilities for the station. The dock between the two tracks is largely disused. A large single storey building is located to the south of the parcels dock. This is the former parcels depot. This building now houses train crew facilities, offices, storage for the retail outlets located in the main station building (see below) and an area used for the storage and preparation of food for the mobile catering trolleys used on some of the train services to and from Oxford.
- 4.241. The main station facilities are located in a building dating from 1990 and located towards the southern end of platform 2. The building houses a large ticket office, public toilets, an information point and a number of retail outlets. It also provides an enclosed waiting area. A row of automatic ticket gates provide access to platform 1 from where the other platforms can be accessed.
- 4.242. A footbridge is located to the north of the station building. This provides access to platform 2. The bridge dates from the late 1980s and replaced a previous narrow subway beneath the tracks which was subsequently closed. On platform 2 a building dating from the early 1970s provides a range of additional facilities including further toilets, a retail outlet providing refreshments, a waiting room and several offices and storage rooms used in connection with the operation of the station and the retail outlets.
- 4.243. The main access route to the station is via a large forecourt area located to the east of and around 2m lower than the main station buildings on platform 1. A number of bus stops, a taxi rank and a large number of covered cycle racks are located on the forecourt. The forecourt also provides access to a short stay car park (40 spaces) and parking for disabled users (5 spaces) located at slightly higher level between the main station building and the former parcels depot. Leading on from this, a staff car park containing 50 spaces is located to the east of the parcels depot building and tracks.
- 4.244. A small relocatable building is located on the former parcels dock and this provides staff messing facilities for the local ambulance service. Two spaces within the staff parking area are set aside for the use of ambulances.
- 4.245. As well as the main pedestrian and vehicular access to the station forecourt from Frideswide Square / Botley Road, a pedestrian and cycle route leads into the northeast corner of the forecourt from Stable Close and Rewley Road (residential streets to the northeast of the station via which the canal towpath can be accessed).
- 4.246. At the southwest corner of the station forecourt, a footbridge is located providing a pedestrian route across Botley Road and affording access to the

¹⁶ i.e. a platform used exclusively for receiving and dispatching goods or parcels and not used by passengers.

main station car park. The station car park, which is bordered by Botley Road, Beckett Street and the railway provides parking for 540 vehicles.

- 4.247. A secondary access to the station is provided by means of a pedestrian gate leading directly on to platform 2 from Roger Dudman Way. This gate is normally only open during peak periods.
- 4.248. The proposed Chiltern Railways services require two additional terminal platforms at Oxford station. These platforms will also provide adequate capacity for all the passenger services to Milton Keynes Central and Bedford proposed as part of the East West Rail Link scheme that will be introduced following the implementation of Phase 2B of the scheme.
- 4.249. In common with Bicester Town, Islip and Water Eaton Parkway stations, the platforms initially need to be of adequate length to accommodate 6-car trains. The ability to provide for 8-car trains at a future date is also required.
- 4.250. The station site at Oxford, in common with most city station sites, is heavily constrained. Although previously surrounded by redundant railway land, almost all of this was sold for redevelopment during the late 1980s and early 1990s. As described in 3 above, a number of options were considered for locating the required platforms before deciding to pursue the option described below.
- 4.251. It is proposed to demolish the former parcels docks and parcels depot building and to site two 6-car platforms (150m in length allowing for siting of buffer stops and stopping tolerances) on the site of these and the present short stay car park. The southern ends of the two new platforms will be located 7m to the north of the north end of the present main station building. A small circulating area is proposed to be provided between the platforms and the station building.
- 4.252. Access to the new platforms will be via the existing station entrance and thence via platform 1. This will allow access to the existing station facilities without the need for alterations to the main station building. It will also allow the existing automated ticket gates to be used avoiding the need for a separate ticket checking point, which would require additional staff to operate.
- 4.253. A gate will be provided from the circulating area to the south of the new platforms leading directly to the station forecourt. This gate will provide for staff access to the new two-storey building and for emergency egress from the new platforms. Should it prove necessary or desirable at a later date, this gate will provide the option of creating an additional entrance / exit point for use at peak times.
- 4.254. The facilities currently housed in the former parcels depot building will be relocated to a new two-storey building which is to be located adjacent to the new platforms, on the eastern side of the current short stay car park site. The upper storey of the new building will provide replacement train crew accommodation while the lower storey will be used to provide replacement retail storage and food preparation areas.
- 4.255. Options for replacing the short stay and disabled parking provision are still being discussed with the station operator (First Great Western) as part of a wider parking strategy resulting from changes associated with this scheme

and other projects affecting Oxford station. (These other projects are discussed in 8 below).

- 4.256. The proposed 6-car platforms are proposed to be fitted into a very tight space constrained by a number of factors. To the west of the site, platform 3 and its associated track must remain operational for the use of other train services and to replace the shunting facility presently offered by the westernmost of the two parcels tracks. Residential properties are located immediately adjacent to the railway at the north end of the site, near the Sheepwash Channel. These properties constrain the available width at the northern end of the site and prevent the platforms extending further towards the Sheepwash Channel bridge. The bridge over the Sheepwash Channel provides a further constraint at the north end as it cannot be widened further than is presently proposed without significant impact on the adjacent old swing bridge (a Scheduled Ancient Monument).
- 4.257. At the south of the proposed new platforms, the existing main station building limits the length of the new platforms to that presently proposed. However, as discussed in 8 below, there are plans for the redevelopment of the station which are likely to result in the existing station building being replaced by a new building located further to the south. It is therefore intended that when the proposed redevelopment of the station site takes place, the new platforms proposed as part of the Order Scheme will be extended southwards to allow them to accommodate 8-car trains. It is possible that it will be desirable or necessary to operate a limited number of 8-car trains in advance of the new platforms at Oxford being extended. If this occurs, it will, subject to timetabling and capacity constraints, be possible to divert these trains at Woodstock Road Junction to travel via Oxford North Junction as start / terminate in the existing “through” platforms (i.e. platforms 1 and 2) at Oxford.
- 4.258. The proposed layout of the station is shown in Figure 16.2 (Appendix 2, page 105).
- 4.259. No further works will be required at Oxford station as part of Phases 2A or 2B.

LEVEL CROSSINGS, NEW BRIDGES AND ASSOCIATED ANCILLARY WORKS

- 4.260. As described in the evidence of Mr Aidan Nelson, a decision was taken during the earliest stages of development of the Order scheme that as many of the existing level crossings on the Bletchley – Oxford line between Bicester and Oxford as practicable should be closed and that no new level crossings should be created by the scheme.
- 4.261. The specific circumstances of each crossing differ. While for the majority of the level crossings it has been necessary to provide an alternative means of access from one side of the railway to the other, at some crossings this is not the case.
- 4.262. This section of my evidence describes the detail of the proposed engineering solution at those crossings where a means of crossing the railway is deemed necessary. It also briefly describes the considerations at each crossing (including those for which no replacement means of crossing the line will be

provided) that guided the decision as to whether or not a replacement means of crossing the line was necessary.

- 4.263. More detail on the specific safety considerations relating to each crossing is presented in the evidence of Mr Aidan Nelson (CRCL/P/7/A). The evidence of Mr Ian Gilder (CRCL/P/12/A) discusses the adequacy of the provisions in respect of public rights of way. The evidence of Mr Richard Caten (CRCL/P/11/A) discusses the adequacy of the provisions in respect of private rights of way.
- 4.264. The solution proposed for each crossing was selected following a detailed option appraisal exercise based on the following factors:
- Function of the crossing
 - Level of use
 - Engineering and railway operations issues pertaining to the crossing and any potential solutions
 - Land and property issues
 - Planning issues
 - Ecology surrounding the site of the crossing and the likely impact of potential solutions
 - In advance of this exercise, information was gathered about each level crossing and its use. This came from a variety of sources including:
 - Records held by Network Rail
 - Ordnance Survey mapping
 - Land Registry searches
 - Site visits
 - Definitive Rights Of Way maps held by Oxfordshire County Council
 - Data sources used in the preparation of the Environmental Impact Assessment (EIA) scoping report produced for the project
- 4.265. The information pertaining to each crossing was analysed by a panel consisting of experts in the various fields relating to the factors set out above during March and April 2009. This analysis led to an initial series of proposals. These proposals were subject to revision as further information came to light regarding certain of the crossings. In particular, the public consultation events (held in April 2009) and meetings with users of some of the private level crossings revealed further information. The initial series of proposals were therefore refined to form part of the Order application.
- 4.266. Since the Order application further discussion with stakeholders has taken place in respect to certain of the crossings, which, as discussed below, has resulted in amendments to the proposals affecting one of the crossings (Langford Lane) as described below.
- 4.267. At those locations where it is necessary to maintain a right of way across the railway by means of the construction of a new crossing. Some basic principles have been adopted for all such crossings. Where a pedestrian link is provided, this takes the form of a footbridge. Where the route that it served is accessible to mobility-impaired users, ramps have been provided to access the bridge. Where the route to and from the bridge would not be accessible to mobility-impaired users (for example, because it entails crossing

uneven, muddy ground or involves crossing stiles) only steps have been proposed.

- 4.268. In line with the standards requirements, the sections of parapets over the railway consist of solid panels.

FOOTPATH AT BICESTER CHORD

- 4.269. The new section of railway between the proposed Bicester South and Gavray Junction intersects with an unmade public footpath across currently disused agricultural land. The route to and beyond the point of intersection is often muddy, particularly during the winter months. The footpath has no lighting.
- 4.270. The land to the south of the intersection point is expected to be developed for residential use at a future date. Although the date when this development will begin is not clear, it is likely to be within the next 5 years.
- 4.271. The primary use of the footpath appears to be recreational although it is possible that some pedestrians could be using it as a route between the residential and industrial areas of the town. Levels of use appear moderate on the basis of there being a well worn path leading to and from the intersection point.
- 4.272. It is proposed to provide a footbridge immediately adjacent to the present footpath alignment. This footbridge will have stairs but no ramps as the terrain along the footpath makes it unsuitable for use by wheelchairs and pushchairs.
- 4.273. The proposed footbridge is shown in Figure 17 (Appendix 2, page 107).
- 4.274. The option of providing a subway at this point was considered but dismissed on the grounds of personal security and the significant potential for flooding given the often waterlogged nature of the ground at this point. Although it would be possible to provide a pumped drainage system, this would require an electricity supply and frequent maintenance. There is, therefore, a significant on-going operational cost compared to the alternative of a footbridge.
- 4.275. Given the apparent level of use, the option of closing the footpath was not considered appropriate.
- 4.276. There are no existing alternative routes that would provide a similarly convenient route. Without such an alternative, the existing problem of the railway corridor being used as a shortcut would be exacerbated. It is not possible to create a suitable alternative route without encountering the same challenges as exist at the intersection site.
- 4.277. The option of creating a new level crossing was ruled out. This contravenes national policies of the Office of Rail Regulation and Network Rail, as well as the policy adopted by Chiltern Railways in respect of the Order scheme. The tightly curved nature of the this new section of railway would make visibility of approaching trains to pedestrians highly restricted and would almost certainly necessitate additional safety measures, such the fitting of miniature warning lights (which would place additional load on the signalling system) or the sounding of train horns on the approach to the crossing (which would create noise pollution).

TUBBS LANE

- 4.278. Tubbs Lane level crossing is located between the proposed Gavray Junction and London Road Level Crossing. At this crossing, a public footpath crosses the railway. The footpath is metalled on both approaches to the crossing and a timber crossing surface with a non-slip surfacing is provided. The crossing is accessed by a manually opened, self-closing pedestrian gate on each side of the line.
- 4.279. National Cycle Network route 51 is also routed over the crossing.
- 4.280. The footpath provides a pedestrian link from the Langford Village residential area to Bicester Town Centre and Gath Park. The crossing is heavily used by cyclists and pedestrians, many accompanied by young children and / or pushchairs.
- 4.281. The Langford Village residential area is located adjacent to the railway on the southeast side of the crossing. The nearest dwelling is located approximately 25m from the crossing. Immediately to the southeast of the crossing, the footpath splits with one leg running between the backs of houses and the other passing through a linear area of mainly landscaped open space.
- 4.282. On the northwest side of the railway, a children's nursery is located on the north side of the path leading to the crossing. On the west side of the path, a small stream parallels the footpath. As the path nears the crossing, the stream curves away to the southwest before passing beneath the railway in a culvert located approximately 15m from the crossing. Garth Park is located beyond the stream with a number of mature trees located close to the boundary with the stream. The footpath emerges onto Launton Road approximately 50m beyond the crossing. An electricity substation is located adjacent to the footpath (on the north side) close to the junction with Launton Road.
- 4.283. Lighting is provided on the two paths leading to the crossing on the southeast side of the railway but no lighting is provided at the crossing or on the path to the northwest side of the railway.
- 4.284. It is proposed to close this crossing and to provide an alternative route via a new footbridge (Work No. 9) that will be constructed immediately adjacent to the crossing site. The proposed footbridge is shown in Figure 18.1 (Appendix 2, page 109).
- 4.285. The new footbridge is proposed to be of steel construction and will be provided with steps and ramps on both sides of the railway. On the northeast side of the line, these will run along the alignment of the existing footpath while on the other side of the line they will run parallel to the railway to the southwest of the present crossing.
- 4.286. On the southeast side of the line, it is proposed to provide a 2m high privacy screen to those parts of the footbridge, ramps and stairs that will potentially overlook the nearby residential properties.
- 4.287. The footbridge will provide approximately 5.5m headroom to the tracks below.

- 4.288. Construction of the bridge will involve the permanent acquisition of small areas of third party land comprising the footpath corridor on the northwest side of the line and an area of the open space to southeast of the line.
- 4.289. Because the ramps and stairs on the northwest side of the line occupy the same footprint as the existing footpath, it will be necessary to close this part of the footpath during the construction of the bridge. During this period, an alternative temporary footpath will be provided. From the northwest side of the crossing, this will be routed northeast within the railway corridor before heading northwest over a strip of third party land to reach Launton Road at a point roughly opposite 37 Launton Road. The temporary path will be provided with a suitable surface, will be step free and will be segregated from the railway and from adjoining land by means of temporary security fencing. Additional measures such as lighting and security mirrors will be provided to ensure that the person security of user is not compromised.
- 4.290. In developing the proposed solution, an alternative form of footbridge structure was considered. The ramps to this structure consisted of a path on landscaped earth slopes. However, the limited space available meant that it was not practicable to provide a structure of this form without considerable encroachment into Public Open Space on both sides of the railway.
- 4.291. The option of providing a subway at this location was considered. Any subway at this location would have narrow (3.0m on the northwest side of the railway) approaches which would not be straight and would not therefore offer good forward visibility. The subway would consequently have a very poor ambience and users would be likely to perceive it as a risk to personal security. Again, drainage of the subway would be difficult and would require a pumped system with its associated running costs. Additional land would be required to accommodate the pumps and a means of access to them for maintenance purposes. The layout of a potential subway option is shown in Figure 18.2 (Appendix 2, page 110).
- 4.292. The option of closure of the footpath without provision of an alternative means of crossing the railway was considered and ruled out because of the level of use of the footpath. There is no existing reasonably convenient alternative means of crossing the railway (the nearest existing alternative crossing point being at London Road, 500m away which, given the type and levels of use is considered excessive). There is also no practicable opportunity to create a new crossing point at an alternative point on the line in the vicinity of the existing crossing.
- 4.293. The option of retaining a level crossing at this location is not desirable. The increased levels and speed of rail traffic combined with high levels of pedestrian use and relatively poor visibility at the crossing would make the crossing difficult to use. The use of train horns on the approach to the crossing would be unacceptable in such close proximity to housing. The option of adding miniature warning lights, whilst viable would not be without its problems. The crossing has a history of misuse and it is likely that the warning lights would be ignored by some users.

LONDON ROAD, BICESTER

- 4.294. London Road (B4100) crosses the railway around 50m to the northeast of Bicester Town station and around 270m to the south of the junction between London Road and Launton Road. The road crosses the railway at a skew angle of around 45 degrees.
- 4.295. London Road provides access to Bicester Town Centre from the A41 south of the town. Through traffic (i.e. that not destined for or originating from the town) does not use London Road but instead travels via the perimeter road (A41/A4421).
- 4.296. The road has moderately high levels of vehicular use. There is also a moderate level of pedestrian use, with the majority of pedestrians travelling to and from residential areas located off of the southern part of London Road.
- 4.297. The existing crossing has full barriers¹⁷ and conventional amber and flashing double red road warning lights.
- 4.298. The barriers are lowered using controls located in a locked cabinet at the protecting railway signals. These controls are operated by the crew of any train that needs to travel over the crossing¹⁸. The protecting signals are interlocked with the barriers and can only be cleared to permit the passage of a train once the barriers have reached the fully lowered position. It is the responsibility of the train crew to check that the crossing is not obstructed prior to taking their train forwards. The barriers rise automatically once the rear of the train is clear of the crossing. The train driver receives a visual signal to confirm that the barriers have risen correctly. In the event that this signal is not given, the train must be brought to a stand and the train crew must return to the crossing to manually operate the barriers.
- 4.299. While this method of operation is adequate for the infrequent freight services that presently operate over the crossing, it is not compatible with the proposed passenger services, especially as it results in the barriers being down across the road for several minutes at a time (the exact time depends on a number of factors including the length of the train).
- 4.300. The level crossing site is constrained by development at three of the four corners of the crossing. On the north side of the crossing, houses directly abut the eastern footway of London Road. Opposite these, the listed former Station Master's house (now a commercial property) is located. To the north of this is a former bus depot that is now used as car accident repair workshop.
- 4.301. To the south of the crossing, a further terrace of houses is located on the eastern side of the road. Unlike those to the north of the crossing, these houses are set back from the road and a separate service road runs between them and the main road. This road also leads to a derelict site located one block back from London Road. To the south of the houses, a petrol filling station fronts London Road. On the west side of the road, a vacant triangle of land adjoins the crossing and beyond this is located the Talisman Business Park, which consists of a number of relatively modern office and warehouse premises and associated parking areas and access roads.

¹⁷ i.e. barriers that, when lowered, extend across the full width of the road.

¹⁸ The same cabinet also contains signalling controls that the train crew operate to confirm to the safe arrival of the train at this location and offer the train to the next signalbox (Oxford or Claydon L&NE Junction). The barriers can only be operated once the relevant signalbox has accepted the train.

- 4.302. An extensive range of options was studied in an attempt to find a practicable means of closing the crossing and replacing it with a bridge over or under the railway. Figures 19.1 to 19.13 (Appendix 2, pages 112 to 124) are plans of the various bridge locations and highway alignments considered.
- 4.303. In summary, none of the options is considered viable due to the developed nature of the area surrounding the crossing. As a result of this, all of the options considered would result in the need for extensive property acquisition and demolition and many would also have involved a significant length of new road, much of which would need to be elevated above ground level. The option of providing a bridge under the railway was ruled out for the additional reason of drainage difficulties. All of the options considered would incur significant costs (most were assessed as costing between £5m and £10m).
- 4.304. The option of closing the crossing without replacement was considered but ruled out on the basis that London Road is the only direct route out of Bicester to the south and that the resulting diversion of traffic would entail diversion via the perimeter road and roads that are not suited to accept additional traffic. The resulting diversions would, for most journeys be at least 2km in length. For vehicles over 7.5t gross vehicle weight, the diversion could be up to 4km in length as such vehicles are banned from certain roads in the town centre and would be forced to enter the town via Launton Road. Closing the crossing would also restrict access to the rebuilt Bicester Town station. This would also have a significant impact on the residents of the properties along and just off of London Road.
- 4.305. Alternative locations for a bridge in the locality were considered. These include several options to the southwest of London Road, between London Road and the A41 bridge. The option of utilising the A41 and providing a new link to the northwest side of the railway was considered and ruled out because of the difficulty of providing a new junction on the ramped section of the A41 leading to the railway bridge and the difficulty of providing a route through the Bicester Village complex that would not have an excessively adverse impact on the retail businesses therein.
- 4.306. The other option that was examined was at Gavray Drive. Gavray Drive was originally constructed with the intention of linking it through to Launton Road on the opposite side of the railway, by creating a new level crossing over the Bletchley – Oxford line. However, British Rail, as it was at the time, refused permission for the new level crossing and the through road was never completed. A new level crossing would not be possible at this site, not only because it would be against national policies but also because it would interfere with the proposed Gavray Junction. The option of providing a bridge at this location was examined but there is insufficient distance between the railway and Launton Road in which to fit the approach ramps.
- 4.307. The only viable option at this location is to retain a level crossing and provide updated and upgraded control equipment. Given the site conditions, the only realistic form of crossing that would be suited to this site is a full-barrier, CCTV crossing and such a crossing is therefore proposed as part of the order scheme. This forming of crossing has the same appearance to road users as the present arrangement. However, the crossing will be operated from the controlling signal box. As a train approaches, the traffic lights and barrier

lowering sequence is commenced automatically. Once all barriers are down, the controlling signaller must observe live CCTV images of the crossing and confirm (by pressing a button) that the crossing is free of obstructions. Only once this confirmation has been given can the railway signal before the crossing be cleared to allow the passage of the train. Due to the proximity of the crossing to Bicester Town station, the crossing control equipment will include a facility to differentiate between stopping and non-stop trains. In the case of the stopping trains in the Up direction, the commencement of the barrier lowering sequence will be delayed to take account of the time involved in stopping at the station, thereby avoiding unnecessary delays to road users.

LANGFORD LANE

- 4.308. Langford Lane is an unclassified, rural no through road located just over 1.5km to the southwest of the bridge on the outskirts of Bicester that carries the A41 over the railway.
- 4.309. The road serves a handful of residential and business premises located to the southeast of the railway. It also serves a secondary means of access into the MoD site at Graven Hill.
- 4.310. The crossing is located amidst the site of the former Roman town of Alchester. The site of the town and its surroundings are now classified as a SAM.
- 4.311. Langford Lane is relatively lightly used¹⁹ but it provides the only means of public vehicular access to the properties it serves. The option of closure without provision of an alternative means of crossing the railway is therefore not feasible.
- 4.312. The existing level crossing is an automatic open crossing. It has road traffic lights of the conventional amber and flashing double red type but there are no barriers. The traffic lights are activated automatically by the approach of a train and extinguish once the train has passed. The train driver receives a visual indication that the traffic lights are working correctly and is responsible for checking that the crossing is clear of obstructions. To facilitate this and give adequate time for the train to be brought to a halt if the line is not clear, train speeds are reduced to 35mph (Up direction) or 30mph (Down direction) on the approach to the crossing.
- 4.313. The current arrangements are not suitable for the upgraded railway, which in Phase 1 incorporates a freight loop at the site of the crossing. The purpose of the loop is to allow freight trains to stand clear of the running line awaiting clearance to enter the MoD site or awaiting their path away from the site. Such trains would block the crossing, potentially for extended periods. The option of retaining and upgrading the crossing is therefore not viable.
- 4.314. Initially, the option of providing a new overbridge immediately adjacent to and to the northeast of the level crossing was considered. However, discussions with English Heritage revealed that the impact that such a structure would have on the SAM would be unacceptable.

¹⁹ The results of a four-day census are presented in the evidence of Mr Aidan Nelson.

- 4.315. A range of alternative options for the provision of access to the southeast side of the railway were then considered. These are discussed in “Langford Lane Crossing: Pre-TWA Options Report” (CD/2.11).
- 4.316. It was concluded that while none of the possible solutions would meet all of the aspirations of the all of the stakeholders, the solution that appeared to provide the best compromise involved constructing a new overbridge immediately to the southwest of the SAM, around 160m to the northeast of the present Elm Tree Farm No. 1 foot crossing. This bridge would be linked to the existing highway network by means of a new road, just over 2km in length. The road and bridge together form Work No. 11. Work No. 11 commences with a new junction with the unclassified road from Wendlebury to the A41 near Bicester located approximately 400m to the west of the junction of Langford Lane with this road. The road proceeds south from this point and closely follows (but remains outside of) the boundary of the SAM, terminating at a junction with Langford lane, approximately 160m to the east of the present Langford Lane level crossing.
- 4.317. The road is proposed to be constructed as a single carriageway road. The highway authority (Oxfordshire County Council) has agreed in principle to a relaxation of design standards to allow the new road to be constructed with a reduced depth of construction in order to minimise the potential for impacts on buried remain located outside the SAM boundary. The vertical alignment has been designed to minimise ground disturbance (and hence potential for damage to buried remains) by raising the road level slightly above the levels of the surround land where doing so does not present a potential barrier to the flow of flood waters.
- 4.318. At the eastern corner of the proposed new overbridge, a vehicular maintenance railway access point will be provided. This will be reached from the proposed new road, close to bottom end of the southeast approach ramp. This replaces the means of access currently provided at Langford Lane crossing and is located to allow convenient access to the equipment that will be located at the proposed Langford West Junction.
- 4.319. This option is included in the Order application and is illustrated in Figure 20.1 (Appendix 2, page 126). However, following submission of the application, on-going discussions with English Heritage revealed that while the this option remains outside of the SAM, English Heritage remained concerned about the potential for harm to be caused by the new road both in terms of damage to buried remains outside of the SAM boundary and also of impact on the setting of the SAM. The latter issue is considered to be an issue primarily on the section of road running along the western boundary of the SAM.
- 4.320. As a result of these concerns being raised, a series of archaeological investigations were undertaken along the proposed course of the new road. Following discussion of the outputs of these investigations with English Heritage, a decision was made to explore the possibility of an alternative alignment for the section of road on the northwest side of the railway. In discussion with the affected landowner, an alternative route was identified and presented to English Heritage. This route is shown in Figure 20.2 (Appendix 2, page 127). The revised alignment northwest from the bridge over the railway generally follows the existing field boundary (although it swaps from

one side of it to the other part way along the route) to reach the unclassified road from Wendlebury to the A41 near Bicester approximately 200m to the northeast of the edge of Wendlebury.

- 4.321. English Heritage confirmed that this route was preferable to that included within the original order application and an application for a modification to the Order was applied for in September 2010 as a consequence.
- 4.322. In both the Order scheme and the subsequent modification, it is proposed that the stub ends of the existing highway that will be created by the closure of the level crossing will be retained. A turning head will be provided at the end of each of these sections of road to permit the turning of a fire engine sized vehicle. The construction of these turning heads will be carried out in such a way as to minimise the need for ground disturbance and hence the potential for damage to or disturbance of buried archaeology. All traces of the existing level crossing, including the ramped sections of highway leading up to it will be obliterated to deter an attempts, intentional or otherwise, to cross the railway at this point.

TAYLORS NO. 1

- 4.323. Taylors No.1 crossing is located around 260m to the southwest of Langford Lane crossing. It was provided as an accommodation crossing²⁰. The land either side of the line is no longer in common ownership and site inspection of the crossing revealed no evidence of use. A replacement means of crossing the line is therefore not considered necessary.

ELM TREE FARM NO. 1 and ELM TREE FARM NO. 2

- 4.324. Elm Tree Farm No. 1 crossing is a foot crossing located around 980m to the southwest of Langford lane crossing. Elm Tree Farm No. 2 is an accommodation crossing located a further 130m to the southwest.
- 4.325. A public footpath crosses the railway at Elm Tree Farm No. 1. The footpath is unmade and passes across agricultural land either side of the railway. A stile is provided in the boundary fence each side of the line to provide access. The crossing is not surfaced and users cross the railway by walking on the railway ballast and stepping over the rails.
- 4.326. The footpath appears to provide for recreational use only and usage appears, from site inspection to be very low. A limited survey was also undertaken and this revealed no users during a three hour period on a Sunday (i.e. the time when recreational use would be expected to be highest).
- 4.327. Elm Tree Farm No. 2 crossing provides vehicular access between two parcels of agricultural land. A crossing surface formed of reused timber railway sleepers is provided to ease the passage of vehicles over the track. However, no surfacing is provided between the railway boundary and the track. A large manually operated metal field gate is provided either side of the railway. From site inspection, the crossing appears well used, with relatively fresh tyre tracks being evident on the crossing surface.

²⁰ An accommodation crossing is a crossing provided at the time of the construction of the railway to maintain a means of access between two parts of a parcel of land that was bisected by the construction of the railway where those two parts of land remained in common ownership.

- 4.328. Both crossings are passive crossings i.e. no active protection arrangements (such as warning lights or telephones for contacting the signaller for permission to cross) are provided.
- 4.329. The option of closing Elm Tree Farm No. 1 crossing with no provision of an alternative means of crossing the line is considered inappropriate due to the impact that this would have on the footpath network.
- 4.330. Closure with out replacement for Elm Tree Farm No. 2 is also not considered appropriate. The crossing appears to be well used (and this has been confirmed in discussion with the authorised user) and the land holding on the remote side of the railway²¹ is significant in size. Although it might be possible to provide an alternative means of access to this land from the unclassified Merton to Ambrosden Road, any such road would be of considerable length (and hence cost) and would not provide a convenient alternative in the context of the type of use made of the existing crossing.
- 4.331. Given the proximity of the two crossings to one another, the option of providing a new overbridge to provide an alternative route for the rights of way over each crossing was considered a viable alternative. It was initially proposed that a bridge would be provided close to the site of Elm Tree Farm No. 2 crossing.
- 4.332. However, as the work on the replacement for the crossing at Langford Lane progressed, it became clear that it would be necessary to locate the bridge for that crossing in the vicinity of these two crossings.
- 4.333. A single overbridge (being part of Work No. 11) that provides for all three crossings is therefore proposed. On the southeast of the railway, the new road leading to the bridge from Langford Lane intersects the public footpath. The footpath will therefore be diverted to follow the alignment of the new road over the bridge before turning to the southwest to follow the line of the railway boundary to a point immediately to the northwest of Elm Tree Farm No. 1 crossing.
- 4.334. The agricultural use of Elm Tree Farm No. 2 will be provided for by means of a new access track from the buildings at Elm Tree Farm to the new road (on the northwest side of the railway). On the southeast side of the railway, access will be provided from the new road into the adjoining fields, which form part of the Elm Tree Farm land holding.

COLLEGE FARM NO. 1

- 4.335. College Farm No. 1 crossing is a former accommodation crossing. It was located 200m to the southwest of Elm Tree Farm No. 2. The crossing has previously been closed and all rights of use have been extinguished. No replacement for the crossing is therefore proposed. During the works to upgrade the railway, any remaining traces of the crossing will be removed.

COLLEGE FARM NO. 2

- 4.336. College Farm No. 2 is an accommodation crossing. It is located approximately 760m to the northwest of the overbridge carrying the M40 motorway over the railway (i.e. overbridge OXD40C). The form of the

²¹ i.e. the land that would be cut-off if the crossing were closed.

crossing is identical to Elm Tree Farm No. 2 crossing. Evidence from a site inspection suggests that the crossing is used albeit very lightly.

- 4.337. The option of closing the crossing without any form of mitigation is not appropriate as it would leave an area of land isolated and inaccessible. The possibility of constructing a new overbridge close to the site of the crossing was examined. However, during the option development process, Chiltern Railways became aware that College Farm was on the market and was being offered for sale in two lots, these being the land and buildings on the northwest of the railway (lot 1) and the land to the southeast of the railway (lot 2). This indicates that a direct means of access between the two parcels of land is not necessary.
- 4.338. The Order scheme therefore proposes the closure of the crossing and the creation of a new means of access to the land to the southeast of the railway from the Merton – Ambrosden road. This new access will consist of an unsurfaced right of access running roughly southeast – northwest along the edge of the fields adjoining the embankment of the M40 motorway. New bridges will be constructed over two watercourses that intersect the course of the new access route. The access route will turn through 90 degrees on reaching the railway and will run along the foot of the railway embankment to reach the College Farm land. In doing so, it will skirt around the ponds located at the foot of the embankment part way along the access route.

FARM / WENDLEBURY / COLLEGE FARM NO. 3 AND BONNERS

- 4.339. A further accommodation bridge is located around 500m to the northeast of the M40 bridge. A number of alternative names for this crossing appear in record information (“Farm”, “Wendlebury” and “College Farm No. 3”). Another accommodation crossing, known as “Bonners”, is located 280m to the northeast of the M40 bridge.
- 4.340. These two crossings are identical in form to Elm Tree Farm No. 2 (q.v.). Site inspection revealed no apparent use of either crossing.
- 4.341. The land either side of the first crossing is no longer in common ownership and there are no registered rights of use. The land either side of Bonners crossing is unregistered but believed not to be in common ownership.
- 4.342. The Order scheme therefore proposes the formal closure and removal of both crossings with no provision of mitigation works.

MERTON FOOT AND WENDLEBURY FOOT

- 4.343. Merton foot crossing is located approximately 200m to the northeast of the M40 bridge. Wendlebury foot crossing is located immediately to the southwest of the M40 bridge. Both crossings are passive crossings and are provided to allow public footpaths to cross the line. Both footpaths are rural in nature and are unmade. Levels of use appear very low. The two footpaths are linked on the northwest side of the railway by a section of footpath paralleling the railway boundary and passing beneath the bridge carrying the M40 over the railway.

- 4.344. Both crossings are of the same form as Elm Tree Farm No. 1 crossing (q.v.). Access to Merton foot crossing from the northwest side is via a narrow wooden footbridge crossing a ditch adjacent to the railway boundary.
- 4.345. Given the proximity of these crossings to one another, they have been considered together.
- 4.346. The option of extinguishing both crossings was ruled out because of the adverse effects that this would have on the public footpath network in the area.
- 4.347. The option of providing a bridge at both crossing site was ruled out because the cost of doing so cannot be justified on the very low levels of use.
- 4.348. The Order scheme therefore proposes a new footbridge at the site of Merton foot crossing. This bridge is shown in Figure 21 (Appendix 2, page 129). It is proposed that this bridge will be a steel structure with steps. No step-free access will be provided because the nature of the footpaths is such that the bridge will not be readily accessible other than by unencumbered able-bodied individuals. The bridge deck will allow for 5.5m of clearance to the tracks below.
- 4.349. A new section of unmade footpath will be created on the southeast side of the railway to link the new bridge to the site of Wendlebury crossing. The new path will run alongside the railway boundary and, in common with the existing path on the opposite side of the railway, will pass beneath the M40 bridge.
- 4.350. Vehicular access to the bridge for the purposes of maintenance will be provided along the access route being provided in connection with the closure of College Farm No. 2 crossing (q.v.)

MANOR FARM, HOME FARM, BEEBONT²² AND HOLTS FARM

- 4.351. To the southwest of the M40, following Wendlebury foot crossing, there is a series of four crossings in close succession. These crossings have been considered as a group because of the commonality in the issues surrounding them.
- 4.352. Manor Farm crossing is located approximately 160m to the southwest of the M40 bridge. It is an accommodation crossing, similar in form to Elm Tree Farm No. 2 crossing. The main part of Manor Farm is located to the northwest side of the railway and a single arable field, being a relatively small part of the farm, is located to the southeast side. The crossing is used although because of the nature of the agricultural operation, the use is sporadic.
- 4.353. Home Farm crossing is located approximately 470m to the southwest of the M40 bridge. It is an accommodation crossing. The crossing surface is made up of a modular rubber panel system. Additional fencing and gates together with cattle-cum-trespass guards have been provided to discourage access along the railway corridor and to improve crossing safety by giving the user

²² Beebont crossing is sometimes recorded as BBONT crossing. BBONT are the initials of the Berkshire, Buckinghamshire & Oxfordshire Nature Trust. This organisation is now known as the Berkshire, Buckinghamshire & Oxfordshire Wildlife Trust (or BBOWT). However, the old name is used to identify the crossing as this is the name used historic records relating to the crossing and which continues to be used within the railway industry to identify the crossing.

the ability to move into a position of better visibility while remaining outside of the gates. The land comprising Home Farm is mostly located to the southeast of the line. A large agricultural building is also located on the southeast of the line. However, a single field of pasture and a further building are located on the northwest side of the line. The access to the farm is also presently taken from a private road on the northwest side of the line, leading from the unclassified Weston-on-the-Green – Wendlebury road. The farm is a cattle farm and cattle are therefore herded across the crossing, which is also used to provide vehicular access to the building on the southeast side of the railway.

- 4.354. BBONT crossing is located approximately 730m southwest of the M40 bridge. This crossing is a combined accommodation and public bridleway crossing. The crossing is similar in form to Elm Tree Farm No. 2 crossing (q.v.) except that in addition to the main field gates, a separate wicket gate is provided for the use of pedestrian and equestrian users. The crossing provides access to a nature reserve located on the northwest side of the railway for moving machinery used within the reserve. A four-day census (the results of which are reproduced in the evidence of Mr Aidan Nelson (CRCL/P/7/A) showed very low levels of use, with no use at all on three of the four days. Vehicular access to the crossing is taken from the unclassified Merton – Islip road via Mansmoor Lane (a private road with an unbound surface) and an unmade track to the crossing.
- 4.355. Holts Farm crossing is located approximately 1000m to the southwest of the M40 bridge. This is an occupation crossing²³ serving Holts Farm, a large residential property located immediately to the northwest of the crossing. The property has extensive grounds, which are used as formal gardens and to house livestock. A number of large, modern agricultural buildings are also associated with the property. The crossing is similar in form to Elm Tree Farm No. 2 except that lengths of crash barrier have been erected within the gates to dissuade access along the railway corridor. Being the only means of access to the property, the crossing is used relatively frequently. As reported in the evidence of Mr Aidan Nelson (CRCL/P/7/A paragraph 114), this crossing has been subject of an unusually high number of reported incidents of misuse.
- 4.356. A Site of Special Scientific Interest (SSSI) straddles the railway over a length of around 480m and taking in the locations of Home Farm and Beebont crossings. This constrains the available options for mitigating closure of the four crossing.
- 4.357. The extensive process of option development in relation to these four crossings is reported in “Level Crossing Replacement Options Report – Manor Farm, Home Farm, BBONT, Holts Farm” (CD/2.16) and will not, therefore be repeated in my evidence.
- 4.358. The proposed solution involves the acquisition of the land forming part of Manor Farm and located to the southeast of the railway will be acquired from the owner. A new right of access across the land forming part of Home Farm

²³ An occupation crossing is a crossing that was provided to maintain a private means of access to a property or piece of land that would otherwise have been blocked by the construction of the railway.

and running immediately adjacent to the railway boundary will be acquired together with the rights over the proposed new access to Home Farm (described below).

- 4.359. New access rights to the part of Home Farm located to the southeast of the railway are proposed to be acquired. This right of access will be from the Merton – Islip road via Mansmoor Lane and the track leading to Beebont crossing (which adjoins the boundary of Home Farm. Additionally, a new agricultural building will be provided on land located between the Beebont crossing access track and the railway. This land is presently in the ownership of a third party. This building will replace the building presently located to the northwest of the railway. This building is located within the SSSI and will be removed and the land restored.
- 4.360. The Order scheme includes the provision of a new overbridge located approximately 380m to the southwest of Holts Farm crossing. The bridge will be linked to Mansmoor Lane on the southeast side of the railway by means of a new section of private road. On the opposite side of the line, the road will skirt around the perimeter of the land forming Holts Farm and then will turn to the east to reach the buildings of the farm. The bridge and associated access roads form Work No. 13. This bridge and associated road will be constructed to a standard suitable for use by the heavy goods vehicles (HGV) that the owner of Holts Farm uses in connection with his business. The public bridleway that currently crosses the railway at Beebont crossing will be diverted via the new bridge. On the northwest side of the line, the bridleway route will run along the southern boundary of Holts Farm before crossing into land forming part of Manor Farm. It will then run north and subsequently east, following the boundary of Manor Farm to reach the existing bridleway alignment around 180m to the northwest of Beebont Crossing.
- 4.361. Vehicular access to the nature reserve will be provided by means of a new access track leading from the end of the private concrete road that forms the access to Home Farm via the route of the existing bridleway to the nature reserve.
- 4.362. The proposed bridge and alterations to public and private rights of way are shown in Figures 22.1 (Appendix 2, page 131) and 22.2. Figure 22.2 (Appendix 2, page 132) also shows an alternative scheme that was suggested by the affected land owners. This alternative scheme was rejected for a number of reasons and is discussed further in the evidence of Mr Richard Caten (CRCL/P/11/A) and Mr Ian Gilder (CRCL/P/12/A) and in 7.16 below.

LANE CROSSING

- 4.363. Lane crossing is an accommodation crossing, of the same form as Elm Tree Farm No. 2 crossing, located approximately 320m to the southwest of Holts Farm Crossing. The land on each side of the railway is not in common ownership and the crossing gates are overgrown indicating that the crossing has not been used for many years. The Order scheme proposal involves removing the crossing without the provision of any mitigation measures.

ODDINGTON FOOT

- 4.364. Oddington foot crossing is located just over 1km to the southwest of Holts Farm crossing. It is similar in form to Elm Tree Farm No. 1 crossing (q.v.). At the crossing, an unmade rural footpath crosses the line.
- 4.365. A four day census at the crossing site recorded no use of the crossing and the crossing and its approaches show few signs of use.
- 4.366. In spite of the very low levels of use, closure of the crossing without the provision of any form of mitigation appears unreasonable. However, the construction of a footbridge at this site would be costly due the very remote nature of the site relative to the nearest highway and the need to provide vehicular access to the structure for construction and maintenance purposes. Given the very low levels of use, the expenditure involved in such provision cannot be justified.
- 4.367. It is therefore proposed to divert the footpath via the new bridge to be provided in lieu of Oddington crossing (see below). On the southeast side of the line, the footpath will run along the boundary of the railway. Provision of this route will entail the construction of new stiles or gates in existing field boundaries together with small footbridge structures where the route crosses drainage ditches.
- 4.368. On the opposite side of the line, the existing footpath network provides adequate linkages to the site of the proposed new bridge.

ODDINGTON GRANGE

- 4.369. Oddington Grange crossing is located approximately 790m to the northeast of Oddington (road) crossing. It is an accommodation crossing similar in form to Elm Tree Farm No. 2 crossing (q.v.). However, unlike that crossing, Oddington Grange crossing is equipped with double gates on each side of the railway and the timber surfacing is not continuous over the railway, being limited to a pair of timber sleepers placed end to end fixed either side of each rail with compacted railway ballast providing the surface between the inner two sleepers.
- 4.370. The crossing provides access between two parcels of agricultural land. The main holding is located to the northwest of the railway with a smaller parcel of land being on the southeast. Site inspection suggests the crossing is reasonably well used.
- 4.371. Closure of the crossing without any form of mitigation would be unacceptable as it would leave the smaller parcel of land isolated.
- 4.372. The construction of a bridge to replace the crossing cannot be justified given the size and nature of the parcel of land which the crossing provides access to. The construction of a bridge and its associated approach ramps would further reduce the size of this parcel of land.
- 4.373. The solution proposed in the Order scheme is to provide a vehicular right of access across neighbouring land to allow the Oddington Grange land on the southeast side of the line to be accessed from the minor public road that will cross the new bridge proposed at Oddington (road) crossing (described below). Creation of this right of access will entail the provision of field gates

at existing field boundaries. This access route is coincident with part of the diverted footpath from Oddington foot crossing.

YEW TREE FARM

- 4.374. Yew Tree Farm crossing is located approximately 470m to the northeast of Oddington (road) crossing. It is a foot crossing with out active protection. There is no crossing surface and users cross on the ballast, stepping over the rails. Metal wicket gates are provided on each side of the line. The crossing is provided to allow a public footpath to cross the railway at this point.
- 4.375. Site inspection revealed signs of very low levels of use.
- 4.376. Closure without mitigation would have an adverse affect on the local footpath network. Construction of a footbridge at the site of the crossing cannot be justified on the basis of the very low levels of use and the proximity of the crossing to Oddington (road) crossing (see below).
- 4.377. It is proposed that the footpath be diverted, along the same route as the diversion of the footpath from Oddington foot crossing, to the new bridge proposed at Oddington (road) crossing. As with Oddington foot crossing, a new route will only be created on the southeast side of the line as the existing footpath network on the northwest side of the line provides adequate alternative routes.

ODDINGTON

- 4.378. Oddington crossing is sometimes referred to as “Oddington AOCL²⁴ crossing” or “Oddington road crossing”, primarily to avoid confusion with the other crossings with Oddington in their names.
- 4.379. At the crossing, a single-track minor rural road crosses the railway. The road serves as a means of access from the unclassified Merton – Islip road to a handful of properties located on the northwest side of the railway. The road is no through road and use is very low (typically less than 40 vehicle movements per day with a handful of pedestrian and cycle movements).
- 4.380. Approximately 90m to the northwest of the crossing there is a minor junction where the road forks. The left hand fork (as viewed when approaching from the crossing) serves Barndon Farm while the right hand fork serves Oddington Grange.
- 4.381. The former crossing keeper’s cottage is located immediately adjacent to the crossing at the western corner. This cottage is now a private residence.
- 4.382. As the road is the only means of access to some of the properties on the northwest side of the line, closure of the crossing without a replacement means of crossing the railway is clearly unacceptable. There are no other public roads in the vicinity that could, even with modification, adequately provide an alternative means of access to the affected properties.
- 4.383. The order scheme therefore proposes the construction of a new overbridge, to be located 145m to the northeast of the present crossing. This bridge will be connected to the existing road by two short sections of new highway. The

²⁴ AOCL is an abbreviation for “Automatic Open Crossing - Locally monitored”, this being the technical name for the type of crossing at Oddington.

new road will be 5.5m wide with 1.2m wide verges on each side. The bridge and new sections of road together form Work No. 14. The proposed bridge and the associated sections of road are shown in Figure 23 (Appendix 2, 134).

- 4.384. On the northwest side of the railway, the new road is proposed to connect to the existing highway at a point beyond the fork junction described above. In order to maintain access to Barndon Farm for large vehicles, it will be necessary to widen the junction slightly to facilitate the sharp right turn manoeuvre necessary to access the farm from the direction of the new bridge.
- 4.385. The existing section of highway between the level crossing and the fork junction will be retained to provide access to the former crossing keeper's cottage. The section of highway on the southeast side of the line between the level crossing and the point where the proposed new section of road diverges from the existing road will be retained as a private access to adjoining land and to provide vehicular maintenance access to the railway at the site of the existing crossing. This section of road will be securely gated to prevent misuse.
- 4.386. The new road and bridge will be constructed on land to be acquired from third parties. It is likely, subject to further discussions with the utility company, that the high voltage overhead power lines on the northwest side of the railway will need to be diverted due to the reduction in clearance that will occur where the proposed bridge approach ramp passes beneath them. The power lines on the opposite side of the line are clear of the proposed bridge ramp on that side of the railway and it is not expected that these will need to be diverted.

ISLIP FOOT, ODDINGTON NO. 5 AND ISLIP NO. 4

- 4.387. Islip foot crossing, Oddington No. 5 foot crossing and Islip No. 4 foot crossing are three crossings in relatively close proximity to one another. All three crossings exist to allow public footpaths to cross the railway. Because of the topography of the footpath network served by these three crossings, they need to be considered as a group.
- 4.388. Islip foot crossing is located approximately 400m to the southwest of Oddington crossing. It is similar in form to Elm Tree Farm No. 1 crossing (q.v.) except that steps have been formed in the railway embankment (two on one side, one on the other) to assist users in reaching track level from the stiles.
- 4.389. The purpose of the footpath which is served by the crossing is recreational. An eight hour census undertaken on a Sunday (when recreational use is expected to be at its highest) recorded four users.
- 4.390. Oddington No. 5 crossing is located just over 700m southwest of Oddington crossing. The crossing is heavily skewed, following the alignment of the footpath it serves. Stiles are provided on each side of the line to allow users to cross the railway boundary fence. A series of step with a wooden handrail assists users to reach track level. An unusual and unsatisfactory feature of this crossing is that the two decision points (i.e. the point on either side of the railway where a user can stand in safety and decide whether or not it is safe to cross the railway) are not directly opposite one another. Users are required

to walk for around 45m along the railway to reach the steps on the other side of the line. Although unsatisfactory, the presence of only one track on the formerly two-track formation provides a degree of mitigation for this arrangement and allows users to cross the track directly and use the disused side of the formation as a walking route.

- 4.391. The footpath over this crossing forms part of the Oxfordshire Way. In spite of this, an eight hour census carried out on a Sunday recorded to use of the crossing. However, evidence from site inspection suggests that the crossing is used, albeit relatively lightly.
- 4.392. Islip No. 4 crossing is located approximately 1340m to the southwest of Oddington crossing. It is similar in form to Oddington No. 5 crossing. However, although the approaches to the crossing are skewed, the crossing itself is nearly square. Site evidence suggests that the crossing sees little use.
- 4.393. Given the way in which the footpaths over these three crossings fit into the relatively dense network of paths in this area, it would not be acceptable to close all three crossings without provision of an alternative means of crossing the railway. However, given the density of the local footpath network there is a degree of duplication in the roles of these three paths within the network. All three crossing sites are remote from the public road network making access for the construction and maintenance of any potential new bridge relatively difficult to achieve. These facts coupled with the very low usage of all three paths means that it is not possible to justify the provision of bridges at all three sites. Further, the construction of three bridges within the relatively flat local landscape could have an undesirable visual impact.
- 4.394. The Order scheme therefore proposes the concentration of all three footpath routes to a single crossing point at the site of Oddington No. 5 crossing, where a footbridge will be provided. The footbridge will take the form of a steel structure with staircases starting close to the existing stiles on each side of the railway. The footbridge deck will provide approximately 5.5m headroom to the railway below. No step-free access will be provided to the bridge as the footpaths leading to it do not facilitate access by mobility-impaired or encumbered users. The bridge is shown in Figure 24 (Appendix 2, page 136).
- 4.395. The choice of site for the bridge was made on the basis that this necessitated shorter diversionary lengths and that it maintained the named footpath (i.e. the Oxfordshire Way) on its current alignment.
- 4.396. A vehicular right of access will be acquired on the southeast side of the line and following the railway boundary from the site of Oddington crossing to the new bridge for the purposes of constructing and maintaining the bridge.
- 4.397. New stretches of footpath will be created to maintain the connectivity of the footpath network. The first of these will be a new section of unmade footpath along the edge of the railway boundary on the southeast side of the line from the site of Islip foot crossing to the new bridge. This will follow the same alignment as the vehicular access route described above. On the northwest side of the line a new link will be created from the existing Oxfordshire Way footpath at a point a short distance to the north of the new bridge. This will

head roughly northwest, following existing field boundaries to intersect with the current path from Islip No. 4 crossing to the north of Brookfurlong Farm. Existing stretches of footpath provide all of the other necessary linkages.

BROOK FURLONG

- 4.398. Brook Furlong crossing (sometimes written as “Brookfurlong”, in common with the name of the farm it serves) is an accommodation located between Oddington No.5 and Islip foot crossing (q.v.), approximately 1020m to the southwest of Oddington (road) crossing. It is an occupation crossing and provides access to Brookfurlong Farm by means of a lengthy private track from the unclassified Merton – Islip road. The track is unsurfaced but has been locally hardened by the application of stone. The crossing is of the same form as Elm Tree Farm No. 2 crossing (q.v.).
- 4.399. An alternative means of vehicular access to Brookfurlong Farm is available by another private access track leading from the B4027 Bletchington Road to the north of Islip. The track also serves Chipping Farm.
- 4.400. Given the presence of an alternative and equally convenient means of access to the farm, the cost of providing a bridge in replacement of the level crossing cannot be justified.
- 4.401. The Order scheme therefore proposes closure of the existing crossing and stopping up of the access track that crosses it together with a range of minor improvements to the alternative access route from the Bletchington Road. These improvements consist of hardening of the track surface where necessary and raising it in the vicinity of its intersection with a brook to reduce the likelihood of flooding.

MANOR FARM NO. 1

- 4.402. Manor Farm No. 1 crossing is located around 300m to the northeast of Islip station. It is a dormant accommodation crossing that would have been similar in form to Elm Tree Farm No. 2 crossing (q.v.). However, there is now little evidence of the crossing on site, indicative of its long period of disuse.
- 4.403. It is understood that the land either side of the railway remains in common ownership and crossing rights have not been formally extinguished. Given the extended period of disuse, there is no justification for the provision of an alternative means of crossing the railway and the Order scheme therefore proposes the removal of this crossing without replacement.

ISLIP (MILL LANE)

- 4.404. Islip crossing (or Mill Lane Crossing as it is sometimes called) is a user-worked public road crossing conveying a minor, single-track road over the railway on the outskirts of the village of Islip. The crossing is located at the beginning of a series of curves on the railway as it passes through Islip and as such visibility is poor, particularly to the northeast.
- 4.405. The form of this crossing is one which has long been obsolete on public roads and standards have prevented further crossings of this form from being provided on public roads since 1976. The crossing has a manually operated vehicular gate (similar in nature to a typical modern field gate) on each side of the railway. A separate pedestrian gate is also provided. Miniature warning

lights are provided together with a telephone to allow contact with the signaller in the event of failure of the lights and for drivers of large or slow vehicles and those herding animals to obtain permission to cross. A crossing surface made up of modular rubber panels is provided and cattle-cum-trespass guards dissuade users from trespassing on the railway.

- 4.406. A pedestrian user must check that the green light is showing before proceeding to cross by means of the pedestrian gates. Drivers of road vehicles must check that the green light is showing before proceeding to open the gates on both sides of the line. They must then take their vehicle across the line, having first checked that the green light is still showing. Finally, they must return to close the gates before continuing on their way. In total, this procedure requires the user to cross the railway five times.
- 4.407. At the northern corner of the crossing, a former crossing keeper's cottage is located. This is now a private residential property. Agricultural land lies at the other three corners of the crossing but a number of residential properties are in relatively close proximity to the crossing on the southeast side of the line, the nearest being approximately 90m from the crossing.
- 4.408. Early public consultation in relation to the crossing revealed differing opinions about what should happen at this site. The input received from locals in the early stages of consultation indicated that there was strong opposition to either a vehicular level crossing in modern form (i.e. without the manually operated gates) or a road bridge on the basis that this could result in increased use of Mill Lane and Mill Street as a through route.
- 4.409. Initially, it was thought that the preference was for the crossing to be closed altogether but it later became apparent that there is a desire for a pedestrian route to be maintained across the railway in this vicinity. Public consultation also produced an indication that a route usable by those on horseback is desired, a view backed up by the highway authority.
- 4.410. As a result, the Order scheme proposes a new footbridge, suitable for equestrian users, be constructed 150m to the northeast of the present crossing, at a point where the railway is in a shallow cutting (around 1.5m in depth). The bridge is proposed to comprise a three-span steel structure supported on reinforced concrete piers and bank seats.
- 4.411. This bridge will be accessed by means of a new section of public bridleway across the adjoining fields that will connect with Mill Lane at points approximately 20m to the southeast and 140m to the northwest of the existing crossing. The bridleway will be metalled over a width of 3.5m. Ramped approaches either side of the railway will elevate the bridleway to the level of the bridge deck. These ramps will be formed by naturally graded earth embankments. The ramp gradients will be 1:21.
- 4.412. This option was chosen as it has a far lower visual impact than any other of the options considered during the development of the scheme, by virtue of its utilising the cutting to reduce the height of construction above the surrounding land and the use of natural earth ramps.
- 4.413. The proposed bridge is shown in Figure 25.1 (Appendix 2, page 138).

- 4.414. Options to provide a footbridge to the southwest of the crossing on roughly on the alignment of the crossing were dismissed because the land potentially available without recourse to the acquisition of residential gardens dictated that natural earth ramps could not easily be used, the relative levels of the railway and surrounding land would place such a bridge higher in the visual landscape and the structure would have a greater visual impact on a greater number of properties than the option proposed in the Order scheme.
- 4.415. The option of providing a subway was dismissed on the basis that subways are generally disliked on grounds of impacts (perceived and real) on personal security and because of the difficulty in providing a reliable means of drainage. Such a system would require two pumps (a main and a standby) and a small building in which to house them. These pumps would draw water from the subway to a swale or underground attenuation tank, for which land would be required. This could, theoretically at least, discharge into the River Cherwell by means of a drain of around 250 to 300m in length but such discharge would require Environment Agency approval. There is no guarantee that such approval would be forthcoming because of the potential effects on downstream flood intensity. Given that the subway will be below the water table and will form a low point in the local landscape, it is likely that water will continually enter the subway requiring the pump system to run continuously. Perimeter drains could be used to minimise the inflow of surface water but these will become less effective with time and will require regular heavy maintenance.
- 4.416. Following submission of the Order application, contact was received from a number of local residents concerned about the potential impacts of the proposed bridge. This led to further consultation during summer 2010 where residents expressed an interest in the dismissed subway option. A series of drawings and photomontages was produced to provide indicative information on the appearance and land take required for four potential designs of subway. Together with the previous work on other options, these were used to provide a brief report explaining the various issues surrounding each of the options. Drawings of the four subway options are shown in Figures 25.2 to 25.5 (Appendix 2, pages 139 to 142).
- 4.417. Having viewed the report, drawings and photomontages, a substantial proportion of people favour one of the subway options. The remainder favour the bridge option proposed in the Order scheme.
- 4.418. The Order application does not seek the powers of compulsory acquisition of land required to deliver the subway option or the planning consent that would be necessary.
- 4.419. In spite of the degree of support for the subway option, Chiltern Railways firmly believes that the bridge included in the Order scheme provides the best solution if a right of way across the railway is to be provided in this vicinity.

MILL FARM

- 4.420. Mill Farm crossing is an accommodation crossing located 250m to the southwest of Islip level crossing. It is similar in form to Elm Tree Farm No. 2 crossing except that the approach on the southeast side of the railway forms an acute angle with the railway to the northeast of the crossing. The crossing

provides vehicular access from Mill Street to land on the northwest side of the railway. Site evidence suggests that the crossing sees occasional use

- 4.421. The construction of a bridge at this location cannot be justified as it would entail the acquisition of land on the southeast of the line that is used as residential gardens. The bridge would also have significant visual impact on nearby residential properties. The structure would be particularly visible by virtue of the fact that the railway is elevated above the surrounding land on an embankment. The option of providing a subway was dismissed because of the land needed to form the approaches and because of the significant problem in providing reliable drainage.
- 4.422. The Order scheme proposes that this crossing be closed without provision of a replacement route and that existing local roads be used to facilitate the access provided by this crossing.

NORTHFIELD FARM

- 4.423. Record information indicates the presence of a former accommodation crossing around 380m to the southwest of the overbridge at Northfield Farm (overbridge OXD47). However, there is little evidence of a crossing on site, confirming that any such crossing has long since become disused, possibly because Northfield Farm overbridge provides a suitable alternative means of crossing the railway.
- 4.424. The Order scheme proposes the formal extinguishment of the crossing and removal of the remaining traces of the crossing on site.

WATER EATON NO. 5

- 4.425. Water Eaton No. 5 crossing is a combined accommodation and public bridleway crossing located approximately 900m to the southwest of the Northfield Farm overbridge. At the crossing site, the railway is located on an embankment approximately 2 to 3m above the surrounding land. To the southwest of the crossing the railway curves to the south reducing visibility of approaching trains from the crossing.
- 4.426. A timber crossing surface is provided over the track. The track is approached by relatively steep ramps from the adjoining fields. User-operated gates are provided at the top of each ramp. Separate gates for vehicles and pedestrians are provided. A telephone is provided on each side of the crossing to allow users to contact the signaller for permission to cross with vehicles or livestock.
- 4.427. The crossing is well used, particularly by dog walkers. An eight hour census carried out in June 2009 recorded 39 pedestrian users but no equestrian users.
- 4.428. The crossing also provides access to Middle Farm from Gosford. Although Middle Farm has an alternative means of access from the A4165 Oxford Road, this route also provides access to land forming part of the farm that is located on the northeast side of the railway.
- 4.429. The option of closing the crossing with no form of replacement was dismissed at an early stage because of the impact on the bridleway network. The option of providing a bridleway bridge (with no provision for the accommodation

rights) was considered in light of the alternative means of access available to Middle Farm.

- 4.430. However, the need to replace the existing Northfield Farm bridge (as part of the Phase 2A works to provide additional headroom to the railway) provides an opportunity to combine the access route to Northfield Farm with that to Middle Farm (the two routes currently meet on the northwest side of the railway) into a single route over the railway.
- 4.431. The Order scheme therefore proposes a new overbridge located approximately 220m to the northeast of the present Water Eaton No. 5 crossing. The bridge is shown in Figure 26 (Appendix 2, page 144).
- 4.432. This bridge will provide new routes to Middle and Northfield Farms by means of new sections of hardened access road. To the northwest of the railway this new access road will meet the existing access track leading to Middle Farm at a point 170m to the northwest of the railway.
- 4.433. To the southeast of the railway, a new track will turn back to the northeast to reach Northfield Farm following the line of the railway boundary and meeting the existing access track to Northfield Farm at the bottom of the existing approach ramp to Northfield Farm bridge on the southeast side of the railway.
- 4.434. Having crossed the new overbridge, the new route to Middle Farm will turn to the west to regain the alignment of the current track approximately 350m to the southeast for the present level crossing.
- 4.435. It is proposed to divert the public bridleway via the new portion of the Middle Farm access track.
- 4.436. On both new access tracks, new culverts will be constructed where necessary to bridge existing open ditches. The new access tracks will be 5.5m wide with a 1.2m wide verge on each side.
- 4.437. The new bridge is proposed to comprise a composite (steel girder with reinforced concrete deck) superstructure supported on reinforced earth embankments. The approach ramps will be constructed from compacted fill material, with topsoil applied to the surface.
- 4.438. As an alternative to the proposed solution, the option of a new underbridge was considered but dismissed due to the difficulties of providing a reliable drainage system and because of the likely threats (perceived and real) to personal security of non-vehicular users.

GOSFORD & WATER EATON NO. 4

- 4.439. Gosford & Water Eaton No. 4 foot crossing is located approximately 560m to the northwest of the overbridge carrying the A4165 Oxford Road over the railway. The crossing is provided to allow a public footpath to cross the railway. At the site of the crossing the railway is located on a low embankment, around 1.5m above adjacent ground levels. A pedestrian gate is provided in the boundary fence each side of the line to allow access to the crossing. Steps have been formed in the embankment to assist access.
- 4.440. At the site of the crossing, the railway is curved limiting visibility of approaching trains. There are two tracks at the site of the crossing, one (the one on the northwest side of the formation) being the current running line, the

other is an overgrown and disused portion of the headshunt at the northern end Banbury Road sidings.

- 4.441. The footpath over the crossing leads from Oxford Road (to the south) to Gosford (to the north). To the north of the railway, the footpath crosses the busy A34 dual carriageway by means of an at-grade crossing.
- 4.442. The crossing shows no sign of use, being overgrown. During a site visit in summer 2009, the footpath to the north of the A34 was also found to be heavily overgrown to the extent of being impassable.
- 4.443. Site of this crossing is within the area proposed to be occupied by the relocated aggregate depot. Were a bridge to be provided in replacement of the crossing, it would need to span not only the main railway but the sidings and depot also.
- 4.444. Given the low level of use (which is possibly due to the difficulty of crossing the A34), it is intended to close the crossing and divert the footpath to run along the northwest side of the A34 to reach the Oxford Road adjacent to the bridge carrying it over the A34.
- 4.445. At the Oxford Road bridge, a set of steps will be constructed in the side of the approach ramp to provide access to the level of the road.

GOSFORD & WATER EATON NO. 10

- 4.446. Gosford & Water Eaton No. 10 foot crossing is located 670m to the south of the bridge carrying the A4165 Oxford Road over the railway.
- 4.447. The foot crossing is in the same form as Elm Tree Farm No. 2 crossing (q.v.). The crossing was provided to allow a public footpath to cross the railway. The public footpath in question forms part of the Oxford Circular Walk and runs from the A34 Peartree Junction slip road (to the west of the crossing) to Oxford Road (to the east). Access to the footpath from the A34 slip road is by means of a steep set of steps. The land to the west of the railway at the site of the crossing is agricultural while that on the east forms part of a golf course. The land each side is at roughly the same level as the railway.
- 4.448. Given its role as part of the Oxford Circular Walk, the closure of the crossing without replacement was deemed unacceptable. Diversion of the footpath to an alternative crossing point was considered. The only suitable alternative crossing point is the existing A4165 Oxford Road overbridge. However, in order to reach this, the path would need to follow the narrow corridor between the railway and the A34 dual carriageway. On reaching the Oxford Road, the footpath would then follow the main road. The nature of the diverted footpath would therefore be different to the existing route across the golf course and this difference in character was considered unacceptable.
- 4.449. The Order scheme therefore proposes the construction of a new footbridge over the railway at the site of the present crossing. The new bridge will be of steel construction and will provide approximately 5.5m headroom to the railway. The bridge will be accessed by stairs. No step-free access will be provided as the remainder of the footpath route is not accessible to mobility-impaired or encumbered users. The proposed bridge is shown in Figure 27.

- 4.450. Access for construction of and maintenance of the bridge will be taken via Pear Tree farm and the access road to the farm from the A44 road at Peartree.

NESBITTS

- 4.451. Nesbitts crossing is a disused accommodation crossings located approximately 970m south of the A4165 Oxford Road overbridge. Although the land either side of the railway remains in common freehold ownership, different tenants occupy the land either side of the railway. To the east of the railway the land is used as part of a golf course while the land to the west is in agricultural use. The crossing has not been used for many years and was found to be very difficult to locate on site as almost all traces of the crossing are gone.
- 4.452. The Order scheme therefore proposes to formally close the crossing without providing any form of mitigation.

ST. EDWARD

- 4.453. St Edward crossing is another disused accommodation crossing. This crossing is located approximately 50m to the south of the bridge carrying the railway over the Oxford Canal (underbridge OXD50).
- 4.454. Although the land either side of the railway remains in common ownership, the crossing has not been used for many years and on site it was found that most traces of the crossing have been obliterated.
- 4.455. The Order scheme therefore proposes to formally close the crossing without providing any form of mitigation.

ARISTOTLE LANE

- 4.456. Aristotle Lane crossing is a private crossing on the Didcot – Banbury line located approximately 60m to the north of the existing Aristotle Lane footbridge (bridge DCL29 / OXD51). The crossing is used as a means of pedestrian access to the Trap Grounds Allotments, located to the west of the railway, from the built-up area to the east of the railway.
- 4.457. Access to the allotments is also available via a gate accessed from Port Meadow. This gate can be reached by means of the public bridleway that runs from Aristotle Lane over the Aristotle Lane footbridge. The length of bridleway between the end of the western approach ramp to the footbridge and the concrete track leading from Walton Well Road to the allotments is subject to occasional flooding, primarily during the winter months. Vehicular access to this gate is possible by means of a concrete track leading across Port Meadow from Walton Well Road, around 270m to the south. The access track is slightly elevated above the surrounding land and is consequently less susceptible to flooding.
- 4.458. An application has been lodged with Oxfordshire County Council to make the route over the crossing, through the allotments and to Port Meadow a public right of way. This application remains undetermined and no public rights exist over the crossing. It is my understanding that part of the reason that this application has been made is to create a public right of way that avoids the

section of the bridleway that is subject to flooding thereby maintaining access to Port Meadow from Aristotle Lane during times of flood.

- 4.459. At the site of the crossing, the disused railway formation of the former section of the Bletchley – Oxford line south of Oxford North Junction, lies adjacent to the Didcot – Banbury line.
- 4.460. The Order scheme proposes to reinstate a single-track railway on the disused formation at this point. The new track will be located approximately 11m to the east of the easternmost track of the Didcot – Banbury line²⁵.
- 4.461. Access to the existing crossing from the east is from Aristotle Lane, adjacent to SS Philip & James primary school. An unmade track leads to the formation of the former railway. Part of the former railway alignment at this point is used as an unauthorised parking area by users of the allotments. This area is on Network Rail land and its official use is as a means of vehicular access to the disused railway formation, which acts as a vehicular access track alongside the operational railway. The area is segregated from the operational railway by palisade fencing with vehicular gates preventing access along the former railway either side of the parking area.
- 4.462. Prior to the abandonment and dismantling of the former railway, a separate crossing was provided to give access to the crossing over the Didcot – Banbury line.
- 4.463. From the parking area, access is gained to the existing crossing on the Didcot – Banbury line by means of a pedestrian gate. Sections of metal handrail guide users from the gate, across the area between the existing and former railways and to the decision point beside the existing railway. The crossing has is surfaced from one side of the tracks to the other by means of a boarded walkway with a non-slip surface.
- 4.464. The crossing extends across three tracks, these being named (from east to west) the Down Jericho line, the Up Main and the Down Main²⁶. The maximum permitted speed of trains on the Down Jericho line is 25mph, while that on the other two lines is 90mph. However, due to the proximity of the site to Oxford station, few, if any, trains travel at 90mph past the site of crossing.
- 4.465. The crossing is situated between two junctions. 45m to the north of the crossing, Oxford North Junction commences. 35m to the south, the Down Passenger Loop merges with the Down Main line by means of a trailing turnout.
- 4.466. The crossing is well used. The range of ages of users is very wide and includes accompanied children and the elderly. Some users take bicycles over the crossing. Users have been observed pushing loaded wheelbarrows over the crossing.
- 4.467. The reinstatement of the former railway through this site is viewed, for the purposes of safety and design approvals, as the construction of a new

²⁵ The exact alignment of the new track will be reviewed and might be revised as part of the next stage in the design process so this distance can only be taken as an approximation. However, the track at this point will remain within the formation of the former railway.

²⁶ On the Didcot – Banbury line, the Up direction is towards Didcot (i.e. southbound) and the Down direction is towards Banbury (i.e. northbound).

railway. The reinstated railway is accordingly being designed to comply with modern standards. Modern standards do not permit, other than in “exceptional circumstances”²⁷ the creation of a new level crossing. Works that would increase the level of risk at an existing crossing would also be contrary to such standards and guidance.

- 4.468. Because of the degree of separation between the reinstated and existing railways, if it were possible to create a new level crossing over the reinstated track would be treated as a separate crossing. Guidance in relation to adjacent but separate crossings requires that the crossings appear to the user as separate crossings. This would normally be achieved by staggering the crossings such that a change of direction is required between the two. It is also necessary to provide a safe refuge area between the two crossings, something that could be done with relative ease at the site in question. A further requirement is that the two crossing should be identical in operation – i.e. if warning lights are provided one crossing, they must also be provided on the other. Due to the age and condition of the existing signalling system on the Didcot – Banbury line, warning lights cannot be provided on the existing crossing in advance of resignalling works being undertaken. This means that it would also not be possible to provide warning lights on an adjacent crossing on the reinstated railway.
- 4.469. As described in the evidence of Mr Aidan Nelson, the standards relating to level crossings derive from the policies of the Office of Rail Regulation (ORR) in its role as safety regulator for the railway industry.
- 4.470. The creation of an additional crossing at Aristotle Lane would also be contrary to the policy adopted in respect of level crossings by Chiltern Railways in undertaking this scheme. That policy seeks to remove level crossings from the railway wherever possible in order to reduce the safety and operational risks²⁸ associated with operation of the completed railway which forms the Order scheme. This policy is in accordance with the policies of ORR and Network Rail.
- 4.471. The option of providing a level crossing over the reinstated single track was therefore dismissed at an early stage in the development of the scheme.
- 4.472. The Order scheme proposes that the existing Aristotle Lane footbridge should be refurbished in order to provide an improved alternative route from Aristotle Lane to the allotments. The proposed refurbishment involves renewal of the existing timber bridge deck, renewal or refurbishment of the existing bridge parapet screens, removal of overhanging vegetation, surfacing and reprofiling of the presently unsurfaced eastern approach ramp to the bridge and reprofiling of the western approach ramp. The western ramp will not receive a

²⁷ Although no precise definition of the term “exceptional circumstances” exists, Network Rail advises that the only circumstances in which it would normally accept the creation of new level crossing is where one new crossing replaced one or more existing crossings thereby reducing the total magnitude of risk, or where by not allowing the creation of the new crossing, lives could be jeopardised. A practical example of the latter circumstance is where the crossing would be used solely for the purposes of providing access for the emergency services to a site which has no similarly direct alternative means of access.

²⁸ Operational risks are risks to the efficient operation of the railway i.e. any risk which could lead to train delays. In the case of level crossings, the primary sources of delay result from incidents of crossing misuse and from failure of safety equipment (signals, telephones etc) associated with crossings.

tarmac or similar surface because of its location within the boundaries of the Port Mead SSSI and Special Area of Conservation (SAC). Reprofiting of the ramps will entail the creation level landings at regular intervals and will result in the ramped sections having an average gradient of 1 in 17.

- 4.473. In addition to the works to the bridge, it is proposed to elevate the section of bridleway that is subject to flooding to the same level as the concrete track from Walton Well Road.
- 4.474. The proposed package of measures is shown in Figure 28.1 (Appendix 2, page 148). Detail of the raised section of footpath is shown in Figure 28.2 (Appendix 2, page 149).
- 4.475. It was originally intended to provide a new link bridge leading from the western approach ramp to the footbridge directly into the allotment site and land is identified within the Order for the purposes of creating this link. However, following discussions and a site visit with Natural England, they stated that they would only accept the construction of the link bridge provided it was built with adequate headroom beneath it to allow for the passage of grazing cattle. Subsequent design work revealed that it would not be possible to create such a structure within the confines of the land identified for this purpose in the Order application while maintaining gradients shallow enough to comply with standards in relation to use by mobility-impaired users. In light of these difficulties and given that the proposed improvements to the existing bridleway provide a route to the allotments that will be less susceptible to flooding than the present bridleway, the proposal to provide a separate link bridge has been abandoned.
- 4.476. In addition to the works to the bridge and footpath, Chiltern Railways proposes to create a new parking area adjacent to the eastern approach ramp to Aristotle Lane footbridge. Compulsory children
- 4.477. Without a new crossing over the reinstated railway, the existing crossing of the Didcot – Banbury line becomes defunct. The Order scheme proposes the closure and removal of the existing crossing for this reason. The closure of the existing crossing is not on the basis of the risks associated with the retention of that crossing, although its closure does accord with ORR and Network Rail policies to remove level crossing where a suitable opportunity arises as a result of other works.

Conclusion

- 4.478. The various new bridges and other mitigation works provide suitable alternative means of crossing the railway. In respect of the public rights of way the Order scheme meets the requirements under section 5(6) of the Transport and Works Act (CD/5.7) as an alternative right of way has been provided in each instance.

BRIDGE CARRYING THE RAILWAY OVER THE SHEEPWASH CHANNEL

- 4.479. As described in 4.138 above, in order to accommodate the proposed new tracks serving the proposed new platforms at Oxford station, it is proposed to widen the existing bridge that carries the Didcot – Banbury line over the Sheepwash Channel immediately to the north of Oxford station. This section

of my evidence describes the existing structure, the constraints affecting its widening and the details of the proposed widening.

- 4.480. The existing situation at the Sheepwash Channel bridge is shown in figure 29.1 (Appendix 2, page 151).
- 4.481. The existing Didcot – Banbury line crosses the Sheepwash Channel by means of a bridge comprised of a number of discrete bridge spans each carrying one or more of the 5 tracks that pass over the waterway. The easternmost span of the bridge currently carries a track that serves platform 3 of Oxford station. A turnout is located on the bridge, giving access from this track to two former parcels docks on the east side of the station. As a result, the main girders of this span are not parallel and the bridge deck is wider at the south end than at the north end to accommodate the diverging tracks. This bridge span also accommodates a staff walking route at track level that provides access from Oxford station to the Up Carriage Sidings to the north. This walking route although safe if used correctly, does not comply with modern safety standards.
- 4.482. To the east of this bridge and at a lower level, the disused swing bridge of the original Bletchley – Oxford railway is located. This bridge consists of two spans. The southern span is fixed and is supported by a pier located in the middle of the waterway. The northern span is the swing span and this is designed to rotate about a bearing located on the north bank of the waterway. Since the abandonment of the former railway, the swing span has been left in the open position to permit the free passage of boats. When the bridge was opened for the final time, the operating mechanism jammed with the swing span not fully open. Therefore, one corner of the swing span projects beyond the north bank of the waterway. The bridge has not now been operated for over 20 years.
- 4.483. Since becoming disused, the bridge has been become a Scheduled Monument.
- 4.484. There is a towpath on the north side of the Sheepwash Channel, which, having passed beneath the Didcot – Banbury line bridge, turns to the north to pass around the disused swing bridge. The path previously crossed the former Bletchley – Oxford line tracks by means of a pedestrian level crossing located immediately to the north of the swing bridge. The path continues to follow the alignment via the site of the former crossing and in doing so rises over the length between the eastern side of the current railway bridge and western side of the former level crossing. Two high voltage electricity cables (one at 11kV, the other 33kV and oil-filled) are located beneath the towpath.
- 4.485. The headroom to the towpath as it passes beneath the Didcot – Banbury line bridge is restricted. The minimum headroom beneath the bridge is 1.74m.
- 4.486. The disused swing bridge and the land immediately surrounding it are owned by Network Rail. The Oxford Preservation Trust is leading proposals for the protection and restoration of the structure. Although there are no plans to make the former swing bridge operational, there are plans for it to be restored and for the area surrounding it, through which the towpath passes, to be landscaped in a way that will provide a clear understanding of the way in which the bridge previously operated. As part of these works, it is intended to

re-create the former towpath level crossing and to provide an indication of the path swept by the swing span of the bridge when in operation.

- 4.487. In order to achieve the widening of the Didcot – Banbury line bridge to accommodate the new track, the eastern span of the bridge will be removed and replaced with two new bridge spans. The westernmost of these will carry the track that serves platform 3 at Oxford station. The present turnout to the parcels docks will be removed in connection with the construction of the new platforms at Oxford (described in more detail in 4.236 to 4.259 above) and this span will only accommodate plain line²⁹. The westernmost new bridge span will therefore have parallel main girders.
- 4.488. The easternmost of the two new spans will carry the new tracks of Work Nos. 3 and 3A. A turnout will be located immediately to the north of the bridge. This will extend onto the bridge such that the new eastern span will have non-parallel main girders, similar to the existing span that will be removed. A replacement staff walking route, compliant with current standards, will be provided by means of a walkway cantilevered from the eastern side of this bridge.
- 4.489. The new eastern bridge span will consist of steel main girders and cross girders. The eastern main girder will be clear of the adjacent swing bridge structure. However, the proposed cantilevered walkway structure will overhang one corner of the swing bridge deck. The area of the swing bridge deck that will be overhung by the walkway will be less than 0.7m² once the bridge is in its fully open position. In its current position, the overhang is marginally less.
- 4.490. During the development of the scheme, the possibility of relocating the staff walking route to an alignment clear of the swing bridge was investigated. Unfortunately, this site is highly constrained and no alternative route could be found within the railway corridor that provided a safe walking route without increasing the length of the route considerably. Many of the options examined would also have entailed the construction of a sizeable footbridge structure spanning six or more railway tracks to the north of the station. The option of providing a walking route that utilised public roads for part of its length was also considered. Such a route would have entailed the use of residential streets. Given that the walking route is used at all times of day and night, it was considered that this would give rise to disturbance to residents. Experience from other schemes also suggested that a route utilising public roads would raise concerns on grounds of personal security, especially late at night, compared to a route located entirely within the secure railway environment. While the overhang of the swing bridge is not desirable, it only affects a relatively small area of the bridge and the proposed cantilevered walkway represents the only reasonably practicable solution to the provision of a staff walking route between the station and the sidings.
- 4.491. In order to accommodate the two replacement bridge spans, which will have a total width greater than the span they will replace, the abutments of the existing bridge will be extended. This is relatively straightforward in the case of the southern abutment. However, the widening of the northern abutment is

²⁹ i.e. track that contains no turnouts or crossovers.

more complex because of the interface with the towpath of the Sheepwash Channel and with the disused swing bridge. Construction of the widened northern bridge abutment will entail the construction of a number of bored piles, up to 2.0m in diameter. This work will necessitate the closure of the towpath for a number of weeks. The piled abutment structure will be faced with engineering brickwork to provide a finished appearance similar to the existing bridge abutment and providing a suitable backdrop to the Scheduled Monument.

- 4.492. The alignment of the towpath, in both the horizontal and vertical planes, is heavily constrained, leaving little opportunity for realignment. Therefore, the widening of the northern abutment has been designed to minimise the impact on the towpath. Consequently, the face of the widened portion of the abutment is set back from the line of the existing abutment face, resulting in the easternmost of the new bridge spans being around 5m longer than the other spans.
- 4.493. It has not been possible to entirely avoid the need for realignment of the towpath but the resulting realignment is relatively minor in nature. The proposed design provides headroom beneath the widened bridge slightly greater than that beneath the existing bridge. The realigned path has been kept clear of the path swept by the swing span of the former swing bridge. The realignment is contained within the section of the towpath to the west of the former crossing of the Bletchley – Oxford line.
- 4.494. The proposed arrangement is shown in Figure 29.2 (Appendix 2, page 152).
- 4.495. In summary, this site is highly constrained by the existing operational railway, residential properties, the need to maintain the headroom above the towpath and the need to minimise impacts on the disused swing bridge. The proposed solution to the need to widen the bridge carrying the railway over the Sheepwash Channel represents a compromise between the numerous factors affecting the site.

CONCLUSION

- 4.496. In this section I have set out evidence in relation to Statement of Matters (X/4) 2, 3 and 14 and my conclusions are that the Order scheme has been developed in a way that has considered a range of potential solutions to each individual engineering challenge. The Order scheme incorporates those options that will provide a safe and reliable railway that meets the aims of the scheme in an efficient manner in terms of cost and time. The resulting railway will comply with best practice both in terms of engineering design and in terms of operational reliability. The powers compulsorily to acquire and use land for the purposes of the scheme are fully justified.

5. PROPOSED LINE SPEEDS

- 5.1. The maximum permissible speed on any section of railway line is usually governed by one or more of the following factors:
- (i) the capabilities of the infrastructure (track, signalling, structures etc)
 - (ii) the speed attainable by the various types of train using that section of line, and
 - (iii) the business and operational needs of the railway.
- 5.2. Currently, train speeds on the section of the Bletchley – Oxford line affected by this scheme are limited to a maximum of 40mph. From Islip to Oxford North Junction the maximum permissible speed is 30mph. There is a 25mph speed restriction at Oxford North Junction for trains to and from the Bicester Town Branch and a 20mph speed restriction is in force on the stretch of line over the two viaducts (Mill Stream Viaduct and River Cherwell Viaduct).
- 5.3. The reasons for these limits are largely historic and stem from the period between 1968 and 1987 when the line was kept in use solely for freight traffic. During this period, the line was kept going on a “minimal maintenance” basis. Speeds were reduced to suit the capabilities of aging track, which could be done without any significant impact on the viability of the limited freight traffic using the line.
- 5.4. In 1973, Oxford North Junction was renewed and re-sited to its current location. It was laid out on an alignment suitable for 25mph running, which was compatible with the 30mph speed restriction imposed on much of the rest of the route.
- 5.5. Prior to 1968, when the Bicester - Oxford line was used by passenger trains, speeds had been considerably higher than the current limits. Although no specific detail of the limits in force have yet come to light, it is known from contemporary accounts and old public timetables that average speeds of certain passenger trains on the line have previously been of the order of 50mph, implying a maximum speed in the region of 65 or 70mph. Of particular note is the diesel train service operated in 1938 by the London Midland & Scottish Railway (LMS), which covered the 11¾ miles from Bicester to Oxford in as little as 14 minutes³⁰.
- 5.6. Passenger services were reintroduced between Bicester and Oxford in 1987. However, this was done at minimum cost and no attempt was made to increase speed limits from those in place to suit the freight traffic. The low speed of the trains has been one of the main factors in the relatively low patronage on the route. The low speed has also been a significant factor (another being the limited capabilities of the existing signalling arrangements on the line) in restricting the frequency of train services on the route, which in turn has compounded the low usage.

³⁰ Based on information contained on a September 1938 handbill published by LMS which includes a departure from Oxford at 10.45pm arriving Bicester 10.59pm. This handbill is reproduced in “Oxford to Bletchley”, Mitchell and Smith, 2005.

- 5.7. In 2003, a significant length of the track was renewed and as a result a slight increase in speed (from 30mph to 40mph) was possible over the section to the east of Islip. However, the magnitude of speed increase was limited by the presence of the numerous level crossings on the route and, in particular, the methods of automation that had been applied to some of these crossings during the 1970s. Overcoming these constraints would have required significant levels of capital investment, which could not be justified for the limited Bicester – Oxford passenger service.
- 5.8. The Evergreen 3 project represents a unique opportunity to undertake a wholesale upgrading of the railway. The proposed Oxford – London Marylebone service completely alters the financial context of the line and commercial justification for enhancement works to it.
- 5.9. The commercial justification for the scheme only exists if the train service is made attractive to passengers. One of the key factors affecting the attractiveness is the journey time, which is directly related speed. In order to generate adequate income to fund the necessary enhancement works, it is necessary therefore to minimise the journey times offered, particularly for the main passengers flows (Oxford – London, Water Eaton Parkway – London and Bicester – Oxford).
- 5.10. However, higher speeds demand a higher standard of infrastructure which will result in a higher cost. Therefore it is necessary to balance the desire for higher speeds with the cost of providing the infrastructure necessary to support those speeds. In particular, if unnecessary costs are to be avoided, care needs to be taken not provide infrastructure to support speeds beyond those that are likely to be achieved by the train services using the line and the speed profile of the route therefore needs to be matched as closely as practicable to the operating characteristics of the trains using it³¹.
- 5.11. The definition of proposed line speed on the route therefore entailed a review of the limiting factors that would dictate the speed profile. The first factor to be considered was the horizontal alignment of the existing railway corridor. The majority of the Bicester – Oxford line is straight but there is a series of mostly gentle curves as it approaches Oxford. This series of curves start to the Bicester side of the proposed Water Eaton Parkway station and continues to Oxford North Junction, where the line presently joins the Didcot – Banbury line. The tightest curve on this section is a very short curve with a radius of approximately 1100m. The theoretical maximum speed over a curve of this radius is in excess of 100mph. A further, shorter, series of curves exist where the line passes through Islip. Again, the radii of these curves are suitable for speeds in excess of 100mph.
- 5.12. The new section of railway in Bicester (“the Bicester Chord”) was similarly considered. This includes a 300m radius curve which limits the maximum speed of trains to 40mph.

³¹ Although it is undesirable to provide infrastructure beyond the capabilities of the of the trains using it, it must be noted that it is also undesirable to have too many steps in the speed profile as this would lead to a proliferation of signs and other signalling equipment, which could lead to driver confusion and could adversely affect the way in which trains are driven.

- 5.13. Rolling stock related constraints were considered next. Chiltern Railways' current fleet of Class 168 trains has a maximum speed capability of 100mph. Chiltern Railways also operates a fleet of Class 165 trains which are geared to provide faster acceleration but have a lower top speed of 75mph. The Class 165 trains are designed for use on shorter distance commuter routes with frequent stops while the Class 168 trains are better suited to longer journeys with fewer stops, the internal layout and ambiance of each of the two classes of train being geared to the markets it is intended to serve. As such the Class 168 trains are better suited to London – Oxford journeys (which will stop at relatively few stations en route) and it is these trains that will be used to form the proposed London Marylebone – Oxford services.
- 5.14. Computer modelling was undertaken to determine the maximum speeds that these trains could attain on the Bicester – Oxford line. This work took into account the gradients on the route and the proposed stopping patterns of passenger services. This work also took into account the aspirations of the East – West Rail project to operate some services that will run non-stop between Oxford and Bicester or Milton Keynes and the operating characteristics of the freight trains which presently use the line and those that might use the line in the future.
- 5.15. The outputs from the computer modelling showed that a typical passenger service operated using a Class 168 train and calling at Water Eaton Parkway and Bicester Town stations (but not Islip station) would only be capable of travelling at 100mph between a point roughly $\frac{3}{4}$ mile northeast of Oddington level crossing and a point roughly $\frac{1}{4}$ mile northeast of Langford Lane level crossing in the Up direction and between a point close to Yew Tree Farm foot crossing and a point roughly $\frac{1}{4}$ mile to the northeast of Water Eaton No. 5 level crossing in the Down direction.
- 5.16. Between the proposed Bicester South Junction and Bicester Town station, the necessary 40mph speed limit and its proximity to Bicester Town station mean that trains on this section travelling to and from the London Marylebone – Birmingham Moor Street line will not in practice be driven at more than 40mph. However, the existing freight services travelling to and from Claydon L&NE Junction, which do not stop at Bicester Town station, have the potential to travel faster over this section. A speed limit of 50mph was therefore selected for the section of line from the proposed Gavray Junction to southwest of the proposed Highfield Junction. This strikes a favourable balance between the achievable speeds of trains, in particular freight trains, and the desire to minimise the size (and hence cost) of the turnout at Highfield Junction.
- 5.17. Between Highfield Junction and the proposed Mill Stream Junction, the speed limit has been set at 100mph, this being the section of line where trains will normally have the ability to take advantage of this line speed.
- 5.18. At Mill Stream Junction, the line speed is different in each direction. In the Down direction, trains are capable of operating at 100mph (if they have not stopped at Islip) and do not need to commence braking for the stop at Water Eaton Parkway station until well beyond the junction. However, in the opposite direction, a train accelerating away from Water Eaton Parkway will only be able to attain a maximum speed of around 75mph by the time it

reaches the vicinity of the proposed junction. The curved section of line through Islip and the Mill Stream and River Cherwell viaducts limit the options available for locating the proposed junction³² and also the length of any turnout forming the junction. A number of potential junction configurations were considered at this location and it was established that the most suitable arrangement entailed the use of a 70mph turnout configured such that the Down line is formed from the through (or unrestricted) leg of the turnout and the Up line by the diverging leg. This allows the 100mph speed limit to be maintained on the Down line while limiting the Up line to 70mph. Although the speed in the Up direction is marginally below the maximum capabilities of the rolling stock, this is the highest line speed that can be achieved within the existing railway corridor at this point. Moving the junction further to the southwest (i.e. to point where the speed of Up direction trains would be lower) would not be considered acceptable as this would have reduced the length of the double track section to the southwest (which is already marginally shorter than desirable in order to avoid the expense of rebuilding Islip station in Phase 1), which would have an unacceptable impact on the timetabling and reliability of services on the route.

- 5.19. The speed limits on the Up and Down lines are maintained at 70mph and 75mph respectively, through Water Eaton Parkway station to the proposed Peartree Junction.
- 5.20. Between Water Eaton Parkway and Oxford, the computer modelling exercise indicated that trains in both directions could theoretically attain speeds of around 85mph. However, in both directions, acceleration to 85mph would immediately be followed by deceleration to a station stop at either end of the section. This fact, combined with the geometry of the route through Wolvercote, where it is necessary to accommodate the forming Peartree Junction and Woodstock Road Junction lead to the decision to limit the maximum speed over this section to 75mph. A 30mph restriction will apply to the route from the Bletchley – Oxford line to the Didcot – Banbury line between Woodstock Road Junction and Oxford North Junction in recognition of the existing 25mph restriction at the latter.
- 5.21. A number of objectors have suggested that speeds should be limited to 30mph within the built up area of Oxford. Such a restriction would add approximately 7 minutes to a round trip. As well as the undesirable impact that this would have on London – Oxford (and v.v.) journey times, it will also reduce the available layover time at Oxford. This is unacceptable from a timetable reliability perspective as the layover provides a buffer reducing the probability of a late arrival at Oxford resulting in the late departure of the return working to London. As reliability is critical to the success of this scheme, and given the presence of the single-track sections on the route (which give rise to opportunities for late running trains in one direction to delay trains travelling in the opposite direction) the additional running time associated with any lower speed in the built up area Oxford is unacceptable

³² It is desirable to keep junctions away from curves (as turnouts on curves require bespoke components) and from structures such as underbridges and viaducts (due to the complex loads that would be imparted on the structure and in order to minimise risks arising from any potential derailment at the junction, which, by its very nature, presents a higher derailment risk than plain line).

and would jeopardise the viability of the scheme. The same would be true of a reduction in line speed on any other section of the route.

5.22. I conclude that the proposed line speeds are appropriate if the scheme is to efficiently deliver the required levels of train service in a robust manner. The speed profile has been matched to the capabilities of the trains that will use the line and provides for:

- Journey times that will be attractive to passengers;
- Efficient use of the single track sections of railway;
- Adequate turn around times at Oxford to allow for recovery of minor delays and prevent these delays being carried over into the subsequent journey;
- A degree of flexibility in the timings at which trains reach Bicester South Junction to allow a degree of flexibility in how trains to and from Oxford are pathed through the busier section of railway between Bicester South Junction and London Marylebone.

5.23. As a result of the intrinsic links between line speeds, track and signalling layouts, timetables and reliability levels and change to the proposed speed profile will have potentially significant consequences for other aspects of the scheme and could jeopardise the viability of the scheme as a whole.

6. SIGNALLING AND SAFETY EQUIPMENT

EXISTING SIGNALLING

- 6.1. The single line from Oxford North Junction to Bicester London Road Level Crossing is operated by means of the Tokenless Block signalling system, under the control of Oxford signalbox. This system was installed on this section of the route in 1973 and subsequently modified in 1985 when the signal box at Bicester was closed in connection with the reduction of the line east from Bicester to a single track. It permits only one train to occupy the single line at any one time. There is a signal at each end of the token section, but there are no intermediate lineside signals.
- 6.2. Access to the freight facilities at Banbury Road (aggregates depot) and Bicester (MoD, Bicester Military Railway) are controlled by local ground frames³³ which are released by Oxford signalbox when required to permit movements in and out of the freight facilities.
- 6.3. East of Bicester London Road, there is a second Tokenless Block system, under the control of Claydon L&NE Junction signalbox. Again, there is a signal at each end of the token section, but there are no intermediate lineside signals. The system was installed on this section of line when it was reduced to single-track in 1985.
- 6.4. The signals separating the two sections are located at Bicester London Road Level Crossing.
- 6.5. The arrangements for the operation and protection of level crossings are described in the evidence of Mr Aidan Nelson (CRCL/P/7/A).
- 6.6. These arrangements are suitable for the safe and efficient operation of a lightly used single line railway.
- 6.7. The signalling on the Didcot – Banbury line (which is used by the present Bicester Town – Oxford services over the section from Oxford North Junction to Oxford station) consists of conventional colour light signals with track circuits, controlled from Oxford signalbox. This signalling was installed in 1973 and has been modified at various times since, the most recent being in 2009. The majority of the equipment and is now approaching the end of its life. Network Rail anticipate replacement will take place in 2016, when control of the line through Oxford will be taken over by the new Thames Valley signalling centre at Didcot. Given the impending renewal and the condition of some of the equipment (including the cabling), anything other than minor alterations to this system are not considered to be viable.
- 6.8. The signalling on the London Marylebone – Birmingham Moor Street line south of Aynho Junction³⁴ is based around a system that was mostly installed in 1990. The system incorporates Automatic Train Protection (ATP), which is

³³ A ground frame comprises a series of levers mounted at the side of the track to control points and / or signals. The levers are normally locked to prevent unauthorised use and, in the case of those on the Bicester Town – Oxford line, can only be released by the signaller at Oxford.

³⁴ Aynho Junction is the point where the London Marylebone – Birmingham Moor Street line meets the Didcot – Banbury line. It is located between Bicester North and Kings Sutton stations, being approximately 9 miles to the north of the former.

described below. The system has since been expanded and enhanced in 1997, 2002 and 2006. It consists of colour light signalling with continuous detection of the position of trains, by means of track circuits. The signalling is controlled from the signalbox at Marylebone, which was refurbished and re-equipped in 2006 as part of the Evergreen 2 project

PROPOSED SIGNALLING

- 6.9. The Evergreen 3 proposal provides for the Bicester-Oxford line to be doubled over a significant proportion of its length; a new junction is to be installed near Bicester Town to give access, via a new section of railway, to the Banbury-Marylebone line; and new platforms are to be built at Oxford.
- 6.10. The existing signalling arrangements would be completely incapable of controlling the new infrastructure and train service, for the following reasons:
- the existing arrangements are for a single line, whereas much of the route is to become double track;
 - the existing arrangements only allow one train to occupy the line between Oxford and Bicester at any one time, whereas the Evergreen 3 Project (including allowance for future East-West Rail development) has a requirement for up to four trains per hour, so there could be several trains on the route at any one time;
 - there will be new connections at Bicester and at Oxford, which will need to be controlled.
- 6.11. In view of the above, it is considered appropriate to install completely new signalling arrangements between Oxford and Bicester, in line with those in use on busy double track routes throughout the UK.
- 6.12. These arrangements will consist of conventional lineside colour light signals.
- 6.13. The number and position of signals has been determined to provide a 5-minute headway³⁵, taking into account the locations of junctions, station and the level crossing at London Road. The signalling layout has been design in accordance with current standards and takes account of the braking capabilities of the trains that are likely to use the route.
- 6.14. There will be continuous detection of the position of trains, by means of track circuits.
- 6.15. The safety of the signalling system will rely on central interlockings of the SSI (Solid State Interlocking) type, which are currently standard and in wide use throughout the UK.

SAFETY SYSTEMS

- 6.16. The route will also be fitted with Automatic Train Protection (ATP), consistent with the system already in use on the Marylebone - Banbury route. This system supervises the way in which trains are driven and intervenes to apply the brakes if the driver attempts to drive faster that would be safe, taking into account the permitted speed and the aspects displayed by signals. The system therefore substantially reduces the risk of a train being driven past a signal at danger. The system consists of an on-board computer system fitted

³⁵ i.e. the minimum time separation of two trains operating at full line speed is 5 minutes. This does not mean that trains will routinely operate at 5 minute intervals.

to each train which receives information from track-mounted transmitters regarding changes in line speed and the aspect displayed by the next signal.

- 6.17. The ATP system was fitted to the Chiltern line in 1991 as part of a trial. Although the system has not been more widely adopted, Chiltern Railways has continued the operation of the system and has promoted its use on new and improved infrastructure provided through Chiltern's previous enhancement schemes.
- 6.18. Although all of Chiltern Railways' passenger trains that will operate on the route are fitted with ATP equipment, the freight services using the route are not fitted.
- 6.19. The route will also be fitted with Train Protection and Warning System (TPWS). This system was devised and installed across the British railway network following the decision not to more widely adopt the ATP system. Although it does not prevent trains passing signals at danger, it is designed to substantially reduce the consequences of any such event. The system works by detecting when a train is approaching certain critical signals at too great a speed to stop. If the signal is at danger, the system initiates an emergency brake application. Although the train will not necessarily stop before reaching the signal, it will, in the majority of cases, be brought to a stand within the overlap³⁶ distance beyond the signal. All trains on the line will be fitted with TPWS equipment.
- 6.20. In addition to ATP and TPWS, the route will be fitted with the Automatic Warning System (AWS). This system was developed in the 1950s and provides an audible warning to train drivers of the presence of a speed restriction or a signal at danger in the section of line ahead. The driver is required to acknowledge the warning by pressing a button in the cab. If the warning is not acknowledge, the system initiates an automatic brake application. All trains on the route will be fitted with AWS.

LEVEL CROSSING CONTROLS

- 6.21. The control of Bicester London Road level crossing is described in more detail in the evidence of Mr Aidan Nelson (CRCL/P/7/A). The crossing will be fitted with CCTV and supervised by the controlling signal box. This system of operation requires the signaller to confirm that the crossing is free of obstruction before the signals on the approach to the crossing can be cleared to allow a train to proceed over the crossing.

SIGNALLING CONTROL

- 6.22. It is proposed that signalling on the route will be controlled from the existing signalling centre at Marylebone. A number of alternative options were considered prior to reaching this decision. These included control from the existing Oxford signal box and from a new, purpose-built signalling centre.
- 6.23. The option of controlling the route from Oxford was dismissed because of the impending closure of Oxford signal box and transfer of its function to the new Thames Valley signalling centre. If the route were to be controlled from the

³⁶ Every signal is provided with an overlap, typically of the order of 180 – 200m. This overlap, which lies immediately beyond the signal, must be proved to be clear before a train is allowed to approach the signal under normal conditions.

Thames Valley signalling centre, the scheme would become intrinsically linked to Network Rail's resignalling programme, which would result in a delay of several years in the implementation of the scheme.

- 6.24. The option of providing a purpose-built signalling centre for the route was considered. While this would provide for easy expansion to accommodate the future East West Rail scheme, it would cost considerably more than the other options as it would require a new building and the associated communications network to support it.
- 6.25. Placing control with Marylebone area signalling centre, provides an efficient solution by utilising spare capacity within the existing signalling centre. It also allows trains to be under the control of a single signal box for their entire journey from London to Oxford, which offers certain operational advantages.

COMMUNICATIONS

- 6.26. Train drivers will have radio connection to the signalling centre at Marylebone. This will be in addition to telephones fitted at certain signals and other strategic locations on the route.

7. ADDITIONAL OPTION EXAMINATION POST ORDER APPLICATION INCLUDING POSSIBLE MODIFICATION AT LANGFORD LANE

- 7.1. Since the Order application was submitted in January 2010, development work has continued in respect of certain elements of the scheme. This work has been necessary for a variety of reasons including:
- To react to issues raised by Objectors to the scheme that the Promoter was previously unaware of
 - To test proposals for alternative options raised by Objectors and consultees since submission of the Order Application
 - To refine aspects of the proposed works in light of additional site investigation works undertaken since the Order Application was submitted.
- 7.2. Some of this additional work has resulted in changes to the works proposed. Some of it has demonstrated that the Order scheme already includes the most appropriate solution to the particular issue.
- 7.3. The main areas of design development work that have taken place since the Order Application was submitted are described in this section my evidence. For each area of work, I will explain whether or not the work has (or is likely to) result in the need for a change to the Order scheme and, if so, I will describe that change.

TUBBS LANE CROSSING – FURTHER EXAMINATION OF SUBWAY OPTION

- 7.4. As a result of questions raised by Oxfordshire County Council in regarding the selection of a footbridge as the most appropriate means of providing an alternative route across the railway following the proposed closure of Tubbs Lane level crossing, further design work was undertaken on the previously dismissed option of providing a subway at this location.
- 7.5. This work showed that while it is possible to create a subway in the space available without encroaching into Garth Park or properties adjoining Tubbs Lane, the subway would have several undesirable features, namely:
- Variable width approach ramps, being just 3.0m wide between the faces of the retaining walls either side of the ramp at the narrowest point
 - Poor forward visibility due to the need for the subway approaches to be curved, leading to potential personal security issues
 - A number of small areas of land that would difficult to access safely for the purposes to maintenance and litter clearance due to their proximity to and height above the subway or its approach ramps.
- 7.6. Additionally, the issue of drainage difficulties for any such subway remains valid.
- 7.7. As a result of this work, it is apparent that the proposed footbridge provides a preferable arrangement and the Order scheme will not be changed as a result of these works.

BICESTER TOWN STATION – IMPROVED FACILITIES FOR BUS INTERCHANGE

- 7.8. Oxfordshire County Council raised concerns that the proposed layout of the forecourt and parking areas at Bicester Town station failed to make adequate provision for buses in light of the proposed Ecotown scheme affecting Bicester. This proposal has developed considerably since the Order application was prepared. It has since become clear that the station is likely to be served by a number of new bus routes that will be operated with full size single or double deck buses. Discussions with the local bus company have indicated that a means of access for buses that is not impeded by car movements is required.
- 7.9. As a result, a number of alternative layouts have been tested. Following this work, it was decided to adopt a revised layout for the station forecourt incorporating a larger turning area and two bus stops. This new layout does not constitute a material change to the scheme.

LANGFORD LANE – FURTHER ARCHAEOLOGICAL INVESTIGATION AND EXAMINATION OF POTENTIAL ALTERATIONS TO THE PROPOSED ALIGNMENT OF WORK NO. 11

- 7.10. As a result of concerns raised by English Heritage in respect of the proposed Work No. 11 (the new road and bridge proposed to replace the existing Langford Lane level crossing), a considerable amount of further investigation and design work was undertaken.
- 7.11. The outline design for the vertical alignment of Work No. 11 was further developed to provide a solution that minimises ground disturbance by elevating the road above surrounding ground levels where this can be done without affecting flood flows. This provided a more detailed vertical alignment design that took account, as far as reasonable practicable, of the concerns of English Heritage and the Environment Agency (with respect to flood impacts).
- 7.12. In order to inform this work, it was necessary to undertake a range of non-intrusive archaeological investigation to confirm those parts of the road that were likely to be located over the site of significant remains.
- 7.13. In order to allow a more thorough debate with English Heritage regarding the effects of the proposed new road and bridge on the setting of the Alchester SAM, a number of photomontages of the proposed scheme were produced.
- 7.14. As these failed to allay English Heritage's concerns regarding the impact of the scheme on the setting of the SAM, and alternative route for the new road was examined on the northwest side of the railway. The revised route, which is described in 4.319 to 4.322 above.
- 7.15. The additional work has resulted in the submission of a proposed amendment to the Order scheme that, if adopted, will reroute the proposed new road to the route examined as part of the further work described above.

HOLTS FARM CROSSING – CONSIDERATION OF ALTERNATIVE PROPOSAL

- 7.16. Following submission of the Order application, dialogue has continued with landowners affected by the proposed closure of Manor Farm, Home Farm, Beebont and Holts Farm crossings and the proposed mitigation works.
- 7.17. During the course of this dialogue, the landowners presented an alternative mitigation proposal. Although very similar to an option considered during the development of the Order scheme, Chiltern Railways undertook a detailed feasibility study into the proposal.
- 7.18. The proposal involves the construction of a new overbridge adjacent to the existing M40 bridge (instead of the bridge proposed in the order scheme) and the construction of around 3km of new concrete access roads to link Holts Farm to the Merton – Islip road via the bridge.
- 7.19. The new access road would start at a junction on the Merton – Islip road to be formed at an existing highway access immediately to the southwest of the bridge carrying the road over the M40 motorway. The road would then turn to head northeast and then head northwest immediately adjacent and parallel to the motorway embankment. This section of road would continue to the proposed bridge over the railway but in doing so would need to cross two watercourses. This would entail the construction of two significant structures. Dialogue with the Environment Agency confirmed that the clear openings beneath these structures would need to be at least as large as the adjacent motorway bridges. This would entail spans of at least 15m and 23m and elevated several meters above the adjoining fields. The second of these two bridges would oversail one corner of the Wendlebury Meads and Mansmoor Close SSSI.
- 7.20. Immediately to the southeast of the bridge over the railway, an access route would be provided heading southwest along the railway boundary to give access to the land forming part of Manor Farm and Home Farm that is to the southeast of the railway. This access route would continue as an unmade right of access across the Home Farm land, which forms part of the SSSI, to link with the public bridleway at Beebont crossing. This would enable diversion of the bridleway over the proposed new bridge.
- 7.21. Having crossed the railway, the access road would link with the existing concrete access road to Home Farm from the Wendlebury – Weston-on-the-Green road and head southwest towards Home Farm. After a distance of around 300m, the new road would leave the alignment of the existing access road and skirt around the outside of the SSSI, over land forming part of Manor Farm to reach Holts Farm.
- 7.22. Aside from the fact that the Order application does not seek the powers necessary to construct this road, there are a number of significant problems with this proposal. Firstly, the cost of creating the new road and three new bridges is considerably in excess of the cost of the option incorporated in the Order scheme (approximately £4.2m for the landowners' proposal against £2.0m for the proposal contained in the Order scheme).
- 7.23. The oversailing of the SSSI by one of the new bridges is not favoured by Natural England, especially as a viable alternative exists which has less impact on the SSSI.

- 7.24. The environment agency raised concerns about the impact of the two watercourse bridges on ecology and flood flows.
- 7.25. The section of road adjoining the motorway embankment would be subject to approval of the Highways Agency. While not necessarily a problem, this would add additional time and cost to the construction of this road.
- 7.26. Finally, the proposed road crosses land not in the ownership of any of the three landowners presenting the proposal. As the Order application does not include a request for powers of compulsory acquisition of this land (or rights over it), there is no guarantee that this land could be secured at a reasonable price.
- 7.27. It was concluded that this option was not viable and the Order scheme will not be changed to reflect this proposal.

ISLIP (MILL LANE) CROSSING – FURTHER EXAMINATION OF ALTERNATIVE OPTIONS

- 7.28. As describe in 4.416 above, following submission of the Order application, further work has been undertaken to re-examine previously dismissed alternatives to the proposed bridge to the northeast of the present crossing.
- 7.29. This work involved carrying out additional design work on the dismissed options to demonstrate to local residents what the alternatives entail.
- 7.30. As described previously, this work has not led to any proposed change to the Order scheme.

BRIDGE OVER THE SHEEPWASH CHANNEL

- 7.31. Due to the extremely constrained nature of the site of the proposed widening to the existing carrying the railway over the Sheepwash Channel and the close proximity of the bridge to the disused railway swing bridge (a SAM), certain aspects of the design of the proposed bridge widening were not concluded prior to submission of the Order application.
- 7.32. The design of this aspect of the scheme was advanced following submission of the Order application as additional site information became available. Particular attention was paid to comments raised by English Heritage and the Oxford Preservation trust in respect of the likely impact of the widening on the swing bridge.
- 7.33. The constraints at the site meant that numerous iterations of the design were required to find the optimum solution, a process that took several months to complete and concluded during the summer of 2010.
- 7.34. A photomontage of the refined design was produced and shared with the interested parties in September 2010.
- 7.35. As this work was refinement of the Order scheme is has no material affect on the scheme.

8. STRATEGIC FIT OF ORDER SCHEME WITH OTHER SCHEMES AFFECTING OXFORD STATION

- 8.1. In addition to the Order scheme, there are a number of other schemes, at various stages of development, which will, if implemented, affect Oxford station in the short to medium term.
- 8.2. In developing the Order scheme, Chiltern Railway has engaged with the project teams developing each of the schemes described below in order to ensure that the Order scheme is compatible with each of the other schemes. For the majority of these schemes, this has been achieved by means of attendance at the regular meetings of the Oxford Station Steering Group. This is a regular meeting of the various stakeholders involved in the development and delivery of the numerous schemes affecting the station.
- 8.3. In this section of my evidence, I give a brief overview of each scheme affecting Oxford station, the current stage of development for each scheme and the fit of the Order scheme with each of the other schemes.

SOUTH BAY PLATFORM

- 8.4. The South Bay Platform scheme is a Network Rail project that intends to provide a new platform at the south end of the station. The new platform will be used by some of the services that presently terminate in platform 2.
- 8.5. Under current arrangements, trains from London that terminate at Oxford arrive at platform 2. Once the passengers have alighted and the train has been checked to confirm that no passengers remain on board, the train is taken forward into the Down Sidings (located to the north of the station on the west side of the railway). Close to the time of departure of the train's booked return working, it is taken into platform 1 ready for boarding.
- 8.6. A small number of terminating trains are routed directly into platform 1 and return south from there. This is normally only possible for trains that are booked to form a return working that is scheduled to leave very shortly after the booked arrival time. Because most workings incorporate a lay over between arrival and departure, arrival directly into platform 1 from the south is only practical for a very small number of services or at times of disruption.
- 8.7. The current arrangements use up valuable platform capacity by virtue of the time taken in checking that all passengers have alighted from the train before it can be taken forward into the sidings.
- 8.8. The south bay platform scheme is intended to release some of this wasted capacity by providing a platform that trains can arrive directly into from the south, lay over in and then depart from. It is intended that around 50% of terminating trains from the south will be routed into the new platform.
- 8.9. The proposed new platform will be built to the south of Botley Road on land that currently forms part of the long stay car park. Because of the distance from the main station facilities to the new platform, will be provided with its own entrance (from the car park) and a basic range of facilities (toilets, ticket vending machines and news / coffee stands). The proposed layout of the

south bay platform is shown diagrammatically in Figure 30 (Appendix 2, page 154).

- 8.10. The scheme is being developed and funded by Network Rail. At the time of writing, the scheme was at the outline design stage (GRIP 4 in the Network Rail development process). Detailed design and implementation remain unfunded and the scheme is presently on hold pending the outcome of the government Spending Review.
- 8.11. The Order scheme has no direct interface with the South Bay Platform scheme by virtue of the location of the two schemes at opposite ends of the station. However, it is acknowledged that the two schemes cause the station to “spread” in opposite directions with the effect that a passenger arriving on a train at one of the two new platforms created by the order scheme and wishing to make an onward connection with a train from the south bay platform would face a walk of up to 400m between trains. Although this figure is undesirable, it is thought that relatively few passengers will make journeys that involve such an interchange.
- 8.12. The Transfer Deck scheme (which I describe below), will reduce the walking distance by around 50m.
- 8.13. Given the physical constraints of the station site at Oxford, there is no way of reducing this figure without major reconfiguration of the station. This is discussed further in 8.36 below.

TRANSFER DECK

- 8.14. The Transfer Deck scheme is directly related to the South Bay Platform scheme. The South Bay Platform scheme will effectively create a separate station, isolated from the main station by Botley Road.
- 8.15. The Transfer Deck scheme seeks to replace the current footbridge across Botley Road (which was provided when the long stay car park was opened in the early 1990s) with a much wider bridge that will be divided into two sections. The section closest to the railway will be within the paid area³⁷ of the station and will provide a direct link from the new platform to the south end of the existing platform 1.
- 8.16. The other part of the bridge will function in the same way as the existing bridge. It will be available for anyone to use, either as a route from the long stay car park to the main station building or as a means of crossing Botley Road.
- 8.17. The Transfer Deck scheme is being advanced by Oxfordshire County Council. A planning application for the new bridge was submitted in summer 2010. The scheme is proposed to be funded by Oxfordshire County Council using monies from the DfT.
- 8.18. There is no direct link between this proposal and the Order scheme. However, it will make interchange between the new platforms proposed under

³⁷ The term paid area is used to describe the area at a station beyond the ticket gates that is only accessible to ticket holders. The term “unpaid” is sometimes used to describe the areas of the station such as the concourse, forecourt etc that are open to the general public, regardless of whether they hold a ticket or not.

the Order scheme and the proposed South Bay Platform shorter and more direct.

OXFORD AREA RESIGNALLING

- 8.19. The existing signalling equipment of the Didcot – Banbury line is life expired. Network Rail is proposing to install new signalling equipment, controlled from the recently completed Thames Valley Signalling Centre located at Didcot.
- 8.20. Unlike many resignalling schemes, which entail remodelling of track layouts, the Oxford resignalling scheme is proposing to retain the track layout in the Oxford area and will only entail replacement of the signalling equipment.
- 8.21. It is intended that this work will be completed ahead of the completion of the proposed electrification of the line to Oxford described below.
- 8.22. Because the Order scheme will be completed in advance of the proposed resignalling and because the existing signalling system at Oxford is incapable of supporting significant additions or alterations, the signalling on the tracks forming part of the Order scheme has been designed to be largely independent of the signalling on the Didcot – Banbury line. The only direct interface between the two signalling systems occurs between Oxford North Junction and the proposed Woodstock Road Junction, on the so-called “firebreak” line described in 4.112 above.
- 8.23. As a consequence of this, the proposed London Marylebone – Oxford passenger services will not be affected by the resignalling works and will be able to operate normally even when the Didcot – Banbury line has to be closed for engineering works in connection with the resignalling.
- 8.24. The scheme is being undertaken and funded by Network Rail and is currently at GRIP Stage 2 in the Network Rail development process.

ELECTRIFICATION

- 8.25. As part of DfT proposals for the electrification of the Great Western Main Line, it is proposed that the line to Oxford from London Paddington will be electrified by 2016.
- 8.26. The electrification scheme extends as far as Walton Well Road overbridge, to the north of Oxford station and involves the electrification of all running lines and sidings in the Oxford station area except for the Down Jericho line and the new tracks to be constructed as part of the Order scheme.
- 8.27. The scheme is being undertaken and funded by Network Rail and is currently at GRIP Stage 2 in the Network Rail development process.
- 8.28. There is no direct interface between the electrification scheme and the Order scheme. However, at some locations to the north of Oxford station, the support gantries for the new overhead electrification wires might have to span the new tracks proposed as part of the Order scheme. It is expected that any such gantries could be constructed during routine night time closures of the line.
- 8.29. Additionally, the new signalling equipment to be installed as part of the Order scheme in the area adjacent to the proposed electrification works will be

suitable immunised and safe for use with the proposed electrification equipment.

INTERCITY EXPRESS PROGRAMME (IEP)

- 8.30. The Intercity Express Programme (IEP) is a DfT initiative to procure a fleet of trains to replace the existing diesel High Speed Train (HST)³⁸ fleet and the electric locomotive-hauled fleet used on the East Cost Main Line.
- 8.31. The proposed new vehicles will be operated on London – Oxford – Worcester services. It is intended that a 10-car train from London would be split into two 5-car portions at Oxford with one of these going forward to Worcester and the other terminating. In the opposite direction, 5-car portions will be joined at Oxford.
- 8.32. This method of working will consume a considerable amount of platform capacity. As a consequence, in order to maintain adequate capacity for the reliable operation of through services (such as those operated by CrossCountry) at Oxford, two additional through platforms are proposed.
- 8.33. Although proposals are at a very early stage, the new Up (or southbound) platform would be created by extending the present platform 3 southwards, through the site of the current station building. The new Down (or northbound) platform would be build behind the current platform 2, adjacent to Roger Dudman Way. The resulting potential revised layout for the station is shown in Figure 31 (Appendix 2, page 156).
- 8.34. The IEP scheme was suspended in February 2010 pending a review of alternative options. A report was published in July 2010 but a decision on the future of the project has been deferred to October 2010.
- 8.35. Although the future of this project is uncertain, the Order scheme has been designed in a way that facilitates the necessary alterations. The new tracks and platforms forming part of the Order scheme are located to the east of platform 3 and permit its southward extension if necessary. The two new platforms also provide potential alternative platforms that could be used by the services that presently use platform 3, although an additional connection would be required north of Oxford station to provide a link between the new platforms and the Didcot – Oxford line.

STATION REDEVELOPMENT

- 8.36. Oxfordshire County Council is promoting a scheme to redevelop Oxford station. The scheme starts from the premise that the existing station is overcrowded, cramped and poorly laid out and that Oxford deserves a more appropriate gateway to the city.
- 8.37. The scheme is at a very early stage of development and is seeking to develop a “masterplan” for the station site. A core feature of the masterplan is a proposal to demolish the existing station building and replace it with a larger facility located in the area adjacent to the north side of Botley Road that is presently used for cycle parking.

³⁸ Sometimes known as Intercity 125s.

- 8.38. The scheme, if implemented, will enable the southward extension of the two new platforms proposed as part of the Order scheme to accommodate 8-car trains. The desire to extend the new platforms at some future date was a key consideration in the development of the proposals for the new station building.
- 8.39. The station building scheme interfaces with proposals to develop Frideswide Square as the new building will be highly visible from the square. Oxfordshire County Council is also leading the co-ordination of the various projects affecting Frideswide Square.
- 8.40. The Station Redevelopment scheme is presently unfunded.

CONCLUSION

- 8.41. There are a number of schemes currently in development that will affect Oxford station in the coming years. As a result of detailed and on-going engagement with the project teams developing each of these schemes, the Order scheme has been developed in such a way that it does not conflict with any of the schemes and in such a way that will allow the proposed London Marylebone – Oxford train services to continue uninterrupted during the implementation of each of the schemes.

9. CONTRACT ARRANGEMENTS FOR DETAILED DESIGN AND CONSTRUCTION

EVERGREEN 3 DESIGN/BUILD CONTRACT

- 9.1. As part of the 20 years franchise Chiltern Railways is obliged to promote enhancements to the existing railway infrastructure. The Evergreen 3 (EG3) project is the latest in a series of improvements that have been successfully delivered since the present franchise started in 2001.
- 9.2. The EG3 project consists of two distinct parts:
 - The first part is to improve the journey time on the Chiltern Main Line (CML) between London Marylebone and Birmingham Moor Street by approximately 20% by remodelling key junctions, introducing additional passing loops and various Line Speed Increases.
 - The second part is the Bicester to Oxford (BIOX) works which form the Order scheme.
- 9.3. Chiltern Railways competitively tendered the EG3 work in accordance with OJEU rules in April 2009, and at the end of the process awarded an Institution of Civil Engineers (ICE) Design and Build contract for both sections of work to BAM Nuttall (BAMN) on 15 December 2009. This contract was for the fixed sum of approximately £200m and was based upon an output specification with a clearly defined apportionment of residual risk.
- 9.4. BAMN has now substantially finished the design approvals that have allowed construction of the CML works to begin with a target completion date in time for the May 2011 timetable change.
- 9.5. In the event of the Order being successfully granted, BAMN will undertake the BIOX works for a fixed sum with a similar risk allocation to the CML works and an additional opportunity to Value Engineer the proposed works within the constraints of the Output Specification.
- 9.6. The BIOX scope of works is necessarily based upon the current proposals so if a TWA Order were granted that varied the scope of works by either adding or removing specific work items, the ICE Design/Build contract has a Change Request Notification (CRN) mechanism that can easily change the current instructions.
- 9.7. BAMN has already provided costing details for the type of work most likely to result from changes to the Order scheme so the contractual adjustment should be relatively straightforward to implement.

10. CONSTRUCTION PROCESS AND PROGRAMME

PROGRAMME PRINCIPLES

- 10.1. The TWA process has been chosen rather than the traditional planning permissions process primarily because of the unusually high number of level crossings on the Bletchley – Oxford line between Bicester and Oxford (38 on a 12 mile long route), acquisition of the land required for the chord at Bicester and the proposed station and car park works at Bicester Town and Water Eaton Parkway (WEP). It also provides the necessary powers for the temporary (construction) and permanent (railway) land take required to deliver the scheme.
- 10.2. The TWA is a lengthy and involved process which has been undertaken against the finite duration of the Chiltern Railways franchise that runs until 2021. In order to expedite delivery of the EG3 scheme Chiltern Railways will undertake the following activities in advance of the Secretary of State's (SoS) decision at their own commercial risk:
- Detailed design/approval (see GRIP 5 below)
 - Ecological mitigation works
- 10.3. This will ensure that Chiltern Railways will be able to start construction within 1-2 months of the TWA Order being granted.

DESIGN/APPROVALS PROCESS

- 10.4. All work on the UK main line railway infrastructure (whether undertaken by Network Rail or a "third party") must be technically compliant with Network Rail Company Standards and Railway Group Standards. All of the design submissions must therefore be submitted and approved by Network Rail and the working methods agreed before any construction work can begin.
- 10.5. These design submissions generally follow the Network Rail "Guide to Railway Investments Projects" (GRIP) system, which comprises eight stages:
1. Output definition
 2. Pre-feasibility
 3. Option selection
 4. Single option selection
 5. Detailed design
 6. Construction test & commission
 7. Scheme hand back
 8. Project close out
- 10.6. Chiltern Railways developed the design of the Order scheme to a level equivalent to GRIP stage 4 to define the scope of works sufficiently to tender the design/build contract before the TWA was submitted. The detailed design and approval of the Order scheme works will now be undertaken in parallel with the TWA process.

ECOLOGICAL MITIGATION

- 10.7. As part of the TWA documentation Chiltern Railways has prepared an Environmental Statement (CD/1.15 to CD/1.18) which identifies certain

species that may be affected by the Order scheme works. Chiltern Railways is proposing to instigate the mitigation measures that need to be in place before any construction works begin at their own cost in advance of the Order being granted.

- 10.8. This would include the following:
- Relocation of badger setts
 - Relocation of Great Crested Newts (GCN)
 - Provision of additional bat roosts in Wolvercote tunnel
- 10.9. This would ensure that should the Order be granted, the necessary ecological mitigation measures will already have been implemented so that construction work can begin without delay thereafter.

PRE-CONSTRUCTION PROGRAMME

- 10.10. The Public Inquiry starts on 2 November 2010 and is likely to finish before Christmas 2010. Guidance indicates that the Inspector then has 3 days of writing for every day that the Public Inquiry sits, so the expectation is that his report will be submitted to the Secretary of State (SoS) for Transport around the end of March 2011. The SoS generally aims to make a decision within 6 months so the TWA process should be concluded in late summer 2011.
- 10.11. Under a commercial agreement with First Great Western (FGW), Chiltern Railways will assume take over operation of the existing Bicester Town – Oxford passenger train services and operation of Islip and Bicester Town stations in May 2011. This will allow Chiltern Railways to manage the lead up to the planned suspension of passenger services during construction of the works. (It is planned to temporarily suspend train services and provide substitute road transport so that the works can be undertaken substantially more efficiently and quickly than would be the case if train services continued to operate).

CONSTRUCTION PROGRAMME

- 10.12. During the planned closure of the railway, it will be necessary to maintain access to the freight facilities at Banbury Road sidings, MoD Bicester and Calvert landfill site (east of Bicester). This means the route will need to be closed in sections and freight services diverted via Aylesbury.
- 10.13. The proposed closure will allow the works to be delivered on a continuous basis rather than in an extended series of weekend and night time possessions of the railway.
- 10.14. The works can be divided into two main categories of ‘rail’ and ‘construction’ activities; in simple terms the railway works are continuous or systems based activities like permanent way or signalling that extend from one end of the route to the other. By contrast the construction works are more geographically defined structures like bridges, embankment works or station car parks.
- 10.15. The construction blockade is proposed to begin within two months of a positive TWAO decision in say late summer / early autumn 2011. It is currently envisaged that the construction blockade will last approximately 8-9 months but as the detailed design is finalised, the programme will be reviewed to see if this period can be reduced further.

10.16. The works can be summarised as:

Railway Works: Permanent Way (i.e. track)
Telecommunications
Signalling
Electrical systems (including points heating)
Control cabinets etc

Construction Works: Embankment works
Reconstruction / widening of underbridge structures
Construction of new overbridges
Construction of new Footbridges
Tunnel lowering at Wolvercot Tunnel
Station buildings
Car parks

10.17. In order to deliver all of these works within a relatively short blockade period, many of these activities will have to be carried out with BAMN working on multiple construction sites in parallel.

10.18. Rather than starting at one end of the project and working towards the other, Chiltern Railways and BAMN will carefully review probable time durations and agree a strategy which ensures that work at individual locations starts in good time to meet the delivery date rather than for resource levelling purposes.

10.19. The works will be controlled from a main site office located at the Water Eaton Parkway station site with small satellite offices at the site of each of the main engineering works for the respective construction periods.

10.20. The major work packages are described in the following paragraphs.

Earthworks for the chord at Bicester

10.21. The embankment to create the new chord at Bicester which would connect the Chiltern Main Line (above) to the new route to Oxford (below) will require approximately 50,000 m³ of earthworks.

10.22. The chord starts from the existing at ground level and rises to about 6m height as it curves SE to climb onto the 'shoulder' of the existing London Marylebone – Birmingham Moor Street embankment, crossing a brook in the process. The new embankment will be approximately 8m wide at the top to accommodate a double track formation with slopes formed at 1:2 gradient where possible to match the natural repose of the construction materials.

10.23. These materials will be brought to site by road via the Bicester Perimeter Road and Gavray Drive with the frequency of deliveries managed to avoid other traffic in busy periods.

10.24. This is the largest section of work on the scheme so will need to start as soon after the Order has been granted as possible. The earthworks will take three to four months to complete so are likely to start in October 2011 and be complete by March 2012 so that the railway track works and signalling on top of the embankment can be complete by May 2012.

Langford Lane

- 10.25. The replacement road bridge is proposed to be just over 800m to the west of the existing level crossing. The bridge design is for a gravity structure with concrete abutments to support reinforced earth embankments behind. The bridge deck will be of composite construction with steel beams supporting a concrete deck slab and parapets above, with clearances to meet NR railway standards.
- 10.26. Access to the site will be via the western approach road from the Wendlebury – Bicester road which will have to be constructed in advance of the main bridge works. Materials can then be brought in by road and the bridge constructed with standard sized dumper trucks, excavators and mobile crane.
- 10.27. These road and bridge works are likely to start in October 2011 and take approximately four to six months to be complete.

Holts Farm Bridge

- 10.28. The bridge design is for a gravity structure with concrete abutments to support reinforced earth embankments behind. The bridge deck will be of composite construction with steel beams supporting a concrete deck slab and parapets above, with clearances to meet NR railway standards.
- 10.29. Access to the site will be from the southeast via the approach road from Mansmoor Road which will have to be constructed in advance of the main bridge works. Materials can then be brought in by road and the bridge constructed with standard sized dumper trucks, excavators and mobile crane.
- 10.30. New approach roads will be constructed to connect the new bridge with Mansmoor Road to the south and to Holts Farm on the north of the railway. The road construction will generally be below existing ground level to minimise impact on flood storage in this area.
- 10.31. These road and bridge works are likely to start in October 2011 and take four to six months to complete.

Oddington Bridge

- 10.32. The bridge design is for a gravity structure with concrete abutments to support reinforced earth embankments behind. The bridge deck will be of composite construction with steel beams supporting a concrete deck slab and parapets above.
- 10.33. New approach roads will also have to be constructed to connect the new bridge on both sides of the railway to the existing minor road that passes over Oddington level crossing. The road construction will generally be below existing ground level to minimise impact on flood storage in this area.
- 10.34. These road and bridge works are likely to start in October 2011 and take four to six months to be complete by May 2012.

Islip (Mill Lane) Bridge

- 10.35. Access to the site will be from the northwest via Mill Lane. Materials will be brought in by road and the bridge constructed with standard sized dumper trucks, excavators and mobile crane.

- 10.36. These footbridge works are likely to start in October 2011 and take four months to complete.

Repair and deck replacement at Mill Stream Viaduct and River Cherwell Viaduct

- 10.37. Access to the site will be from the Mill Lane and alongside the northwest side of the railway. Materials will be brought in by road and the bridge constructed with standard sized dumper trucks, excavators and mobile crane.

- 10.38. The works are likely to start in October 2011 and take approximately 4 months.

Water Eaton No. 5 bridge

- 10.39. This bridge is similar to those at Oddington and Langford Lane. The construction sequence and programme will be identical.

- 10.40. Access to the site will be taken from Water Eaton lane via the existing farm access roads.

Water Eaton Parkway Enabling Works

- 10.41. The proposed design for the station and car park at Water Eaton Parkway envisages that the existing concrete silos will be demolished and that the aggregate sidings will be re-located to the northeast of the station site.

- 10.42. This preparatory work will have to be completed before construction of the station and car park can begin.

- 10.43. The demolition and re-location works likely to start in October 2011 and take around three months. Works on the main station and car park will begin in early 2012, so that the works can be completion anticipated by May 2012.

Sheepwash Channel Underbridge Widening

- 10.44. The design proposed for the replacement of Sheepwash Bridge is a wider structure in two sections to separate the existing track into Oxford station platform 3 and the new tracks into platforms 4 and 5. The Oxford station area is not included in the proposed closure of the railway and will remain operational throughout the construction period. Works at this site will therefore need to be undertaken around the live railway and during weekend and night time possessions of the railway.

- 10.45. The first section will be installed using a Kirow rail crane in a 52 hour railway possession. The second section is a larger bridge structure that will require new piled foundations. The steelwork above will then have to be assembled again using a Kirow rail crane with main girders followed by crossbeams and composite deck slab then cast in-situ.

- 10.46. Access for this structure will be one of the most challenging to construct because all materials and plant will have to come from the railway as there is no suitable road access. The Sheepwash Channel and its towpath below will have to be closed for safety reasons at certain times in the construction process.

- 10.47. These bridge works are likely to start in October 2011 and take four to six months to be complete. However, the exact timing of these works will be

affected the availability of suitable railway possessions and the exact timing of other aspects of the scheme in the Oxford station area.

TESTING/COMMISSIONING

- 10.48. When the railway works have been completed they will need to undergo a process of testing and commissioning.
- 10.49. The new works will be integrated with the signalling and telecoms systems to ensure that all of the enhancements function correctly within the existing railway infrastructure
- 10.50. This is then followed by the bringing into service stage when all of the safety critical checks and documentation audit are checked and signed off ahead of the commencement of train services.

11. OUTSTANDING ENGINEERING AND CONSTRUCTION OBJECTIONS

11.1. In this section of evidence I shall address the issues raised by various Objectors in respect of engineering and construction matters.

OBJ 214 – BRITISH WATERWAYS BOARD

11.2. British Waterways Board (BWB) has raised a number of concerns in respect of potential works to the Oxford Canal underbridge (underbridge OXD50). This bridge was built to carry two tracks of railway. The current single track railway runs on the east side of the bridge deck. The side of the bridge deck is currently unused. The design of the bridge deck is such that the reinstatement of a second track can be reinstated without the need for the structure to be widened or otherwise altered.

11.3. Initial structural assessment of the bridge indicated that there might be a need to carry out strengthening work to the bridge prior to the reinstatement of the second track. However, further, more detailed, assessment work has shown this not to be the case and the bridge has adequate structural capacity to support the proposed dead and live loads.

11.4. It is possible that while the railway is closed for upgrading, the opportunity might be taken to undertake routine maintenance works at certain bridges on the route. This matter is subject to further discussion with Network Rail and no decision has yet been taken as to whether any such works might be undertaken on the Oxford Canal bridge. Any such works, if undertaken, will be works that Network Rail would routinely undertake using its existing powers.

11.5. Given that no significant works are proposed to be undertaken on this structure, BWB's concerns regarding visual amenity are unfounded.

11.6. BWB raises a number of concerns in relation to works at Castle Mill Stream. The underbridge at Castle Mill Stream (underbridge OXD53) will be subject to strengthening works of a relatively minor nature. The work will involve the repair and reinforcement of a number of the cross girders that are located beneath the part of the bridge that will support the reinstated single track. It is not envisaged that these works will necessitate the dewatering of the stream. However, should it subsequently become apparent that dewatering of the stream is necessary, Chiltern Railways will undertake the works, so far as is reasonable practicable, in a way which does not affect the drainage of the Oxford Canal.

11.7. It will be noted that the section of the stream beneath the bridge is not navigable by virtue of the severely restricted headroom beneath the two railway bridges.

11.8. The works proposed to widen the Rewley Abbey Stream underbridge (underbridge DCL27), will necessitate the closure of the stream (and associated towpath). The exact length of closure and its timing are as yet unknown and will depend partly on the date on which the Order is granted.

- 11.9. Chiltern Railways acknowledges BWB's concerns regarding the timing of any closure of the stream, and if reasonably practicable, will comply with BWB's wishes in respect of avoidance of the cruising season. However, there are a number of constraints that affect the timing of the works at this site and it might not be possible to undertake the works outside of the cruising season without significant detriment to the programming of the construction works as a whole.

OBJ 005 – MR I SALISBURY; OBJ 013 – TRAP GROUND ALLOTMENT ASSOCIATION; OBJ 236 – MR J CLARK

- 11.10. The three objectors raise a number of issues in respect of the closure of the Aristotle Lane level crossing as a consequence of the reinstatement of the railway on the disused railway formation that runs parallel and adjacent to the Didcot – Banbury line between Oxford North Junction and a point to the south of Castle Mill Stream.
- 11.11. Matters relating to the level crossing itself and the proposal by the objectors that Chiltern Railways provide a new level crossing on the reinstated section of track are dealt with in the evidence of Mr Aidan Nelson (CRCL/P/7/A). I shall discuss issues relating to the proposed mitigation works.
- 11.12. The existing Aristotle Lane footbridge is situated approximately 60m to the south of Aristotle Lane level crossing. This bridge provides an alternative route to the allotments via Port Meadow. The route via the footbridge is longer for some allotment holders but the exact length of the route depends on the location of their individual plot or plots.
- 11.13. As described in 4.472 above, Chiltern Railways intends to undertake a range of improvements to the existing route via the footbridge. It is acknowledged that the route via the footbridge involves a significant change in level in order to cross the railway. However, the approach ramps will have an average gradient in the region of 1 in 17, which is within the limits of set out in Highways Agency BD 29/04 for ramps to be used by pedestrians, cyclists and equestrian users.
- 11.14. It is accepted that certain less physically able users might find the alternative route difficult to use, especially when transporting tools, materials or produce. It is for this reason that Chiltern Railways has sought to make available the vehicular route across Port Meadow. The route via the footbridge or via Port Meadow is undoubtedly safer, especially for a physically impaired user, than the existing route across three tracks of railway.
- 11.15. Other options for improving access to the allotments have been considered and have proved not to be possible because of the Statutory Designations applied to Port Meadow and because of the loss of open space that would result.
- 11.16. In summary, the measures proposed in mitigation of the closure of the existing access route from Aristotle Lane to the allotments provide a safe alternative means of access within the constraints at the site.

OBJ 088 – MR P NAPIER

- 11.17. Mr Napier raises several points in his objection in relation to noise and vibration at his home in Quadrangle House. I shall discuss only those aspects of Mr Napier's objection relation to the track form and layout in the vicinity of Quadrangle House. Mr Napier's other concerns are addressed in the evidence of Mr Richard Caten.
- 11.18. The location of the turnout at the proposed Woodstock Road Junction is raised by Mr Napier. The turnout is currently proposed to be located around 70m from Quadrangle House, measured from the closest corner of Quadrangle House. The exact distance varies depending on which part of the turnout the measurement is taken to – my figure is to the centre of the crossing i.e. the point at which two rails cross within the turnout.
- 11.19. Since the Order application was made, Chiltern Railways has investigated moving Woodstock Road Junction further towards Oxford North Junction.
- 11.20. It is only possible to locate turnouts on track that is straight or has a constant curve radius. It is preferable to place turnouts on straight track rather than curved in order to permit the use of standard (rather than bespoke) components. The use of non-standard components increases the cost of the turnout and can be problematic from the point of view of maintenance, as it is generally not practicable to keep in stock a full range of spare components for every bespoke turnout.
- 11.21. The railway corridor through the Wolvercote area is curved and the track geometry necessarily consists of a series of curves of various radii linked by suitable transitions. There are sections of straight track in the vicinity of Quadrangle House and just to the Bicester side of the Oxford Canal underbridge. It would be possible, from a track design perspective, to relocate the junction to the straight section of track near the Oxford Canal bridge without compromising the functionality of the track layout. However, although it is possible to design a workable track layout, it is not possible to design a signalling layout that fits the layout without reducing the length of standage between Woodstock Road Junction and Oxford North Junction below the required length. This is because the curvature of the railway means that adequate sighting distance is not available for signals placed in the necessary locations.
- 11.22. Proposed location of the turnout is, therefore, the only practicable location that provides a layout with the required functionality.
- 11.23. Mr Napier's point regarding train speeds is addressed in 5.21 above.

OBJ 108 – WORCESTER COLLEGE

- 11.24. Worcester College has raised a number of points of objection in relation to the proposed use of a number of parcels of land in their ownership that are located adjacent to or form part of the Peartree Park and Ride site.
- 11.25. At the time of writing, negotiations with Worcester College are ongoing with a view to addressing the College's concerns.
- 11.26. The College suggests that the site is not appropriate for use as a worksite because of it being earmarked for development and because of the potential timing of the use of the site in connection with the Order scheme. This

particular site has been selected for use in connection with the proposed Phase 2A works at Wolvercot Tunnel. This site is particularly well suited to this use because it is possible to create a safe route into the site from the main road network (from the A44 via the Peartree Park & Ride access road) and because the eastern end of the site is at roughly the same level as the railway. This site represents the closest parcel of undeveloped land at the same level as the railway to the tunnel. The option of using other sites was considered but of all of the other potential sites, the distance to be travelled by plant, materials and the workforce was greater. This is of particular relevance given that the route between the tunnel and work site is necessarily along the railway corridor, which adjoins residential properties in this area. Wolvercot Tunnel is one of the few sites where night time working might be unavoidable, making this an even greater consideration.

- 11.27. Since the Order application was prepared, DfT has confirmed that it will make funding available to allow the Phase 2A works to be undertaken concurrently with the Phase 1 works. Given that the development of this site will be subject to the usual planning procedures and their associated timescales, this means that use of the site in connection with the works is likely to be complete ahead of the commencement of any development on the site.
- 11.28. The College suggests that the proposed means of access to the site is inappropriate. The access route would be from the southbound carriageway of the A44 dual carriageway. A vehicle entering the site will turn left into the existing park and ride access road, proceed to the turning circle located prior to the car park entrance, circumnavigate the turning circle and then turn left into the site, just prior to the exit from the access road onto the A44. This avoids the need for vehicles to perform a right turn immediately after joining the access road as this has the potential to lead to delays and possibly accidents if the right turn is blocked by vehicle queuing at the traffic lights at the A44 / access road junction.
- 11.29. In order to minimise disruption to the operation of the park and ride site, Chiltern Railways proposes to avoid the use of the route during peak times and to liaise with the College, the relevant bus companies and Oxfordshire County Council in order to agree an appropriate working method for the use of the access.
- 11.30. Chiltern Railways does not intend to take exclusive rights over the road or to construct any building or other temporary works on the road or to use it for any purpose other than as a means of access to the site.
- 11.31. I therefore conclude that the use of the Worcester College land is justified and that the timing of the works will be such that it is unlikely to conflict with the proposed development of the site. I confirm that Chiltern Railways continues to work with the College to minimise the impacts of its use of the College's land.

OBJ 031 – MR S PRIEST AND MRS R PRIEST; OBJ 032 – MR R C SIMMONDS AND MRS J SIMMONDS

- 11.32. I shall address the aspects of these objections relating to the use of the private road at Mill Farm as a means of construction access. Other aspects of the objection are dealt with in the evidence of Mr Michael Fraser.

- 11.33. Although Chiltern Railways is seeking rights of access along private road from Mill Street to Mill Farm accommodation crossing, this is road will not be used as a primary means of access to the construction works. The only reason for seeking a right of access over the road is in connection with the construction of new fencing at the site of Mill Farm crossing in connection with the closure and removal of this crossing. Access will therefore only be required on a very small number of occasions and by relatively small vehicles that will necessarily be used to deliver fencing materials and operatives to the site.
- 11.34. I therefore conclude that the impacts predicted by objectors as a result of the use of the road for access will not materialise.

OBJ 039 – MICHAEL GRAHAM AND AMANDA ROBERTS

- 11.35. The objectors raise a number of points in their letter of objection and expand on these and include some additional points in their Statement of Case.
- 11.36. Their points relating to the closure of Islip (Mill Lane) level crossing and construction of a replacement means of crossing the railway are dealt with in 4.404 *above*.
- 11.37. The point relating to the speed of trains through Islip is addressed in 5 *above*.
- 11.38. The points raised by the objectors in relation to the use of the private road at Mill Farm are address in my response to OBJ 031 and OBJ 032 in 11.33 *above*.
- 11.39. Other issues raised in this objection are dealt with in the evidence of Mr Ian Gilder.

OBJ 047 – MR F SALUSSOLIA AND MRS M SALUSSOLIA

- 11.40. The aspects of this objection relating to the use of the private road at Mill Farm are dealt with in my response to OBJ 031 and OBJ 032 in 11.33 *above*.
- 11.41. Other matters raised in this objection are dealt with in the evidence of Mr Ian Gilder and Mr Paul Tregear.

OBJ 090 – MRS M ADAMS; OBJ 091 MR AND MRS J & A CONIBEAR; OBJ 125 – MRS E HENEBERY

- 11.42. These objections relate to the bridge proposed in lieu of Islip (Mill Lane) level crossing. The issues raised are dealt with in 4.404 *above*.

OBJ 098 – MR HENRY HORTON

- 11.43. Mr Horton's objection relates to the temporary use and permanent acquisition of certain areas of land in his ownership. Although discussions have been held with Mr Horton and a number of his concerns have been addressed, at the time of writing, not all of the issues raised by Mr Horton have been closed out to his satisfaction.
- 11.44. The land in Mr Horton's ownership is required in connection with embankment works (described at 4.79 *above*) and works at Mill Stream Viaduct (described at 4.66 *above*).
- 11.45. Since the Order application was made, further investigation and design work has led to a reduction in the extent of the earthworks affecting Mr Horton's land. No works are presently envisaged to section of embankment to the

northeast of Mill Stream Viaduct. It will therefore be possible to avoid interference with the newly constructed wall mentioned in Mr Horton's objection and access will instead be taken, as suggested by Mr Horton, from the railway corridor and down the side of the embankment to the southwest of Mill Farm level crossing.

- 11.46. Access to the works at Mill Stream Viaduct will mostly be taken via the railway corridor and land to the northwest side of the railway. However, it will be necessary for some access to the work to be taken via Mr Horton's land.
- 11.47. The embankment works to the southwest of Millstream Viaduct were designed on the basis of regrading the existing embankment slope, necessitating the permanent acquisition of a narrow strip of Mr Horton's land. The exact width of this strip is as yet undefined, pending more detailed survey work that will be undertaken during the detailed design stage. The possibility of avoiding the need to acquire this land by utilising an alternative form of construction is currently being investigated. However, from work that has been completed at the time of writing, it is likely that the viable alternatives will incur greater costs to an extent that cannot be justified.
- 11.48. Any permanent acquisition of Mr Horton's land will be kept to the minimum necessary to accommodate the works. The area of Mr Horton's land used for access will be kept to the minimum necessary to ensure a safe and efficient means of access to the work site.
- 11.49. On the matter of fencing of the proposed access routes and working areas, Chiltern Railways would expect to provide temporary fencing that would delineate the boundaries of the work site and dissuade the workforce from straying out of this area. The fence will also be suitable to prevent livestock from gaining access to the site. Chiltern will discuss the specific type of fencing to be used with Mr Horton (as it will with other similarly affected landowners) with a view to establishing a mutually agreeable fencing specification that addresses Mr Horton's concerns in respect of privacy and security of his house and garden.
- 11.50. Mr Horton expresses a wish for underbridge OXD45 not to be blocked so that the opportunity to gain access to land on the opposite side of the railway at some point in the future is not lost to him. The scheme does not propose to block access to this structure or to fill it in.
- 11.51. Mr Horton's objection specifically questions the justification for inclusion of land parcels 19013 and 19012 within the limits of deviation. Both of these parcels of land have been included to allow a degree of flexibility in the detailed design of the railway works and to facilitate access to the existing railway infrastructure during the implementation of the scheme.
- 11.52. In summary, I believe that it will be possible to conclude an agreement with Mr Horton that will be to the satisfaction of both parties.
- 11.53. OBJ 183 – The Church Commissioners for England
- 11.54. This objection raises particular concerns with the justification for and the impact of the acquisition of certain parcels of land and the acquisition of rights over certain parcels of land owned by the Church Commissioners for

England. It also questions the justification for the closure of level crossings and raises concerns regarding the impacts of those closures.

- 11.55. The powers to acquire land and rights over land will only be acquired to the extent necessary to implement the scheme in a safe and efficient manner. The majority of the land parcels that are in the ownership of the Church Commissioners for England are required to facilitate access to the works. Due to the scale and nature of the works proposed to the River Cherwell Viaduct and Mill Stream Viaduct and in light of the relatively difficult terrain, which is susceptible to flooding, in the vicinity of these two structures, it has been necessary to seek powers over a relatively large area of land in order to allow some flexibility in means of access and positioning of plant and equipment during the execution of these works.
- 11.56. Two of the parcels of land are required for ecological mitigation works. The choice of locations for these works is severely constrained by the specific needs of the particular species to which the works relate.
- 11.57. The justification for the closure of level crossings is given in the evidence of Mr Aidan Nelson.
- 11.58. Although the objection does not identify specific level crossings, I must assume (by virtue of the locations of the objector's land holding) that the issues raised in this regard relate to Mill Farm accommodation crossing and Islip (Mill Lane) level crossing. The issues relating to Islip (Mill Lane) level crossing are set out in 4.404 above. The issues surrounding Mill Farm crossing are discussed in 4.420 and 4.421 above.
- 11.59. In conclusion, the acquisition of land and rights over land is justified by the scale and nature of the proposed works. The extent to which the rights will be exercised will be kept to the minimum necessary for the safe and efficient implementation of the scheme. The provision of alternative means of crossing the railway in lieu of the two crossings to be closed at Islip cannot be justified because of the impact that any additional bridge would have on adjoining residential properties and the wider landscape and because the existing road bridges in Islip already provide an alternative means of crossing the railway.

OBJ 222 – MR STEPHEN AND MRS ANITA UNWIN

- 11.60. I shall address the parts of this objection that relate to the suitability of the proposed alternative means of access to Brookfurlong Farmhouse and the acquisition of rights of access over land in the freehold ownership of Mr and Mrs Unwin.
- 11.61. In mitigation of the closure of Brookfurlong level crossing, it is intended to provide a right of access via an alternative track that leads to Bletchingdon Road. Mr and Mrs Unwin raise a number of concerns in relation to the suitability of this track as a result of the current nature and condition of the surface of this track, the nature of the current means of crossing a brook and drainage ditches and the route's susceptibility to flooding. Chiltern Railways intends to upgrade this existing track to a standard that is fit for the envisaged type and level of use. As part of this work, areas of the track susceptible to flooding will be raised and the crossings of the brook and drainage ditches will

be improved. The junction of this track with Bletchington Road will be investigated and if the junction is found to be deficient, it will, if practicable, be improved. Once upgraded, the alternative route to Brookfurlong House will provide a satisfactory alternative to the existing route via the level crossing.

- 11.62. With regard to the right of access over certain areas of land in the ownership of Mr and Mrs Unwin, I can confirm that any such rights will only be exercised to the extent necessary to ensure the safe and efficient execution of the works to construct the Order scheme. The access track from Bletchington Road will not be used for construction traffic associated with the main railway works and will only be used by traffic engaged in the implementation of the proposed improvements to this track.

OBJ184 – MR MARK HOWARD; OBJ 185 – MR G AND MRS N HONOUR; OBJ 241 – MR PAUL MILLER

- 11.63. These three objections all relate to the impact of the closure of accommodation crossings to the southwest of the M40 overbridge and to the proposed mitigation measures.

- 11.64. The engineering issues relating to these objections are discussed in 4.351 above.

- 11.65. The justification for the closure of the relevant crossings is described in the evidence of Mr Aidan Nelson.

- 11.66. In summary, given the considerable constraints in this area brought about by the SSSI designation conferred on areas of land on both sides of the railway in the vicinity of the affected crossings, and the need to minimise the length of diversion to which users of the public bridleway presently routed over Beebont crossing are subjected, the proposed solution is the most appropriate. Numerous other solutions have been considered but none provides a practicable alternative to that proposed as part of the Order scheme.

OBJ 192 – THE NORMAN TRUST; OBJ 249 J J GALLAGHER LIMITED; OBJ 257 LONDON & METROPOLITAN INTERNATIONAL DEVELOPMENTS LIMITED

- 11.67. These three objections relate to land at Gavray Drive over which powers of compulsory acquisition are sought. The land is required for the construction of the Bicester Chord and associated infrastructure. A further area of land is required temporarily as a work site in connection with the construction of the Bicester Chord.

- 11.68. An area of land was safeguarded in the Local Plan for the construction of the chord. This safeguarding is also referred to in the outline planning consent obtained for housing development on adjoining land between the railway and Gavray Drive.

- 11.69. The original safeguarding was based on very early development work undertaken in 2002/03. This work envisaged a single-track railway being constructed to link the London Marylebone – Birmingham Moor Street lines. Although design work was undertaken to determine the area of land required, this was at a very high level and based on limited site investigation and survey work.

- 11.70. As described in 3 above, when development of the Order scheme began in earnest in 2008, it was quickly established that building the chord line as a single rather than double track railway would impose undesirable operational constraints on the completed railway. In particular, the presence of a single track railway between Bicester South Junction and Gavray Junction could lead to Oxford bound trains having to wait on the London – Birmingham line for a path over the chord leading to delays to Birmingham bound trains. In the longer term, trains to London from Oxford could delay East West Rail services to destinations east of Bicester in the same way.
- 11.71. The design work that led to the identification of the land required for the Order scheme attempted to minimise the land required for the construction of the chord line without unduly constraining the functionality of the railway.
- 11.72. The design work was based on survey information to a greater level of accuracy than had been available for the initial, 2003 design. At the time of the application, it was believed that the permanent works had been constrained within the land that was reserved for the chord line. However, it subsequently became apparent that the extent of the land reserved was ambiguous and closer examination of various planning documents revealed differing view on the boundary of the reserved land lies.
- 11.73. Subsequent discussion with J J Gallagher Limited has revealed that the permanent works of the Order scheme appear to conflict in certain areas with parts of the proposed housing development. Chiltern Railways has undertaken further design work in a n attempt to find a viable engineering solution to this conflict. The solutions examined entailed the construction of a retaining wall at the toe of the chord earthworks in the area of conflict in order to reduce the land required for the Chord. However, any such retaining wall requires clear, unobstructed access to permit inspection and maintenance activities to take place. This results in the retaining wall having to be higher than would be the case if the wall was constructed adjacent to the boundary of the proposed housing. The cost of providing a wall that removes the area of conflict was found to be disproportionately high. Such a wall would also place additional maintenance liabilities on the railway operator. Chiltern Railways has therefore decided not pursue the option of providing such a retaining wall and is instead seeking to acquire the land identified in the Order application.

12. CONCLUSIONS

- 12.1. In my evidence I have described the engineering features of the Order scheme and the process by which the detail of the scheme has been developed.
- 12.2. I conclude that the scheme has been subject to a rigorous development and design process and the professional skill and care has been used in this process.
- 12.3. For each of the main features of the scheme, a number of options have been considered and in each case the most appropriate solution has been selected taking into account the various constraints, physical or otherwise, at each site.
- 12.4. The order scheme has been engineered to an appropriate specification to ensure compliance with current standards and with industry best practice. The chosen engineering solutions will provide a railway that can reliably deliver the proposed train services and meet the aims of the scheme. The proposals allow for the safe and efficient construction, maintenance and operation of the railway. That part of the scheme that involves the existing Bletchley – Oxford railway provides for the reconstruction of that railway in modern form to make it fit for its intended role as part of a modern, efficient transport system.
- 12.5. My evidence has addressed Statement of Matters (X/4) 2, 3 and 4 by justifying the proposals in the draft TWA Order, explaining the main alternatives considered by Chiltern Railways for the main engineering aspects of the scheme and by setting out the justification for the conferring of powers compulsorily to acquire and use land for the purposes of the scheme.