

A1 in Northumberland: Morpeth to Ellingham

Scheme Number: TR010059

7.17.2 Applicant's Written Summary of Oral Submissions at Hearings - Appendix B - Part B Route Optioneering

Rule 8(1)(c)

Infrastructure Planning (Examination Procedure) Rules 2010

Planning Act 2008

March 2021

Infrastructure Planning

Planning Act 2008

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

**The A1 in Northumberland: Morpeth to
Ellingham**

Development Consent Order 20[xx]

Appendix B - Part B Route Optioneering

| | |
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1 INTRODUCTION

- 1.1.1. This document is submitted by the Applicant in response to queries raised by the Examining Authority (ExA) and Interested Parties at the Compulsory Acquisition Hearing 1 held on 24 February 2021 and in particular why the Green and Blue options were not taken forward, why further details were not provided at consultation stage and how these options relate to the Beal Farm.

2 STAGES 1 AND 2 INFORMATION

2.1.1. Six route options were initially identified for Part B in 2016 and were presented in the A1 Alnwick to Ellingham (Section B) Alignment Options – Technical Appraisal Report dated 2016. Of these options, three were discounted in 2016 and three were taken forward for further assessment. The three discounted options were:

- a. Offline Option A – discounted mainly due to vertical alignment (large cutting requirements) and resulting drainage issues
- b. Offline Option B – discounted mainly due to vertical alignment (large embankment requirements) and resulting visual impact and, exaggerated landform
- c. Offline Option D – discounted mainly due to buildability issues and the requirement for an additional bridge to carry the new mainline alignment over the existing A1.

2.1.2. The three options taken forward for further assessment were:

- a. Online Option A referred to as the Orange Route Option
- b. Hybrid Option C referred to as the Blue Route Option
- c. Offline Option E referred to as the Green Route Option

2.1.3. These options are shown in Figures 1 to 3 of this Appendix as follows:

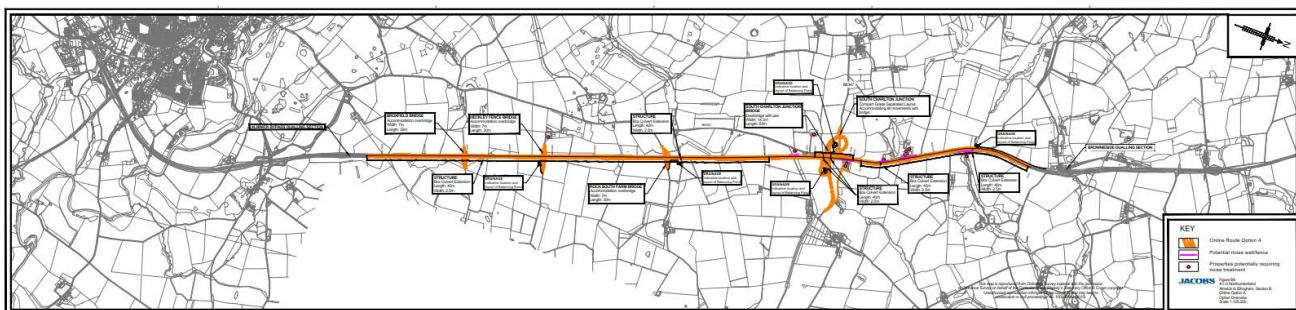


Figure 1 - Online Option A Orange Route

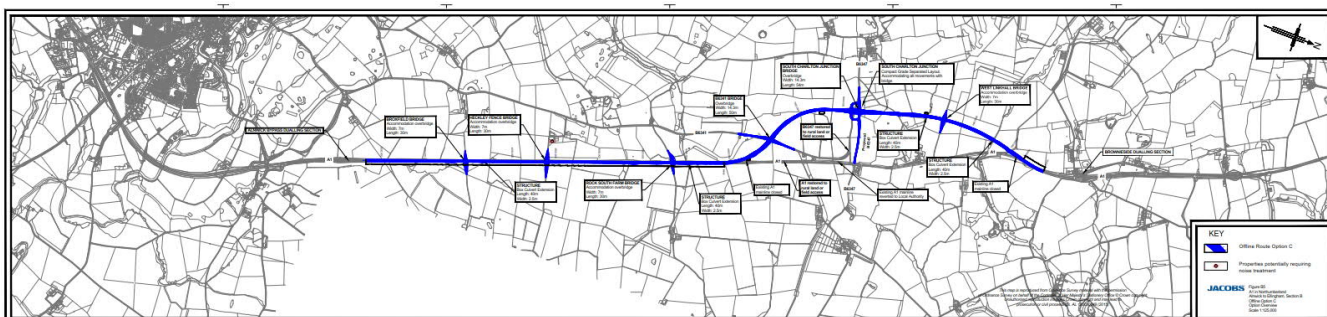


Figure 2 - Hybrid Option C Blue Route

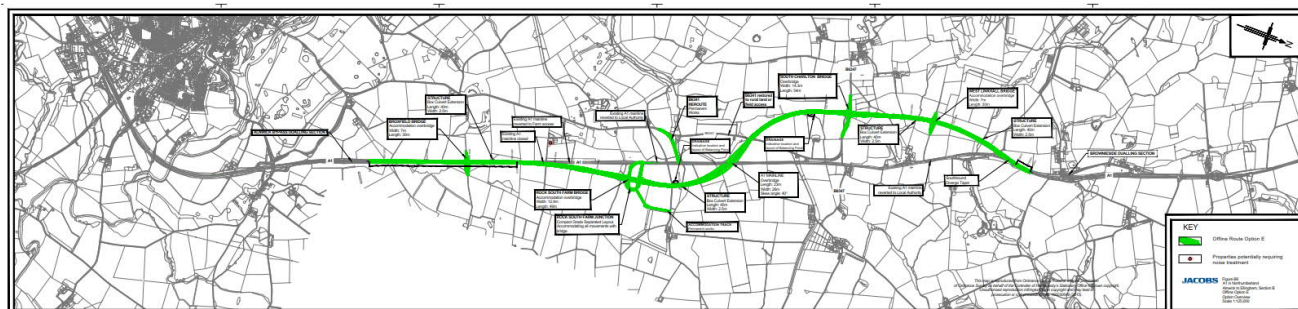


Figure 3 - Offline Option E Green Route

2.1.4. Public awareness events were held in May 2016 where the three remaining options were presented to the public. The exhibitions were carried out at four separate locations with a total of 540 members of the public in attendance. Approximately 200 of those attendees filled out questionnaires, with 160 providing comments. This led to amendments to Online Option A and Offline Option C (subsequently referred to as the Hybrid/Offline Option); although no amendments were identified for Offline Option E. One of the amendments to Online Option A was an adjustment to the junction at Charlton Mires to minimise the land take.

The three options as amended following the public awareness exhibitions (Online Option A, Hybrid/Offline Option C, and Offline Option E) were priced and assessed. The findings of this assessment are summarised in the Alnwick to Ellingham (Section B) Alignments Options Technical Appraisal Report (TAR) Version 4.3 (final) dated Sept 2016, relevant extracts of the which are provided below: In particular, the extract of Table 15 provides the Environmental Assessment of the three options and the extract of Table 16 provides the Assessment Summary of the three options.

Table 15 – Environmental Assessment Summary

| | Online option | Hybrid option | Offline option |
|-------------------------------|---|---|---|
| Air quality | No significant impact | Not assessed | |
| Noise | Adverse | Not assessed | |
| Landscape and visual | Least adverse | Intermediate adverse | Most adverse |
| Cultural heritage | Least adverse/ lowest risk | Intermediate adverse/ risk | Most adverse/ highest risk |
| Ecology | Least adverse/ lowest risk | Intermediate adverse/ risk | Most adverse/ highest risk |
| Water environment | Least adverse | Intermediate adverse | Most adverse |
| Geology and soils | Adverse | Intermediate adverse | Most adverse |
| People and communities | Adverse | Neutral | Beneficial |
| Materials | Least manufactured materials (% embedded CO ₂) But least balanced cut and fill | Intermediate manufactured materials (% embedded CO ₂) Better balanced cut and fill | Most manufactured materials (% embedded CO ₂) Near-balanced cut and fill |
| OVERALL BALANCE | Overall least adverse | Intermediate | Overall most adverse |

Table 16 – Assessment Summary Table

| | Alnwick to Ellingham | | |
|---|--|---|---------------------|
| | On-Line | Hybrid | Off-Line |
| Accessibility | Moderate Beneficial | Moderate Beneficial | Moderate Beneficial |
| Safety | Moderate Beneficial | Moderate Beneficial | Moderate Beneficial |
| RIS Compliance | Beneficial | Beneficial | Beneficial |
| Resilience | Moderate Beneficial | Moderate Beneficial | Large Beneficial |
| Customer Satisfaction | Beneficial | Beneficial | Beneficial |
| NMU's | Slight adverse | Neutral | Neutral |
| Environment Ranking, based on incomplete assessment, balance of 9 topics | Least adverse | Adverse | Most adverse |
| Geometric Standards | Moderate Beneficial – but with 2 departures | Moderate Beneficial – but with 1 departure | Large Beneficial |

- 2.1.5. As shown by the above extracts from the TAR, whilst Online Option A (the orange option) was the worst performing for People and Communities (Adverse Impact), overall it provided the least adverse environmental impact.
- 2.1.6. Further, the TAR recommended that only affordable options be taken forward to public consultation. Of the three options, only the Online Option A was sufficiently close to the budget allocation announced in RIS1 to ensure affordability and thereby constitute a deliverable scheme. As a result of this and the greater environmental impacts associated with the other options, only Online Option A was progressed to the November 2016 public consultation,
- 2.1.7. The recommendation to only present the affordable option (Online Option A) was approved at Highways England's Project Board held in July 2016.
- 2.1.8. An Assessment Summary of the Technical Appraisal Report dated October 2016 was produced for the Public Consultation held in November 2016. Table 5 in this Assessment Summary provided text comparing the three options and is reproduced below.

| Table 5 Options Summary Table | | | |
|--------------------------------------|--|--|---|
| | Orange Route | Blue Route | Green Route |
| Description | This option widens the A1 to dual carriageway along the existing road. This will be to the east of the existing A1. There will be one new junction at South Charlton, connecting the A1, B6341 and B6347. An access track will connect properties at West Linkhall to the B6347. Properties on the southbound at East Linkhall will have a left-in left-out access to the A1. New local roads and access bridges will provide access for businesses and properties to the new junctions. Farm access and the bridleway/public right of way near Broxfield will be maintained via a bridge. | This option widens the A1 to dual carriageway using a combination of online and offline widening. Widening of the existing A1 between the southern tie-in with the Alnwick bypass and Ellsnook plantation will be to the east. There will be a new A1 between Ellsnook Plantation and the Brownieside duals; heading northwest toward the B6347, crossing the B6341 and passing to the West of Charlton Mires and Rock Nab. There will be a new junction at South Charlton, providing access to local villages and maintain east-west traffic links. Farm access and the bridleway/public right of way near Broxfield will be maintained via a bridge. | This option widens the A1 to dual carriageway using a combination of online and offline widening. Widening of the existing A1 from the Alnwick bypass will be to the east. There will be a new A1 between Heckley Fence and the Brownieside duals; first to the northeast, before crossing the existing A1 on a bridge before heading to the west of Rock Nab and Charlton Mires. There will be a new junction at Rock South Farm, providing access to local villages and maintain east-west traffic links. Farm access and the bridleway/public right of way near Broxfield will be maintained via a bridge. |
| General | <ul style="list-style-type: none"> - An alignment that is wholly online cannot be implemented due to some areas along the existing A1 between Morpeth to Felton having radii which were designed to a lower design speed (100kph) compared to the proposed (120kph). - Widening to either the west or east has been used to avoid constraints. - This option utilises most of the existing A1 corridor. - Constructing alongside the existing A1 will require traffic management | <ul style="list-style-type: none"> - Option encompasses all the benefits of Orange Route - One offline section proposed to smooth the alignment and avoid constraints. - Large proportion of the existing A1 corridor is utilised. | <ul style="list-style-type: none"> - Option encompasses all the benefits of Orange Route - One offline section proposed to smooth the alignment and avoid constraints. - Large proportion of the existing A1 corridor is utilised. |
| Land take | <ul style="list-style-type: none"> - Option requires the least land take. - Approximately 16 hectares anticipated. | <ul style="list-style-type: none"> - Option requires more land take. - Approximately 25 hectares anticipated | <ul style="list-style-type: none"> - Option requires the most land take. - Approximately 34 hectares anticipated |
| Relaxations & Departure | <ul style="list-style-type: none"> - One relaxation in horizontal geometry is proposed. - Two relaxations in vertical geometry are proposed. - Two Departures from Standards are foreseen. | <ul style="list-style-type: none"> - Two relaxations in horizontal geometry are proposed. - One relaxation in vertical geometry is proposed. - One Departure from Standards is foreseen. | <ul style="list-style-type: none"> - No relaxations or departures are foreseen. |
| Junctions | <ul style="list-style-type: none"> - One all movement CGSJ at the B6341/B6347 intersection with the A1. | <ul style="list-style-type: none"> - One all movement CGSJ featuring an overbridge near South Charlton. | <ul style="list-style-type: none"> - One all movement CGSJ located at Rock South Farm. |
| Structures | <ul style="list-style-type: none"> - One bridge located at a junction - One accommodation bridge to maintain connectivity at Broxfield. - Two new culverts. - Extensions to five existing culverts. | <ul style="list-style-type: none"> - One bridge located at a junction - Three accommodation bridges to maintain connectivity at Broxfield, B6341, and West Linkhall. - Two new culverts. - Extensions to two existing culverts. | <ul style="list-style-type: none"> - One bridge located at a junction - Three accommodation bridges to maintain connectivity at Broxfield, South Charlton, and West Linkhall. - Three new culverts. - Extensions to two existing culverts. |
| Additional | | <ul style="list-style-type: none"> - The alignment is a greater distance from properties. - Existing A1 retained as local road network. | <ul style="list-style-type: none"> - The alignment is a greater distance from properties. - B6341 closed and rerouted to the existing A1 to improve buildability. - Existing A1 retained as local road network. |

- 2.1.9. The non-statutory public consultation took place over six sessions between 18/11/2016 and 26/11/2016. As part of the consultation event, an information brochure was produced and made available. The brochure is included in Appendix A of the Consultation Report [APP-022]. Page 18 of the brochure confirms that while it is common for projects to have more than one viable option for further development at that stage there was only one option which was viable within the funding constraints. The brochure confirmed that a full summary of the options discounted was presented in the Assessment Summary Report which was published as part of the consultation as a supporting document. The Options Summary Table from this report which considered the orange, green and blue options is included in the foregoing. The Assessment Summary Report included a Table which was the same as Table 15 in the main Technical Appraisal Report as set out in the foregoing. This table confirmed that the orange option had the least environmental impact overall and had the least adverse impact in terms of landscape and visual, cultural heritage, ecology, water environment and materials.
- 2.1.10. As such, the rationale for the narrowing of route options ahead of the public consultation was explained during the course of the November 2016 public consultation.
- 2.1.11. As set out in section 2.6.5 of the Case for the Scheme [APP-344] during the November 2016 public consultation, nearly half of the respondents (49%) agreed with the Orange Option, while 5% disagreed, and the remainder stated that they neither agreed nor disagreed or did not answer. Subsequently, the Orange Option was announced as being the preferred option to be progressed to Preliminary Design in September 2017.

A1 in Northumberland
Charlton Mires Technical Note
B204700_OD_112

Revision 3.0

07 March 2017

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| 1.2 | 21/11/2016 | Amendment to Options | KS | CR | PF |
| 1.3 | 05/01/2017 | Amendment following Public Consultation | KS | CR | PF |
| 1.4 | 09/01/2017 | Amendment to HE comments | KS | CR | PF |
| 2.0 | 24/01/2017 | Additional Option | KS | CR | PF |
| 3.0 | 07/03/2017 | Revised Accesses and Mainline Alignment | KS | CR | PF |

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[Appendix B.](#) [Option Summary Table](#)

[Appendix C.](#) [Revised Junction Options 1 and 3](#)

[Appendix D.](#) [Revised Option Summary Table](#)

Introduction

As part of the development of the A1 in Northumberland programme the project team have looked at the South Charlton Junction in Charlton Mires area.

The need to examine this area of the A1 in more detail was prompted by discussions held with local residents and key stakeholders at the Public Awareness Events (PAE) which took place in May 2016.

This technical paper sets out the existing situation on this section of the route and examines constraints, impacts and the proposed options.

The remainder of the technical paper is structured as follows:

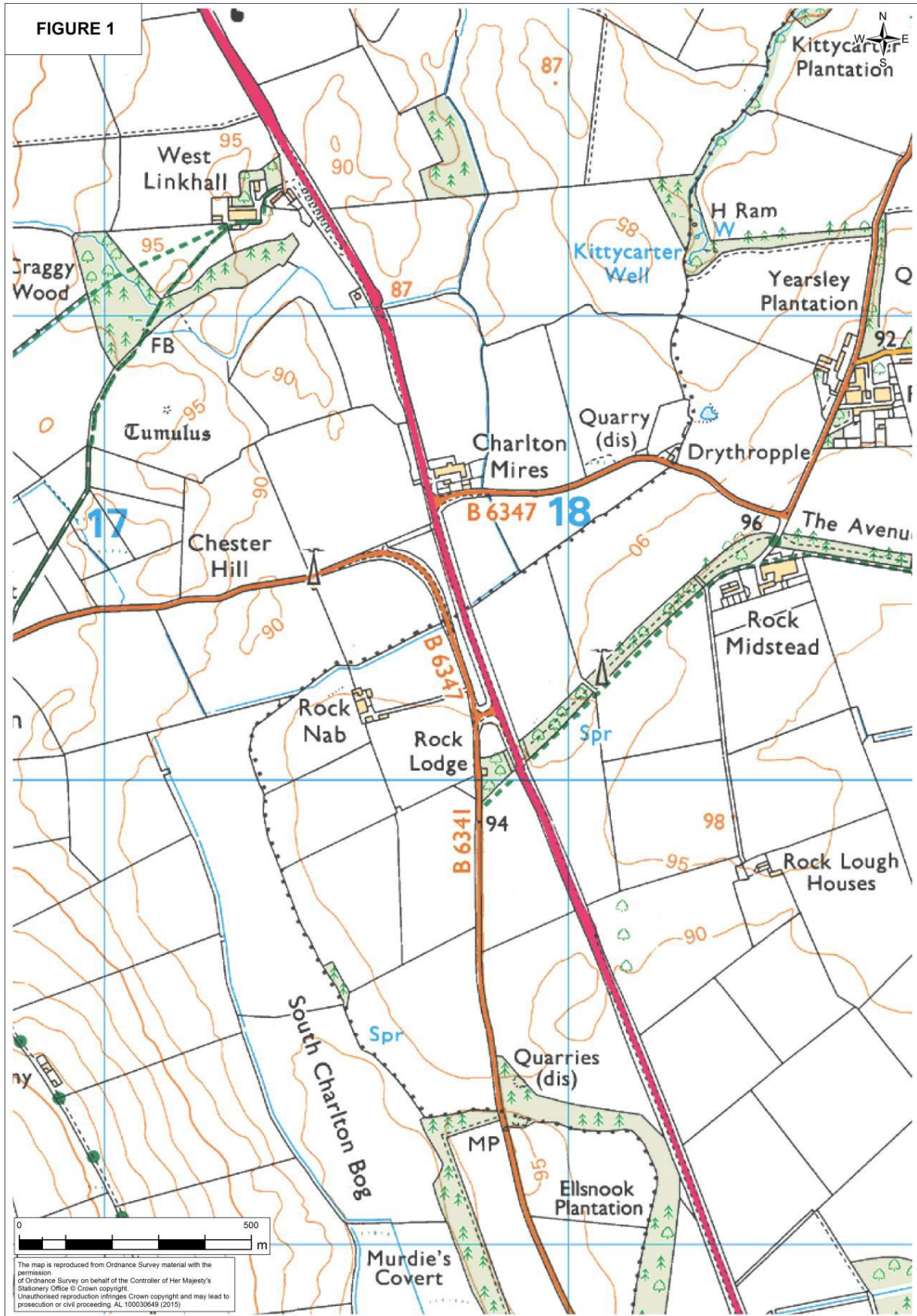
- Existing Situation & Background
- Constraints
- Design Implications
- Public Awareness Event Feedback
- Options Considered
- Landowner Meetings and Public Consultation Event Feedback
- Revised Access Arrangements
- Revised Mainline Alignment
- Further Developments
- Environment
- Summary

Existing Situation & Background

The area known as Charlton Mires contains small clusters of residential properties, a farm, and a paddock. This location is a key east-west route across the A1 via the B6347 and also a popular route south towards Alnwick via the B6341. The existing junction is a staggered ghost island accommodating the B6347 to the east and west, and B6341 to the south.

During the Option Identification stage, a need was identified for a compact grade separated junction (CGSJ) on the Orange Route to maintain east-west connectivity, and to access to the A1 from both the B6347 and B6341.

Figure 1 below is a map showing the existing situation.



Constraints

The constraints through this area include;

- B6347 link to the A1 southbound carriageway
- B6341 link to the A1 northbound carriageway
- B6347 link to B3641 west of the A1
- Two residential properties east of the A1 and north of B3647
- One paddock east of the A1 and south of B3647 (informed at PAE)
- Two farms spanning east and west of the A1
- One property to the west of the A1 at B3647 intersection with B3641
- One property to the west of the A1 south of B6347 (informed at PAE)
- Two private means of access (PMA) on the southbound carriageway
- Three PMA on the northbound carriageway
- Bus stop laybys on both northbound and southbound carriageways

Design Implications

Widening of the existing A1 through this highly constrained area will have potentially negative effects on the adjacent properties. Widening will bring a need to upgrade the junction from an at-grade junction, to a CGSJ to fulfil objectives set out in the junction strategy. Therefore, due to the amount of adjacent properties in each quadrant, the road will inevitably cause land take to one or more of them; both south quadrants, both north quadrants, or northwest and southeast quadrants. It is also noted that the properties may have significant impacts to their views due to the height required for a grade separation.

Figure 2 below is an aerial photograph displaying the existing B6347 and B6341 links to the A1. The aerial also shows the existing land use of adjacent properties with A and B representing the new house and paddock, respectively, that project team learned about at the Public Awareness Events. The house in location A was built after the project survey data was taken.



Public Awareness Event Feedback – (May 2016)

At the Public Awareness Events held in May 2016, conversations took place between the project team and residents located around Charlton Mires, in particular those with properties immediately adjacent to the A1.

Amanda & Martin Beal are residents in one of the houses to the east of the A1 with their farm spanning east and west of the A1. Their current house is close to the existing A1, in the corner plot with the B6347. They informed the project team at the Public Awareness Event that their new house was built, within the last two years, to the west of the A1 south of B6347, see Figure 1 location A. They are concerned about the junction location due to the blight it may cause their new residence.

Felicity & James Hester are the other residents in a cottage to the east of the A1. They informed the project team at the Public Awareness Event that the field south of their property, across the B6347, is a paddock. They are concerned about the junction location as it relates to the paddock and interested in alternative junction locations or designs. They also expressed concern with vehicles potentially veering off the A1 into their paddock due to the A1 widening through Charlton Mires with the significant elevation difference between the carriageway and their adjacent property.

Jennifer & Sean Robertson own Rock Nab and Rock Lodge, west of the A1, tucked between the A1 and B6341. In the grounds of their land they also have log cabin which they use as a holiday let. They raised concern about the visual and sound blight that may be caused by the A1 widening to the west through this area, which will remove trees. They questioned whether or not sound barriers would be installed and what mitigation would be for their loss of business during construction.

Options Considered – (June to July 2016)

Following the Public Awareness Events several options of junction arrangement were developed;

Initial Proposal

The initial proposal taken forward in the online route option (orange) was a roundabout and overwide bridge. The roundabout connects the B6347 west, B6347 east onto the overbridge, the B6341 to the south, and the north spoke to northbound carriageway merge and diverge. An overwide is required for the overbridge to span both the A1 and the B6341. The A1 southbound and northbound carriageway access will be realigned.

This proposal was put forward with the available information at the time; this presented two apparently empty quadrants to the south of the intersection of the A1 and B6347. Therefore these were used in an attempt to minimise the impact on neighbouring properties. At this stage of the design access tracks were not developed. See drawing 162 in Appendix A.

Revised Proposal 1

Revised Proposal 1 was developed following the Public Awareness Event when HE/Jacobs team found out about the new house in the southwest quadrant and paddock in the southeast quadrant. This proposal differs from the initial, with removal of the roundabout and moving the overbridge north of the properties saving the new house and paddock.

This approach does not need an overwide bridge as it will only span the A1. Therefore by moving the bridge it decreases the option's structures cost. This option would also maintain the B6347, B6341, A1 southbound carriageway access, and A1 northbound carriageway access in their existing locations.

Rock Nab and Rock Lodge east of the A1 will have access via B6341. The properties east of the A1 will have access via B6347. An access track north from B6347 west of the A1 and Charlton Junction will be added to access West Linkhall as there will no longer be direct access onto the A1.

This option, would take approximately 10% of the Charlton Mires Farm holding but it is the impact to their operation rather than the land take that is the real issue; resulting in taking out some of the stone agricultural buildings as well as removing access to and taking garden from the farmhouse.

Although causing blight to the farm, this option will reduce the risk of serving blight to the new house and paddock. See drawing 163 in Appendix A.

Revised Proposal 2

Revised Proposal 2 was developed following a second meeting with the Beal's. This approach differs from Revised Proposal 1 with the overbridge crossing the A1 at a skew to connect the B6347.

Rock Nab, Rock Lodge, and the Beal's new home east of the A1 will have access via the B6341. The properties east of the A1 and West Linkhall properties will have the same access stated in Revised Proposal 1.

This option would only take about 5% of the Charlton Mires Farm holding but would almost certainly place it into blight with the road coming very close and the loss of about 70% of the garden. See drawing 164 in Appendix A.

Revised Proposal 3

Revised Proposal 3 was developed following discussions between the project team and the Valuation Agency Office. This approach differs from Revised Proposal 2 with the southbound carriageway access and B6347 (east) diverted south along the tree line between Rock Midstead and Rock Lodge. The overbridge will cross the A1 south of Rock Lodge through fields in the larger Rock Midstead holding.

The old B6347 will be retained as part of the local road network, providing access to properties at Charlton Mires. All other properties will have access as described in Revised Proposal 1.

This option, although requiring the construction of approximately 1km of new side, there would be less risk of substantial blight claims to the Charlton Mires Farm, the Beal's new house and the paddock. See drawing 169 in Appendix A.

The major traffic movement is north/south along the B6341 across the A1 to east/west along the B6347. The east-west movement along the B6347 across the A1 is the minor movement. Realigning the CGSJ overbridge south of the existing junction would only increase the travel distance of the minor movement.

Landowner Meetings and Public Consultation Feedback – (Aug to Nov 2016)

Additional meetings were held with the Beal's; one in August 2016 and a second in October 2016.

The August meeting was an information gathering exercise in order for us to understand how the Beal's work their land, and gather general views on the access arrangements.

In October Revised Proposal 1 for the junction at South Charlton was presented to the Beal's. This option is the current assumed arrangement in the cost estimate. The option was not received with any note of positivity.

The Beal's were informed at the October meeting that the Blue and Green Options were being discounted due to the high cost and the only option being put forward at the Public Consultation Event would be the Orange online option. This immediately caused problems for the Beal's as they have properties in three of the four quadrants of the A1 around the site of the proposed South Charlton Junction, the only CGSJ proposed along this scheme.

Particular concerns regarded the impact of junction on the old farmhouse (occupied by Mr Beal senior) and the impact on the farm land and farm buildings. The track up to West Linkhall would cut through their field and would be unacceptable.

Louis Fell, the agent for the Beal's and Mr. Gray, pointed out that stock is currently moved east-west across the A1 at Charlton Mires by the Beal's and north at East Link Hall by Mr. Gray. This is something the design team was not aware of. Access to the cottages, the boarding kennels and now this east-west connectivity of the farms needs to be investigated more fully.

At the Public Consultation Events in November discussions were also held with Mr & Mrs Hester of Charlton Mires Cottage. Additional information was received regarding the use of the property; including equestrian movements between the paddock south of the B6347 and a smaller paddock north of the B6347 adjacent to the cottage. Further details of improvements to the paddock were also discussed.

Revised Access Arrangements – (Dec 2016)

Further development of access arrangements has followed discussions during the Public Consultation Event in November 2016. The following access arrangements are relevant to all junction options.

East Linkhall to the north of Charlton Mires will have access via a parallel access road from Shipperton Bridge south to the old B6347 at Charlton Mires. A southbound diverge off the A1 will be provided near Shipperton Bridge to decrease travel time and distance for vehicles travelling south for East Linkhall and neighbouring Charlton Hall.

Rock South Farm will have access to B6347 via an access track between Rock South and Rock Midstead. This provision is however subject to a review following additional feedback.

West Linkhall will have access as described in Revised Proposal 1 from South Charlton. A northbound merge will be provided to decrease travel time and distance.

Revised Mainline Alignment – (Jan 2017)

The Access Arrangement Amendments were presented to the residents of West Linkhall at Land Owner Meetings in January 2017. The Access Track with northbound merge at West Linkhall was not received with positivity by the residents of West Linkhall or the Beal's.

It was proposed to shift the A1 offline east through this section so that the West Linkhall access track utilises the existing A1. This layout allows the access track to be more appropriately located along the existing road corridor, prevents the severance of the Beal's western fields, and moves the new A1 mainline further away from residential properties.

Design development for the proposed Revised Mainline Alignment is constrained by;

- Scheduled monument east of the A1 at Ch.8600m
- Listed Patterson Cottage adjacent to the A1 at Ch.8400m
- West Linkhall adjacent to the A1 at Ch.8600m
- Mature trees and garden at West Linkhall
- Access for East Linkhall
- South Charlton junction

The new alignment brings Section B Orange Option offline to the east of the existing A1 between Ch.7400m and Ch.8700m. The design parameters are as follows;

- The curve at Ch.8100m has radii 720m which is one step below the desirable minimum radii with superelevation of 7%. The spiral transition has been limited to 131m as this is a bend of sub-standard curve for the design speed per TD9/93 (DMRB 6.1.1) Chapter 3.16.
- The curve at Ch.8600m has radii 1020m which is the desirable minimum radii with superelevation of 5%. Spiral transitions of 61m have been applied, using a relaxed centripetal acceleration of 0.6m/sec³.
- Curve widening is proposed on the southbound carriageway in order to achieve visibility on the approach to the southbound diverge on the proposed South Charlton junction.
- The track to the west of the A1 is provided as a 3m wide single-track road with passing areas for access from the B6347 to West Linkhall.

- Since a southbound diverge will be provided from the A1 at East Linkhall the parallel access road to the east of the A1 will need to meet DMRB S2 standards of 7.3m width. This road will provide access from East Linkhall to the B6347.

Further Developments - (Jan 2017 to present)

In January 2017 all of the proposed options and an Option Summary Table (see Appendix B) were presented at the Project Board. Discussions resulted in Option 1 emerging as the preferred option to move forward. However, to inform the decision in further assessment, it was considered appropriate that Option 1 and 3 be developed to include the mainline realignment and revised access arrangements.

The highways design team presented revised access arrangements and mainline alignment for Options 1 and 3 to Highways England in February 2017. This was followed by a workshop with the District Valuers to assess the impact on neighbouring land owners, and identify further savings.

Due to the land take associated with the access tracks to East and West Linkhall, it was decided to revisit these tracks to limit the impact on the Beal's farming estate, particularly where fields were being severed.

A revised access proposal was developed, however this required the removal of the merge and diverge tapers located at West Linkhall and Shipperton Bridge. This removed the requirement to provide geometry suitable for a through route to and from the A1, allowing for a more compact arrangement of access tracks.

On Option 1, due to the location of the overbridge relative to the revised A1 alignment and the existing A1 it was considered appropriate to accommodate the proposed A1 and the access track to West Linkhall on the existing mainline corridor using an overwide bridge.

For the Revised Options 1 and 3 General Arrangement Layouts, see drawings 177 and 178 in Appendix C and for the Revised Options Summary Table, see Appendix D.

Environment

The original proposal would leave the properties at Charlton Mires and the new house west of the A1 at risk of significant visual impacts. To varying degrees, these effects would still be felt with revised proposals 1 and 2.

In relation to residents' concerns about potential noise impacts, we have conducted a preliminary noise impact assessment which identified basic noise level changes for each section of road rather than for individual properties. A more detailed assessment is in progress. At this stage, however, the preliminary results suggest a slight reduction in noise for properties along the B6341, and that the only properties experiencing an increase would be those adjacent to the A1 north of the Charlton Mires junction. It is uncertain at this point how properties at Charlton Mires itself would be affected.

In addition, preliminary results suggest that some of the buildings at Charlton Mires may have significant potential for bat roosting (although it has not been confirmed whether they are used by bats, and the location is isolated from other suitable features for bat foraging and commuting). Revised proposal 1 in particular would compromise this potential value.

Revised Proposal 3 takes the impacts away from Charlton Mires altogether. There are, however, some issues with the diversion of the B6347 adjacent to the tree belt further south. The tree belt has significant ecological potential and some possible historic interest. To minimise the potential for an adverse impact it is recommended that a buffer of at least 5m is left between the diverted B6347 and the tree belt and the link through the tree belt to reach the overbridge is moved to use an existing gap slightly further to the north-east.

Summary

Proposals for access were developed following the Public Awareness Events in May 2016. These were presented to the public and appropriate landowners at the Public Consultation Events in November 2016. Subsequent discussions are ongoing, and feedback to date has informed the further development of access arrangements and potential alignment modifications.

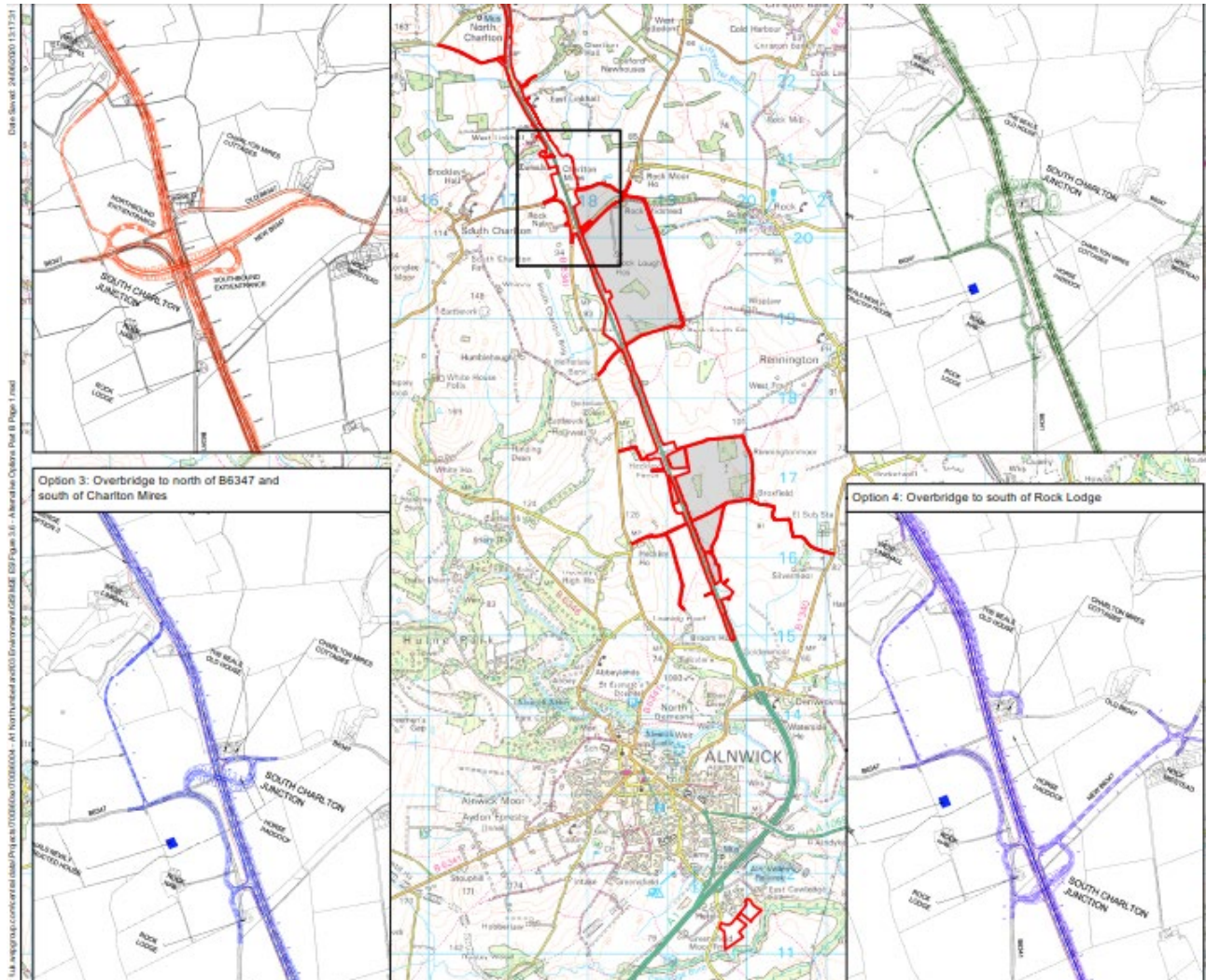
Both Revised Options 1 and 3 present an appropriate solution to the design scenario, however, each present advantages and disadvantages. For full details refer to the Revised Option Summary

Option 1 is emerging as the preferred option for the following reasons;

- The option utilises more of the existing road network, requires less construction and has a lower cost.
- Shorter journey times for local residents, particularly those located at East and West Linkhall; due to more centrally located overbridge.
- The risk of blight at Charlton Mires is significant in both options due to the need for the mainline geometry to avoid the listed Patterson Cottage.

As the emerging preferred option, Revised Option 1 will form the basis of the Environmental Impact Assessment and the traffic forecasting. However, on-going discussion with land owners and the representing land agents will inform the final design decision.

South Charlton Junction General Arrangements



Revised Option Summary Table

CHARLTON MIRES JUNCTION - REVISED OPTION SUMMARY TABLE

Following discussions with land owners and the Public consultation events it has been necessary to revisit the junction arrangements around Charlton Mires. The main amendments required focus around the access arrangements for East and West Linkhall; located to the north of Charlton Mires. The table below now summarizes the viable options

| Location | Option | Summary of Revision | Description | Safety | Construction Cost | Buildability | DV Land Costs | Landowner Satisfaction | Customer Satisfaction (non-landowner) | Economic | Environment |
|---|-------------------------------|--|---|--|--|-----------------------------|--|---|---|--|---|
| South Charlton Junction at Charlton Mires | Original | Discounted following meetings with landowners | The original design was based on information available at the time, this did not show the new property located to the southwest of the junction. The original design therefore used the two opposite empty quadrants at the B6347/B6341/A1 intersection. | | In original cost estimate +£2'000'000-£2'000'000 due to bigger bridge and additional side roads | | This original option would have caused blight to Charlton Mires as well as significant injurious affection to the new property to the west. The estimated land acquisition costs for this option were £1,874,170. | Land take from smaller holdings and closer to property | | No differential effect on traffic | Significant visual impact |
| | Option 1 Northern Junction | Revisions : Access tracks to east and west Linkhall amended. Mainline has been realigned east to allow track in front of Patterson Cottage. Overbridge ramps remodelled to minimise land take. Curve widening added to allow full visibility on southbound approach to junction. | This Option was developed following the Public Awareness Events and in light of a cost challenge workshop in order to bring the scheme within budgetary constraints. It maintains and utilises more of the existing road network. The overbridge is located to the north. | Existing B6347 is retained in current state. | Utilises more of the existing road network. | Both present similar issues | The risk of blight is significant at Charlton Mires and there is significant impact on the Beal's farming estate. Estimate costs £1,137,278 (most severe blight scenario £1,357,278) | Land take from smaller holdings, and closer to property. Shorter journeys for local resident due to more centrally located overbridge | More convoluted routes for all movements due to additional major minor junctions. | No differential effect on mainline traffic. However local traffic have longer journey times due to more convoluted route. Minimal because of overall shorter journey times for residents. | Significant visual impact, effect on bats |
| | Option 2 | Discounted following meetings with landowners | This Option was developed following a meeting with the adjacent landowner who are potentially the most effected. It maintains and utilises more of the road network. However, uses a skewed bridge and to lessen the amount of land take. | | No differential construction costs (skewed bridge offset by less road) | | As with the above I do not believe we have produced a dedicated LCE for this specific option. However this would have a significant impact on Charlton Mires with a real risk of blight and injurious affection to the property to the west. | Land take from smaller holdings and closer to property | | No differential effect on traffic | Significant visual impact |
| | Option 3 Southern Junction | Revisions : Access tracks to east and west Linkhall amended. Mainline has been realigned east to allow track in front of Patterson Cottage. | This Option was developed following a meeting with the adjacent landowner who are potentially the most effected. It maintains and utilises more of the road network. The overbridge was moved to the south. | Realignment of the eastern B6347 will bring it up to current standards, improving visibility. Marginal improvement | 1km of new side roads required +(£400'000-£300'000) | Both present similar issues | The mainline alignment has been revised and moved to the east. Therefore the impact on the properties at Charlton Mires remains. However the impact on the Beal's farming estate as a whole is reduced. Effect on additional landowners due to relocated overbridge. Estimate costs £1,226,994 | Land take from larger holdings. Risk of reputational impact due to late approach to newly affected landowners and challenge at DCO difficult to defend. Longer journeys for local resident due to more centrally located overbridge | All movement have simpler route with fewer major minor junction. Overall beneficial | Marginal Beneficial for minor road traffic movements, with largest movements heading from the A1 southbound to Alnwick on the B6341, and northbound on the B6341 joining the A1 to head north. | Potential ecological issues, but easy to mitigate |

| | |
|-----|---|
| Key | Neutral - no difference between options 1 and 3 |
| | Worse performing option of option 1 and 3 |
| | Better performing option of option 1 and 3 |

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