

# A47 DUALLING – NORTH TUDDENHAM TO EASTON

Scheme no. TR010038

## TRANSPORT CONSULTANT'S REPORT FOR Mr [REDACTED]

IP reference 2002/8353



ACM 04

August 2021

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning  
(Examination Procedure) Rules 2010  
Regulation 10**

The A47 North Tuddenham to Easton  
Development Consent Order

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**TRANSPORT CONSULTANT'S REPORT**

**By Malcolm Foster BA(Hons), DipT. CMILT. MCIHT of Neptune  
Transport Planning**

**For** [REDACTED]

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Application reference: TR 010038

Interested Party reference: 2002/8353

Document reference: ACM 04

Date: August 2021



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# A47 North Tuddenham to Easton Dualling, DCO

Transport Written Representations (on  
behalf of the [REDACTED])

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Client: [REDACTED]  
August 2021



**Neptune Transport Planning**

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# 1. Introduction

## Background

- 1.1 Neptune Transport Planning Limited (NTP) were instructed in June 2021 by [REDACTED] to undertake a transport and highways review of the Highways England<sup>1</sup> A47 North Tuddenham to Easton Dualling scheme (**the scheme**).
- 1.2 The scheme will upgrade the section of the A47 between North Tuddenham and Easton, west of Norwich, to a new dual carriageway running south of the existing A47 at Hockering and to the north of the existing A47 at Honingham. The scheme has been submitted to the Secretary of State for Transport via the Planning Inspectorate for a Development Consent Order (DCO).

## Report Purpose

- 1.3 This report reviews the current scheme and the key supporting documents and seeks to identify potential changes to the current proposals, in the vicinity of the [REDACTED]. It proposes alternative options that would reduce the current impacts whilst still meeting the schemes key objectives.

## Roles and Responsibilities

- 1.4 The Transport Planning review has been led by Malcolm Foster (Director, NTP). Malcolm Foster (BA(Hons), DipT, CMILT, MCIHT) has extensive experience in leading and coordinating transport and highways inputs across all sectors and land uses. He advises private and public sector clients throughout the planning process and leads transport negotiations with inputs ranging from feasibility and master planning advice, planning applications, negotiations with Highway and Planning Authorities and inputs to legal agreements through to design. Following six years at WSP, sixteen years at AECOM and more than twenty years as an experienced project director leading, managing and coordinating transport inputs and multi-disciplinary services on major developments for large global consultancies, Malcolm founded Neptune Transport Planning Limited in 2020.
- 1.5 To assist NTP, the client has also instructed RPS to provide highways design services and advice. Highways design inputs have been provided by Joe Ellis (Director, RPS). Joe Ellis (BSc (Hons) MSc CEng MICE MCIHT) worked with Malcolm

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<sup>1</sup> In August 2021, Highways England changed their name to National Highways. The prior name is used in the remainder of this document as the name used on the Application documents.

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at WSP and now leads and manages RPS's transport planning and associated engineering advisory services, supporting clients in the property and infrastructure sectors to support schemes from inception, through planning, and then implementation.

## Contents of this Report

- 1.6 Following this introduction, the current situation and submitted DCO scheme is set out in section 2. A review of the scheme, its design development and key consultations is set out in section 3 with potential alternative options including alignment and junction form presented in section 4. A review of potential operational impacts is provided in section 5 with a summary of temporary construction impacts set out in section 6.

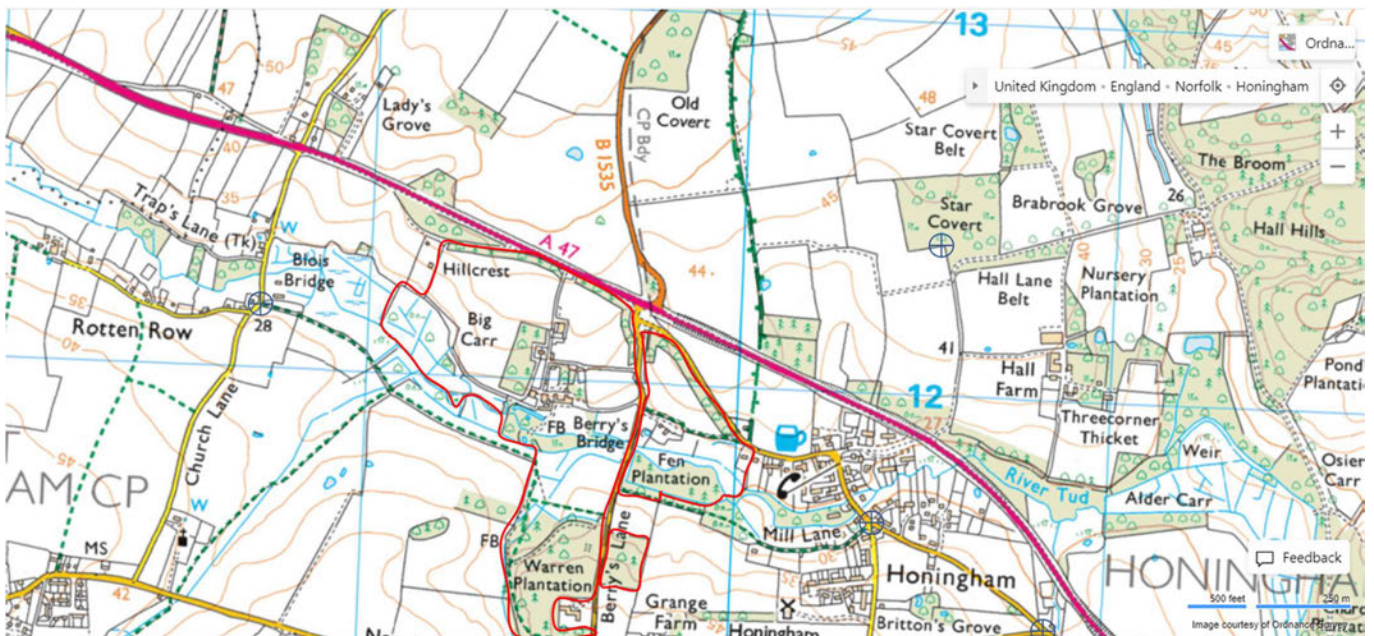


## 2. Current Situation & The DCO Scheme

### Existing Situation

- 2.1 The existing road network is shown below in Figure 2.1 with the Management Plan Boundary outlined in red which encompasses land owned by the [REDACTED] and the Merrywood settlement<sup>2</sup>.
- 2.2 The Estate comprises some 125 acres (50.5 ha) of land in agricultural use and as a forestry estate. It is situated to the west of the village of Honingham and approximately 8 miles west of Norwich. The Estate is bounded to the north by the existing A47, to which the Estate benefits from a private right of way.

Figure 2.1 – Existing Road Network



### The DCO Scheme

- 2.3 The section from North Tuddenham to Easton is located on the A47 to the west of Norwich, and forms part of the main arterial highway route connecting Norwich and Great Yarmouth to Kings Lynn, and then on to Peterborough, Leicester and the Midlands.

<sup>2</sup> This is a settlement created by [REDACTED] 2003 in accordance with his Undertakings to HMRC upon the designation of the Estate as a Heritage Asset, to provide funding for its future maintenance. [REDACTED], [REDACTED] and one other are the Trustees. Merrywood House has been transferred to the settlement.



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- 2.4 The scheme proposes 9km of new dual carriageway, running to the south of the existing A47 at Hockering and north of the existing A47 at Honingham. Studies have identified that this single carriageway section of the A47 no longer meets the needs of its users. It acts as a bottleneck, resulting in congestion that leads to longer journey times, and has a poor safety record.
- 2.5 The scheme is intended to relieve congestion, reduce journey times, encourage economic growth, improve road safety and improve our customers' experience. Further details on how the Scheme meets these objectives can be found in the Case for the Scheme<sup>3</sup>.
- 2.6 The A47 North Tuddenham to Easton dualling scheme forms part of the Roads Investment Strategy (RIS) commitments - the RIS sets out sets out Highways England plans for motorways and major roads.
- 2.7 The key objectives of the Applicant for Scheme<sup>4</sup> are:
- Supporting economic growth: reduce congestion related delay, improve journey time reliability and increase the overall capacity for future traffic growth to help enable regional development and growth in Norwich and its surrounding area
  - A safer and reliable network: improve safety for all road users and those living in the local area by improving safety issues at junctions along the A47.
  - Improve user satisfaction by quicker and more reliable journeys
  - A more free-flowing network: increase resilience in coping with incidents such as collisions, breakdowns, maintenance and extreme weather. Support the smooth flow of traffic and improve journey times reliability by maximising the operational capability at the junctions and along the 9km carriageway
  - Improved environment: protect the environment by minimising adverse impacts and, where possible, deliver benefits
  - An accessible and integrated network: ensure the new road layout considers local communities and safe access to the A47. Provide a safer route between communities for cyclists, walkers, horse-riders and other vulnerable users of the network, taking into consideration how their requirements can be addressed with improved connectivity
  - Value for money: ensure the Scheme is affordable and delivers good value for money.

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<sup>3</sup> TR010038/APP-140 Highways England 7.1 Case for the Scheme

<sup>4</sup> TR010038/APP-003 Highways England 1.3 Introduction to the Application

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2.8 The layout extents are shown on the Location Plan<sup>5</sup> with further detail provided on the General Arrangement Plans<sup>6</sup>. A detailed description of the Scheme is provided in Chapter 2 The Proposed Scheme of the Environmental Statement<sup>7</sup>.

2.9 In summary, the Scheme comprises:

- 9km of new dual carriageway, running to the south of the existing A47 at Hockering and north of the existing A47 at Honingham
- two new junctions where the A47 passes over the local roads: one where Berry's Lane meets Wood Lane (Wood Lane junction) and one where Blind Lane meets Taverham Road (Norwich Road junction)
- removal of the existing roundabout at Easton to create a free-flowing road
- building four bridges for the A47 to pass over or under: the new Mattishall Lane Link Road, the proposed Wood Lane junction, the River Tud and the proposed Norwich Road junction
- Sandy Lane connecting to the A47 via a new side road providing access to Wood Lane junction
- two new lay-bys on the A47, between Fox Lane and the proposed Wood Lane junction
- closure to through traffic of: Church Lane (East Tuddenham), Berry's Lane, Blind Lane and Church Lane (Easton), north of the A47
- widening of the junction of Rotten Row and Church Lane (East Tuddenham)
- converting sections of the existing A47 for local needs, such as
  - converting it to a Class B road north of Honingham, with a new cycle track between and the new Dereham Road link road and Honingham roundabout
  - reducing to a single lane in front of St Andrews church, Honingham, with inclusion of passing places, parking places, turning area and security gate
  - alterations to existing public rights of way and provision of new segregated routes for walkers and cyclists, including:
    - a new route for walkers and cyclists linking Honingham with St Andrew's Church across the A47 via the proposed Honingham Church underpass
    - a new route for walkers and cyclists linking Easton with Lower Easton across the A47 via the proposed Easton footbridge

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<sup>5</sup> TR010038/APP-004 Highways England 2.1 Location Plan

<sup>6</sup> TR010038/APP-005 Highways England 2.2 (8of23 & 9of23) DCO General Arrangement Plans

<sup>7</sup> TR010038/APP-041 Highways England 6.1 Chapter 2 The Proposed Scheme of the Environmental Statement

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- site compounds, storage areas and temporary vehicle parking located within the scheme boundary when construction is taking place.

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## 3. Scheme Review & Design Development

### Background

3.1 A review of key A47 North Tuddenham to Easton documents of particular relevance to highways and transport has been undertaken. These included the following documents held on the Highways England and Planning Inspectorate websites:

- TR010038/APP-025 Highways England 5.2 Public Consultation Report Aug 2017 (Highways England website – 2017 Consultation)
- TR010038/APP-025 Highways England 5.2 Preferred Route Announcement Aug 2017 (Highways England website – 2017 Consultation)
- HEA47 IMPS2-AMY-TE-ZZ-DO-L-0006 Scheme Assessment Report dated 15 December 2017 and approved 5 February 2020 (Highways England website – 2020 Consultation)
- TR010038/APP-135 Highways England 6.5 EIA Scoping Report, PCF Stage 3 Sep 2019 (Planning Inspectorate – Pre- Application documents)
- HE551489-GTY-HGN-000-RP-CH-30001 Junction & Sideroad Strategy Report Feb 2020 (Highways England website – 2020 Consultation)
- HE551489-GTY-EGN-000-RP-LX-30004 Preliminary Environmental Information Report, Feb 2020 – Non-Technical Summary (Highways England website – 2020 Consultation)
- HE551489-GTY-EGN-000-RP-LX-30003 Preliminary Environmental Information Report, Feb 2020 – PEIR (Highways England website – 2020 Consultation)
- DCO submission, dwg no HE551489-GTY-HML-000-SK-CH-30044-C03 General Scheme Layout for Consultation Dec 2020
- TR010038/APP-036 Highways England 5.2 Project Update Winter 2020 (Highways England website – 2020 Consultation)
- TR010038/APP-038 Highways England 5.2 Consultation Report Annex O: Table Evidencing Regard had to Targeted Consultation and Project Update Responses
- TR010038/APP-140 Highways England 7.1 Case for the Scheme
- TR010038/APP-142 Highways England 7.3 Scheme Design Report
- TR010038/APP-005/2.2 (8of23 & 9of23) DCO General Arrangement Plans



## Timeline of Consultations and Design Development

- 3.2 A timeline of the design development and consultations with the public and with [REDACTED] is provided in the written representations which this Report accompanies.
- 3.3 A summary timeline is provided below, in advance of a review of the route alignment and Wood Lane junction design, which is provided in the following sections, based on the above documents.

**Table 3.1 – Consultation and Design Development Timeline**

<i>Date</i>	<i>Description</i>
Mar-Apr 2017	<i>Fourteen potential A47 route alignment options were developed and assessed in 2017. A non-statutory public consultation was held to seek views on 4 shortlisted alignment options.</i>
Aug 2017	<i>Consultation report issued by HE giving option 2 as the most supported. The report confirms that while the preferred route preliminary design is being developed, detailed consultation with landowners and stakeholders will be undertaken which will help shape its preliminary design (Para 14.2.5, Page 62)</i>
Aug 2017	<i>Preferred Route Announcement issued by HE with an amended version of Option 2 as the Preferred Route, which runs offline north of Honningham and south of Hockering but close to the existing A47 at [REDACTED]. The plan of Option 2 on the Announcement shows a new proposed junction added at Sandy Lane where the mainline crosses the existing A47. There is no Wood Lane Grade-Separated junction in the proposals.</i>
July 2019	<i>NWL preferred route announced by Norfolk County Council (Eastern Daily Press 5 July 2019 for Cabinet meeting the following week). The route is Option C of the four considered for the NWL and is planned to join the A47 at Wood Lane.</i>
Sept 2019	<i>EIA Scoping Report (PCF stage 3) issued by HE to the Planning Inspectorate, showing the proposed scheme on plans as being the same amended option 2 route as planned when the preferred route announcement was published in August 2017, with a junction at Sandy Lane / Church Lane (Fig 1-1 on page 2).</i>
Nov 2019	<i>Inspector’s Scoping Opinion issued, in which full details of the junctions and the construction compounds and storage bunds were requested as they had not been provided by HE in the Scoping Report (paras 2.3.2 and 2.3.3).</i>
27 Jan 2020	<i>James Powis of HE visit to [REDACTED] when a new plan was shown to [REDACTED] for the first time showing a new junction at Wood Lane (instead of Sandy Lane) in order to join with the proposed NWL, which for the first time would require land to be taken from [REDACTED]. [REDACTED] was told that the statutory consultation on this proposal would be in spring 2020.</i>
Feb 2020	<i>HE’s Junction and Sideroad strategy Report is issued. This confirms that the earlier preferred amended route 2 had been published (fig 1-1) (the “PRA alignment”) and that the central junction is shown at Sandy Lane / Church Lane (para 1.1). It continues (at para 1.2), to say that the purpose of the Report is to provide a technical recommendation on the Junction layout “at the 3 proposed junction locations announced at PRA”, with</i>

	<p>allowance for the NWL scheme which had announced Preferred Route Alignments in July 2019. The rest of the report then describes just two junctions:</p> <ul style="list-style-type: none"> <li>- A central junction not at Sandy Lane but at a new location at Wood Lane (paras 2.4.1, 2.5.1 and 2.6.1) with the options considered for it being at grade, compact grade separated and fully grade separated. No mention is made of the change of location;</li> <li>- An eastern junction at Norwich Road;</li> </ul> <p>The grade separated choice for the Wood Lane junction is shown in drawings at paras 5.4.6 to 5.4.9 with a two-dumbbell layout and an access road to [REDACTED] rear drive and to Hillcrest running west from the south dumbbell of the junction. No other grade separated options were shown.</p>
Feb 2020	<p><i>Statutory Consultation brochure issued.</i></p> <p>This brochure explains a number of changes from the Aug 2017 announced amended option 2 to reach the revised option 2 but not the moving of the location of the central junction. It shows the two new junctions at Wood Lane and Norwich Road as per the Junctions and Sideroads report of Feb 2020 (with no alternative options shown or described) but no compounds or storage bunds shown.</p>
24 Feb 2020	<p><i>Statutory consultation begins, on the revised option 2.</i></p>
1 April 2020	<p><i>Savills' letter for [REDACTED] to HE</i> responding to the statutory consultation. The letter confirms the Heritage designation of the Estate and that there had been no previous consultation on the now proposed junction at Wood Lane. It goes on to say that the Scheme has had a material change and that given that, its suitability should be reassessed. It also proposes that the junction be moved approx. 100m to the north to avoid impacting the Heritage Asset (being the whole Estate). There was no substantive reply to Savills' letter.</p>
9 Dec 2020	<p><i>James Powis sends plan to [REDACTED] Savills</i> to inform the meeting - this shows the current DCO proposal for the Wood Lane Junction still in the same location but amended in some respects from the Feb 2020 revised option 2. The proposal now includes stopping up the estate's north drive to the A47 without an alternative being provided and also removes the previous connection from Church Lane to Berry's Lane. The proposal includes for the first time two construction compounds and one minerals storage / processing compound on the [REDACTED] land, taking together a significant proportion of the Estate's arable land. Mr Powis apologises for not sending this to [REDACTED] before the publication of the Winter 2020 Project update leaflet.</p>
15 Mar 2021	<p><i>Application letter sent to the Planning Inspectorate by HE with DCO application.</i></p>

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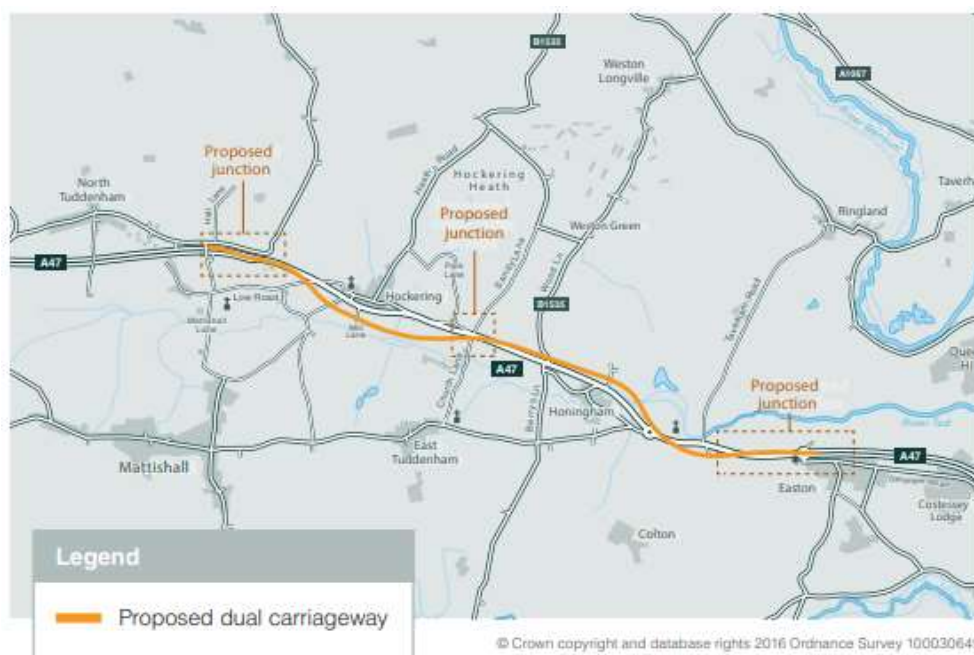
## Route Alignment

- 3.4 Fourteen potential A47 route alignment options were developed and assessed in 2017 to identify their performance against environmental, engineering, transportation and economic criteria. A public consultation was held to seek views on four different alignments. Options 1,3, 4 and 6 were renumbered;
- Option 1 – offline to north
  - Option 2 – online following A47
  - Option 3 – offline to south and north
  - Option 4 – offline to south
- 3.5 Following consideration of a number of factors including: safety, economic benefit, public consultation feedback, costs, environmental effects, construction, the preferred route was announced in August 2017 as being what was described as an amended version of Option 2<sup>8</sup>.
- 3.6 The original Option 2 was concluded to address the traffic and safety problems and to have the least impact on the environment.
- 3.7 As a result of feedback received at the consultation, Option 2 was refined to create the amended version by taking the route away from the existing A47 to the south of Hockering and to the north of Honingham (see Figure 3.1). The preferred alignment runs as close to the existing A47 as practicable but moves away from the existing highway corridor as the route passes to the south of the village of Hockering. The original option 2 was identified as the environmentally preferred option but as the 4th best performing option in terms of Transport Assessment due to shorter route options. The engineering assessment concluded this option difficult to construct as it was online and due to increased phasing and traffic management requirements, and it ranked 12th in economic assessment.
- 3.8 There was no junction at all at the mid-point of the route in the initial proposals.
- 3.9 The amended version of Option 2 announced as the preferred route included the concept of a junction at Sandy Lane but without any details (see Figure 3.1).

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<sup>8</sup> TR010038/APP-025 Highways England 5.2 Preferred Route Announcement Aug 2017

Figure 3.1 – Preferred Route Alignment<sup>9</sup>



## Wood Lane Interchange

- 3.10 The proposal for a new junction at Wood Lane (instead of Sandy Lane) appears to have arisen some two years later, following the announcement in July 2019 of a preferred route for the proposed NWL. HE's Junction and Sideroad strategy Report was issued in February 2020<sup>10</sup>.
- 3.11 A central junction not at Sandy Lane but at a new location at Wood Lane is proposed with the options considered for it being at grade, compact grade separated and fully grade separated. From these a fully grade-separated junction was chosen.
- 3.12 The grade separated choice for the Wood Lane junction is shown in drawings at paras 5.4.6 to 5.4.9 with a two-dumbbell layout and an access road to [REDACTED] rear drive and to Hillcrest running west from the south dumbbell of the junction.
- 3.13 A second consultation then took place in February 2020 which, for the first time, includes the new Wood Lane junction. No alternative grade-separated options other than that proposed were the subject of any consultation (or even reported).
- 3.14 Following the consultation feedback, engagement with the local authority and affected local parishes, the following changes to the new plans were proposed:

<sup>9</sup> See above for source document.

<sup>10</sup> HE551489-GTY-HGN-000-RP-CH-30001 Junction & Sideroad Strategy Report Feb 2020



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- added an underpass for traffic, walkers and cyclists at Mattishall Lane;
  - removed the Church Lane underpass and link road;
  - closed Berry's Lane to through traffic and changed the Wood Lane southern junction into Dereham to reuse more of the existing A47 road;
  - added a walking and cycling link from Honingham to St Andrews Church via an underpass under the A47
  - relocated the Norwich Road Junction 150m eastwards to reduce the new road's impact on the church and keep the farm access.

3.15 The current proposed layout for the Wood Lane interchange is shown in Figure 3.2 and comprises a new grade separated junction with connections to the existing local road network. The junction takes the form of a dumbbell junction configuration. Roundabouts are located north and south of the mainline to enable road users to leave or join the mainline and access the local sideroad network. The HE states that both roundabouts are positioned in cutting with the mainline rising up on embankment in order to provide sufficient clearance between the mainline and links between the proposed roundabouts. The southern part of the junction actually appears to be embanked above Estate land. The scheme proposes to:

- connect Sandy Lane to the A47 via a new side road, to the north of the new A47 mainline, with access to the new Wood Lane junction.
- keep the existing A47, to the east of the junction, for local use and new routes for walkers, cyclists and horse riders alongside the A47 where possible, with abandoned sections to be landscaped
- constructing a new underpass for walkers and cyclists as the proposed A47 cuts across an existing public right of way
- a new separate route for walkers and cyclists linking Honingham with St Andrews Church via an underpass below the A47
- compounds, storage areas and temporary vehicle parking etc. to the south of the existing A47 on the Estate's land whilst construction is taking place.

3.16 The rationale for the proposed junction was presented in February 2020 in the 'A47 North Tuddenham to Easton Junction & Sideroad Report, Highways England 2020'. This report explained the need for a fully grade separated option 'to support our aim to create a more free flowing, safe and serviceable, integrated network'. However, it did not detail or justify why the proposed online dumbbell roundabout option was preferred over an offset option or single roundabout two bridge option.

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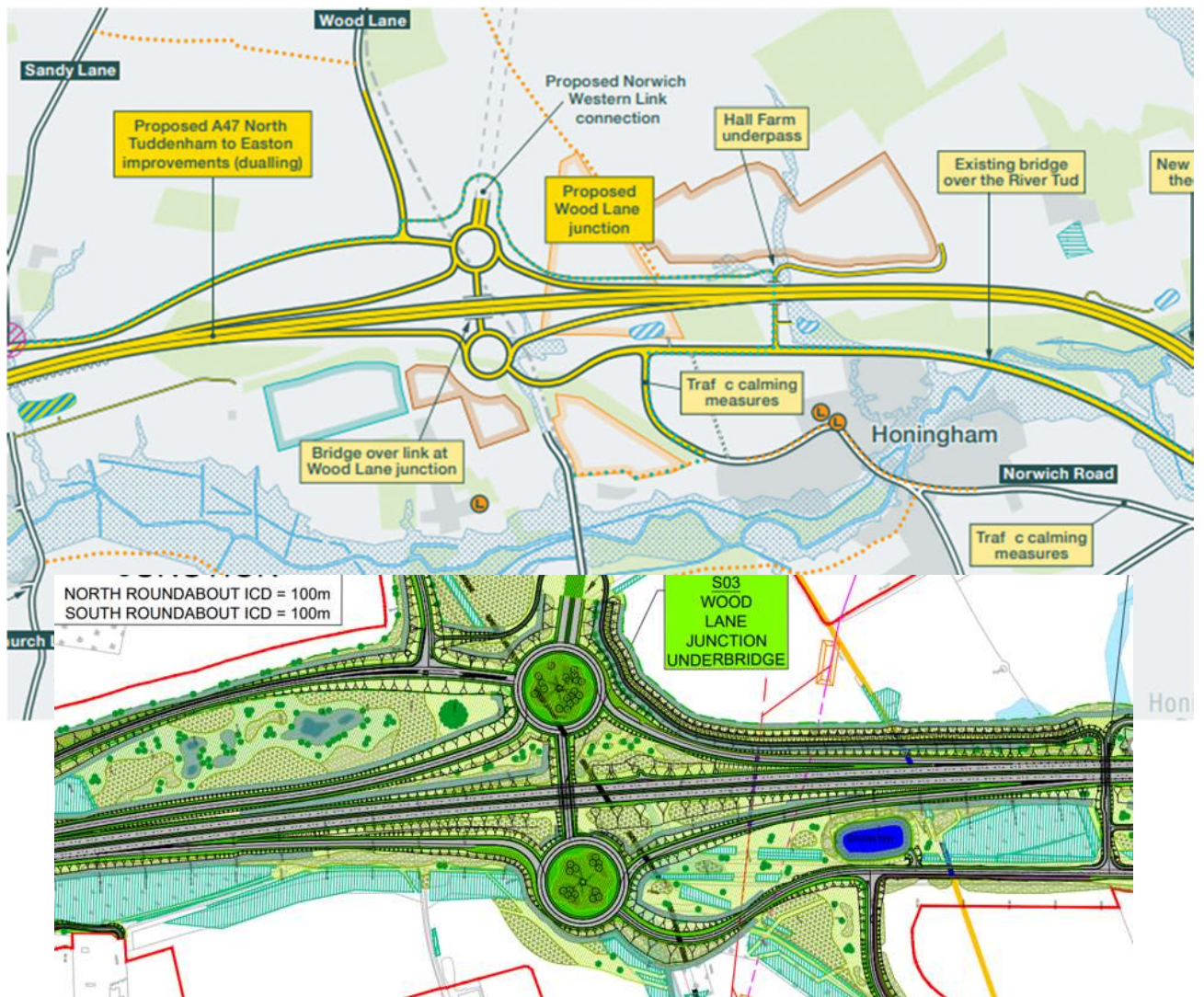
3.17 The proposed design for the Wood Lane interchange<sup>11</sup> (is shown in Figure 3.2). An initial review of the design by Neptune Transport Planning has identified the following concerns;

- The rationale for the proposed junction was presented in the HE Junctions & Sideroad Strategy Report (Highways England) and the report explained the need for a fully grade separated option ‘to support our aim to create a more free flowing, safe and serviceable, integrated network’. However, it did not detail or justify why the proposed online dumbbell roundabout option was preferred over an offset option or single roundabout two bridge option which would have a smaller footprint and offer a potentially more efficient solution.
- The new links approaches from Sandy Lane / Wood Lane and Honingham and the NWL stub have been designed with inadequate entry deflection and no flared entry width.
- There are two circulating traffic lanes shown for both roundabouts but the link road between the two roundabouts at the Wood Lane junction is proposed as a single carriageway with one lane in each direction through an underpass beneath the dualled A47. This could result in a potential bottle neck. Norfolk County Council (NCC) have raised concerns about the capacity of this, its possible future long-term capacity and also about its resilience should there be an incident on the underpass.
- Furthermore, NCC point out that this part of the network is proposed to form part of the local, non-trunk road network and future maintenance and management would fall to the county council. Accordingly, NCC would need to be assured that it’s design can accommodate future traffic flows (as it is through an underpass it would be difficult / expensive to widen in the future) and that the network can be properly managed in the event of any incidents occurring in the underpass.

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<sup>11</sup>DCO submission, dwg no HE551489-GTY-HML-000-SK-CH-30044-C03

Figure 3.2 – Proposed Wood Lane Interchange



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## Traffic Modelling Approach and Operational Assessments

- 3.18 The Strategic traffic forecasts are based on the Norwich Area Transport Strategy Model (NATS) which has been recalibrated to an updated base year and contains AM and PM peak hours and an average inter-peak hour. Separate models have been developed by HE (NATS base year 2015 for the A47) and NCC (NATS base year 2019 for the NWL).
- 3.19 More recent changes in travel behaviour and traffic flows may not be accurately reflected by a NATS model that was developed some time ago. Traffic surveys and the model base year recalibration for both HE and BCC pre-date covid-19 and the HE traffic modelling and traffic growth forecasts do not factor in pandemic impacts on future travel demand and other uncertainties such as the impact of digital technology on travel and the economy and new policies and initiatives to cut carbon. It is likely that the scheme has over-estimated future traffic growth and has been over-engineered.
- 3.20 Accordingly, it is likely that extensive sensitivity testing will be required to give confidence that forecast traffic flows accurately reflect post pandemic traffic conditions and infrastructure requirements. No such sensitivity testing has been provided to date.
- 3.21 A balanced approach is required which seeks to facilitate more sustainable journeys and more sustainable modes of transport thus mitigating the impact of higher levels of traffic using inappropriate routes and encouraging strategic traffic to use the most appropriate parts of the road network.
- 3.22 HE's consultants have confirmed in initial discussions that the key criteria that they have used to confirm the current junction designs is to target a 'design capacity' of RFCs of 85% or less on all approaches in order to avoid 'unacceptable queues'.
- 3.23 The peak period junction capacity assessments set out in the HE 'Junctions and Sideroads' report for the 2040DS scenario indicate the following RFC and maximum queues at the Wood Lane junction;
- Northern Roundabout:
- With NWL: AM – RFCs 0.25-0.68, Max Queues 0-2 pcus
  - With NWL: PM – RFCs 0.48-0.61, Max Queues 1-2 pcus
  - Without NWL: AM – RFCs 0.08-0.35, Max Queues 0-1 pcus
  - Without NWL: PM – RFCs 0.06-0.26, Max Queues 0 pcus
- Southern Roundabout:
- With NWL: AM – RFCs 0.16-0.66, Max Queues 0-2 pcus
  - With NWL: PM – RFCs 0.38-0.66, Max Queues 0-2 pcus
  - Without NWL: AM – RFCs 0.06-0.23, Max Queues 0 pcus



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- Without NWL: PM – RFCs 0.03-0.16, Max Queues 0 pcus
- 3.24 The results indicate that both roundabouts are performing well below operational or 2040 design capacity for both the ‘with NWL’ and ‘without NWL’ scenarios.
- 3.25 Whilst RFC provides a good indication of the operational performance of junctions, they should not be taken in isolation as an indicator of scheme performance.
- 3.26 It is considered that given the level of growth proposed and that the future design year is 2040, the approach to modelling junction performance sets a very high bar of essentially free flow traffic with no queueing, which would result in the over-design of this junction. It is essentially a predict and provide approach but with inbuilt spare capacity even in 2040.

### Norwich Western Link Road (NWL)

- 3.27 Norfolk County Council has announced the preferred route for their Norwich Western Link (NWL) in July 2019<sup>12</sup>. Highways England are part of the NWL local liaison group to ensure a joined-up approach. The proposed A47 scheme is a stand-alone scheme, to reduce the congestion and safety issues experienced on the single carriageway section of the A47 between North Tuddenham & Easton. The two schemes are being delivered separately by both Highways England and Norfolk County Council, via two different planning and funding routes however both have made a commitment to a collaborative approach. NCC state that they have worked with the HE to ensure that the NWL link road can feed into their proposed new off-carriageway junction at Wood Lane.
- 3.28 The proposed Wood Lane scheme, designed by HE, includes a stub connection for the proposed Norwich Western Link (NWL) scheme promoted by Norfolk County Council. HE states that the A47 Development Consent Order (DCO) has been drafted such that if the NWL scheme does not gain planning approval, the stub connection will not be delivered. If the NWL scheme does not go ahead, it is stated that a grade separated junction would still be required at this location due to traffic flows, and therefore this would not change the proposed junction location or layout.
- 3.29 Assuming the NWL scheme does go ahead, based on an initial review of the operational assessments, the proposed north and south dumbbell roundabout appear to be inappropriately designed for the location and proposed usage and

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<sup>12</sup> See timeline at Table 3.1 – July 2019 (report from Eastern Daily Press, 5 July 2019, on its website)

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could be either reduced in scale or a more efficient layout could be considered such as a large single roundabout two bridge configuration.

- 3.30 If the NWL scheme is not built – it is considered that the Wood Lane junctions would need to be re-designed and modified accordingly, given that HE’s own traffic figures (Junction and Sideroad Strategy: Appendix C) suggest that inbound traffic flows to the junction would reduce by some 69 and 80 percent in the AM and PM peaks respectively.
- 3.31 Accordingly, it is not clear or logical how HE has concluded that whether the NWL proceeds or not would not change the proposed junction form and hence the location and layout.

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## 4. Alternative Options

### Introduction

4.1 The scheme review undertaken to identify potential changes to the current proposals, in the vicinity of the [REDACTED], has identified the following alternative options that would reduce the current impacts.

- **Option 1** - An alternative offset alignment, on less sensitive land north of the [REDACTED] to the north of the existing A47, could either avoid or reduce the current permanent impacts upon the [REDACTED]. This retains the dumbbell layout. The offset alignment would potentially allow the southern dumbbell of the proposed Wood Lane Interchange to be moved to the north of the current A47 and would enable retention of more of the current A47 to provide access to the [REDACTED] northern access and Hillcrest to be retained.
- **Option 2** – An alternative and potentially more efficient layout is proposed in the form of a large single roundabout two bridge configuration.
- **Option 3** – Assuming the NWL scheme does go ahead and based on an initial review of the operational assessments, the proposed south dumbbell roundabout appears to be inappropriately designed and could be reduced in scale. This option retains the dumbbell layout and is essentially a variation of option 1.

4.2 Two potential variants are being proposed for each of the above options and are detailed below.

- Option Variant ‘a’ – Retains the new link connecting Sandy Lane and Wood Lane to the new interchange;
- Option Variant ‘b’ - Retains the existing A47 west of Hillcrest with an underpass built under the new dualled A47 at Lady’s Grove. With the Sandy Lane new Link Road removed this area is more available to use as temporary construction compounds and potentially for permanent access to a service area<sup>13</sup>.

4.3 The options are considered further in the following sections. Scheme drawings for Options 1 and 2 have been developed by RPS and are appended to this report along with an accompanying Highways Technical Note.

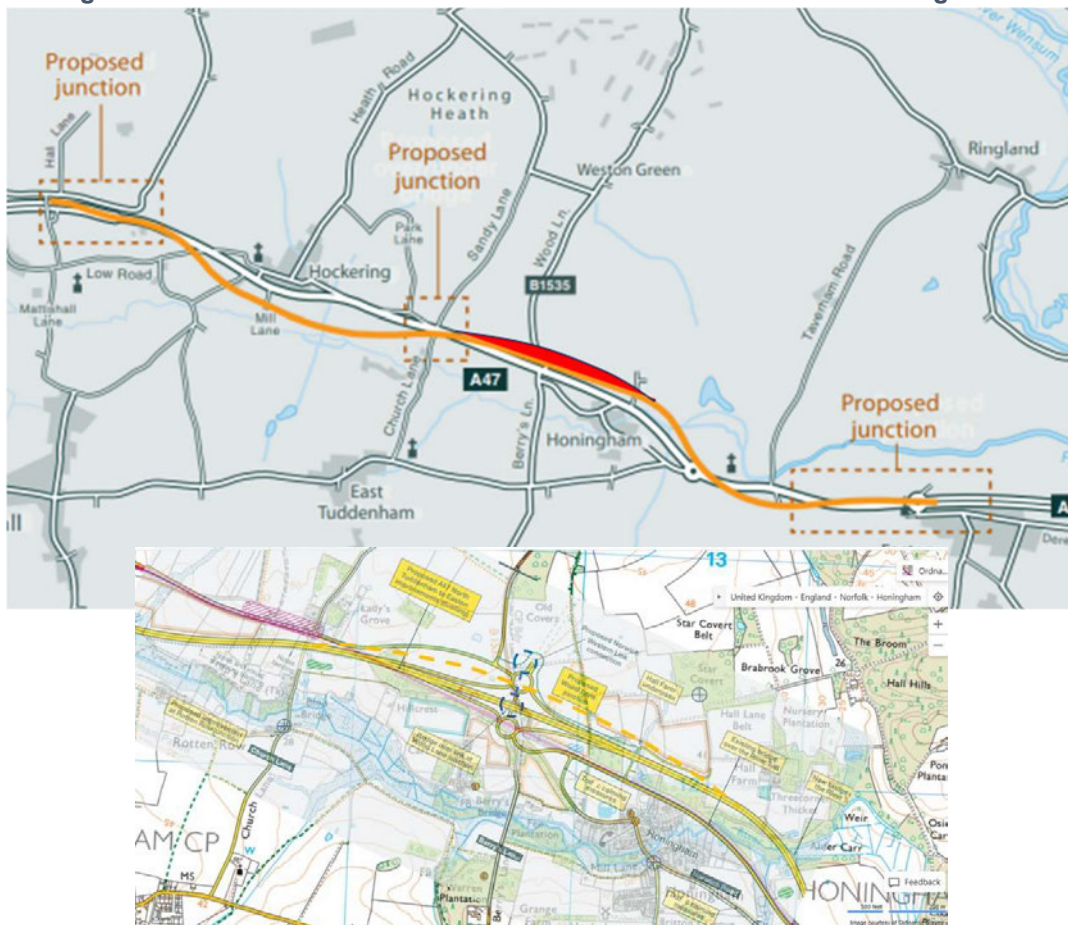
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<sup>13</sup> A potential future service area at the junction has been suggested in the Relevant Representations submitted by Brown & Co on behalf of A L Alston & Sons Ltd on 14 June 2021 (RR-009), last sentence

## Option 1a & 1b - Potential Alternative Alignment (Dumbbell Layout)

- 4.4 In initial discussions, HE's consultants, Sweco, have confirmed that the scheme is essentially an offline scheme. As stated previously, as a result of feedback received at the 2017 consultation, Option 2 was refined taking the route away from the existing A47 to the south of Hockering and to the north of Honingham.
- 4.5 A further minor adjustment to provide an alternative offset alignment of the mainline slightly further north, which would enable the whole junction, instead of only part, to be placed on the less sensitive land north of the [REDACTED], to the north of the existing A47, would avoid the current permanent impacts upon the [REDACTED] (see Figure 4.1).
- 4.6 The small adjustment to the offset alignment of the mainline would allow the southern dumbbell of the proposed Wood Lane Interchange to be moved to the north of the current A47 and would also enable retention of more of the current A47 to provide the existing access to the [REDACTED] northern access and Hillcrest to be retained.

Figure 4.1 – 2017 Preferred Route and Potential Alternative Mainline Alignment



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- 4.7 The first alternative offset dumbbell roundabout option (Option 1) is shown in Figure 4.2 (the full drawing is provided in the appendices) and the two variants are summarised below.
- Option 1a – Retains the new link connecting Sandy Lane and Wood Lane to the new interchange. The blue existing A47 should be treated as ceasing halfway along its length;
  - Option 1b - The link connecting Sandy Lane and Wood Lane is removed. This option retains the existing A47 (in blue) west of Hillcrest with the new dualled A47 crossing over it at Lady's Grove.
- 4.8 Option 1a would provide the following benefits;
- Allows offline construction of the new junction;
  - Retains the new link connecting Sandy Lane and Wood Lane to the new interchange;
  - Provides for a future NWL connection;
  - It allows the existing A47 from the access road leading to the southern dumbbell roundabout eastwards towards the Honingham roundabout to continue to be used for local traffic without remaking any of that roadway save as may be desired to reduce its width and install a cycle way;
  - It allows the existing A47 to be continued westwards from the access road to the roundabout either as a public highway or as a private roadway to serve the north entrance to [REDACTED] and as far as Hillcrest (and terminating there) without having to replace the [REDACTED] north entrance (which is currently proposed to be closed with no replacement)
  - It avoids the need to construct the presently proposed new driveway to Hillcrest from Church Lane any further than the proposed reservoir close to Church Lane;
  - It allows Dereham road (Honingham) to continue to be used up to its junction with Berry's Lane and the existing A47 without the need to construct the proposed new link from it further east going northward to the existing A47;
  - It allows Berry's Lane to be closed to public vehicular traffic as proposed from south of its junction with the A47 to just north of the back drive of [REDACTED] whilst leaving the surface in place, gated as appropriate, as a cycleway and for equestrian use which, with the retained Dereham Road, will allow cycles and equestrians from Berry's Lane to reach either Honingham or the proposed Hall Lane underpass and restricted route RB1 without the need to construct the proposed new cycleway across [REDACTED] field by Merrywood House;



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- It allows the retained surface of the closed section of Berry's Lane by arrangement through the appropriately gated access to be used by farm vehicles needing to cross from the north to south sides of the A47;
  - The retention of the existing roadways of A47 and Dereham Road should avoid the need for much of the very significant amount of utilities diversions associated with the proposed scheme both on the A47 and Dereham Road and on the [REDACTED], associated with the construction of the proposed south dumbbell in the way of the A47 and Dereham Road/ Berry's Lane, and along the line of the existing A47 between the Wood Lane junction and westwards towards the Sandy Lane Junction;
  - The removal of the need to deconstruct the existing A47 and Dereham Road where they cross the line of the National Grid gas main (1m diameter) just east of the existing Wood Lane Junction, and the movement north by a small amount of the mainline and slip roads east of the Wood Lane junction, creates the possibility of reducing the length of the required diversion of the gas main by approximately 50% and to enable all the work of the diversion to be carried out to the north of the existing A47.
  - The removal of all the junction works offline to the same (north) side of the existing A47 and the consequent avoidance of the need to carry out any land works on or to the south of that road, gives the opportunity to locate all compounds and soil storage/ processing for the works to the north of the existing A47. This removes any need for construction traffic to join and cross the A47 traffic to reach the works from the compounds (as is now proposed with the compounds on plots 8/5a and 9/1a)
  - In a similar way, the avoidance of the need to construct any of the proposed new works on top of the existing A47 at this location should considerably ease the traffic flow during the construction programme on that road and the surrounding local roads;

4.9 Option 1b would provide similar benefits to the above, with the following additional points;

- the proposed new Wood Lane to Sandy Lane link road will no longer be required. East west local traffic now continues to use the existing A47 west of Hillcrest all the way to Sandy Lane which becomes the detrunked road from Honingham to Hockering with the new dual carriageway road built over it where it crosses its line (as originally proposed in Option 2 for the 2017 public consultation before the preferred route was announced)
- The A47 traffic can continue to use its existing route during the construction process;

- With the absence of the link road north of the proposed mainline a greater uninterrupted area north of the mainline and west of Wood Lane becomes available for compounds and storage;
- The cycle and equestrian route can continue west of Berry's Lane directly to Sandy Lane on the line of the existing A47 by a dedicated cycle lane without needing to divert either to cross the NWL route or to make use of the proposed new access to Hillcrest or to reinstate the Church Lane underpass.

**Figure 4.2 – Alternative Wood Lane Interchange: Offset Dumbbell Layout (Option 1)**



## Options 2a & 2b - Alternative Wood Lane Interchange Layouts

- 4.10 Option 1b would provide similar benefits to the above, with the following additional points
- 4.11 An alternative grade separated junction configuration that should have been and should now be considered is a large single roundabout with two bridges to allow circulating lanes under the mainline. Again, two alternative single roundabout variant options are shown in Figure 4.3 and the appendices as follows.
- Option 2a – Retains the new link connecting Sandy Lane and Wood Lane to the new interchange;
  - Option 2b - Retains the existing A47 west of Hillcrest with an underpass built under the new dualled A47 at Lady's Grove.
- 4.12 Option 2a and 2b would provide similar benefits to those listed for Option 1a and b, compared to Applicant's scheme, In addition this Option is considered to be a more efficient layout which balances land take against operational needs. A

modest increase in queueing is anticipated in future design years, within acceptable operational capacity limits, relative to the DCO scheme but this is subject to operational assessments.

**Figure 4.3 – Alternative Wood Lane Interchange: Offset Single Roundabout Layout (Option 2)**



### Options 3a & 3b - Potential variant of Option 1 Alternative Alignment (Dumbbell Layout) with smaller Southern Roundabout

4.13 An alternative dumbbell arrangement that should be considered is a smaller southern roundabout. Assuming the NWL scheme does go ahead and based on an initial review of the operational assessments, the proposed south dumbbell roundabout with its 100m diameter appears to be in-appropriately designed for its purpose and could be reduced in scale.

4.14 Again, two alternative options with the same variants are in the course of preparation and will be submitted as soon as possible after submission of [REDACTED] written representations.

- Option 3a – Retains the new link connecting Sandy Lane and Wood Lane to the new interchange;
- Option 3b - Retains the existing A47 west of Hillcrest with an underpass built under the new dualled A47 at Lady's Grove.

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## Summary Review of Alternative Options

- 4.15 A summary review of the proposed alternative options is presented in Table 4.1, with each scheme considered against the Applicant's key scheme objectives.
- 4.16 All the alternative option schemes (option 'a' variant) are expected to meet the key objectives set out in the Applicant's introduction to the Application TR010038/APP/1.3 (APP-003) at para2.2.1. For Option 2, the additional cost of a second bridge would be balanced against a more efficient layout and reduced environmental impacts.
- 4.17 The three alternative offset alignment and junction options identified would all allow greater retention of the current A47 and would allow a much improved and less convoluted access route for local traffic, pedestrians and cyclists between Hockering and Honingham, rather than the one currently proposed.
- 4.18 For all 3 alternative options, the option 'b' variants would retain the existing A47 west of Hillcrest with an underpass built under the new dualled A47 at Lady's Grove. The added cost of this underpass would be offset by the benefits to local traffic and access by non-car modes. With the Sandy Lane new Link Road removed, the area to the north of the new mainline would be more readily available as an uninterrupted space north of the new mainline to use as temporary construction compounds and then for return to its landowner either for renewed agricultural use or as a potential future service area.
- 4.19 The retention of the existing A47 would also benefit from fewer utility diversions on the existing road network, improved construction methodology and better A47 traffic management during construction.

**Table 4.1 – Review of Alternative Scheme Options (Relative to Current Scheme)**

<i>Scheme Objective</i>	<i>Option 1a</i>	<i>Option 2a</i>	<i>Option 3a</i>
Supporting economic growth: reduce congestion related delay, improve journey time reliability and increase the overall capacity for future traffic growth to help enable regional development and growth in Norwich and its surrounding area	No change from current DCO scheme	Would be designed to meet requirements	Would be designed to meet requirements
A safer and reliable network: improve safety for all road users and those living in the local area by improving safety issues at junctions along the A47.	No change from current DCO scheme	Would be designed to meet requirements	Would be designed to meet requirements
Improve user satisfaction by quicker and more reliable journeys	No change from current DCO scheme	No material changes from current DCO scheme	No material changes from current DCO scheme
A more free-flowing network: increase resilience in coping with incidents such as collisions, breakdowns, maintenance and extreme weather. Support the smooth flow of traffic and improve journey times reliability by maximising the operational capability at the junctions and along the 9km carriageway	The link road between the two roundabouts is proposed as a single carriageway with one lane in each direction through an underpass beneath the dualled A47. This could result in a potential bottle neck and concerns about the resilience should there be an incident on the underpass.	This scheme is considered to be a more efficient layout which balances land take against operational needs. A modest increase in queueing is anticipated in future design years, within acceptable operational capacity limits, relative to the DCO scheme but this is subject to operational assessments.	This scheme is considered to be a more efficient layout which balances land take against operational needs. A modest increase in queueing is anticipated in future design years, within acceptable operational capacity limits, relative to the DCO scheme but this is subject to operational assessments.
Improved environment: protect the environment by minimising adverse impacts and, where possible, deliver benefits	The alternative offset alignment, on less sensitive land north of the [REDACTED], to the north of the existing A47, could either avoid or reduce the current permanent impacts upon the [REDACTED].	The alternative offset layout and more efficient layout which balances land take against operational needs would avoid or reduce the current permanent impacts upon the [REDACTED].	The alternative offset layout and more efficient layout which balances land take against operational needs would avoid or reduce the current permanent impacts upon the [REDACTED].
An accessible and integrated network: ensure the new road layout considers local communities and safe access to the A47.	The three alternative offset alignment and junction options identified would all allow greater retention of the current A47 and would allow a much improved and less convoluted access route for local traffic, pedestrians and cyclists between Hockering and Honingham, rather than the one currently proposed.		



<p>Provide a safer route between communities for cyclists, walkers, horse-riders and other vulnerable users of the network, taking into consideration how their requirements can be addressed with improved connectivity</p>	<p>For all 3 alternative options, Option Variant 'b' - retains the existing A47 west of Hillcrest with an underpass built under the new dualled A47 at Lady's Grove. The added cost of this is offset by the benefits to local traffic and access by non-car modes. With the Sandy Lane new Link Road removed the area to the north is available to use as temporary construction compounds and potentially for future permanent access to a service area.</p>		
<p>Value for money: ensure the Scheme is affordable and delivers good value for money.</p>	<p>No significant change to current DCO scheme.</p>	<p>Additional cost of 2<sup>nd</sup> bridge balanced against more efficient layout and reduced environmental impacts</p>	<p>Improvement to current scheme - would reduce costs and land take (value engineering)</p>

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## 5. Road Closures and Operational Impacts

### Surrounding Highway Network

- 5.1 The existing route of the A47 between North Tuddenham and Easton and the traffic using it creates a line of severance for both local motorised and non-motorised users in the area.
- 5.2 In and around Hockering residents of properties located to the south of the A47 have to negotiate crossing the A47 to access the facilities within Hockering to the north of the A47. In and around Honingham the residents living in properties to the north of the A47 have to negotiate crossing the A47 to access the facilities within Honingham and to the south.
- 5.3 There are vehicular routes across the A47 via existing side roads and crossroads. With current levels of traffic along the A47 in the area these vehicle manoeuvres can be difficult to make comfortably and safely.
- 5.4 The Transport Strategy for the proposed scheme is summarized in the Scheme Assessment Report and the Junction and Sideroad Strategy Report.
  - At present there are 41 direct accesses onto the single carriageway A47 between the Fox Lane junction and the roundabout at the intersection of Dereham Road and Church Lane.
  - The 41 direct accesses are made up from 23 on the eastbound side and 18 on the westbound side. These accesses include at-grade priority junctions, in the form of simple T-junctions as well as ghost island junctions, serving various sideroads along the route. In addition, there are also accesses for both private single dwelling properties and field accesses. There will be no direct access permitted onto the new A47 Dual Carriageway. The existing accesses that cannot be rerouted as part of the sideroad strategy will therefore either be stopped up or relocated onto the existing sideroad network and away from the new A47 dual carriageway.
- 5.5 Road closures would be introduced to through traffic at: Church Lane (East Tuddenham), Berry's Lane, Blind Lane and Church Lane (Easton), north of the A47.
- 5.6 Wood Lane would be connected to Sandy Lane connecting to the A47 via a new side road providing access to the new Wood Lane junction via the northern dumbbell roundabout.
- 5.7 The former A47 would access the southern dumbbell via a new southern approach which would be connected with the new Dereham Road link road and Honingham roundabout, but there would be no connection to Berry's Lane.
- 5.8 The dualling of the A47 between North Tuddenham and Easton will increase traffic accessing Norwich through the NW area, as the existing single carriageway

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section currently acts as a bottleneck and constrains traffic approaching from the west.

- 5.9 Rural communities within the area between the A47 and the A1067 experience rat-running and inappropriate traffic levels, directly impacting the quality of life of local residents from an environmental and safety perspective (severance).
- 5.10 Should the NWL proceed, it will provide a new Norwich northwest orbital connection to the A47 and will reduce pressure on these minor routes.
- 5.11 However, since separate traffic modelling has been undertaken for the A47 and NWL scheme, it is unclear to what extent traffic forecasts, and detailed junction modelling have been refined to ensure that the proposed A47 junctions are not over-designed to accommodate forecast future traffic. It is considered that extensive sensitivity testing will be required to give confidence that forecast traffic flows accurately reflect post pandemic traffic conditions and forecast growth and infrastructure requirements in both NWL and no NWL scenario. As noted previously, no such sensitivity tests have been provided at this stage.

## Non-Motorised Users Requirements

- 5.12 The A47 scheme includes a proposed cycle track between the realigned Wood Lane and Hall Farm Underpass. This is shown as looping round the NWL arm of the Wood Lane junction.
- 5.13 NCC state the following on this matter in their representations to the DCO;  
*“Norfolk County Council understands that this is a temporary arrangement and, on completion of the NWL, will be superseded by the permanent facilities being planned as part of the NWL scheme. The county council considers that this is an acceptable arrangement. However, we have concern that local users will not appreciate the temporary nature of Highways England’s proposals in this area and would expect Norfolk County Council to provide a crossing of the NWL at the proposed A47 Wood Lane junction. This is not supported by the county council.”<sup>14</sup>*
- 5.14 HE have not answered this query as far as we are aware. The three alternative offset alignment and junction options identified in this report would all allow greater retention of the current A47 and would allow a much improved and less convoluted access route for local traffic, pedestrians and cyclists between Hockering and Honingham, rather than the one currently proposed.

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<sup>14</sup> NCC RR’s (RR-061) attachment 1, para 1.3 (pdf page 4/26)

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## Roads Closures and Compulsory Acquisition

- 5.15 The DCO would authorise the compulsory acquisition of land, interests in land and rights over land, and the powers to use land permanently and temporarily for the construction, operation and maintenance of the scheme. The impact of temporary construction compounds upon the Estate are addressed in section 6 below.
- 5.16 The DCO would make provisions in connection with several ancillary matters including the temporary stopping up of lengths of existing highways in the vicinity of the route and the reclassification of highways.

### ██████████ - Site Access Requirements

- 5.17 The ██████████ is currently served by three accesses which serve nine dwellings, the tenanted farm and two sets of buildings. The current sites accesses are summarised below and in Figure 5.1;
- Main ‘front drive’ access and secondary ‘new back drive’ access from Berry’s Lane – This provides vehicular access and parking to ██████████ and cottages in its vicinity.
  - ‘New back drive’ access – provides access to ██████████ Farm cottages, farm traffic and for servicing and deliveries excluding refuse vehicles. Operational traffic accessing the farm in larger vehicles have to use one or other of the back drives as the access road from the main entrance around ██████████ is too narrow. The ‘new back drive’, however, is limited for the reasons mentioned in 5.18 below.
  - ‘Old back drive’ access from the existing A47 – This access is currently used by the refuse vehicles collecting from all Estate buildings and by HGVs to access the timber yard. This access is also used for cattle feed lorries delivering to the former dairy buildings on a regular basis and by silage contractors delivering silage to the storage area at these buildings.
- 5.18 Large lorries cannot reach the farm buildings from Berry’s Lane via either the new back drive (because of the sharp turns at both ends) or the main front drive (since there is a pinch point in the main drive between the house and a retaining wall where the main drive goes behind ██████████). Therefore, large lorries have to use the old back drive via the current A47 access.
- 5.19 Under the current DCO scheme, Highways England are proposing to;

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- permanently acquire the land comprising the current main ‘front drive’ access/egress, the ‘new back drive’ secondary access onto Berry’s Lane and the ‘old back drive’ accessed off the A47<sup>15</sup>.
  - To take temporary possession of half the length of the secondary ‘new back drive’ access beyond the permanent take, for a soil storage and processing compound<sup>16</sup>.
  - The current A47 ‘old back drive’ access would be stopped up permanently to a distance of 132m from the public highway<sup>17</sup> and the land inside the entrance temporarily acquired for construction compounds<sup>18</sup>. The current DCO scheme includes a new western link for access to Hillcrest from Church Lane, but this does not reinstate a northern access to the [REDACTED].

5.20 Accordingly, the DCO scheme would have a fundamentally detrimental impact on the access of residents to their homes and the operational requirements of the [REDACTED] by virtue of:

- Permanently preventing access to the Estate from the front drive<sup>19</sup>;
- Permanently preventing access to the Estate from the back drive;
- Permanently preventing access to the Estate by refuse vehicles.
- Permanently preventing access to the Estate by HGVs associated with the agricultural and forestry uses of the land.

5.21 The Applicant’s proposals make no provision for even the grant of rights of access back to [REDACTED] in this regard. No mitigation for the above has been proposed. The proposed alternative schemes would all allow the retention of existing A47 for access to [REDACTED] access and Hillcrest, resolving the third and fourth bullets in the previous paragraph, provided the access to the Berry’s Lane drives is not taken temporarily or permanently in the meantime (for the proposed drainage channel to the River Tud).

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<sup>15</sup> All part of Plot 9/1b; the Statement of Reasons (APP-021) cites the following as the purpose for the permanent acquisition of this plot: (precis) “Works 19,22,32, 63 and 84”; “New carriageways, footways, embankments, service diversions and drainage including new River Tud outfall and surface water drainage channel, to create: Wood Lane Junction (WLJ) westbound on slip road; WLJ southern dumbbell roundabout, plus connecting road to existing A47 north of Honingham, temporary material storage, management and processing area.”

<sup>16</sup> Within Plot 9/1a

<sup>17</sup> DCO (APP-017) Sch 4, Part 4, at page 83 (pdf 85/161) “Private Means of Access to be Stopped up for which No Substitute is to be Provided”, East Tuddenham Parish, “Reference B7 to B8, private access road off A47” to be stopped up to “a point extending from the existing A47 132 metres south”.

<sup>18</sup> Plots 8/5a, 9/1a, 9/1l and 9/1m together with, further south, 9/1c and 9/1d



Figure 5.1 – [REDACTED] Access Roads



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## 6. Construction Impacts & Temporary Construction Compounds

- 6.1 The Applicant has suggested that the DCO, in its current form, if implemented will involve the temporary loss within the Estate of 12ha of land and a permanent loss of 3 ha. Adding the areas shown on the Land Plans and Book of Reference together the areas of permanent loss (excluding subsoil owned by the Estate beneath public highways) as calculated by [REDACTED] amount to 3.059 ha, and the temporary use areas amount to 9.448 ha. The total is 12.508 ha proposed to be lost during the course of the works. I understand from [REDACTED] that the Estate's total working area (farming and forestry) is approximately 42.4 ha of the 50.5 ha Estate so this loss would represent nearly 30% of the working area for the duration of the works.
- 6.2 The proposals are shown in the DCO General Arrangement Plans<sup>20</sup> (TR010038/APP005/2.2 8of23 & 9of23) and would have the following impacts on the [REDACTED];
- **Temporary compound area southwest of the proposed Wood Lane junction.** Compound 2 has been defined as being a satellite compound located to service the western section of the Scheme, including Wood Lane junction and Hall Farm access, and is expected to serve approximately 140 people. The compound has been located immediately south of the existing A47 and between Hillcrest Cottage and [REDACTED] [REDACTED]. The main access would be directly onto the A47 westbound with a left turn only facility required to access and exit the compound. The compound is reported to have been sized to allow sufficient space for the following, although no quantitative or other assessment has been provided supporting that statement:
    - parking and welfare facilities
    - satellite office and supply chain partner offices
    - storage of high value plant, equipment and materials
    - concrete wash out and vehicle washdown facilities
    - delivery vehicle stacking and waiting facilities
- The compound is stated in the Statement of reasons to service work no. 1, in other words, the entire mainline. Its use will impact on refuse access to the

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<sup>20</sup> TR010038/APP-005/2.2 (8of23 & 9of23) DCO General Arrangement Plans

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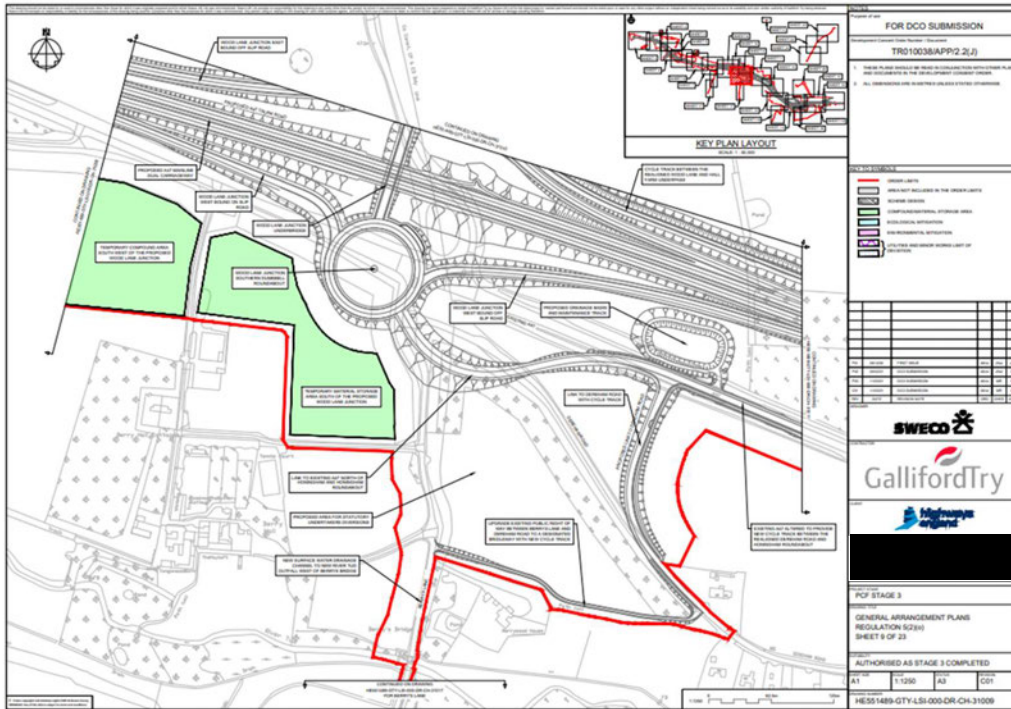
Estate as well as other uses referred to in paras 5.17 and 5.18. 6.16. The cumulative effect of the blockages to both back drives will be to cause the Estate and residential occupiers a very significant problem. If the entrance to the front drive also is taken as appears to be contemplated by the extension of the permanent acquisition of Plot 9/1b and the temporary taking of Plot 9/1c, the blockage will be total. None of this is addressed in para 11.1 of the Scheme Design Report. If any of the alternative options for the locations and design of the Wood Lane junction suggested in this report are adopted so as to take the works entirely to the north of the existing A47, this compound would be more conveniently located on the north side of the existing A47 so as to keep both the works and the compounds on the same side of the road. Relocating the compound in this way would avoid all the issues for the Estate described above.

- **Temporary material storage and processing area south of the proposed Wood Lane junction.** It appears this would be accessed via the secondary 'new back drive' access which would cause significant disruption and inconvenience to the ongoing operation of the Estate. It too would also have significant impact on the residential amenity of current tenants, given the close proximity to existing residential properties.
- In addition, a third works area on Merrywood field, north of Merrywood House, which it is believed to be intended to be used primarily for construction of the national grid gas main and Anglia water main diversions. Access to it is not explained but would need to come from Berry's Lane or Dereham Road, Honningham. These are required because of the location of the south dumbbell and southern local approach road to it. Neither roads are considered suitable for a significant increase in Heavy Goods Vehicles.

6.3 Representations have been made by the landowner to the north of the Estate to promote the land (approximately 9 acres) for roadside services including a petrol filling / EV station.

6.4 It is considered that there are therefore viable alternatives to the areas of the Estate currently proposed for temporary loss for construction compounds, storage areas and temporary vehicle parking. The use of land to the north would be more compatible with the alternative alignments and junction configurations proposed in this note.

Figure 6.1 – Proposed Temporary Construction Compounds



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## 7. Summary and Conclusions

### Summary

- 7.1 Neptune Transport Planning Limited (NTP) were instructed in June 2021, by [REDACTED] of the [REDACTED], to undertake a transport and highways review of the Highways England A47 North Tuddenham to Easton Dualling scheme.
- 7.2 The scheme review has been undertaken to identify potential changes to the current proposals, in the vicinity of the [REDACTED], that would reduce the current impacts. A detailed timeline of the design development and consultations with the public and with [REDACTED] is provided in separate written representations.
- 7.3 This review has focused on potential changes to the currently proposed A47 route alignment and potential alternatives to the current layout proposed for the A47 / Wood Lane interchange. The key conclusions are as follows;
1. The Applicant's rationale for the proposed junction explained the need for a fully grade separated option 'to support our aim to create a more free flowing, safe and serviceable, integrated network'. However, it did not detail or justify why the proposed online dumbbell roundabout option was preferred over an offset option or single roundabout two bridge option.
  2. It is considered that given the level of growth proposed and that the future design year is 2040, the approach to modelling junction performance sets a very high bar of essentially free flow traffic with no queueing, which would result in the over-design of this junction. It is essentially a predict and provide approach but with inbuilt spare capacity even in 2040.
  3. Rural communities within the area between the A47 and the A1067 currently experience rat-running and inappropriate traffic levels, directly impacting the quality of life of local residents from an environmental and safety perspective.
  4. Should the NWL proceed, it will provide a new Norwich northwest orbital connection to the A47 and will reduce pressure on these minor routes.
  5. However, since separate traffic modelling has been undertaken for the A47 and NWL schemes, it is unclear to what extent traffic forecasts, and detailed junction modelling have been refined to ensure that the proposed A47 junctions are not over-designed to accommodate forecast future traffic levels. In Section 4.2 of the Design Report the Wood Lane junction is described and in 4.2.3 and 4.2.5 the traffic modelling carried out for it is referred to. However, there is no mention there as to whether any predicted flows between the dualled A47 and the NWL have been assessed and factored in and if so how.



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6. It is therefore considered that extensive sensitivity testing will be required to give confidence that forecast traffic flows accurately reflect post pandemic traffic conditions and forecast growth and infrastructure requirements in both NWL and no NWL scenarios. No such testing has been provided, as far as we have been able to ascertain, which may compromise the assessment of likely significant effects in the Environmental Statement.
- 7.4 This scheme review has been undertaken to identify potential changes to the current proposals, in the vicinity of the [REDACTED], that would reduce the current impacts of the scheme upon it. A detailed timeline of the design development and consultations [REDACTED] is provided in [REDACTED] written representations.
- 7.5 The scheme review has identified the following alternative options for the proposed Wood Lane interchange that would reduce the current impacts.
- **Option 1** - An alternative offset alignment of the proposed twin dumbbell junction, on less sensitive land north of the [REDACTED] to the north of the existing A47, could either avoid or reduce the current permanent impacts upon the [REDACTED]. The offset alignment would potentially allow the southern dumbbell to be moved to the north of the current A47 and would enable retention of more of the current A47 to provide access to the B [REDACTED] [REDACTED] access and Hillcrest to be retained.
  - **Option 2** – An alternative and potentially more efficient layout is proposed in the form of a large single roundabout two bridge configuration, which takes up less space than the Applicant’s scheme and Option 1.
  - **Option 3** – Assuming the NWL scheme does go ahead and based on an initial review of the operational assessments, the proposed south dumbbell roundabout appears to be in-appropriately designed and could be reduced in scale. This option retains the dumbbell layout and is essentially a variation of option 1.
- 7.6 The scheme review has been undertaken to identify potential changes to the current proposals, in the vicinity of the [REDACTED], that would reduce the current impacts. A detailed timeline of the design development and consultations with the public and with [REDACTED] is provided in the written representations which this report accompanies.
- 7.7 Two potential variants are proposed for each of the above options and are detailed below.
- Option Variant ‘a’ – Retains the new link connecting Sandy Lane and Wood Lane to the new interchange.

- 
- Option Variant 'b' - Retains the existing A47 west of Hillcrest with an underpass built under the new dualled A47 at Lady's Grove. With the Sandy Lane new Link Road removed a greater uninterrupted space in this area is available to use as temporary construction compounds and potentially for future permanent access to a service area.
- 7.8 All the alternative option schemes (option 'a' variant) are expected to meet the key scheme objectives. For Option 2, the additional cost of a second bridge would be balanced against a more efficient layout and reduced environmental impacts. The three alternative offset alignment and junction options identified would all allow greater retention of the current A47 and would allow a much improved and less convoluted access route for local traffic, pedestrians and cyclists between Hockering and Honingham, rather than the one currently proposed.
- 7.9 All three options will enable the Wood Lane junction and its approaches, together with the new Sandy Lane / Wood Lane link road to be constructed to the north of the existing A47. The retention of the existing A47 would also benefit from fewer utility diversions on the existing road network, improved construction methodology and better A47 traffic management during construction.
- 7.10 The DCO, in its current form, will see the temporary loss within the Estate of 12.5 ha of land (30% of its working area but such as the Estate believes will make the continuation of its farming impossible during the works and potentially not possible to recover afterwards) and, in addition, a permanent loss of 3 ha of land with woodland and arable land considered integral to the setting of the Estate.
- 7.11 The DCO scheme would have a detrimental impact on the site access and operational requirements of the Estate and an appropriate mitigation scheme is yet to be proposed.
- 7.12 The proposed alternative schemes would all allow the retention of existing A47 for access to [REDACTED] northern access and Hillcrest and preserve the integrity of the Estate.
- 7.13 It is considered that there are viable alternatives to using the areas of the Estate currently proposed for temporary loss for construction compounds, storage areas and temporary vehicle parking. The use of land to the north would be more compatible with the alternative alignments and junction configurations proposed in this report.

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## Conclusions

- 7.14 Based on this initial transport and highways review the key conclusions are as follows;
- **The Public consultation has been flawed leading to confusion.**
  - **Environmental impact on the local heritage has not been fully considered, and therefore the ES is flawed.**
  - **Unnecessary strict adherence to DMRB has prevented the proper consideration of other technical solutions.**
  - **A focus on construction costs to the detriment of other environmental costs, such as heritage impact, and opportunity such as reducing utilities costs.**
  - **Sustainability has not been fully taken into account in accordance with NPPF, in particular the potential to reuse the existing/old A47.**
- 7.15 All the alternative option schemes presented are expected to meet the key scheme objectives. The alternative options presented have merit and should be investigated by HE.

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## Appendices

# Highways Technical Note and Alternative Scheme Option Drawings

Option 1a & 1b - Potential Alternative Alignment (Dumbbell Layout)

Options 2a & 2b - Alternative Wood Lane Interchange Layouts (Single Roundabout)

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## HIGHWAYS TECHNICAL NOTE

**Project Title:** A47 North Tuddenham to Easton Dualling, DCO

**Report Reference:** JNY11154-01

**Date:** 24 August 2021

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### 1 INTRODUCTION

- 1.1 RPS has been instructed to provide preliminary highway design advice to A [REDACTED] Estate) in relation the proposed dualling of the A47 between North Tuddenham and Easton.
- 1.2 This Highways Technical Note (HTN) summarises RPS' initial design review and work which culminates in the submission of two alternative designs to that currently proposed by National Highways (Highways England (HE)) for the proposed A47 / Wood Lane interchange:
- Option 1 consists of a similar arrangement to HE's proposals, but relocating the dumbbell configuration further north.
  - Option 2 consists of a single roundabout relocated north.
- 1.3 These options have been developed in close liaison with Neptune Transport Planning Limited who are Berry Hall Estate's transport planning advisors, and client lead with respect to this work.

### 2 HIGHWAYS ENGLAND'S CURRENT PROPOSAL

- 2.1 HE are proposing to construct a grade separated junction in the vicinity of the existing at-grade junction of the A47 / Wood Lane / Berry's Lane. The proposed junction consists of a dumbbell arrangement with a single carriageway underpass of the new A47 which in this locality is offline (north) of the existing A47.
- 2.2 HE's appointed consultancy (Sweco) has provided RPS digital files of the design, and given additional information during a Microsoft Teams meeting on the 11 August 2021. Sweco explained that the new junction (full grade separated) has been designed to a preliminary level of detail, and in full accordance with the Design Manual for Roads and Bridges (DMRB). The design allows for a future Norwich bypass Western Link (WL).
- 2.3 DMRB CD122 *Geometric design of grade separated junctions* covers the geometrical design of grade separated junction with up to three lanes joining or leaving the mainline. Sweco have explained to RPS that a full grade separated junction is required as mainline flows are above 30,000 Annual Average Daily Traffic (AADT), and that the resultant design is the best solution achievable mindful of DMRB, land constraints and implementation costs.
-

### 3 RPS OPTIONS

- 3.1 RPS has reviewed the HE's design and considered what alternative options could be realistically developed which may avoid the current design's significant impact on the Berry Hall Estate. Two options are considered of merit for further investigations by HE and its consultants.
- 3.2 Option 1 (**Figure A**) has a similar dumbbell arrangement to HE's proposals, Option 2 (**Figure B**) consists of a single roundabout; both options have two variants. The RPS' options include:
- Realignment of the A47 northwards.
  - Reconfiguration of the local road connections.
  - Option Variant A - retains the new link connecting Sandy Land and Wood Lane.
  - Option Variant B - retains the existing A47 west of Hillcrest with an underpass built under the new dualled A47 at Lady's Grove.
- 3.3 Sweco has commented that Option 2 adds unnecessary construction costs due to the additional underpass, however, the area/volume of new road construction is less and journey times through the junction should be less; both environmental benefits.
- 3.4 Both options have flexibility in the extent of northern realignment, the redesign of the Hockering link, and the reconfiguration of the local road connections.
- 3.5 Retaining the A47 to the south of the new junction will simplify the local road connections and reduce the extent of utility diversions, and associated costs, which could be significant, offsetting the costs of a western underpass, whilst enhancing the scheme's sustainability.

### 4 RPS COMMENTARY

- 4.1 Although RPS appreciates that Sweco has designed the junction in accordance with CD122, RPS takes the view that strict adherence to CD122 is not always required as it may not provide the best design. In that respect DMRB GG 101, '*Introduction to the Design Manual for Roads and Bridges*', states (page 4) that '*DMRB documents are not statutory or regulatory documents or training manuals, neither do they cover every point in exhaustive detail*'. It's clear that '*Departures*' and '*Relaxations*' from DMRB are permitted for a variety of reasons (paras. 2.4 to 2.7; 2.9 to 2.12), provided they are safe and add value to the design.
- 4.2 DMRB CG103 '*Introduction and general requirements for sustainable development and design*', states (page 4) that, '*Good road design aims to put people at its heart by designing an inclusive, resilient and sustainable road network; appreciated for its usefulness but also its elegance, reflecting in its design the beauty of the natural, built and historic environment through which it passes, and enhancing it where possible*'. Section 3 of CG103 gives five examples of design opportunities and risk are presented, all of which should be managed in an iterative way as the design work evolves to ensure sustainable development. Implementation and maintenance costs are one example, but also included are current and future environmental, economic, social and cultural factors.
- 4.3 Based on DMRB's approach to sustainable design (and NPPF 2021), RPS take the view that the alternative options presented have merit, and should be investigated by HE/Sweco.

**END**



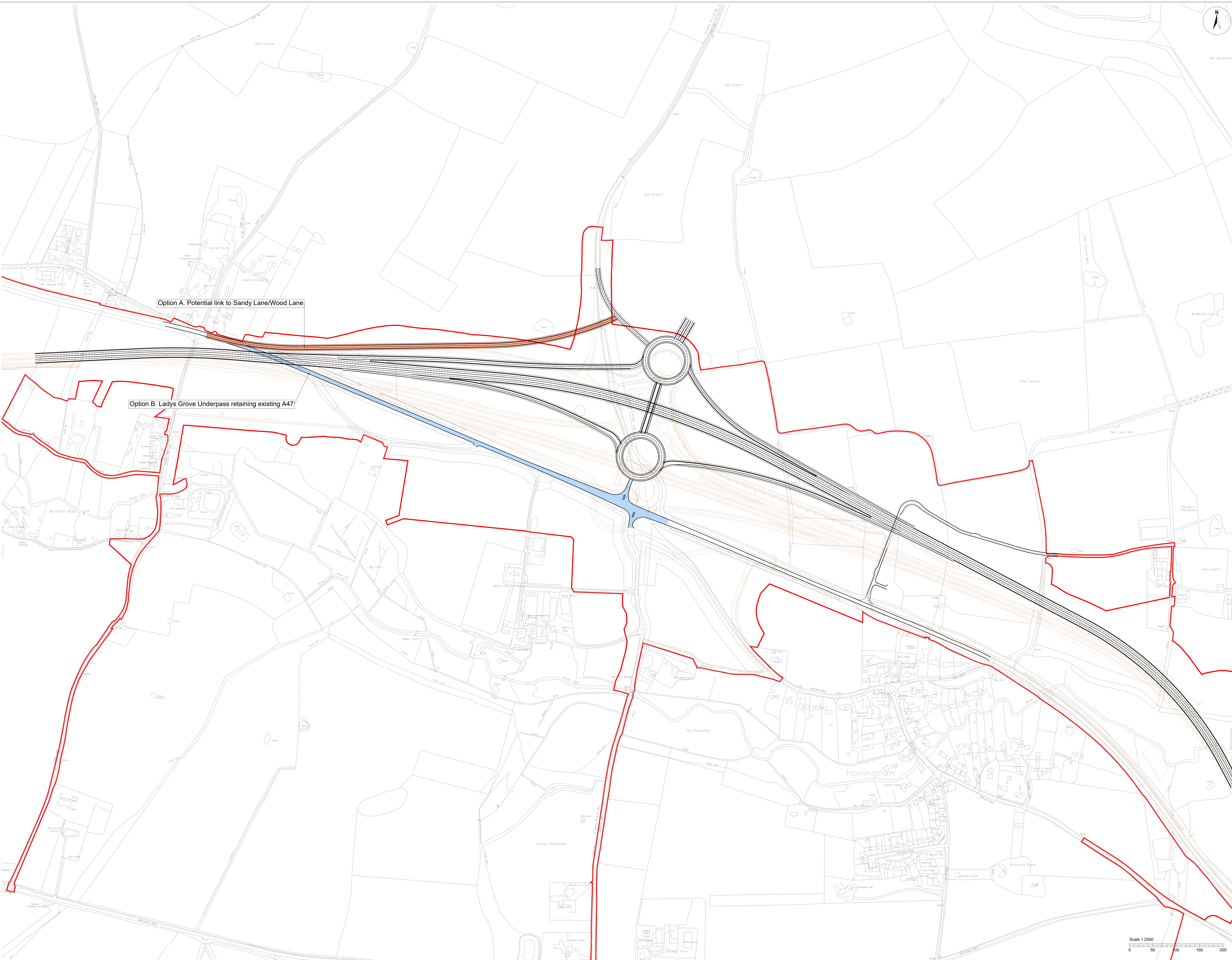
## Figures

## Figure A – Option 1





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Option A. Potential link to Sandy Lane/Wood Lane

Option B. Ladys Grove Underpass retaining existing A47

Rev	Description	By	CB	Date



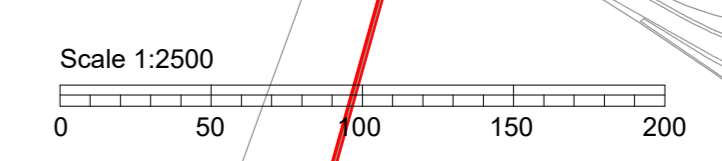
Project A47 North Tuddenham to Easton Dualling DCO

Title Dumb Bell Layout - Option 1

Status Drawn By PM/Checked by  
 PRELIMINARY AJ JE

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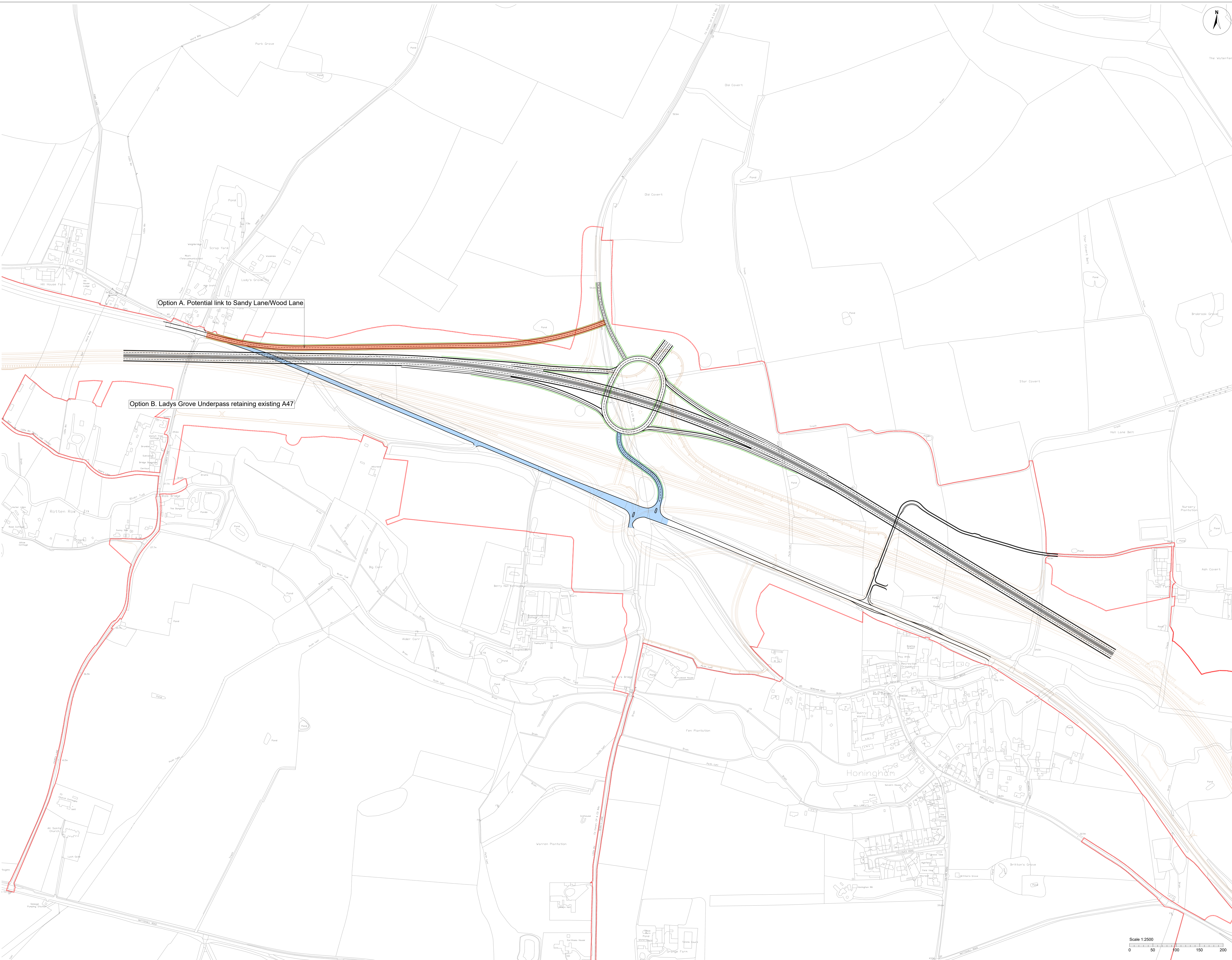


## Figure B – Option 2





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Option A. Potential link to Sandy Lane/Wood Lane

Option B. Ladys Grove Underpass retaining existing A47

Rev	Description	By	CB	Date



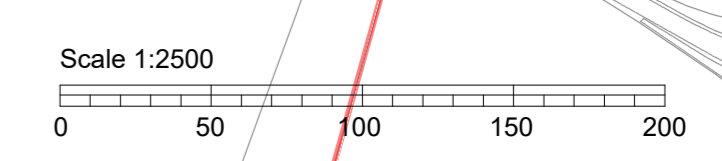
Project A47 North Tuddenham to Easton Dualling DCO

Title Roundabout Layout Option 2

Status Drawn By PM/Checked by  
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Project Number Scale @ A0 Date Created  
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## Neptune Transport Planning

E-Mail [REDACTED]@neptunetransportplanning.com; info@neptunetransportplanning.com

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Registered Number 13007436