

A66 Northern Trans-Pennine project

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4.1 Project Development Overview Report Appendix 2 A66 Northern TransPennine Project Scheme Assessment Report

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4.1 Project Development Overview Report Appendix 2 A66 Northern Trans-Pennine Project Scheme Assessment Report

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1 INTRODUCTION

1.1 Scheme Assessment Report

- 1.1.1 The Scheme Assessment Report (SAR):
 - Reports on the appraisal of the route options for the dualling of the remaining single carriageway sections of the A66 between Penrith and Scotch Corner.
 - Reports on the public consultation of route options.
 - Presents a Recommended Preferred Route
- 1.1.2 Highways England is making a recommendation to the Secretary of State (SoS), following consideration and analysis of the consultation feedback, on which route option should be selected as the Preferred Route. The SoS will consider the recommendation and then decide which route option will form the Preferred Route. That decision will be published in a 'preferred route announcement'. The Preferred Route will then be developed in more detail, with further consultation, before an application is made for a Development Consent Order (DCO).

1.2 Structure of Document

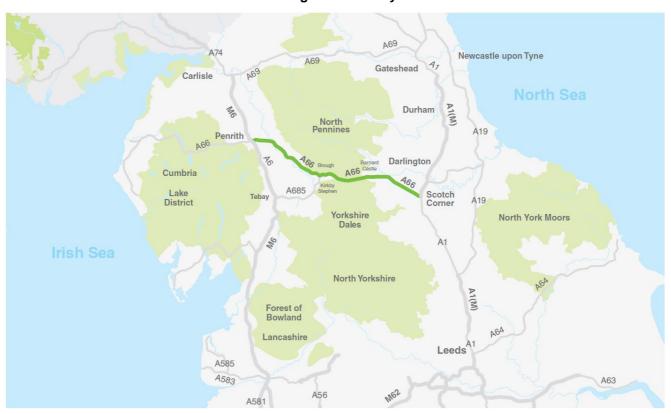
- 1.2.1 The structure of this document is as follows:
 - Section 2 sets out the scheme background and gives an overview of the previous studies.
 - Section 3 describes the surrounding highway network, an overview of existing performance and the existing physical conditions.
 - Section 4 sets out the Planning Factors and policy context.
 - Section 5 sets out what will happen if nothing is done (the Without Scheme scenario).
 - Section 6 describes the Do-Something scheme options considered.
 - Section 7 summarises the appraisal of the Do-Something options during PCF Stage 1.
 - Section 8 summarises the views and comments emerging from the public consultation.
 - Section 9 summarises the appraisal of the Do-Something options during PCF Stage 2
 - Section 10 provides a summary of the options selected for validation
 - Section 11 provides a statement as to whether the options considered had implications on the safe and economic operation and maintenance of the completed scheme.
 - Section 12 provides a statement as to whether the options considered had implications on the requirement for additional roadside technology and the ability to maintain said equipment.
 - Section 13 provides a statement as to whether the options considered had potential to affect the environment significantly or achieve the schemes Environmental Objectives.
 - Section 14 provides a summary of the Traffic and Economical Appraisal carried out on the options considered
 - Section 15 gives a firm recommendation citing the reasons for the conclusion, drawing on the comparisons, views, etc, discussed above



2 SCHEME BACKGROUND

2.1 Scheme Overview

Figure 2-1: Study Area



- 2.1.1 The A66 Northern Trans-Pennine Project involves the improvement of the A66 between the M6 at Penrith and the A1(M) at Scotch Corner. The A66 is a key national and regional strategic link for a range of traffic movements; it carries high levels of freight traffic, as well as being an important route for tourism. There are no direct rail alternatives for passenger or freight movements along the corridor. Despite the strategic importance of the A66, the route between the A1 at Scotch Corner and the M6 at Penrith is only intermittently dualled, and still has six separate sections of single carriageway over a length of around 50 miles. The route also carries local slow moving agricultural traffic making short journeys which can have an impact on other users, especially on the single carriageway sections. The mix of road standards, together with lack of diversionary routes available when incidents occur, affects road safety, reliability, resilience, and attractiveness of the route, with the result that it is underutilised as a strategic east-west link.
- 2.1.2 If the A66 route is not improved the performance will inhibit improvements to national and regional connectivity, and threaten the transformational growth envisaged by the Northern Powerhouse agenda.
- 2.1.3 The A66 is the most direct route between the Tees Valley, north, south and west Yorkshire, the East Midlands, eastern England, north Cumbria, and the central belt of Scotland and Cairnryan (for access to Ireland). The improvements to bring the A1 carriageway to motorway standards between Leeming Bar and the A66 (M) is likely to increase the attractiveness of south-to-north movements along the A66.
- 2.1.4 During periods of snow or high winds, the elevated and exposed nature of parts of the A66



between A1 (M) and the M6 can necessitate the closure of the route to high sided vehicles, or infrequently, to all vehicles. This can be especially detrimental to the movements of heavy goods vehicles (HGVs), which can account for more than 30% of A66 traffic in certain periods. Due to the nature of the surrounding road network, suitable alternative routes result in lengthy diversions

2.1.5 The A66 continues from Penrith to the north of the Lake District to Workington; the route provides links to Workington, including its port, and to the south along the A595 to Whitehaven and Sellafield. The A590 links the M6 from junction 36 through Ulverston to Barrow-in-Furness and is a mix of single and dual carriageway. To the east of Scotch Corner, the A66 links Darlington, Middlesbrough and Teesport, the largest exporting port in the country.

2.2 Background

Northern Trans-Pennine Routes Strategic Study

- 2.2.1 In 2014 the Northern Trans-Pennine Routes Strategic Study was announced as part of the first Roads Investment Strategy. The study formed one of six national strategic studies located in the North of England.
- 2.2.2 The study concentrated on two trans-Pennine routes, the A69 between Carlisle and Newcastle, and the A66 between Penrith and Scotch Corner with aims to improve connectivity and deliver transformational economic growth across the Northern Region.
- 2.2.3 A number of major route improvements were identified in the vicinity of the A66/A685 and A69 corridors that would aim to improve the attractiveness of the routes. Evidence suggested the routes are underutilised due to factors such as poor journey time reliability, high collision rates, a high proportion of heavy goods vehicles and a lack of alternative diversion routes.
- 2.2.4 The outcome of the Study was published in the Northern Trans-Pennine Routes Strategic Study Stage 3 Report, and the HM Treasury Autumn Statement 2016 announced that following the strategic study the A66 would be dualled.
- 2.2.5 The A66 project was identified by the Department of Transport as a Nationally Significant Infrastructure Project (NSIP) and is to be delivered under the Highways England's Collaborative Design Framework.

PCF Stage 1

- 2.2.6 In 2017, Highways England commissioned Arcadis to act as Technical Consultant PCF Stage 1 of the A66 NTPP with a brief to identify viable dualling options for consideration.
- 2.2.7 Stage 1 culminated with the Technical Appraisal Report which summarised the selection of options recommended to be taken forward to Public Consultation.
- 2.2.8 A draft Outline Business Case was prepared and presented to BICC in 2018 and was subsequently given permission to proceed to PCF Stage 2 Option Selection



2.3 Scheme Objectives

- 2.3.1 The transport objectives for the project are to:
 - improve journey times, reliability and resilience on the A66 between the junctions with the A1(M) and M6
 - improve strategic, regional and national connectivity, particularly for HGVs.
 - provide a more attractive alternative route to the M62 for some east-west crossing movements
 - reduce collisions on the A66 between the junctions with the A1(M) and M6
 - reduce junction delays at the A66/A6 Junction
 - reduce severance and improve air quality and noise for Kirkby Thore residents
 - improve connectivity between key employment areas of Cumbria, Tees Valley and Tyne and Wear areas
 - improve access to key tourist destinations such as the North Pennines and the Lake District
 - contribute positively to the future economic growth of the North of England.
- 2.3.2 As well as the above objectives all considered options should align with the areas of improvement that Highways England are focusing on through measurement of Key Performance Indicators:
 - making the network safer by continuing to reduce the number of people killed or seriously injured on the network
 - improving user satisfaction including satisfaction with the management of roadworks
 - supporting the smooth flow of traffic to minimise delay and inconvenience to road users
 - encourage economic growth by working to minimise delay on the network
 - delivering better environmental outcomes including: mitigation of Noise Important Areas to help improve the quality of life
 - aiming to deliver no net loss of biodiversity
 - helping cyclists, walkers and other vulnerable users of the network.
 - achieving real efficiency and making savings on capital expenditure
 - keeping the network in good condition.

Table 2-1: A66 Scheme Objectives

| Theme Project Objectives | | |
|--------------------------|---|--|
| Economic | Support the economic growth objectives of the Northern Powerhouse agenda | |
| | Improve national connectivity including freight | |
| | Maintain and improve access for tourism served by the A66 | |
| | Improve access to local services and jobs | |
| Transport | Improve road safety, during construction, operation and maintenance for all, including: Road Users, NMU's, Road workers and Local Residents | |
| | Improve journey time reliability for road users | |



| | Improve and promote the A66 as a strategic connection for all traffic |
|---|--|
| | Improve the resilience of the route to the impact of events such as incidents, roadworks and severe weather events |
| | Seek to improve NMU provision along the route |
| Community Reduce the impact of the route on severance for local community | |
| Environment | Minimise adverse impacts on the environment and where possible optimise environmental improvement opportunities |
| Deliver | Delivery efficiency objective to be set |



3 EXISTING CONDITIONS

3.1 Existing Highway Network

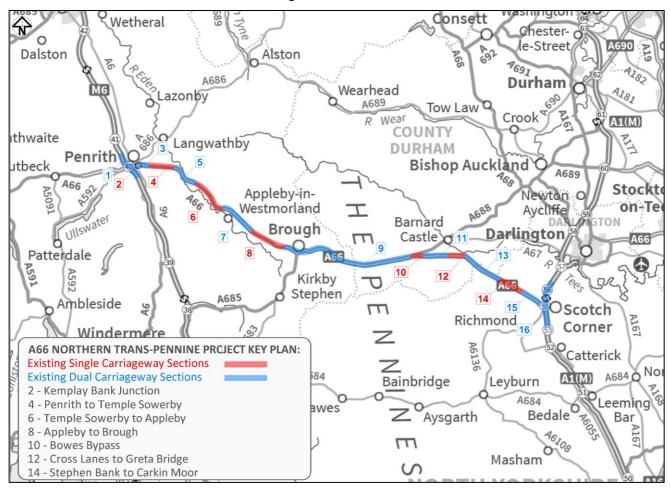
General

- 3.1.1 The North Pennines region of England is located between Darlington to the east and Carlisle to the west. It is bounded by the Tyne Valley to the north and the Stainmore Gap to the south. The A66 represents one of the primary east-west corridors which cross the North Pennines region between Workington in the West and Middlesbrough in the East.
- 3.1.2 The A66 is part of the national Primary Route Network (PRN) which is composed of "roads between places of traffic importance across the UK, with the aim of providing easily identifiable routes to access the whole of the country" (as defined by the Department for Transport (DfT)). This corridor is also part of a subset of the PRN, referred to as the Strategic Road Network (SRN).
- 3.1.3 As shown in Figure 3-1,the A66 interfaces with the A1M to the east at Scotch Corner and the M6 Junction 40 to the west at Penrith, with the connecting intersections considered to be of significant regional importance as a result of these corridors facilitating principal freight access routes connecting with wider economic regions of the United Kingdom.
- 3.1.4 The rural nature of the North Pennines severely limits the availability of viable alternative north-south and east-west route options in the event that a section of the strategic road network should become unavailable due to operational incidents, maintenance/improvement works or severe weather events.
- 3.1.5 The route is regularly used by slow moving agricultural vehicles. These can have a significant affect on journey times and reliability, particularly on the substandard S2 Sections.
- 3.1.6 The A66 corridor is also affected by increases in seasonal traffic demand with high volumes of visitors to attractions within the study corridor/surrounding region and the Lake District National Park.



3.2 Description of Locality

Figure 3-1: Route Overview



3.2.1 Between the M6 and Scotch Corner (A1), the A66 carries a high volume of heavy goods vehicles (HGVs), which can contribute greater than 30% of the Annual Average Daily Traffic (AADT). The route is split over three Counties, Cumbria (Network Management Area 13) in the West and Durham and North Yorkshire (Network Management Area 14) in the East.

Cumbria

- 3.2.2 The Cumbria section is approximately 28 miles long, comprising of 16 miles of dual carriageway and 11 miles of single two-lane carriageway. A speed limit of 40mph is in place through Kirkby Thore village, 50mph through Warcop with the national speed limit applying to the remaining sections.
- 3.2.3 The single carriageway sections to the east of the M6 generally consist of a lower standard than desirable. Although the initial section east of Brougham is close to S2 standards, beyond Whinfell junction the hardstrips are no longer provided and the cross-section becomes less forgiving with narrower verges and horizontal and vertical alignments which do not meet the minimum requirements of the Design Manual for Roads & Bridges (DMRB). There are numerous field access and private means of access along the route with a similar frequency of side road accesses, all of which are 'at-grade' on the single carriageway sections.
- 3.2.4 There are four sections of dual carriageway east of the M6 within Cumbria with the Temple Sowerby bypass is the most recent. The section between the M6 J40 grade separated junction and Brougham includes the signalised Kemplay Bank roundabout.



Durham & North Yorkshire

3.2.5 The Area 14 section of the route is similar in nature to the Penrith to the County border length and is a mixture of single and dual carriageways. The section is 21 miles in total, 16 miles are to dual standard with the remainder single carriageway. The entirety of this part of the route is under the national speed limit with the exception of Ravensworth where a temporary speed limit of 50 mph is in operation.

Study Area

- 3.2.6 The study area covers the A66 from the M6 Junction 40 (Penrith) in the West to the A1(M) Scotch Corner in the West. Approximately 49 miles long, there are currently 6 remaining sections that remain single carriageway (approximately 16.5 miles). It is within these sections that the option identification has taken place.
 - Section 2: Kemplay Bank Junction
 - Section 4: Penrith to Temple Sowerby
 - Section 6: Temple Sowerby to Appleby
 - Section 8: Appleby to Brough
 - Section 10: Bowes Bypass
 - Section 12: Cross Lanes to Greta Bridge
 - Section 14: Stephen Bank to Carkin Moor
- 3.2.7 In addition to the above the existing M6 Junction 40 (Section 1) and A1(M) Scotch Corner (Section 16) grade separated junctions, are also within the study area.

Section 1 M6 Junction 40

3.2.8 M6 J40 is an existing grade-separated junction on the M6 Motorway to the southwest of Penrith. The signalised roundabout junction serves access and egress to/from the M6 and the A66 with an additional 5th arm (A592) serving Penrith.

Section 2 Kemplay Bank Junction

- 3.2.9 Kemplay Bank roundabout is an at-grade 5 arm roundabout immediately south of Penrith. Two arms serve the A66 with 2 lane entries/exits towards the M6 at the west and Scotch Corner at the east. Two arms serve the A6 with single carriageway flared entries/exits towards Shap at the south and Penrith to the North. A fifth arm serves the A686 at the northeast quadrant of the junction. The roundabout operates under full signal control.
- 3.2.10 The roundabout is constrained to the north by Penrith Hospital and to the south by the Police Constabulary and Fire Station. The Fire Station has a direct access onto the circulatory to allow emergency vehicle egress.

Section 4 Penrith to Temple Sowerby

- 3.2.11 The A66 between its junction with B6262 at Brougham and the Temple Sowerby Bypass is single carriageway and follows the route of the old Roman Road. The existing carriageway is approximately 9.3m wide (7.3m wide with 1m hardstrips) between Brougham and the Center Parc junction, beyond Centre Parcs the carriageway is approximately 7.3m wide as far as Temple Sowerby bypass.
- 3.2.12 Between Brougham and the Center Parc junction the existing horizontal and vertical alignment appears to be compliant to the standards set out in DMRB for a design speed of 120kph. Beyond Center Parc up to the Temple Sowerby bypass, both the horizontal and vertical alignment is



poor and unlikely to be suitable for incorporation into the permanent works.

Section 6 Temple Sowerby to Appleby

- 3.2.13 The A66 between Temple Sowerby bypass and Appleby bypass is of single carriageway and varies in width but generally sub-standard without the provision of hardstrips.
- 3.2.14 The junctions along this section have no facilities for turning vehicles with the exception of the junction with Kirkby Thore which has a deceleration lane, although this is utilised as a bus layby. This Junction is the primary access to the gypsum works to the north of the village.
- 3.2.15 The route is largely located within agricultural pastureland and follows the route of the original Roman road heading in a south-easterly direction. The route diverges from the Roman road and passes through the Roman camp located directly on the A66 north of Redlands Bank Farm and continues to pass the hamlet of Crackenthorpe to the south before connecting to the Appleby Bypass.
- 3.2.16 The existing route corridor contains the village of Kirkby Thore and the Hamlet of Crackenthorpe. Kirkby Thore village is generally to the north of the A66 with a number of properties adjacent to the south with direct access to the A66. There is a large gypsum works to the north of Kirkby Thore whose access to the A66 is through the village

Section 8 Appleby to Brough

- 3.2.17 The A66 between Appleby and Brough follows the alignment of the Roman Road and is of single carriageway configuration, varying in width between approximately 9.3m and 7.3m. Ordnance surveys and site inspections reveal the route to be relatively good between Appleby Bypass and B6259. Beyond B6259 the existing alignment becomes very poor and unlikely to be acceptable to modern standards.
- 3.2.18 The junctions along this length vary in layout and comprise ghost islands for both the Sandford and Warcop junctions whilst there are no specific facilities provided at the Moor House, Toddygill, Filthhome and Langrigg junctions. The route is located within agricultural land bounded by the Ministry of Defence (MOD) training camp and firing range to the north. The MOD also retains its headquarters in the village of Warcop and requires frequent access across the A66 between the sites.
- 3.2.19 A P-Loop on the A66 assists with MOD access to the site for westbound articulated vehicles accessing the firing range access at Fell Lane.

Section 10 Bowes Bypass

- 3.2.20 Bowes Bypass comprises approximately 1km of single lane dualling and 2km of single carriageway. Adjacent to Bowes the eastbound carriageway has 2 lanes with the nearside lane configured as a lane drop for traffic leaving the A66 to join the A67. The offside lane is for A66 through traffic. The westbound carriageway is a single lane with a taper merge from the A67 merging just before Clint Lane overbridge.
- 3.2.21 Between the A67 and the Stone Bridge Farm the A66 is S2 single carriageway comprising 3.65m lanes and a 1.0m hardstrip in each direction. A short system of double white lines exist to prohibit overtaking through the length of Bowes Interchange where the carriageway alignment curves to the right and the cross-section is constrained in width by vehicle Restraint Systems/parapet fences in either verge. Elsewhere, the carriageway generally has narrow through lanes, to accommodate broken, central hatched markings of constant width through to the dual carriageway section.



Section 12 Cross Lanes to Greta Bridge

- 3.2.22 This section consists of a single, two-lane (S2), carriageway standard throughout, although short sections of single lane dual carriageway exist at either end to facilitate smooth transitioning from/to the existing adjoining dual carriageway sections. The carriageway alignment is relatively straight throughout with the exception of the right-hand curve at eastern extents, where the link transitions into the dual carriageway section at Abbey Lane Junction.
- 3.2.23 The carriageway generally has narrow lanes to accommodate the broken, central hatched markings, of constant width, extending from the nosing of the single lane dualling (associated with Cross Lanes Junction) for approximately 850m to a point 500m east of Street Side Farm, where a system of double white lines commences.
- 3.2.24 The system of double white lines, extending eastwards throughout the remaining length of the link (1,250m), has been installed to prevent vehicles over-taking through an existing vertical crest curve, where forward visibility falls below the minimum recommended distance for overtaking.

Section 14 Stephen Bank to Carkin Moor

- 3.2.25 This section is approximately 4.36 km in length and extends from Browson Bank Farm in the west to Carkin Moor in the east where the next length of dual carriageway is introduced. The carriageway closely follows the alignment of the former Roman Road, Dere Street resulting in it having a generally straight alignment but having notable crests and sags which affects forward sightlines.
- 3.2.26 This single carriageway length of the A66 has five major/minor junctions provided and seven private residential or commercial accesses. Two of the major/minor junctions have been provided with ghost island right turns to improve the safety for vehicles leaving the A66. These highway features result in frequent vehicle manoeuvres to and from the A66, thereby increasing accident risk. A feature of this single carriageway road is the generally narrow cross section of the road. Only narrow edge strips are provided, and the verge is also narrow, resulting in insufficient run-off areas should a vehicle leave the carriageway. Furthermore, the verge contains trees, shrubs, wooden telegraph poles and dry stone walls, which all act as potential collision hazards should a vehicle leave the carriageway.

Section 16 Scotch Corner

3.2.27 A1(M) J53 (Scotch Corner) is an existing grade-separated junction on the A1(M) to the south of Darlington. The signalised roundabout junction serves the A1(M), the A66, the A6055 and also provides access to Scotch Corner Motorway Service Area.

3.3 Traffic

3.3.1 Highways England WebTRIS data has been used to determine existing traffic flows for the A66 between the A1(M) at Scotch Corner in the east and the M6 junction 40 in the west. Data has been analysed from five two-way survey sites on the A66 as shown in



3.3.2 Figure 3-2, reflecting the different section of the A66(T). At four of these sites the traffic count data represents 2015. The WebTRIS site between the A66/A6 Kemplay Bank junction and M6 Junction 40 was not operational during 2015, so 2016 data has been used. As the year to year variation is limited this data provides a suitable comparison with the 2015 data on other sections of the route.



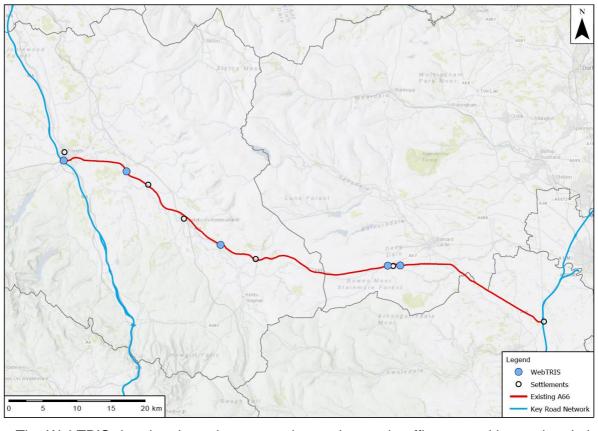


Figure 3-2: Location of WebTRIS count sites used

- 3.3.3 The WebTRIS data has been interrogated to understand traffic composition and variations in traffic flow. The following information has been calculated by sections of the A66:
 - Average traffic flows and proportions of Heavy Goods Vehicles (HGVs)
 - Variation in traffic flow by month of the year and day of the week
 - Daily traffic flow profiles
- 3.3.4 Average traffic flows and proportions of heavy goods vehicles (hgvs) Table 3-1 provides a summary of the Annual Average Weekday Traffic (AAWT) and Annual Average Daily Traffic (AADT) at each of these sites together with the percentage of HGVS.
- 3.3.5 The figures below highlight the greater proportion of HGVs in comparison the national average of 12% on UK trunk roads. This reaffirms that the A66 is strategically important for freight traffic, specifically for connections between the east of England and the north west of England & Scotland.

Table 3-1: A66 Average Monthly 2015 Traffic Flows (Vehicles)

| Site Number | A66 Section | Average Annual Weekday Traffic (%HGVs) | Average Neutral Month Weekday Traffic (%HGVs) | Average Annual Daily Traffic, AADT(%HGVs) |
|----------------|---------------------------------------|--|---|---|
| 1 | M6 Junction 40 and A6 Kemplay Bank | 28,723 (20%) | 29,577 (18%) | 26,499 (20%) |
| 2 | A6 Kemplay Bank – Temple Sowerby | 16,827 (25%) | 17,160 (22%) | 15,941 (26%) |
| 3 | Appleby and Brough | 15,111 (30%) | 15,425 (26%) | 14,158 (30%) |
| 4 | Brough and Bowes | 16,802 (27%) | 17,085 (24%) | 14,875 (27%) |



| Site Number | A66 Section | Average Annual Weekday Traffic (%HGVs) | Average Neutral Month Weekday Traffic (%HGVs) | Average Annual Daily Traffic, AADT(%HGVs) |
|----------------|-------------------------|--|---|---|
| 5 | Bowes and Scotch Corner | 15,286 (29%) | 15,541 (26%) | 14,396 (30%) |

3.3.6 The short section of the A66 between the A66/A6 Kemplay Bank junction and M6 Junction 40 at Penrith is observed to have much higher traffic flows than for the A66 east of the Kemplay Bank Junction.

3.4 Journey Time Reliability

Observed Journey Times

- 3.4.1 Observed journey time data has been sourced from Trafficmaster data and was used to define journey time routes in the strategic traffic model. The model journey time routes are shown in Figure 3-3. And the observed journey time and speed along these routes is shown in Table 3-2.
- 3.4.2 For the A66 the average speeds are very similar in both directions for all 3 modelled time periods, ranging between 90km/h and 93km/h.

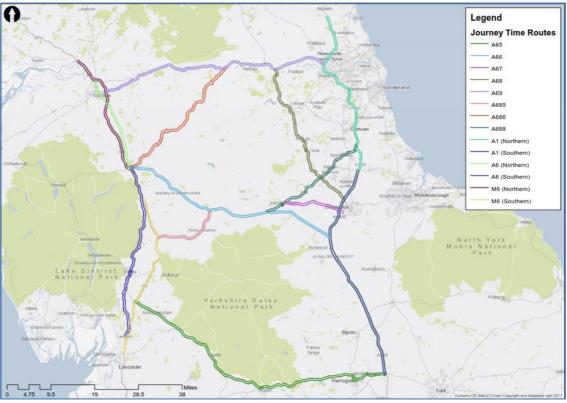


Figure 3-3: A66 -Journey Time Routes

Source: Trafficmaster

Table 3-2: A66TM Observed Journey Times by Route

| | | Length | AM | | IP | | PM | |
|--|---------------------|--------|---------------|-----------------|---------------|-----------------|---------------|-----------------|
| Route Description | te Description Dir. | | Time (min) | Speed (km/h) | Time (min) | Speed (km/h) | Time (min) | Speed (km/h) |
| A66 | | | | | | | | |
| ACC. NAC IAO. A1/MAN IE3 Cooksh Course | EB | 80 | 52 | 93 | 52 | 92 | 51 | 93 |
| A66: M6 J40 - A1(M) J53 Scotch Corner | WB | 80 | 52 | 92 | 53 | 90 | 52 | 92 |



| | | | A | λM | | IP | PM | |
|--|--------|----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|
| Route Description | Dir. | Length (km) | Time (min) | Speed (km/h) | Time (min) | Speed (km/h) | Time (min) | Speed (km/h) |
| | A66 Co | re Area We | stern Sect | ion | | | | |
| A696: Doprith A60/A696 | EB | 58 | 56 | 62 | 55 | 64 | 53 | 66 |
| A686: Penrith - A69/A686 | WB | 58 | 54 | 65 | 56 | 62 | 52 | 68 |
| A6 North: Penrith - Carnforth | NB | 67 | 63 | 64 | 66 | 61 | 63 | 64 |
| Ao North. Fellith - Carmorth | SB | 67 | 60 | 67 | 62 | 64 | 62 | 64 |
| A6 South: Penrith - M6 J44 | NB | 35 | 39 | 53 | 41 | 51 | 41 | 51 |
| Ao South. Fellitti - Mo 144 | SB | 34 | 37 | 55 | 40 | 51 | 41 | 50 |
| A685: M6 J38 - A66 | EB | 25 | 20 | 75 | 21 | 72 | 20 | 75 |
| A003. IVIU 130 - A00 | WB | 25 | 20 | 75 | 21 | 74 | 21 | 74 |
| | A66 Co | re Area Eas | tern Secti | on | | | | |
| ACT, Damand Cashla, Davidantan | EB | 22 | 18 | 73 | 18 | 73 | 18 | 75 |
| A67: Barnard Castle - Darlington | WB | 22 | 18 | 73 | 19 | 71 | 18 | 72 |
| ACOO. ACC. A4/A4\ IC4 | EB | 44 | 43 | 61 | 43 | 61 | 43 | 61 |
| A688: A66 - A1(M) J61 | WB | 43 | 41 | 64 | 42 | 62 | 42 | 62 |
| | NB | 59 | 50 | 71 | 50 | 71 | 48 | 73 |
| A68: A68/A1(M) - A69 | SB | 64 | 52 | 74 | 53 | 72 | 52 | 74 |
| | | A69 & A | 65 | | | | | |
| 450 445 44 4450 | EB | 85 | 60 | 85 | 61 | 84 | 59 | 87 |
| A69: M6 J43 - A1/A69 | WB | 84 | 59 | 86 | 60 | 85 | 58 | 88 |
| ACE: NAC/ACE | EB | 106 | 100 | 64 | 104 | 61 | 101 | 63 |
| A65: M6/A65 - A1(M)/A59 | WB | 106 | 101 | 63 | 104 | 61 | 102 | 62 |
| | | M6 & A1 | (M) | | | | | |
| | NB | 72 | 38 | 114 | 38 | 114 | 37 | 117 |
| M6 South: J34 (A683) - J40 (A66) | SB | 73 | 38 | 114 | 38 | 114 | 38 | 116 |
| A4C Al-vil- 140 (ACC) | NB | 45 | 24 | 113 | 24 | 112 | 23 | 114 |
| M6 North: J40 (A66) - A74(M) | SB | 45 | 24 | 112 | 24 | 111 | 24 | 113 |
| A1/NA) South, ISO (ASSO) 147 (ASS) | NB | 80 | 48 | 100 | 48 | 99 | 47 | 101 |
| A1(M) South: J60 (A689) - J47 (A59) | SB | 80 | 49 | 98 | 49 | 98 | 48 | 101 |
| A4/A4) N 150 (A500) A507 | NB | 64 | 48 | 80 | 45 | 86 | 47 | 81 |
| A1(M) North: J60 (A689) - A697 Morpeth | SB | 63 | 45 | 83 | 45 | 85 | 48 | 79 |

Source: WebTRIS

3.5 Road Safety

3.5.1 This section describes road safety along the current A66 corridor between Penrith and Scotch Corner. Records of personal injury accidents along the route were obtained from the Department for Transport's (DfT) website which contains Personal Injury Accident (PIA) data for the latest available complete five-year period (2013-2017). In total, 197 collisions occurred along the route, which equates to an average of 40 collisions per year.



Table 3-3: No. of Collisions and Severity by Year

| Voor | No. of Collisions | | | | | |
|-------------|-------------------|---------|--------|-------------|--|--|
| Year | Fatal | Serious | Slight | Grand Total | | |
| 2013 | 0 | 11 | 28 | 39 | | |
| 2014 | 0 | 7 | 36 | 43 | | |
| 2015 | 5 | 10 | 30 | 45 | | |
| 2016 | 1 | 5 | 26 | 32 | | |
| 2017 | 3 | 9 | 26 | 38 | | |
| Grand Total | 9 | 42 | 146 | 197 | | |

Table 3-4: Casualties by Year

| Voor | No. of Casualties | | | | | |
|-------------|-------------------|---------|--------|-------------|--|--|
| Year | Fatal | Serious | Slight | Grand Total | | |
| 2013 | 0 | 27 | 39 | 66 | | |
| 2014 | 0 | 11 | 66 | 77 | | |
| 2015 | 12 | 22 | 51 | 85 | | |
| 2016 | 1 | 16 | 37 | 54 | | |
| 2017 | 5 | 17 | 36 | 58 | | |
| Grand Total | 18 | 93 | 229 | 340 | | |

- 3.5.2 Following investigations of sections of single carriageway with a poor safety record, a number of safety improvements have been introduced along the route, some of which have involved reductions in the speed limit, as described below:
 - The speed limit through Kirkby Thore village is 40mph, with average speed enforcement cameras installed in 2016;
 - A 50mph speed limit was introduced between Appleby and Brough in 2016;
 - A scheme to provide a right turn lane at Llama Karma Kafe was completed in 2016, following a number of incidents involving eastbound vehicles waiting to turn right into the cafe.
- 3.5.3 A safety improvement scheme is also being developed at Ravensworth, which will involve reducing the speed limit to 50mph.
- 3.5.4 For the accident analysis, the study route was split into fifteen Sections, as shown in **Error! R** eference source not found.
- 3.5.5 As mentioned above, five fatal collisions occurred in 2015. Three of these collisions occurred on single carriageway sections; one in the eastbound direction of Section 5 between B6412 and B6542 near Appleby-in-Westmorland, and two in the eastbound direction in Section 7 between B6542 near Appleby-in-Westmoreland and A685. The other two fatal collisions occurred on dual carriageway sections; one in the eastbound direction in Section 9 between the A685 and A67 near Bowes, and one in the eastbound direction of Section 11 between A67 near Bowes and the A1.
- 3.5.6 Additionally, one fatal collision occurred in 2016. This was in Section 9 which is a dual



carriageway section, as described above.

- 3.5.7 It is apparent that there is a strong relationship between the accident rate and the type of carriageway on the A66, as shown in Table 3-5. The local accident rate for single carriageways (Modern S2 Road) is 0.150, compared to 0.076 for dual carriageways (Modern D2 Road), showing that the single carriageway sections are more prone to accidents. In addition, the accident rate on single carriageway sections of the A66 is higher than the standard accident rate for this type of carriageway in the UK, showing that the amount and severity of accidents are higher than average on the A66.
- 3.5.8 It should also be noted that incidents involving HGVs are above the national Investigatory Level. A Road Safety Report in 2016 identified that 39% of PIAs east of Penrith in Cumbria involved at least 1 HGV. Dominant locations are at Kirkby Thore, Warcop Bends and Stainmore.

Table 3-5: Local Accident Rates

| Adjusted Accident Rates – Taking 2015 as Median Year | | | | | |
|--|----------------|-------|------------------------|-----------------------------------|--|
| Road Type | Road | Speed | Local Accident Rate | National Average Accident Rate | |
| 4 | Modern S2 Road | >40 | 0.150 | 0.143 | |
| 10 | Modern D2 Road | >40 | 0.076 | 0.077 | |

Table 3-6: Collision Analysis Rates

| Section Reference | Rank | Section Type | PIC | Rate PIC 10 ⁸ veh-m | +/- National Average* |
|--------------------------------------|------|-----------------------------|-------|-----------------------------------|--------------------------|
| 1 | 3 | Roundabout (D2AP) | 7 | 39.16 | + |
| 2 | 9 | Roundabout + Modern D2AP | 9 | 15.11 | - |
| 3 | 10 | Modern D2AP | 3 | 13.64 | - |
| 4 | 7 | S2 | 20 | 21.29 | + |
| 5 | 16 | Modern D2AP | 4 | 4.85 | - |
| 6 | 6 | S2 | 32 | 22.08 | + |
| 7 | 12 | Modern D2AP | 6 | 6.91 | - |
| 8 | 5 | S2 | 35 | 27.38 | + |
| 9 | 11 | D2AP | 34 | 8.27 | - |
| 10 | 14 | S2 | 3 | 6.17 | - |
| 11 | 13 | D2AP | 4 | 6.89 | - |
| 12 | 15 | S2 | 3 | 5.02 | - |
| 13 | 8 | D2AP | 14 | 15.77 | - |
| 14 | 1 | S2 | 32 | 39.46 | + |
| 15 | 4 | D2AP | 30 | 30.30 | + |
| 16 | 1 | Roundabout (D2AP) | 8 | 78.10 | + |
| All Sections | N/A | D2AP & S2 & Roundabout | 244 | 16.09 | - |
| *National A-road average | N/A | All A-road | 5,473 | 17.49 | N/A |
| **National Single A- road average | N/A | All Single A-road | 1,388 | 23.56 | N/A |
| ***National Dual A- road average | N/A | All Dual A-road | 4,085 | 16.08 | N/A |



3.6 Technology

Existing Technology Overview

- 3.6.1 The A66 route has limited technology in place to monitor, control and inform the motorist. Technology delivery is constrained as there is currently no local National Roads Telecommunications Service (NRTS) transmission infrastructure in place with existing communications being provided via 3rd party arrangements such as British Telecom (BT) circuits or mobile operator services. The existing technology includes:
 - Traffic signal control
 - Variable Message Signs (VMS)
 - Closed Circuit Television (CCTV)
 - Enforcement/traffic calming
 - Automatic Number Plate Recognition (ANPR)
 - Emergency Roadside Telephones (ERTs)
 - Traffic counting sites
 - Weather monitoring stations
 - Snow gates
- 3.6.2 Traffic signals exist at major roundabouts along the route.
- 3.6.3 The VMS which are currently in place on the route only provide motorists with information regarding the status of the snow gates at Brough and Bowes. There appears to be extensive use of mobile VMS particularly for special events such as the Appleby horse fair.
- 3.6.4 CCTV across the route is limited to coverage at the snow gates and Scotch Corner.
- 3.6.5 There is one fixed ANPR enforcement section through Kirkby Thore. Mobile speed enforcement was seen to be in operation during our initial site visit.
- 3.6.6 National Traffic Information Centre (NTIC) information helps to ascertain the traffic conditions in the area by monitoring vehicle movement using ANPR cameras along the route. The data gathered is used to calculate journey times across the Highways England network and enables the NTIC to communicate this to the travelling public through services such as Traffic England.
- 3.6.7 Traffic counting sites are present along the route to classify and count vehicles for Annual Average Daily Traffic (AADT) data.
- 3.6.8 The ERTs are connected to the Integrated Communications Control System (ICCS) at the respective Regional Control Centres (RCCs) via third party arrangements e.g. BT/GSM circuits.
- 3.6.9 Weather monitoring stations provide a range of weather data from locations typical to the area, to feed into forecasting at both local and national levels to inform severe weather planning.
- 3.6.10 The snow gates at Brough and Bowes have limited technology for operational purposes.
- 3.6.11 Technology maintenance is split between Balfour Beatty Mott MacDonald (BBMM) for the Cumbria section and Amey for the Durham section.
- 3.6.12 The A66 route is also split operationally with the Cumbria section monitored by the Area 13 Operations Control Centre (OCR) at Penrith and the Durham section by the Area 14 OCR at Darlington

3.7 Operation and Maintenance

Operation & Maintenance Introduction

3.7.1 Highways England implemented Asset Delivery model contracts in 2017 for the maintenance of



trunk roads and motorways of Area 13 across Cumbria and North Lancashire and Area 14 in the North East. The Asset Delivery model has been developed to help Highways England gain greater control over maintenance to build the organisation's knowledge of the true costs of work carried out on the Strategic Road Network. The model, first introduced in Area 7 in the East Midlands, sees Highways England assume management of routine maintenance and capital renewal and improvements schemes, with a greater number of contracts awarded to suppliers directly for carrying out works, design and specialist services.

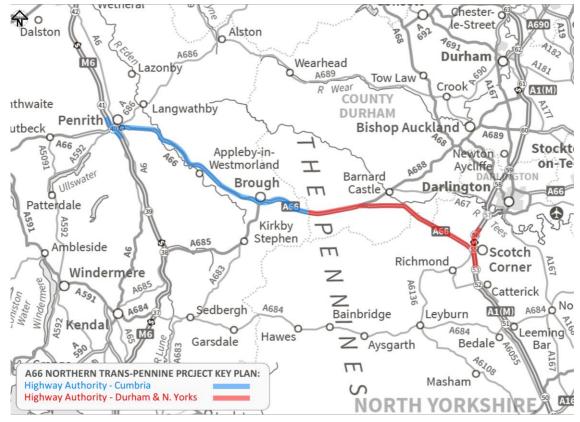


Figure 3-4: A66 HE Area 13 (Cumbria) and Area 14 (Durham & N. Yorks)

- 3.7.2 The Highways England boundary between Area 13 and Area 14 is the Durham / Cumbria border.
- 3.7.3 The Asset Maintenance and Operational Requirements (AMOR) for each Area sets out requirements in relation to the carrying out of maintenance and operational services on the Area Network.
- 3.7.4 Highways England has a number of key objectives:
 - Improved road user and road worker safety
 - High quality customer service
 - Best value and improved efficiency
 - Reduced congestion and improved reliability
 - Asset capability preserved and maintained
 - Sustainable operations
- 3.7.5 Effective maintenance and operation of the Area Network is essential in achieving these key objectives.
- 3.7.6 Highway authorities have an obligation to maintain public highways to reasonable standards.



The current provisions are incorporated in the Highways Act 1980, Section 41 (duty to maintain) and Section 58 (special defence in actions for damages for non-repair). The importance of Section 58 is that it provides the defence "that the Authority had taken such care as in all the circumstances was reasonably required to secure that the part of the highway to which that action related was not dangerous for traffic".

- 3.7.7 The Technical Appraisal Report [HE565627-ARC-HGN-A66-RP-ZM-1082] produced in Stage 1 should be referenced for greater details on the following;
 - Frameworks
 - Maintenance Activities
 - Winter Service & Adverse Weather Conditions
 - Incident Management

3.8 Key Constraints

3.8.1 There are a number of key internal and external constraints which have been identified with the delivery of the project, as set out below.

Environmental, Geotechnical and other Physical Constraints

- 3.8.2 Significant environmental constraints in the vicinity of the A66 include:
 - The North Pennines Area of Outstanding Natural Beauty (AONB) between Brough and Bowes.
 - The Lake District National Park, which is located two kilometres south west of Penrith, which is designated as a World Heritage Site.
 - The Yorkshire Dales National Park which is located 3.5 kilometres south of the A66.
 - Archaeological and historic constraints including scheduled ancient monuments, conservation areas, registered parks and gardens, and listed buildings.
 - The North Pennine Moors Special Protection Area (SPA) and Special Area of Conservation (SAC) are encompassed within the North Pennines AONB. The River Eden SAC and its tributaries run adjacent to and underneath the existing A66. These sites are all important at European level.
 - A number of Sites of Special Scientific Interest (SSSI).
 - Flood Zones 2 and 3 associated with the River Eden, its tributaries and other watercourses are located along the route.
- 3.8.3 Other key physical constraints include existing settlements, properties and businesses, geotechnical and geological constraints including abandoned mine workings, utility apparatus including high voltage power lines and high-pressure pipelines.

Requirements for Planning Consent

3.8.4 In view of the scale of the project and the project options being considered, the project is a Nationally Significant Infrastructure Project (NSIP) requiring a Development Consent Order (DCO). Therefore, the future Environmental Statement will be prepared in accordance with European Community Directive 2014/52/EU and the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. The National Networks National Policy Statement (NNNPS) (Department for Transport (DfT), 2015) is also of relevance to this project as it provides planning guidance for promoters of NSIPs on the road network and is the basis for the examination process by the Examining Authority for DCO applications and the basis for decisions by the Secretary of State (SoS).



4 PLANNING FACTORS

4.1 Introduction

4.1.1 This section presents a summary of the relevant policies identified at PCF Stage 2. For detail, reference should be made to the Environmental Assessment Report (EAR) (HE565627-ARC-EGN-A66-RP-ZM-1055) and National Policy Accordance Statement (HE565627-ARC-GEN-A66-RP-ZM-1069).

4.2 Policy Constraints

- 4.2.1 The following provides the key planning policy constraints which apply to the current proposed route options. The relevant national policies, and local planning policies are contained within:
 - National Planning Policy Framework (NPPF) 2019
 - Planning Practice Guidance (PPG)
 - National Networks National Policy Statement (NN NPS)

National Planning Policy Framework

- 4.2.2 Chapter 4 of the NPPF (Promoting sustainable transport) outlines how the transport system needs to encourage travel patterns which support reductions in greenhouse gas emissions and reduce congestion.
- 4.2.3 Chapter 10 (Meeting the challenge of climate change, flooding and coastal change) requires development to be brought forward in areas at the lowest risk of flooding, but stipulates where development is to be brought forward in areas which are vulnerable, care should be taken to ensure risks are managed and mitigation measures incorporated.
- 4.2.4 Chapter 11 (Conserving and enhancing the natural environment) requires the planning system to contribute to and enhance the natural and local environment, by protecting and enhancing landscapes, geological assets and soils.
- 4.2.5 Chapter 12 (Conserving and enhancing the historic environment) requires great weight to be given to the conservation of historic assets, stating the more important the asset, the greater the weight should be.

Planning Practice Guidance

4.2.6 Planning Practice Guidance provides additional policy guidance to support the implementation of the NPPF. It should be read alongside the relevant chapters of the NPPF.

National Networks National Policy Statement (NN NPS)

4.2.7 The NN NPS sets out policies for the delivery of nationally significant infrastructure projects on the national road network. Chapter 5 (Generic impacts) outlines policy considerations which form the primary basis for decision making by the Secretary of State. Impacts that are relevant to the project include air quality, biodiversity, dust, flood risk, the historic environment, landscape, land use, noise, vibration and water quality.



5 DO-MINIMUM CONSEQUENCES

5.1 Introduction

- 5.1.1 The A66 is a key national and regional strategic link for a range of traffic movements; it carries high levels of freight traffic, as well as being an important route for tourism. At present, the route between the M6 at Penrith (J40) and A1 at Scotch Corner is only intermittently dualled, and still has six separate sections of single carriageway over a length of around 50 miles.
- 5.1.2 The Annual Average Daily Traffic (AADT) in 2015 along most of the A66 corridor is between 15,000 and 17,500 vehicles per day, although this increases to 30,500 vehicles per day on the much busier section between M6 J40 and Kemplay Bank, immediately South of Penrith. There is a high proportion of HGV's, between 20% and 30% along the route. Traffic patterns from count data on the A66 shows a relatively flat profile throughout the day, with Monday and Friday peaks during the week, and seasonal higher monthly flows during May, July, August and October. Annual Average Daily Flows from the DfT Traffic Count 2018 dataset indicates an average annual daily flow of approximately 20,000 vehicles on all major roads (motorways and A roads), and a 6% HGV proportion.
- 5.1.3 At a midpoint along the route (between Appleby and Brough) the AADT is predicted to rise from 15,000 in the base year 2015 to 22,000 in 2046 (15 years after opening), a rise in AADT of almost 50%. The increase in traffic in the forecast years is due to assumptions around forecast growth in trips. Specific housing and employment developments planned for nearby local authorities have also been represented in the forecasts, including Scotch Corner Retail Park, and housing developments and employment sites in Penrith. The impact of infrastructure schemes which are expected to be completed and which could be expected to be influential on traffic flow associated with the scheme have been taken account of, this includes transport schemes in the vicinity of the A66 corridor as well as those further afield.
- 5.1.4 The end to end journey time between the A1(M) Scotch Corner and M6 J40 along the A66 route is between 53 and 54 minutes. Congestion is primarily concentrated at the M6 end of the corridor; at the M6 J40 and Kemplay Bank junctions. The A1(M) end of the corridor at Scotch Corner also generates some delay but to a lesser extent. Scotch Corner was improved recently as part of the A1 Leeming to Barton upgrade, increasing capacity to support future trip demand, and this forms part of the Do-Nothing scenario. Journey times are predicted to deteriorate in the future as traffic flow increases putting more pressure on the network. Without intervention this is forecast to increase in the future, from the base year 2015 to 2046, by between 4 and 5 minutes (an 8 to 10% journey time increase). For comparison, using equivalent 2018 Road Traffic Forecast predicted speeds, 2015 to 2045, for all Trunk A, Principal A, and Motorways would give journey time increases of 3 to 9% depending on road type.
- 5.1.5 Journey time reliability refers to variation in journey times that individuals are unable to predict from recurring variability in the form of day to day variability or non-recurring events such as incidents. Guidance is provided in TAG unit A1.3 (Section 6). Journey time reliability will be assessed using a bespoke approach developed in line with TAG, and following an approach accepted by the DfT on another scheme.
- 5.1.6 Section 3.5 of this report shows there were a total of 197 collisions along the route over a five-year period (2013 2017), and of these 42 resulted in series injuries and 9 fatalities. This represents a collision severity ratio of 26%, compared with 15.5% recorded for all A roads over the same period and therefore the collision severity ratio on the A66 is worse than the national average. The AADT is predicted to rise from 18,600 in the base year 2015 to 27,700 in 2046 (15 years after opening), a rise in AADT of almost 50%. It is anticipated that, without the proposed scheme, the number of accidents would rise in proportion to the predicted growth in traffic.



6 DO-SOMETHING OPTIONS

6.1 Introduction

- 6.1.1 The study area for the purposes of this report is the A66 between Penrith (M6 J40) in the west and Scotch Corner (A1M) in the east. As the route is currently a mix of both single and dual carriageway standards, the route has been split into relevant sections.
- 6.1.2 Plans of the proposed Shortlist Options are Available in APPENDIX A

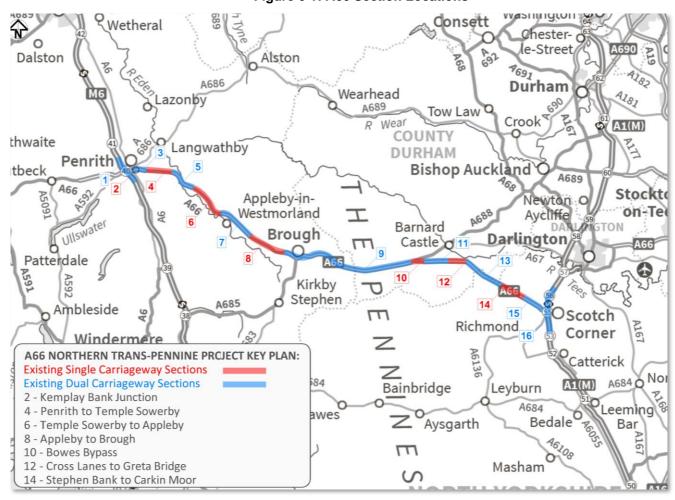


Figure 6-1: A66 Section Locations

Table 6-1: A66 Section References

| Section Number | Location | Description |
|----------------|---|----------------------------|
| 1 | M6 Junction 40 | Grade separated roundabout |
| 2 | A66/A6 Kemplay Bank Junction | At-grade roundabout |
| 3 | Kemplay Bank to Penrith | Dual Carriageway |
| 4 | Penrith to Temple Sowerby | Single Carriageway |
| 5 | Temple Sowerby Bypass | Dual Carriageway |
| 6 | Temple Sowerby to Appleby – Kirkby Thore | Single Carriageway |
| 6 | Temple Sowerby to Appleby – Crackenthorpe | Single Carriageway |



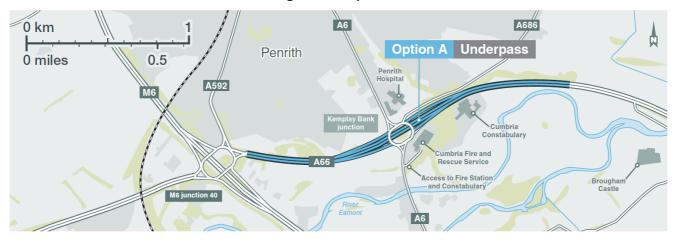
| Section Number | Location | Description |
|----------------|-------------------------------|----------------------------|
| 7 | Appleby Bypass | Dual Carriageway |
| 8 | Appleby to Brough | Single Carriageway |
| 9 | Brough to Bowes | Dual Carriageway |
| 10 | Bowes Bypass | Single Carriageway |
| 11 | Bowes to Cross Lanes | Dual Carriageway |
| 12 | Cross Lanes to Rokeby | Single Carriageway |
| 13 | Greta Bridge to Stephens Bank | Dual Carriageway |
| 14 | Stephens Bank to Carkin Moor | Single Carriageway |
| 15 | Carkin Moor to Scotch Corner | Dual Carriageway |
| 16 | A1M Scotch Corner | Grade separated roundabout |

6.2 M6 junction 40 to Kemplay Bank roundabout

6.2.1 The approach roads and junctions need to be improved and the two options we are proposing will either introduce a new underpass or overpass through the Kemplay Bank roundabout.

Option A (underpass)

Figure 6-2: Option A

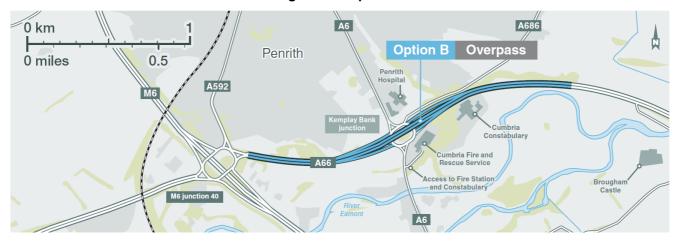


6.2.2 A new dual carriageway under Kemplay Bank roundabout providing an un-interrupted route for the A66 east and westbound. This option would require significant work on each of the arms of the roundabout, new retaining wall and bridge installations and the reconstruction of the roundabout itself. The underpass serving the police and fire services would need to be removed and an alternative new access road constructed that would link into The Green, providing access to all the facilities in the south east of the junction.



Option B (overpass)

Figure 6-3: Option B



6.2.3 A new dual carriageway over the existing Kemplay Bank roundabout providing an uninterrupted route for the A66 eastbound and westbound. All other elements of this option would be the same as Option A.

6.3 Penrith to Temple Sowerby

6.3.1 We are proposing two options to introduce a dual carriageway on this section. Due to limited space at this location both options require the construction of a new road which is re-routed around the village of High Barn. A new junction will also be constructed at Center Parcs, providing access to the holiday park and local roads. Between Brougham Castle and Whinfell Park Farm, both options follow the line of the existing A66, utilising the existing carriageway where possible. Both the options below would involve the realignment of some local roads and alternative routes would be provided to nearby junctions where required, improving ease of access for local road users and safety.

Barrackbank Wood

Westbound only Junction

Westbound only Junction

Westbound only Junction

Westbound only Junction

A66

Westbound only Junction

Winderwath Farm

Option C

High Barn

Temple Sowerby A66
bypass

Center Parcs
Holiday Village

Figure 6-4: Options C & D

Option C

6.3.2 From Whinfell Park Farm the road will divert to the south to avoid the hamlet of Lane End. The road will then re-join the A66 at Swine Gill before continuing to the Temple Sowerby Bypass.

Option D

6.3.3 This option is the same as option C but will not divert the current road away from High Barn and



will therefore require the demolition of some buildings.

6.4 Temple Sowerby to Appleby – Kirkby Thore

6.4.1 There are two upgrade options which will divert the A66 away from Kirkby Thore either to the north or the south of the village



Figure 6-5: Options E & F

Option E (northern bypass)

- 6.4.2 A new dual carriageway bypass to the north of Kirkby Thore as an extension of the current Temple Sowerby Bypass. It will pass through several fields to the west and then travel away from the village to the north and east. It will mostly be built along a route which is lower than the surrounding land which will help preserve the visual outlook of properties in the north of the village.
- 6.4.3 An additional junction will be created to allow direct access to and from the British Gypsum site which will reduce the level of heavy goods vehicles moving through the village.
- 6.4.4 Four new bridges will be required over the existing road network at:
 - a new Kirkby Thore junction, north of the village
 - Station Road
 - Main Street
 - Sleastonhow Lane
- 6.4.5 It would also require a new bridge over Trout Beck just before the new road returns to the original alignment.

Option F (southern bypass)

6.4.6 A new dual carriageway would be constructed towards the south of Kirkby Thore as a continuation of the Temple Sowerby Bypass. It would cross several fi elds and follow the path of an old railway line until it re-joins the current A66 just after the BP petrol station near Spitals Farm.



- 6.4.7 Additional underpasses would be required to provide access for local farms and pedestrians, walkers, cyclists and horse riders. A new junction would allow access to the former A66 and the village.
- 6.4.8 This option would require the demolition of several buildings.

6.5 Temple Sowerby to Appleby – Crackenthorpe

6.5.1 There are two upgrade options which will divert the A66 away from Crackenthorpe to the north.

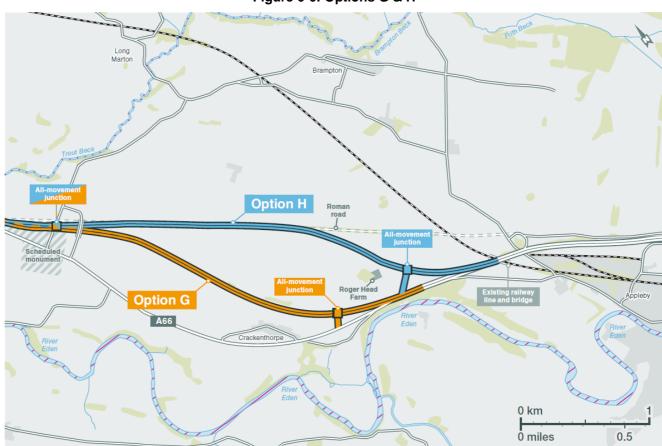


Figure 6-6: Options G & H

Option G

- 6.5.2 The route follows the path of the old railway line to the north of Crackenthorpe and two new junctions would be created to serve the villages of Bolton, Crackenthorpe and Long Marton.
- 6.5.3 It is proposed that the new road will re-join the current A66 just to the west of the Settle-to-Carlisle railway line.

Option H

- 6.5.4 This option proposes a new bypass following the route of the original Roman road to the north of Crackenthorpe and Roger Head Farm.
- 6.5.5 Two new junctions would be created to serve the villages of Bolton, Crackenthorpe and Long Marton.
- 6.5.6 It is proposed that the new road will re-join the current A66 just to the west of the Settle-to-Carlisle railway line.



6.6 Appleby to Brough

Figure 6-7: Option I



Option I

- 6.6.1 The current carriageway between Café 66 and Wildboar Hill will be widened and utilised as the eastbound carriageway and a new westbound carriageway will be constructed directly to the south of the current A66.
- 6.6.2 Between Wildboar Hill and the Brough Bypass, a completely new dual carriageway will be constructed directly to the south of the current A66. The existing road will then be used for local access and pedestrians, walkers, cyclists and horse riders.
- 6.6.3 New culverts will divert streams under the road at Moor Beck and Lowgill Beck. A new junction and bridge will provide access from the new road to Warcop.
- 6.6.4 Access to the proposed route from local roads is to be limited to junctions at Flitholme, Langrigg, Sandford and Warcop which will make this section much less accident-prone. The existing A66 between Moor House and Turks Head will become part of the county road network for safer local access to nearby villages, especially for pedestrians, walkers, cyclists and equestrians.
- 6.6.5 This option minimises the impact on the area of outstanding natural beauty (AONB) to the north of the current A66 and provides continued access for local communities during construction.
- 6.6.6 The new dual carriageway will connect back into the existing A66 at Brough bypass.



6.7 Bowes Bypass

Figure 6-8: Option J



Option J

- 6.7.1 We are proposing to widen the carriageway to the north of Bowes village and between Clint Lane Bridge and the junction for the A67 where a new eastbound slip road junction is being considered.
- 6.7.2 After the A67 junction we are proposing to use the existing carriageway for westbound traffic and construct a new eastbound carriageway north of the current road. This will require new or extended bridges to be built.
- 6.7.3 Two new eastbound slip roads will be built, providing access to and from the A67 and the village of Bowes. This would require the demolition of some derelict buildings and neighbouring barn structure.
- 6.7.4 The Roman road known as The Street will be closed and access between Bowes village and the A66 instead provided by the upgraded Bowes junction, making access to the A66 safer for local traffic.



6.8 Cross Lanes to Rokeby

6.8.1 A new westbound carriageway to the south of the current A66 between the B6277 junction at Cross Lanes and Rokeby, after which two options exist around the St. Mary's Church buildings.

A66

Tutta Back

Cross Lanes
Junction

Tutta Back

Tutta Back

Option K

Evebank Farm

Option K

Option K

Option K

Evebank Farm

Option K

Option K

Evebank Farm

Option K

Option K

Option K

Evebank Farm

Option K

Option K

Evebank Farm

Option K

Option K

Option K

Evebank Farm

Option K

Figure 6-9: Option K & L

Option K

- 6.8.2 This option diverts both carriageways to the south of The Old Rectory and St Mary's Church before re-joining the existing road at Rokeby.
- 6.8.3 A new junction will be provided for access to Moorhouse Lane, B6277 for Barnard Castle, Cross Lanes Organic Farm and the listed building Cross Lanes, making access safer and easier.
- 6.8.4 A new junction west of St Mary's Church is proposed to allow access to the original A66 and Rokeby.
- 6.8.5 Two new culverts will be constructed to accommodate Tutta Beck.

Option L

- 6.8.6 This option is similar to Option K but the new westbound carriageway will be constructed next to the current carriageway. This will mean that some buildings to the south of the current A66 will need to be demolished.
- 6.8.7 This option would retain local access at Rokeby junction for eastbound traffic. Westbound traffic would be required to utilise Cross Lanes junction and the B6277 for access to Barnard Castle.



6.9 Stephen Bank to Carkin Moor

- 6.9.1 A new dual carriageway at Stephen Bank, followed by three different options that consider the impact on Foxhall, Mainsgill Farm and the Carkin Moor scheduled monument.
- 6.9.2 All the options below will incorporate the dualling of the current A66 between Stephen Bank and West Layton broadly following the line of the existing road.



Figure 6-10: Option N, M & O

Option M

- 6.9.3 After West Layton, we propose a new dual carriageway to the south of the existing A66 and the properties at Foxhall and Mainsgill Farm. It will re-join with the A66 at Carkin Moor Farm beyond the scheduled monument.
- 6.9.4 A new junction and bridge at New Lane to provide access to the new A66 for several properties
- 6.9.5 and the villages of East and West Layton and Ravensworth. Several underpasses will be created to maintain land access and public rights of way.

Option N

- 6.9.6 After West Layton, we propose a new dual carriageway to the north of the existing A66 and the properties at Foxhall and Mainsgill Farm, before re-joining the A66 at Carkin Moor Farm.
- 6.9.7 A new junction and bridge on Moor Lane will provide safe and easy access to the old A66, the villages of East and West Layton and Ravensworth and the Mainsgill Farm Shop.
- 6.9.8 The new dual carriageway is expected to re-join the A66 just after Mainsgill Farm and therefore requires the widening of the road through the scheduled monument.

Option O

- 6.9.9 This option follows the same route as option M as far as New Lane where it diverts north avoiding Mainsgill Farm shop.
- 6.9.10 A new eastbound junction at Foxhall to provide local access to the old A66 and West Layton.



New Lane will be realigned to connect with the new A66 to provide access for Ravensworth.

- 6.9.11 The proposed route will continue in a northerly direction to a new junction at Moor Lane which will provide access from Mainsgill Farm and the former A66.
- 6.9.12 The new dual carriageway is expected to re-join the A66 just after Mainsgill Farm and therefore requires the widening of the road through the scheduled monument.



7 APPRAISAL OF DO-SOMETHING OPTIONS (PCF STAGE 1)

7.1 Stage 1 Appraisal Summary

7.1.1 The following tables summarise the appraisals carried out in Stage 1 and can be viewed in full in the Technical Appraisal Report [HE565627-ARC-HGN-A66-RP-ZM-1082]

Section 2 - Kemplay Bank Junction

Table 7-1: Kemplay Bank Appraisal Summary

| | | ie 7-1. Kempiay Bank Appraisai Summary |
|------------------------|--|--|
| | Scheme Objective | A/B |
| | Improve journey time | A66 through traffic would bypass the junction via a free-flow link thus greatly increasing journey time benefits |
| sport | Improve resilience | Provision of grade separated junction would separate the A66 through traffic from any potential issues on the local road network. |
| Transport | Improve safety | Although some departures from standard would be required, these have been discussed with the Safe Roads Team and are considered to be acceptable with mitigation. |
| | Minimise disruption during construction | 39 months estimated construction programme |
| <u>:</u> | Be affordable to | Stage 1 Capital Cost Most Likely (Nominal Cost) |
| Economic | Government and users | |
| Eco | Value for money | |
| ınity | Minimise adverse impacts on health and the environment | Air Quality Option 2B/2E would result in an exceedance of the AQS objectives for NO2 & PM10 though impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. The impact of the project on nitrogen deposition is not considered significant. An overpass (Option 2E) would potentially have a greater adverse impact |
| ent and Community | | Biodiversity Option 2B has the potential to disturb suitable riparian habitat for otter species. |
| Environment and | | Cultural Heritage Option 2B is expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Following mitigation three assets will experience change which results in significant effects for Options 2B. |
| En | | Landscape The dominance of the existing roundabout junction in this part of Penrith means that the project would not notably alter the character of the townscape for both project options although an overpass (Option 2E) would likely have a greater impact. |
| | | Geology and Soils Following the implementation of mitigation no likely significant effects have been identified |



| Scheme Objective | A/B |
|---------------------|--|
| | Noise It is expected that the Option 2B/2E would increase road traffic noise at Penrith A6 Junction with A66 due to the new junction layout. The development of the proposed option would include mitigation measures to reduce the number of properties affected by day and night time noise. An overpass (Option 2E) would potentially have a greater adverse impact |
| | People and Communities Option 2B/2E would lead to land-take of public open space (recreation ground) which is found to the north of the project and the severance of two PRoW. |
| | Road Drainage and Water Environment Option 2B/2E may have potential impacts on rates of runoff and pollution risk and the floodplains and wider catchments of the Thacka Beck and River Eamont. The impact will depend on the extent of the works within the floodplain and the nature of any works to these watercourses. |
| Minimise Severance | Option 2B would have little impact on severance as the proposal lies within the existing highway corridor. |
| Non Motorised Users | Easier for NMU's to navigate Kemplay Bank Junction as the A66 through traffic will be segregated. |



Section 4 – Penrith to Temple Sowerby

Table 7-2: Penrith to Temple Sowerby Appraisal Summary

| Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Minimise adverse impacts on health and the environment Air Quality Neither Option 4A or 4B would result in an exceedance of the AQS objective for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been redicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity The significance of effects on biodiversity receptors will be largely the same for Options 4A and 4B. Cultural Heritage Both Options 4A and 4B could directly impact the Countess Pillar and the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape Neither Options 4A or 4B would significantly alter the character of the townscape and landscape. Geology and Soils Following the implementation of mitigation no likely significant effects have been identified for either Option 4A or4B. Noise Option 4A will increase road traffic noise between Brougham and Sowerby due to the introduction of the new alignment and Sowerby due to the introduction of the new alignment introduction of the new alignment introduction of the new alignment. | | | remain to remple Sowerby Appraisa | |
|--|----------|-----------------------|---|--|
| Improve resilience D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. Improve safety Option would be designed to high standards of safety for road users. 27 months construction duration 29.5 months construction duration during construction Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Minimise adverse impacts on health and the environment Air Quality Neither Option 4A or 4B would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity The significance of effects on biodiversity receptors will be largely the same for Options 4A and 4B. Cultural Heritage Both Options 4A and 4B could directly impact the Countess Pillar and the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settlings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape Neither Option 4A or 4B would significantly alter the character of the townscape and landscape. Geology and Soils Following the implementation of mitigation no likely significant effects have been identified for either Option 4A or 4B. Noise Option 4M will increase road traffic noise between Brougham and Sowerby due to the introduction of the new alignment introduction of the new alignment introduction of the new alignment. | | Scheme Objective | С | D |
| Improve safety Option would be designed to high standards of safety for road users. Zomething construction Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Air Quality Neither Option 4A or 4B would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been calculated. For both options the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity The significance of effects on biodiversity receptors will be largely the same for Options 4A and 4B. Cultural Heritage Both Options 4A and 4B could directly impact the Countess Pillar and the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape Neither Options 4A or 4B would significantly alter the character of the townscape and landscape. Geology and Soils Following the implementation of mitigation no likely significant effects have been identified for either Option 4A or4B. Noise Option 4A will increase road traffic noise between Brougham and Sowerby due to the introduction of the new alignment i | | Improve journey time | Similar journey times predicted for l | both options, no preference |
| Minimise disruption during construction Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Mitter Options 4A or 4B could directly impact the Countess Pillar and the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settlement of the east of Brougham Castle. Both Options are expected to res | nsport | Improve resilience | | cross over accidents limiting |
| Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Minimise adverse impacts on health and the environment Air Quality Neither Option 4A or 4B would result in an exceedance of the AQS objective for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been redicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity The significance of effects on biodiversity receptors will be largely the same for Options 4A and 4B. Cultural Heritage Both Options 4A and 4B could directly impact the Countess Pillar and the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape Neither Options 4A or 4B would significantly alter the character of the townscape and landscape. Geology and Soils Following the implementation of mitigation no likely significant effects have been identified for either Option 4A or 4B. Noise Option 4A will increase road traffic noise between Brougham and Sowerby due to the introduction of the new alignment and Sowerby due to the introduction of the new alignment introduction of the new alignment introduction of the new alignment. | Tra | Improve safety | Option would be designed to high s | standards of safety for road users. |
| Value for money | | • | 27 months construction duration | 29.5 months construction duration |
| Minimise adverse impacts on health and the environment Air Quality Neither Option 4A or 4B would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity The significance of effects on biodiversity receptors will be largely the same for Options 4A and 4B Cultural Heritage Both Options 4A and 4B could directly impact the Countess Pillar and the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape Neither Options 4A or 4B would significantly alter the character of the townscape and landscape. Geology and Soils Following the implementation of mitigation no likely significant effects have been identified for either Option 4A or4B. Noise Option 4A will increase road traffic noise between Brougham and Sowerby due to the introduction of the new alignment introduction of the new alignment | ပ | Do offordable to | Stage 1 Capital Cost Mo | st Likely (Nominal Cost) |
| Minimise adverse impacts on health and the environment Air Quality Neither Option 4A or 4B would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity The significance of effects on biodiversity receptors will be largely the same for Options 4A and 4B Cultural Heritage Both Options 4A and 4B could directly impact the Countess Pillar and the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape Neither Options 4A or 4B would significantly alter the character of the townscape and landscape. Geology and Soils Following the implementation of mitigation no likely significant effects have been identified for either Option 4A or4B. Noise Option 4A will increase road traffic noise between Brougham and Sowerby due to the introduction of the new alignment introduction of the new alignment | nomi | | | |
| Neither Option 4A or 4B would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity The significance of effects on biodiversity receptors will be largely the same for Options 4A and 4B Cultural Heritage Both Options 4A and 4B could directly impact the Countess Pillar and the settlement to the east-north-east of Brougham Castle. Both Options are expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape Neither Options 4A or 4B would significantly alter the character of the townscape and landscape. Geology and Soils Following the implementation of mitigation no likely significant effects have been identified for either Option 4A or4B. Noise Option 4A will increase road traffic noise between Brougham and Sowerby due to the introduction of the new alignment introduction of the new alignment | Есо | Value for money | | |
| Barn where the existing A66 is bypassed. People and Communities People and Communities | 5 | impacts on health and | Neither Option 4A or 4B would rest objectives for NO2 and PM10 and significant, based on the currently exceedances of the AQS objective have been predicted the impact of have been calculated. For both optinitrogen deposition is not considered Biodiversity The significance of effects on biodisame for Options 4A and 4B Cultural Heritage Both Options 4A and 4B could diret the settlement to the east-north-eated both Options are expected to result on the settings of several Archaeol and Landscapes potentially decreated Landscape Neither Options 4A or 4B would significant to the implementation of minave been identified for either Options 4A or 4B would significant to the introduction of the new alignment and Sowerby due to the introduction of the new alignment and reductions at Lane End/High Barn where the existing A66 is bypassed. People and Communities | impacts are not considered to be available information. As for the protection of vegetation the project on nitrogen deposition tions the impact of the project on ed significant. Iversity receptors will be largely the extly impact the Countess Pillar and st of Brougham Castle. It in permanent, negative impacts ogical Remains; Historic Buildings asing their significance. Ignificantly alter the character of the itigation no likely significant effects on 4A or4B. Noise Option 4B will increase road traffic noise between Brougham and Sowerby due to the introduction of the new alignment |



| Scheme Objective | С | D |
|---------------------|--|---|
| | impact upon agricultural businesses. | the demolition of High Barn Farm, which may impact upon businesses. |
| | Road Drainage and Water Environment Both Options 4A and 4B are likely culverted section of the LightWater and its floodplain. The potential impuly once details of the project design mitigation adopted to ensure no significant control of the project designificant control | to have potential impacts on the as well as the upstream reaches pacts would need to be assessed ign are available and suitable |
| Minimise Severance | | |
| Non Motorised Users | | |



Section 6 – Temple Sowerby to Appleby (Kirkby Thore)

Table 7-3: Temple Sowerby to Appleby (Kirkby Thore) Appraisal Summary

| | Table 7-3: Temple Sowerby to Appleby (Kirkby Thore) Appraisal Summary | | | | | |
|---|---|---|---|---|--|--|
| Scheme Objective | | 6E1 | E | F | | |
| | Improve journey time | | | Shortest route between Temple Sowerby and Appleby | | |
| Transport | Improve resilience | Both routes would bypass the village of Kirkby Thore providing multiple turn-around points. D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. | | Both routes would bypass the village of Kirkby Thore providing multiple turn-around points. D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. Option 6H1 would provide de-trunked access to adjacent village available for diversions during A66 incidents | | |
| | Improve safety | Both routes would be designed to high standards of safety for road users. Northern by-passes of Kirkby Thore would remove British Gypsum HGV traffic from the village | | Would be designed to high standards of safety for road users | | |
| | Minimise disruption during construction | Northern option avoids use of re-use of existing carriageway minimising impact to customers during construction. | | Shortest construction duration | | |
| | Be affordable to | Stage 1 Cap | ital Cost Most Likely (No | ominal Cost) | | |
| onomic | Government and users | | | Lowest capital cost option | | |
| Eç | Value for money | | | | | |
| Environment and Community | Minimise adverse impacts on health and the environment | None of the options in Section 6 would result in an exceedance of the A objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedar of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. It all options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are designated sites of international and national importance located within 200m of both options (River Eden SAC and River Eden & and national | | considered to be ation. As exceedances on have been predicted we been calculated. For position is not Biodiversity There are designated sites of international and national | | |
| Tributaries SSSI). Option 6E1 would result in loss of small number within of broadleaved trees and permanent shading of c.80m stretch of riparian habitat and c.40m | | | within 200m of both options (River Eden | | | |



| Scheme Objective | 6E1 | E | F |
|------------------|---|--|---|
| | stretch of the River Eder |). | SAC and River Eden & Tributaries SSSI). Option 6H1 would result in loss of small number of broadleaved trees and permanent shading of c.80m stretch of riparian habitat and c.40m stretch of the River Eden. |
| | impacts on the settings of Buildings and Landscape | 6 are expected to result in of several Archaeological Fees potentially decreasing t | Remains; Historic heir significance. |
| | | Roman Camp is considere result in significant effect | |
| | Landscape | Tesuit in significant chect | Landscape |
| | Landscape Option 6E1/6J1 would bring the A66 closer to the North Pennines AONB than its current alignment, thereby potentially increasing its perceived influence on local landscape character and tranquility. | | Option not located within a National Park or Area of Outstanding Natural Beauty. |
| | Geology and Soils Option 6E1 should be classed as high risk from historical mining. Sinkholes that can occur at the surface because gypsum is a soluble rock, therefore remaining pillars in the mine are soluble. The significance of effect could be up to large adverse for Option 6E1 | Geology and Soils Option 6J1 should be classed as medium risk from historical mining. Sinkholes that can occur at the surface because gypsum is a soluble rock, therefore remaining pillars in the mine are soluble. | Geology and Soils Following the implementation of mitigation no likely significant effects have been identified for either Option 6H1. |
| | Noise Option 6E1/6J1 would le road traffic noise for rece Temple Sowerby and rece noise between Sowerby Morland as a result of the bypassing the existing A | eptors to the north of ductions in road traffic and Appleby West e implementation of | Noise Option 6H1 would increase road traffic noise between Temple Sowerby and Appleby West Morland due to the introduction of the new alignment and reduce traffic noise for receptors close to the existing alignment. |
| | People and Communitie | es | People and Communities |



| Scheme Objective | 6E1 | Е | F |
|------------------------|--|---|--|
| | Both options would lead to the loss of agricultural land, which may impact upon agricultural businesses. Both northern options would require greater land take outside of the current trunk road boundary Road Drainage and Water Environment Option 6E1/6J1 has a direct impact on the Trout Beck and its floodplains (mainly Flood Zone 3). The long term impact will depend on the extent of the affected area within the floodplain and the proposals for watercourse modifications and the new crossing of the Trout Beck and its floodplain. | | Option 6H1 would lead to the loss of agricultural land and the demolition of farm buildings found at Bridge End Farm, which may impact upon agricultural businesses. |
| | | | Road Drainage and Water Environment Option 6H1 has a direct impact on both the River Eden and Trout Beck and their floodplains (both Flood Zone 2 and Flood Zone 3). The impact will depend on the extent of the affected area within the floodplain and the final design for any works to the watercourses and the new crossing of the Trout Beck and its floodplain. |
| Minimise Severance | | reduce the impact of sever central position within the | ance by diverting the |
| Non Motorised Users | Increased opportunity for facilities crossing the A66 | - | Increased opportunity for grade separated NMU facilities crossing the A66. Greater NMU access between villages available with Option 6H1 by the utilisation of the de-trunked A66 |



Section 6 – Temple Sowerby to Appleby (Crackenthorpe)

Table 7-4: Temple Sowerby to Appleby (Crackenthorpe) Appraisal Summary

| | Table 7-4. Temple v | Sowerby to Appleby (Crackenthorpe) | Appraisar Summary |
|---------------------------|--|---|--|
| | Scheme Objective | G | н |
| | Improve journey time | Similar journey times predicted for | both options, no preference |
| Transport | Improve resilience | Both routes would bypass the village of Crackenthorpe providing multiple turn-around points. D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. | Both routes would bypass the village of Crackenthorpe providing multiple turn-around points. D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. Option 6G2 would provide detrunked access to adjacent village, available for diversions during A66 incidents |
| | Improve safety | Both routes would be designed to husers. | nigh standards of safety for road |
| | Minimise disruption during construction | | |
| Economic | Be affordable to Government and users | Stage 1 Capital Cost Mo | st Likely (Nominal Cost) |
| Есо | Value for money | | |
| Environment and Community | Minimise adverse impacts on health and the environment | • | for the protection of vegetation the project on nitrogen deposition as the impact of the project on ed significant. Biodiversity There are designated sites of international and national importance located within 200m of both options (River Eden SAC and River Eden & Tributaries SSSI). Option 6G2 is separated from these sites by Chapel Wood and minimum distance of c.30m, which attenuates potential disturbance impacts of noise/vibration and light. |
| | | The options in Sections 6 are expended in the settings of the settings of the Historic Buildings and Landscapes significance. Following mitigation the Roman Canange that will result in significant | f several Archaeological Remains; potentially decreasing their amp is considered to experience |



| Scheme Objective | G | н |
|---------------------|---|--|
| | Landscape Neither options are located within a | |
| | Outstanding Natural Beauty. Geology and Soils There is a recorded landslip at Crackenthorpe along the edge of the River Eden within the proposed alignment. This area of | Geology and Soils No significant effects have been identified |
| | mass movement has undergone stabilisation works by Highways England in February 2009, which included bored piles and soil nailing. The impacts of the landslide and associated | |
| | stabilisation works has not been assessed at this stage, although, this feature is considered to represent a constraint towards the proposed route alignment. | |
| | Noise Option 6F2 would increase road traffic noise for receptors at Powis House and Roman Vale and reduce road traffic noise for receptors located in Crackenthorpe. | Noise Option 6G2 would increase road traffic noise for receptors at Powis House and Roman Vale although this would be below the Significantly Observed Adverse Effect Level (SOAEL). Would reduce road traffic noise for receptors located in Crackenthorpe. |
| | People and Communities Both options would lead to the loss impact upon agricultural businesse | of agricultural land, which may |
| | Road Drainage and Water Environment For a short reach, Option 6F2 runs close to the River Eden and its floodplain. Depending on the final design of Option 6F2 there may be some impact on the watercourse. | Road Drainage and Water Environment Located away from local watercourses and their associated floodplains. |
| Minimise Severance | Both options improve and reduce the A66 away from it. | ne impact of severance by diverting |
| Non Motorised Users | Increased opportunity for grade separated NMU facilities crossing the A66 | Increased opportunity for grade separated NMU facilities crossing the A66. Greater NMU access between villages available with Option 6G2 by the utilisation of the de-trunked A66 |



Section 8 – Appleby to Brough

Table 7-5: Appleby to Brough Appraisal Summary

| Improve journey time Benefit over existing 50mph restricted carriageway | | Table 7-5: Appleby to Brough Appraisal Summary | | | |
|--|--------|--|--|--|--|
| Improve resilience D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. De-trunked section of existing A66 provides diversion route opportunities during incidents and maintenance. Improve safety Option would be designed to high standards of safety for road users. 24 Months construction period. Large sections of proposals offline thus minimizing disruption. Stage 1 Capital Cost Most Likely (Nominal Cost) Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Minimise adverse impacts on health and the environment Minimise adverse impact on the currently available information. As exceedances of the AQS objective for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are designated sites of international and national importance located within 200m of this Option (River Eden SAC and River Eden & Tributaries SSSI). Possible changes in the noise environment during construction will (in the absence of mitigation) have significant impact on qualifying species (if present locally). Temporary land take for construction could also require land that is functionally linked with the North Pennine Moors SPA. Cultural Heritage Option could have a physical and settings impact on Warcop roman camp. The development of this option is expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape The construction phase would result in notable changes to the landscape would have a physical and settings of several Archaeological Remains; Historic Buildings and Landscape so the perceived character of the overall landscape would be less as the | | Scheme Objective | The second secon | | |
| Minimise disruption during construction Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Air Quality Neither Option 8C1 or 8A2 would result in an exceedance of the AQS objectives for NQ2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been calculated. For both options the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are designated sites of international and national importance located within 200m of this Option (River Eden SAC and River Eden & Tributaries SSSI). Possible changes in the noise environment during construction will (in the absence of mitigation) have significant impact on qualifying species (if present locally). Temporary land take for construction could also require land that is functionally linked with the North Pennine Moors SPA. Cultural Heritage Option could have a physical and settings impact on Warcop roman camp. The development of this option is expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape The construction phase would result in notable changes to the landscape character of the area immediately surrounding the project, though the change to the overall landscape would be less as the existing A66 is already a feature. This Option would not result in notable changes to the perceived character of the North Pennines AONB | nsport | | D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. De-trunked section of existing A66 provides diversion route | | |
| Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Minimise adverse impact of the AQS objective for the protection of vegetation have been predicted the impact of the protection of vegetation have been predicted the impact of the protection of vegetation have been calculated. For both options the impact of the protect on nitrogen deposition is not considered significant. Biodiversity There are designated sites of international and national importance located within 200m of this Option (River Eden SAC and River Eden & Tributaries SSSI). Possible changes in the noise environment during construction will (in the absence of mitigation) have significant impact on qualifying species (if present locally). Temporary land take for construction could also require land that is functionally linked with the North Pennine Moors SPA. Cultural Heritage Option could have a physical and settings impact on Warcop roman camp. The development of this option is expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape The construction phase would result in notable changes to the landscape character of the area immediately surrounding the project, though the change to the overall landscape would be less as the existing A66 is already a feature. This Option would not result in notable changes to the perceived character of the North Pennines AONB | Tra | Minimise disruption | Option would be designed to high standards of safety for road users. 24 Months construction period. | | |
| Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Air Quality Neither Option 8C1 or 8A2 would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the project on nitrogen deposition have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are designated sites of international and national importance located within 200m of this Option (River Eden SAC and River Eden & Tributaries SSSI). Possible changes in the noise environment during construction will (in the absence of mitigation) have significant impact on qualifying species (if present locally). Temporary land take for construction could also require land that is functionally linked with the North Pennine Moors SPA. Cultural Heritage Option could have a physical and settings impact on Warcop roman camp. The development of this option is expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape The construction phase would result in notable changes to the landscape would be less as the existing A66 is already a feature. This Option would not result in notable changes to the perceived character of the North Pennines AONB | | during construction | · · | | |
| Minimise adverse impacts on health and the environment Air Quality Neither Option 8C1 or 8A2 would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are designated sites of international and national importance located within 200m of this Option (River Eden SAC and River Eden & Tributaries SSSI). Possible changes in the noise environment during construction will (in the absence of mitigation) have significant impact on qualifying species (if present locally). Temporary land take for construction could also require land that is functionally linked with the North Pennine Moors SPA. Cultural Heritage Option could have a physical and settings impact on Warcop roman camp. The development of this option is expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape The construction phase would result in notable changes to the landscape character of the area immediately surrounding the project, though the change to the overall landscape would be less as the existing A66 is already a feature. This Option would not result in notable changes to the perceived character of the North Pennines AONB | omic | | Stage 1 Capital Cost Most Likely (Nominal Cost) | | |
| Impacts on health and the environment Neither Option 8C1 or 8A2 would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are designated sites of international and national importance located within 200m of this Option (River Eden SAC and River Eden & Tributaries SSSI). Possible changes in the noise environment during construction will (in the absence of mitigation) have significant impact on qualifying species (if present locally). Temporary land take for construction could also require land that is functionally linked with the North Pennine Moors SPA. Cultural Heritage Option could have a physical and settings impact on Warcop roman camp. The development of this option is expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape The construction phase would result in notable changes to the landscape character of the area immediately surrounding the project, though the change to the overall landscape would be less as the existing A66 is already a feature. This Option would not result in notable changes to the perceived character of the North Pennines AONB | Econ | Value for money | | | |
| | _ | impacts on health and | Neither Option 8C1 or 8A2 would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are designated sites of international and national importance located within 200m of this Option (River Eden SAC and River Eden & Tributaries SSSI). Possible changes in the noise environment during construction will (in the absence of mitigation) have significant impact on qualifying species (if present locally). Temporary land take for construction could also require land that is functionally linked with the North Pennine Moors SPA. Cultural Heritage Option could have a physical and settings impact on Warcop roman camp. The development of this option is expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape The construction phase would result in notable changes to the landscape character of the area immediately surrounding the project, though the change to the overall landscape would be less as the existing A66 is already a feature. This Option would not result in notable changes to the perceived character of the North Pennines AONB | | |
| | | | Geology and Soils | | |



| Scheme Objective | |
|--|---|
| Minimise adverse impacts on health and the environment | Following the implementation of mitigation no likely significant effects have been identified for either Option 8C1 or 8A2. |
| the environment | Noise Option would increase road traffic noise for receptors between Sandforth and Brough and Great Ormside and Brough. Outlying dwellings in Warcop would experience a reduction in road traffic noise. People and Communities Option would lead to the loss of agricultural land, which may impact |
| | upon agricultural businesses. Road Drainage and Water Environment Option 8C1 will have potential impacts on the floodplains and wider catchment of the Hayber Beck. The impact will depend on the extent |
| | of the works within the floodplain and the nature of any works to the watercourse including the design of the new crossing and how this spans the floodplain. Option 8A2 may have an impact on the existing crossing of the |
| | Lowgill Beck/Woodend Sike/Yosgill Sike. The impact will depend on the extent of the affected area within the floodplain and the nature of any works to the watercourses or the crossing itself. |
| Minimise Severance | Both options improve and reduce the impact of severance by diverting the A66 away from it. |
| Non Motorised Users | Increased opportunity for grade separated NMU facilities crossing the A66. Greater NMU access between villages available by the utilisation of the de-trunked A66 |



Section 10 - Bowes Bypass

Table 7-6: Bowes Bypass Appraisal Summary

| | | 6: Bowes Bypass Appraisal Summary |
|---------------------------|--|--|
| | Scheme Objective | J |
| | Improve journey time | |
| t | Improve resilience | Greater diversion/turn-around facilities due to the addition of east facing slip roads at Bowes Junction |
| Transport | Improve safety | Option would be designed to high standards of safety for road users. At-grade major/minor junction at east of scheme to be removed and replaced with grade separated slip roads at Bowes Junction. |
| | Minimise disruption during construction | 30 Months construction period. Large sections of proposals offline thus minimising disruption. |
| ji | Be affordable to | Stage 1 Capital Cost Most Likely (Nominal Cost) |
| Economic | Government and users | |
| Eco | Value for money | |
| Environment and Community | Minimise adverse impacts on health and the environment | Air Quality Option 10A would not result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are designated sites of international and national importance located within 200m of the proposed option (Bowers Moor SSSI; North Pennine Moors SAC and North Pennine Moors SPA) Possible changes in the noise environment during construction will (in the absence of mitigation) have significant impact on qualifying species (if present locally). Temporary land take for construction could also require land that is functionally linked with the North Pennine Moors SPA. Cultural Heritage The development of this option is expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Landscape The western end of this section (where the road is already |
| | | dualled) clips the boundary with the North Pennines AONB. The construction phase would result in notable changes to the landscape character of the area immediately surrounding the project, though the overall change would be less as the existing A66 is already a feature. Geology and Soils |



| Scheme Objective | J |
|---------------------|--|
| | Following the implementation of mitigation no likely significant effects have been identified for Option 10A. |
| | Noise Option 10A would lead to an increase in road traffic noise in Bowes. |
| | People and Communities Option 10A would lead to the loss of agricultural land and require the demolition of properties, the disused Bowes Train Station and Low Broats Farm, which may impact upon businesses. |
| | Road Drainage and Water Environment Option 10A will not directly impact on any watercourses or floodplains. |
| Minimise Severance | |
| Non Motorised Users | |



Section 12 - Cross Lanes to Rokeby

Table 7-7: Cross Lanes to Rokeby Appraisal Summary

| Improve journey time Similar journey times predicted for both options, no preference | | | 7. Closs Lailes to Nokeby Applaisar | | |
|---|--|-----------------------|--|---|--|
| Improve resilience D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. | | Scheme Objective | | L | |
| Improve safety Option would be designed to high standards of safety for road users. | | Improve journey time | D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. | | |
| Minimise disruption during construction Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Air Quality Neither Option 12A or 12B would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are no designated sites of international and national importance (SSSI & SAC) located within 200m of either Option 12A or 12B Cultural Heritage Option 12A could have a settings impact on the Greta Bridge Roman Fort and Rokeby Park. Cultural Heritage Three assets are considered to experience change that will result in significant effects as a result of construction of Option 12B. These assets comprise the Church of St Mary and two | sport | Improve resilience | | | |
| Minimise disruption during construction Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Air Quality Neither Option 12A or 12B would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are no designated sites of international and national importance (SSSI & SAC) located within 200m of either Option 12A or 12B Cultural Heritage Option 12A could have a settings impact on the Greta Bridge Roman Fort and Rokeby Park. Cultural Heritage Three assets are considered to experience change that will result in significant effects as a result of construction of Option 12B. These assets comprise the Church of St Mary and two | Lran | Improve safety | | | |
| Be affordable to Government and users Value for money Minimise adverse impacts on health and the environment Air Quality Neither Option 12A or 12B would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are no designated sites of international and national importance (SSSI & SAC) located within 200m of either Option 12A or 12B Cultural Heritage Option 12A could have a settings impact on the Greta Bridge Roman Fort and Rokeby Park. Cultural Heritage Three assets are considered to experience change that will result in significant effects as a result of construction of Option 12B. These assets comprise the Church of St Mary and two | | | · | · | |
| Minimise adverse impacts on health and the environment Air Quality Neither Option 12A or 12B would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are no designated sites of international and national importance (SSSI & SAC) located within 200m of either Option 12A or 12B Cultural Heritage Option 12A could have a settings impact on the Greta Bridge Roman Fort and Rokeby Park. Cultural Heritage Three assets are considered to experience change that will result in significant effects as a result of construction of Option 12B. These assets comprise the Church of St Mary and two | . <u>5</u> | Be affordable to | Stage 1 Capital Cost Mo | st Likely (Nominal Cost) | |
| Minimise adverse impacts on health and the environment Air Quality Neither Option 12A or 12B would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the projection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are no designated sites of international and national importance (SSSI & SAC) located within 200m of either Option 12A or 12B Cultural Heritage Option 12A could have a settings impact on the Greta Bridge Roman Fort and Rokeby Park. Cultural Heritage Three assets are considered to experience change that will result in significant effects as a result of construction of Option 12B. These assets comprise the Church of St Mary and two | non | Government and users | | | |
| impacts on health and the environment Neither Option 12A or 12B would result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. As exceedances of the AQS objective for the protection of vegetation have been predicted the impact of the project on nitrogen deposition have been calculated. For both options the impact of the project on nitrogen deposition is not considered significant. Biodiversity There are no designated sites of international and national importance (SSSI & SAC) located within 200m of either Option 12A or 12B Cultural Heritage Option 12A could have a settings impact on the Greta Bridge Roman Fort and Rokeby Park. Cultural Heritage Three assets are considered to experience change that will result in significant effects as a result of construction of Option 12B. These assets comprise the Church of St Mary and two | Ecc | Value for money | | | |
| | a | impacts on health and | Neither Option 12A or 12B would r objectives for NO2 and PM10 and significant, based on the currently exceedances of the AQS objective have been predicted the impact of have been calculated. For both optinitrogen deposition is not considered Biodiversity There are no designated sites of in importance (SSSI & SAC) located or 12B Cultural Heritage Option 12A could have a settings impact on the Greta Bridge | impacts are not considered to be available information. As for the protection of vegetation the project on nitrogen deposition tions the impact of the project on ed significant. International and national within 200m of either Option 12A Cultural Heritage Three assets are considered to experience change that will result in significant effects as a result of construction of Option 12B. These assets comprise the Church of St Mary and two | |
| | For both Options 12A and 12B existing roadside trees bet existing A66 and Rokeby Park would restrict perceptual e Park. The construction phase would however still result in | | ald restrict perceptual effects on the ld however still result in notable | | |
| For both Options 12A and 12B existing roadside trees between the existing A66 and Rokeby Park would restrict perceptual effects on the Park. The construction phase would however still result in notable adverse perceptual effects on the southern part of the Park. | | | Following the implementation of management have been identified for Options 12 | 2A and 12B. | |
| existing A66 and Rokeby Park would restrict perceptual effects on the Park. The construction phase would however still result in notable adverse perceptual effects on the southern part of the Park. Geology and Soils Following the implementation of mitigation no likely significant effects have been identified for Options 12A and 12B. | | | Noise Option 12A would lead to an increase in road traffic noise for receptors at Greta Bridge. | Noise Option 12B would not result in a perceptible increase in road traffic noise for receptors at Greta Bridge. | |



| Scheme Objective | K | L |
|--|--|--|
| Minimise adverse impacts on health and the environment | People and Communities Option 12A would lead to the loss of agricultural land, which may impact upon businesses. People and Communities Option 12B would lead to the loss of agricultural land and require the demolition of a residential property (The Old Rectory), which may impact upon businesses. Road Drainage and Water Environment Both Options 12A and 12B may have a direct impact on the Tutta Beck and River Greta and their associated floodplains. The impact will depend on the extent of the works area to the eastern end of the Section and whether this extends into the floodplain or affects the existing crossings of the Tutta Beck and River Greta | |
| | | |
| Minimise Severance | | |
| Non Motorised Users | Increased opportunity for grade separated NMU facilities crossing the A66. | Increased opportunity for grade separated NMU facilities crossing the A66. |



Section 14 – Stephen Bank to Carkin Moor

Table 7-8: Stephen Bank to Carkin Moor Appraisal Summary

| | | 7-0. Stephen Bank to Cark | | | |
|--|---|---|--|--|--|
| So | cheme Objective | M | N | 0 | |
| | Improve journey time | Similar journey times predicted for both options, no preference | | | |
| Transport | Improve resilience | Provides turn-around points. D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. De-trunked A66 available for diversions during A66 incidents | Provides turn-around points. D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. | Provides turn-around points. D2AP cross section would reduce cross over accidents limiting incidents to a single carriageway. | |
| | Improve safety | Option would be designed to high standards of safety for road users | | | |
| | Minimise disruption during construction | 34 months construction programme | 33 months construction programme | 35 months construction programme | |
| nic | Be affordable to Government and | Stage 1 Cap | ital Cost Most Likely (No | ominal Cost) | |
| Economic | users | | | | |
| E S S | Value for money | | | | |
| Minimise adverse impacts on health and the environment Air Quality Options 14A, 14F and 14G would no objectives for NO2 and PM10 and imsignificant, based on the currently avof the AQS objective for the protection the impact of the project on nitrogen both options the impact of the project considered significant. | | | PM10 and impacts are not currently available inform the protection of vegetation on nitrogen deposition ha | considered to be ation. As exceedances on have been predicted ve been calculated. For | |
| nity | | Biodiversity | Biodiversity | Biodiversity | |
| Environment and Commu | | There are no designated sites of international and national importance (SSSI & SAC) located within 200m of Option 14A. Will affect 'important hedgerow' and rivers and streams S41 priority habitat. Cultural Heritage | There are no designated sites of international and national importance (SSSI & SAC) located within 200m of Option 14F. Will affect 'important hedgerow', rivers and streams S41 priority habitat and deciduous woodland S41 priority habitat. Cultural Heritage | There are no designated sites of international and national importance (SSSI & SAC) located within 200m of Option 14G. Will affect 'important hedgerow', rivers and streams S41 priority habitat and deciduous woodland S41 priority habitat. Cultural Heritage | |
| | | Option 14A will not impact the Roman Fort and Prehistoric settlement. | Option 14F will result in physical impacts to the Roman Fort and Prehistoric settlement. | Option 14G will result in physical impacts to the Roman Fort and Prehistoric settlement. | |



| Scheme Objective | М | N | О |
|------------------------|---|---|---|
| | For all options in Section 14, the new road alignment would begin to become assimilated into the local landscape once construction is completed and new roadside planting becomes established and develops. None of the options are located within a National Park or Area of Outstanding Natural Beauty. Geology and Soils Following the implementation of mitigation, no likely significant effects have been identified for Options 14A, 14F and 14G. | | |
| | Noise Option 14A would increase road traffic noise at noise sensitive receptors in Dalton, Gilling West and Ravensworth. | Noise Option 14F would result in increased road traffic noise between Greta Bridge and Gilling West and perceptible decreases at Ravensworth, where traffic flow is reduced on the existing road network. | Noise Option 14F would result in increased road traffic noise between Greta Bridge and Gilling West and perceptible decreases at Ravensworth, where traffic flow is reduced on the existing road network. |
| | may impact upon agricult Road Drainage and Wa All options in Section 14 assessment will be requi | es would lead to the loss of a tural business. | es 2 and 3. Further gn and environmental |
| Minimise Severance | Option improves and reduces the impact of severance by diverting the A66 away from its current central position | Option improves and reduces the impact of severance by diverting the A66 away from its current central position Option to the north maintains access to Ravensworth via detrunked A66. | are mingated. |
| Non Motorised Users | Increased opportunity for grade separated NMU facilities crossing the A66. | Increased opportunity for grade separated NMU facilities crossing the A66. Greater NMU access between Ravensworth and Fox Hall available by the utilisation of the de-trunked A66 | Increased opportunity for grade separated NMU facilities crossing the A66. |



8 PUBLIC CONSULTATION

8.1 Introduction

8.1.1 This section summarises the views and comments emerging from the public consultation.

8.2 Approach to Engagement

- 8.2.1 The project undertook early engagement starting for Stage Two in March 2019 to better understand the issues relating to the programme and to determine constraints and priorities around the proposed options for potential dualling.
- 8.2.2 A planned and focused approach to engagement has been adopted to ensure high quality and meaningful engagement. This provided opportunities for sharing complex and technical information and facilitated relationship building with opportunities for further engagement. Key stakeholders for this purpose were local authorities, statutory and environmental bodies, statutory undertakers (utilities) and selected special interest groups.
- 8.2.3 Businesses and landowners who might be impacted by the plans were subject to a separate strand of engagement activity and the public and stakeholders had the opportunity to share their views on the options through the public consultation that took place in May/June 2019.
- 8.2.4 This consultation activity is summarised later in this chapter

Stakeholder Reference Group

- 8.2.5 The Stakeholder Reference Group (SRG) was originally convened to help Highways England draw upon local knowledge and understand stakeholders' needs, priorities and opinions with respect to the options for dualling the remaining single carriageway sections of the A66.
- 8.2.6 The panel meets at key stages in the project and is designed to be a consultative and advisory group, currently comprising representatives of the organisations listed in the table below.
- 8.2.7 The Stakeholder Reference Group membership also formed the basis for a series of Focus Groups which were held at the Holiday Inn Scotch Corner in March 2019. The Focus Groups gave the project team the opportunity to outline the proposed options and explore the local constraints and the issues raised by special interest groups.
- 8.2.8 The Focus Groups were also used as an opportunity to test the materials which would be used at public consultation.

Statutory and Environmental Bodies

- 8.2.9 Throughout this stage, the project has engaged with statutory environmental bodies (SEB) to share the emerging options and explore the environmental appraisal of the routes. These bodies comprise the Environment Agency (EA), Historic England and Natural England who have been engaged through bilateral meetings.
- 8.2.10 Through this engagement the project has gained a detailed understanding of the environmental constraints associated with each of the route options. In particular the project has worked collaboratively with the SEBs to gather additional information on the River Eden Special Area of Conservation (SAC), flood risk and the Roman Fort Scheduled Monument at Carkin Moor which has informed the option selection.

Industry and Utilities

8.2.11 Key major industry stakeholders have been identified to seek important technical information including constraints associated with existing assets and future development plans. Organisations approached included National Grid, United Utilities, Openreach & Electricity Northwest. Preliminary enquiries have been made to utility companies about the locations of their assets to assist with understanding the impact of these assets on the proposed route options



- 8.2.12 The project has also engaged with wider industry stakeholders comprising prominent local businesses from the Business, Freight and Ports sectors, along with membership organisations such as the Chambers of Commerce and the Federation of Small Businesses. These organisations were part of the Business, Freight and Ports workstream which conducted face-to-face, telephone and online interviews in September and October 2019.
- 8.2.13 The findings of this engagement exercise will also be used as part of the Business Case for the A66 programme.

Pre-Consultation Awareness Raising

- 8.2.14 Due to the size of the consultation area, and the timing of the consultation events (shortly after purdah), the consultation was widely advertised along the route corridor well in advance of the consultation events.
- 8.2.15 In March 2019 a period of early awareness was launched to alert local people to the forthcoming consultation events. This activity took the form of advertisements in local newspapers The Northern Echo, Teeside Gazette and Cumberland and Westmorland Herald and flyers distributed through deposit points in publicly accessible buildings along the route. The adverts and the flyers detailed the events programme and directed people to the project webpage for further details.

Landowner Engagement

- 8.2.16 Engagement with key landowners who may be impacted by one of the options put forward for consultation was obviously of the highest priority. Due to the timing of consultation (shortly after purdah) it was not possible to share the route options in advance of the consultation period. However, to mitigate this issue, letters were sent in May 2019 to all 224 landowners along each of the route options inviting them to book a one-to-one session with Highways England representatives during the consultation period.
- 8.2.17 A follow up letter was issued in June 2019 to remind landowners of the opportunity to meet with Highways England during consultation.
- 8.2.18 A number of meetings were held with landowners throughout the consultation period.

8.3 Public Consultation Process and Summary of Findings

Route Consultation May/June 2019

- 8.3.1 The public consultation ran for eight weeks, from 16 May to 11 July 2019. The consultation brochure was distributed with a covering letter to 1823 homes within 250m of the entire route. Residents within 2.5km of the route (14,076 homes) received a flyer promoting the consultation events.
- 8.3.2 The catchment area was agreed with the local authorities of Cumbria County Council, Durham County Council and North Yorkshire County Council prior to publication as part of the approach to public consultation document.
- 8.3.3 A full brochure was produced to support the consultation and was distributed through a variety of means to reach a wide range of stakeholders.
- 8.3.4 The brochure included background information and an outline of the benefits of the project along with details of how to respond to the consultation, outline of all the times and venues for all consultation events, maps to show each single carriageway section of the route and the proposed options, a benefits and impacts tables for each option, a pull-out consultation response form and details of the next steps for the programme.
- 8.3.5 Information was also made available on the scheme webpage: www.highwaysengland.co.uk/projects/a66-northern-trans-pennine/ which linked through to a Citizen Space page where respondents could complete the feedback form.
- 8.3.6 The consultation was advertised in the local press, by direct mail and though posters in deposit



points. In total, 22 consultation events were held during the consultation period to allow interested parties to speak with the project team. 20 of these events were open to the public, one was held for invited senior stakeholders and one was held at the holiday destination, Center Parcs, for members of staff.

- 8.3.7 Consultation responses were accepted through the following channels:
 - Online, using the online response form
 - Submitting a paper copy of the response form
 - at public consultation events
 - by post using a freepost address printed on the paper response forms
 - Email to the dedicated scheme email address: A66NTP@highwaysengland.co.uk

What was consulted on

- 8.3.8 This consultation specifically invited views on the preferences for respondents around options for certain route sections.
- 8.3.9 There are eight sections of single carriageway where it is proposed to introduce dualling. Of these, there are six sections with options and two were there is a single proposed route. In total there are 15 different options for respondents to comment on. Maps of the sections can be seen in Section 6 of this document.
- 8.3.10 Although not part of this consultation, the document also invited comments on the major junctions at each end of the consultation area M6 junction 40 and the A1(M) at Scotch Corner. A separate junctions consultation will be held in 2020 around these major junctions and the smaller local access junctions along the route.

Methods and Materials used in Consultation

- 8.3.11 A variety of material was made available, digitally and in hard copy form, to ensure the public had access to the information needed to consider the options presented and respond to the consultation accordingly.
 - **Online** all the consultation material was available online via the Citizen Space consultation platform, linked from the Highways England A66 project page.
 - Hard copies of consultation materials Consultation brochure and feedback forms, along
 with Freepost envelopes, were made available at a series of 19 deposit locations along the
 route. These materials were restocked throughout the consultation period.
 - **Public drop-in sessions** Highways England held a total of 20 public drop in events over a six-week period at locations along the route. More than 2,000 people attended the events.
 - Advertising Local media was used to advertise the consultation process and the events.
 - Posters Posters were displayed in all deposit points locations and venue-specific posters
 were produced for each consultation location with details of the events which were to be
 held there. These were displayed in the venues in the run up to the consultation events.
 - **Leaflets** Leaflets were distributed to all households and businesses in post codes within 2.5km of the proposed routes. In total the leaflet distribution comprised over 14,000 targeted door-drop distributions to residential and business properties.
 - **Letters to Landowners -** A total of 224 letters were sent to landowners or businesses potentially directly affected by any of the proposed routes.
 - **Social media -** Highways England utilised its social media to promote the scheme and tweets were sent during the consultation.



Process for Capturing Consultation Responses

- 8.3.12 Highways England appointed Ipsos MORI Social Research Institute, a wholly independent research and analysis organisation, to undertake analysis of responses. As part of their independent assurance, the consultation questionnaire was reviewed by Ipsos MORI to ensure questions were impartial and not leading.
- 8.3.13 In line with the Government Digital Strategy, Highways England directed respondents to the Citizen Space online consultation platform. This platform contained links to the consultation material and a link to the secure online survey.
- 8.3.14 Due to the population profile many respondents could not, or chose not to, respond via Citizen Space. In this situation, a hard copy version of the questionnaire and accompanying freepost envelope were made available.
- 8.3.15 Respondents were not limited to using the questionnaire. People responding to the consultation were also able to send their own written response via the freepost address or by email directly to the A66 inbox managed by Highways England. These responses were forwarded to Ipsos MORI for inclusion in the analysis.
- 8.3.16 The ways in which people could respond to the consultation were heavily publicised and made clear in the consultation material as was the deadline for submission. Any responses delivered outside the consultation period have not been included by Ipsos MORI in the analysis.

8.4 Response to Consultation

8.4.1 857 people and organisations responded to the A66 Northern Trans-Pennine consultation. The number of responses to the consultation received through each channel are set out below:

| Paper response forms | 394 |
|--------------------------|-----|
| Online responses | 357 |
| Emails through A66 inbox | 84 |
| Other mail | 4 |

- 8.4.2 764 responses were received from people who classified themselves as members of the public and 90 responses from those who classified themselves as an organisation or group.
- 8.4.3 Organisations or groups who responded to the consultation include elected representatives, action groups, transport groups, community groups, local authorities, public bodies and businesses. These respondents have particular relevant specialist knowledge (such as local authorities or environmental organisations), represent the interests of a large group of people or represent organisations for whom the continuous smooth functioning of the road network is important to the operation of their business. A full list of these stakeholders is provided in the *Analysis of Findings Report*

Summary of Consultation Responses and Findings

- 8.4.4 Extensive analysis of the responses to consultation has been undertaken to consider the responses received and to identify the comments and issues raised that have emerged from the consultation.
- 8.4.5 Ipsos MORI undertook an independent analysis of the consultation responses. Closed question responses from members of the public and groups and organisations using the questionnaire (e.g. multiple choice "tick box" format) were counted up and totalled. The open question responses
- 8.4.6 (which contained the free text comments) were each analysed to identify the themes emerging from the consultation.
- 8.4.7 Highways England worked alongside Ipsos MORI to consider the large number of responses received. A code frame was developed to capture free-text comments, answers and responses and to match these against standard codes. This allowed systematic statistical and tabular



analysis of the responses.

8.4.8 The consultation themes identified from the analysis described above were considered by the team in the development of a Preferred Route which will be taken forward to the design stage and recommended to Government on the preferred route. They will also be considered during the further development of the scheme.

How the Consultation Responses have been used

- 8.4.9 The over-riding aim of the consultation was to engage with all those affected by the proposals, to inform them of the options and give them an opportunity to have their say and contribute to the route selection process.
- 8.4.10 Highways England has carefully evaluated the consultation feedback which has been very helpful in providing new information on the social, economic and environmental effects of each of the options, including constraints associated with existing assets and conditions and information on the local effects of the proposed scheme at consultation.
- 8.4.11 Many of the comments received will help inform detailed design refinements as the scheme is developed in more detail in the next stages.
- 8.4.12 The consultation also offered respondents the opportunity to choose their preferred option on six sections of route where more than one route was out forward. These preferences have been reviewed and verified and will form part of the decision making process for the preferred route.

8.5 Feedback from Consultation

- 8.5.1 Almost all participants to the consultation were in favour of dualling the remaining single carriageway sections of the A66.
- 8.5.2 More than nine in ten (492 out of 532) residents were in favour of dualling, although, with landowners, this support reduced to four in five (59 out of 73), a similar proportion to local businesses (97 out of 119). Local road users were most positive when asked about the principle of upgrading the single carriageway sections (381 out of 407 agreed).
- 8.5.3 Of the 48 organisations which submitted a response, 42 were in favour of dualling, whilst only three organisations did not agree with it. Three organisations did not know and a further three did not record a response.

Table of Responses

8.5.4 The following table outlines the preferences of respondents to each of the options put forward at consultation. This represents the total number of respondents who stated 'strongly agree' or 'tend to agree' with the option.

| Route section | Route option | Number of respondents in favour |
|--|--------------|---------------------------------|
| Kemplay Bank | A | 312 |
| | В | 80 |
| Penrith to Temple Sowerby | С | 215 |
| | D | 88 |
| Temple Sowerby to Appleby | E | 275 |
| Kirkby Thore | F | 151 |
| Temple Sowerby to Appleby Crackenthorpe | G | 83 |
| | Н | 254 |
| Appleby to Brough | 1 | 217 |



| Route section | Route option | Number of respondents in favour |
|-----------------------------|--------------|---------------------------------|
| Bowes Bypass | J | 190 |
| Cross Lanes to Rokeby | K | 154 |
| | L | 76 |
| Stephen Bank to Carkin Moor | M | 116 |
| | N | 164 |
| | 0 | 39 |

8.5.5 Full analysis of the consultation responses and the themes which emerged through the code frames can be seen in the document HE565627-ARC-GEN-A66-RP-ZH-2033 Consultation Analysis Report.

8.6 Post-Consultation Design Changes

8.6.1 This section will describe the changes made to the do-something options based on the feedback from the public during consultation

M6 Junction 40 to Kemplay Bank

8.6.2 There are no proposed changes to these options

Penrith to Temple Sowerby

8.6.3 There are no proposed changes to these options

Temple Sowerby to Appleby - Kirkby Thore

- 8.6.4 Following feedback from consultation, it was agreed that the junction to the north of Kirkby Thore on Option E would be relocated to Main Street with a private access road linking British Gypsum with Main Street.
- 8.6.5 This provided safety benefits in the village by completely removing non access related HGV movements from needing to enter the north of the village, and economic/sustainability benefits by allowing the removal of an overbridge from the design.

Temple Sowerby to Appleby – Crackenthorpe

8.6.6 Following feedback from consultation, we investigated the possibility of shifting the alignment of Option H to the north as it passes Roger Head Farm to minimise the impact on the viability of this business. In addition, it was agreed that for both options, the eastbound arm of the junction at Crackenthorpe should be removed from the scheme, and replaced with an upgraded junction at the Appleby Bypass making greater use of the existing infrastructure.



Appleby to Brough

8.6.7 Following feedback from consultation, we were advised of concerns from the public regarding additional traffic to local side roads specifically from Warcop Primary School, as such we proposed to upgrade the proposed westbound only junction at Sandford to an all-movement junction thus minimising the pressure on local roads.

Bowes Bypass

8.6.8 There are no proposed changes to these options

Cross Lanes to Rokeby

8.6.9 There are no proposed changes to these options

Stephen Bank to Carkin Moor

8.6.10 Following feedback from the public, it was agreed that access to West Layton on option N would be problematic, as such, we proposed to add an additional structure to connect Collier lane to the de-trunked A66 network, thus maintaining access provisions.



9 APPRAISAL OF DO-SOMETHING OPTIONS (PCF STAGE 2)

9.1 Pre-Consultation Appraisal

Traffic

- 9.1.1 Microsimulation models were developed for the operational assessment at the following two locations:
 - M6 J40 and Kemplay Bank; and
 - Scotch Corner.

M6 Junction 40 and Kemplay Bank

- 9.1.2 The M6 Junction 40, which is a grade separated roundabout, and Kemplay Bank, a large atgrade roundabout, are both signal controlled and positioned towards the southern edge of Penrith, with strategic and local significance.
- 9.1.3 The Base models were deemed to be validated to acceptable standards and suitable for operational assessment. The A686 was not considered critical in the overall assessment.
- 9.1.4 Forecast models were derived from the Base year models and future year traffic growth from the Stage 1 strategic model (A66 TM) for the future years 2028 and 2043, for the Do Minimum (DM) and Do Something (DS) scenarios.
- 9.1.5 The DM scenario consists of background traffic growth only with no infrastructure changes. The DS scenario consists of background traffic growth and also growth as a result of the proposed infrastructure changes to the A66 (full dualling). In addition, the DS scenario includes proposed junction improvements to the M6 Junction 40 and Kemplay Bank roundabouts.
- 9.1.6 Details of the Do Something networks are as follows.

M6 Junction 40

- 9.1.7 Initial testing focussed on assuming Junction 40 based on an Option 1A outline design developed by Arcadis and illustrated in Figure 9-1.
- 9.1.8 Option 1A (M6 Junction 40) proposals include:
 - A dedicated left-turn lane from the M6 Southbound off-slip to the A592;
 - A dedicated left-turn lane from the A592 to the A66 Eastbound;
 - Three lanes on the A66 Eastbound approach from Kemplay Bank; and
 - Three lanes on northern circulatory section (A592 approach).



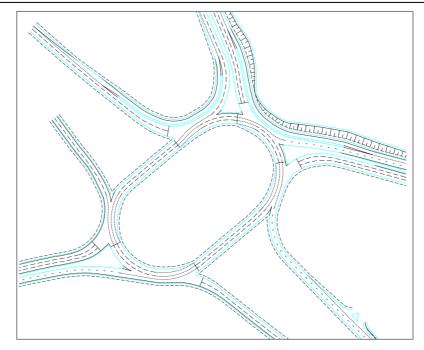


Figure 9-1: Option 1A - proposed improvements to M6 Junction 40

Kemplay Bank

- 9.1.9 Kemplay Bank was based on an Option 2B outline design developed by Arcadis and illustrated in Figure 9-2.
- 9.1.10 Option 2B (Kemplay Bank) proposals include:
 - Grade separation of the A66 east to west movement;
 - On and off-slip roads to/from the A66;
 - Priority control roundabout (removal of signals); and
 - Modified alignment of the A686 approach arm.

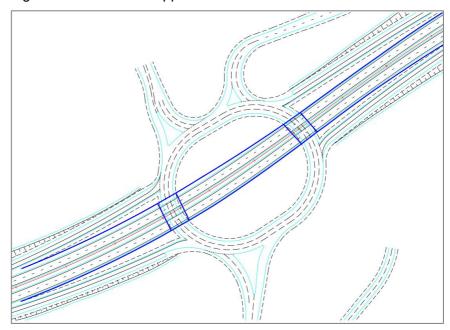


Figure 9-2: Option 2B - proposed improvements to Kemplay Bank

9.1.11 The outcome of the operational assessment concluded that in the Do Minimum scenario the M6 Junction 40 (without improvement) would be operating over capacity in the future year 2043 as



it currently is today. In the Do Something scenario (with proposed layout improvements, Option 1A at M6 J40 and Option 2B at Kemplay Bank) the junction is also forecast to operate over capacity in the future year 2043.

9.1.12 As such, we further developed and tested the J40 proposal to offer additional capacity improvements. This included a 4-lane circulatory and reduced flow on A592 (shown below in Figure 9-3).

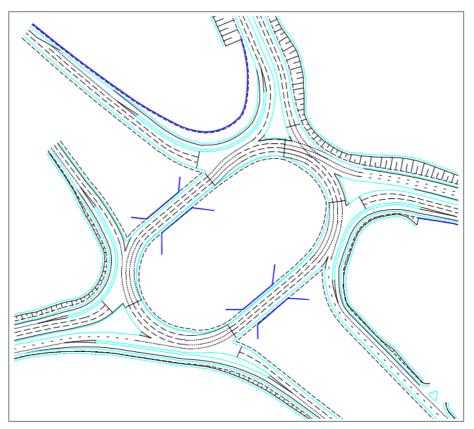


Figure 9-3: Limited 4-lane circulatory + reduced flow on A592

- The above was modelled with two adjusted traffic flow scenarios, which include a reduction of traffic on the A592 (on approach to Jct 40) by 37% and 49%, assuming that reduced traffic flows could be achieved through traffic management measures in Penrith and drivers taking alternative routes when faced with delay along the A592; trips originating in Penrith and travelling north via Jct 40 transferring to Jct 41, and trips travelling east via Jct 40 transferring to the A6 (via Kemplay Bank).
- 9.1.13 The performance of the Junction 40 proposal is summarised below:
 - "limited" improvements, with a 37% reduction in traffic to the A592 approach the junction is forecast to operate within capacity in the 2043 DS scenario in the AM, but marginally over capacity in the PM. With a 49% reduction to the A592 approach the junction is forecast to operate within capacity in the 2043 DS scenario for both the AM and PM. Kemplay Bank roundabout continues to operate within capacity, even with the increased traffic along the A6 as a result of trips transferring from the A592.
- 9.1.14 In conclusion it was determined that the above "limited" improvements at Jct 40 should be included within the cost estimate for the project and developed further during Stage 3. Meetings have been held with CCC and EDC to outline the opportunity and all parties have supported the need to work collaboratively to develop an integrated solution.



Scotch Corner

- 9.1.15 The Scotch Corner model includes the Scotch Corner roundabout, the A6055/A1(M) roundabout (north of Scotch Corner), the Barracks Bank roundabout (south of Scotch Corner) and the access road leading to the Scotch Corner Services. It includes the junction improvement changes made as part of the A1 Leeming to Barton scheme.
- 9.1.16 The Base model was developed using a similar approach to the M6 J40 and Kemplay Bank model development, and consistent model time periods.
- 9.1.17 Survey data, collected in March 2019, was used to inform the construction, calibration and validation of the model. Data collected included classified turning counts, TrafficMaster GPS, and Automatic Number Plate Recognition (ANPR) data.
- 9.1.18 The model was calibrated against the turning movement counts, which correlate well against the observed flows, and with the GEH criteria being met in both the AM and PM peaks. In conclusion the model provided a suitable representation of the operation of Scotch Corner, including the interaction between the peripheral roundabouts and Scotch Corner Services.
- 9.1.19 Do Minimum (DM) and Do Something (DS) future year 2028 and 2043 models were prepared. The DM and DS scenarios consist of background traffic growth, with no infrastructure changes. The DS scenario also includes traffic growth associated with the proposed infrastructure changes to the A66 route (full dualling).
- 9.1.20 A comparison of junction performance between the DM and DS scenario indicates the following:
 - Similar travel time patterns in both the AM and PM, with journey times generally increasing in the DS compared to the DM; and
 - DM and DS performance is comparable, with average network speeds within 1 mph of each other in 2028 and 3-7mph in 2043, and total network delays slightly higher in the DS than the DM.
- 9.1.21 In summary, the key junctions included in the modelled network (Scotch Corner Roundabout; the A6055/A1(M) Roundabout; and the Barracks Bank Roundabout) are forecast to operate within capacity for both the DM and DS scenario. The Middleton Tyas junction is forecast to operate over capacity in 2043 but there is limited information available on use of the Services in the future. In conclusion the existing layout is forecast to have sufficient capacity to accommodate forecast traffic growth beyond the design year 2046.

Environment

Phase 1 Habitat and River Corridor Surveys

- 9.1.22 At PCF Stage 2, the walkover survey undertaken at Stage 1 remained valid; however, a bespoke survey approach was undertaken for Section 6: Temple Sowerby to Appleby. The Section was selected for more specific and detailed surveys as Options 6J1 and 6H1 could directly impact the River Eden SAC/SSSI. This is at proposed crossing points on the Trout Beck which is a tributary of the River Eden. This approach was agreed with the statutory consultees at a meeting on 21 January 2019 (please refer to meeting minutes, document reference HE565627-ARC-GEN-A66-MI-ZM-2005).
- 9.1.23 The bespoke survey approach included:
 - A stand-alone extended Phase 1 habitat survey to provide an overview of the habitats present.
 - A combined River Habitat Survey (RHS), River Corridor Survey (RCS) and Geomorphological survey (collectively referred to as River Eden SAC Survey). This survey provides detailed information in relation to the River Eden SAC and its tributaries.
- 9.1.24 The full methodology and survey results of the bespoke surveys are within Appendix 7.1 of the EAR.



Flood Risk Analysis

9.1.25 Preliminary numerical modelling of baseline flood risk has been undertaken and the impacts of Options 6H1 and 6J1 have been modelled. The assumptions and limitations applicable to the modelling is detailed in Appendix 15.1 of the EAR. This model, once reviewed and accepted by the EA, would inform a Flood Risk Assessment at PCF Stage 3. Further, quantitative assessments and field surveys will be undertaken as required at PCF Stage 3, guided by the outcome of detailed ongoing consultation with the EA and Lead Local Flood Authorities.

Consultation with Historic England

9.1.1 Historic England were consulted on the options at Section 14: Stephen Bank to Carkin Moor, with particular focus on potential impacts on the scheduled Roman fort and prehistoric enclosed settlement (SM6). This is evidenced in a letter dated 1 April 2019 (see Appendix 9.4 of EAR) which provides the following position:

'Given the potential density and character of unknown archaeology in the wider landscape, Historic England are comfortable with Highways England making public options to stay on-line at Carkin Moor by reducing impact through engineered solutions to protect the monument. By doing so, this may reduce impacts on currently unknown archaeological remains in the wider landscape and thus ensure a continuity of the relationship between the fort and the road.'



9.3 Post-Consultation Appraisal

Preferred Route Appraisal

- 9.3.1 One of the key activities of Stage 2 is the selection of a Proposed Route which will form part of the recommendation for Preferred Route once validated. This was done though a formal workshop which was held on Wednesday 17 July 2019 at the DoubleTree by Hilton Hotel, Manchester. The purpose of the workshop was to review the appraisal the options along with the public consultation responses at each section using an agreed appraisal methodology and to subsequently identify the better performing options to be selected as the Preferred Options for recommendation.
- 9.3.2 The appraisal methodology used, was based on a similar methodology used to refine the *long list* options during the PCF Stage 1, that was summarised in the Technical Appraisal Report (TAR). The methodology, also used on other high-profile Tier 1 Highways England projects such as Lower Thames Crossing (LTC), takes each section of the route and assesses the options against one another in several specialist project objectives.
- 9.3.3 An Appraisal Summary Schedule was produced summarising the results of the consultation and appraisal of all options can be found in Appendix B
- 9.3.4 The workshop had 33 attendees and was facilitated by an independent facilitator. The key outcome of the workshop was the identification of the Preferred Route. This was identified by selecting the best overall performing option for sections where a number of options applied and combining them with the single option solutions on the remaining sections. For each of the sections, the following were reviewed at the workshop:
 - the results of the consultation responses
 - the appraisal of the route options as reported in the Stage 1 Technical Appraisal Report (TAR) that was pre-populated for each of the section using the Consultation and Appraisal Summary Schedule
 - updated stakeholder engagement feedback and appraisal work undertaken in Stage 2, including:
 - feedback from Statutory Environmental Bodies
 - results and assessment of walkover environmental surveys of sensitive areas.
- 9.3.5 The facilitator summarised key action points throughout the day which were recorded and summarised in this report. The decisions made during this workshop are summarised below in the following Section.



10 PREFERRED ROUTE OPTION SELECTION

10.1.1 This section confirms the options selected which will ultimately form part of the Recommended Preferred Route once validated in the following sections.

| Project Section | Preferred Route Option |
|---|------------------------|
| M6 J40 to Kemplay Bank Roundabout | Option A |
| Penrith to Temple Sowerby | Option C |
| Temple Sowerby to Appleby (Kirkby Thore) | Option E |
| Temple Sowerby to Appleby (Crackenthorpe) | Option H |
| Appleby to Brough | Option I |
| Bowes Bypass | Option J |
| Cross Lanes to Rokeby | Option K |
| Stephen Bank to Carkin Moor | Option N |

Section 2 - M6 J40 to Kemplay Bank Roundabout

10.1.2 The options considered and presented to the public for consultation already formed part of the preferred route. It was therefore agreed that the discussion be centred around the decision to progress with the underpass or overpass structure at Kemplay Bank Roundabout. The underpass option (Option A) received significant support from the public and had less environmental impact, hence it was recommended that this option be taken forward as the preferred option for further analysis.

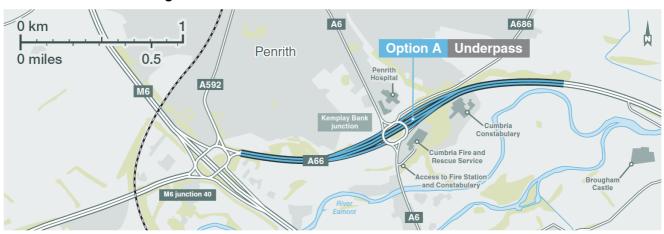


Figure 10-1: Section 2 Preferred Route Recommendation

Section 4 - Penrith to Temple Sowerby

10.1.3 Of the two options, the option that bypasses the property, High Barn, received greater support from the public. This option (Option C) was considered to have the least impact on High Barn. Moreover, the noise and visual instruction on the properties at Lane End would be less with this option. Option C was therefore recommended to form part of the preferred route.



Brougham
Cristle

Westbound only junction

Whinfell Park Farm

Option C

Park Farm

Option C

Center Parcs
Holiday Village

Figure 10-2: Section 4 Preferred Route Recommendation

Section 6.1 - Temple Sowerby to Appleby (Kirkby Thore)

10.1.4 The northern and southern bypass options received large number of responses from the public. The public preferred the northern option highlighting its ability to divert heavy good vehicles to and from British Gypsum works away from the village. The northern option would require demolition of a single property and have less overall impact on properties when compared to the southern option. The southern option had greater impact on biodiversity and water (flood plain). It was agreed to recommend the northern option (Option E) to form part of preferred route.



Figure 10-3: Section 6 Preferred Route Recommendation



Section 6.2 – Temple Sowerby to Appleby (Crackenthorpe)

10.1.5 Of the two northern bypasses, the public preferred the option that followed the historic roman road highlighting greater access for NMU to adjacent villages by-way of retention of part of the existing A66 as link to Appleby. This option (Option H) would have minimal impact on landowners as it follows natural property boundary. Option H was therefore recommended at the preferred route.

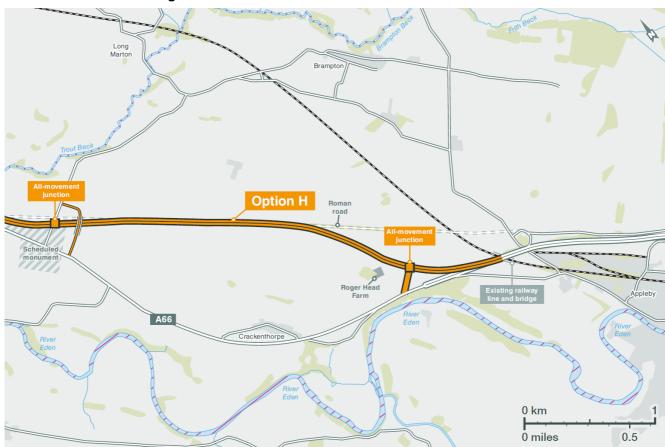


Figure 10-4: Section 6 Preferred Route Recommendation



Section 8 - Appleby to Brough

10.1.6 A single option (Option I) was proposed on the Appleby to Brough section which received significant support from the public. It was agreed that the option should be adopted as part of the Preferred Route.

O miles 0.5

Area of Outstanding Natural Beauty

Area of Outstanding Natural Beauty

Area of Outstanding Natural Beauty

Westbound only junction

Westbound only junction

Westbound only junction

Warcop

MOD Training

Camp

Diagraph

Allor

Eden

Figure 10-5: Section 8 Preferred Route Recommendation

Section 10 - Bowes Bypass

10.1.7 A single option (Option J) was proposed on the Bowes section and the proposed interventions received significant support from the public. It was agreed that the option should be adopted as part of the preferred route.

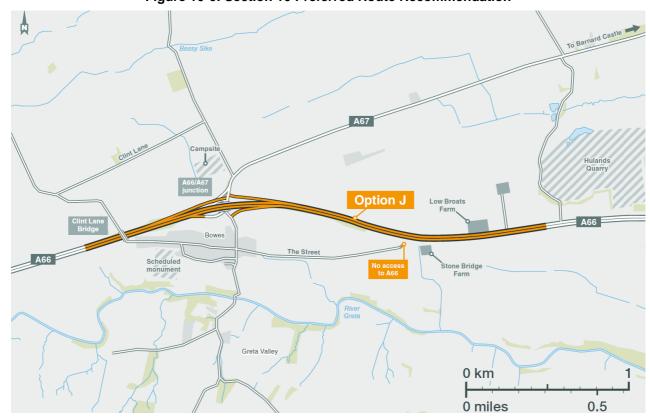


Figure 10-6: Section 10 Preferred Route Recommendation



Section 12 - Cross Lanes to Rokeby

10.1.8 Of the two options, the option that bypasses the Old Rectory property received greater support from the public. This option (Option K) was considered to have the least impact on Old Rectory buildings and improve access to the listed church. Option K was therefore recommended to form part of the preferred route.

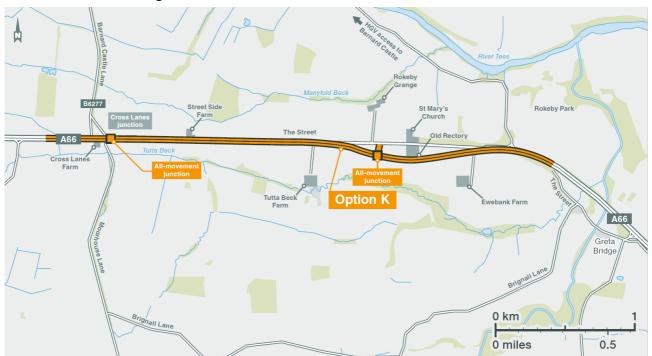


Figure 10-7: Section 12 Preferred Route Recommendation



Section 14 - Stephen Bank to Carkin Moor

10.1.9 The northern option (Option N) received the greatest support of the three options from the public. It follows the current alignment at Carkin Moor scheduled monument, which Historic England confirmed as their preference to minimise impact on the monument. This option would provide an opportunity to provide safer routes for non-motorised users and access to Ravensworth and Fox Hall Inn by the utilising the de-trunked section of A66. Option N was therefore recommended to form part of the preferred route.

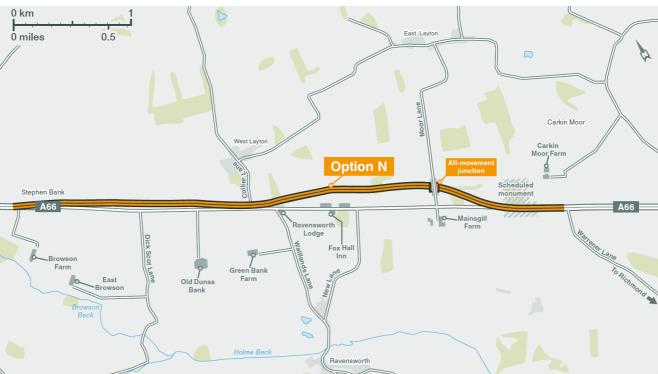


Figure 10-8: Section 14 Preferred Route Recommendation

Terminal Junctions

10.1.10 The two terminal junctions, M6 Junction 40 and Scotch Corner Roundabout were not discussed in detail as they already form part of the route and not part of option selection process.



11 OPERATIONAL ASSESSMENT

11.1 Highways Infrastructure Operation & Maintenance

- 11.1.1 Day-to-day operations of the SRN comes under the authority of Highways England Operations Directorate. The network is to be operated to provide safe passage of all road users on a daily basis in all weather conditions, 24 hours a day. Daily operations would involve traffic management, accident assistance and planning inspections and routine maintenance. This work is carried out by agents working on behalf of Highways England Operations Directorate
- 11.1.2 The operation and maintenance of the A66 would continue to be carried out so as to meet Highways England's performance target of ensuring lane availability does not fall below 97% in anyone rolling year1.
- 11.1.3 Highway maintenance requirements include activities such as surface renewals, drainage maintenance and full depth pavement reconstruction.
- 11.1.4 During maintenance temporary speed limits would be generally 20mph less than the permanent speed limits. Maintenance activities carried out commonly on a 5 year cycle include activities such as resurfacing, road markings, lighting, vegetation clearance, barriers and signage. Major maintenance would be carried out approximately every 20 years and includes activities such as pavement strengthening/ reconstruction and maintenance of structures. Operational plans would also include allowance for unplanned/ unforeseen maintenance (e.g. to make emergency repairs) when needed.
- 11.1.5 The following general principles have been assumed for the appraisal of future routine maintenance requirements:
 - Maintenance periods based on opening of scheme in 2031.
 - Lane closures for carriageways with at least 2 lanes.
 - There may be opportunities to optimise closures by carrying out multiple maintenance activities simultaneously

11.2 Design for Maintenance

- 11.2.1 The design shall conform to:
 - Design Manual for Roads and Bridges (DMRB);
 - Manual Contract Documents for Highway Works (MCHW);
 - Routine Winter and Service Code including all relevant guidance and Advise Notes; and
 - Construction (Design and Management) Regulations (CDM) 2015 shall apply and any subsequent revisions / amendments shall be incorporated as the scheme progresses.
- 11.2.2 The scheme shall be designed to minimise maintenance impacts or eliminate maintenance activities so far as is reasonably practicable in accordance with Interim Advice Note 169/15. Refer to the Scheme Hazard Elimination Schedule contained in APPENDIX C
- 11.2.3 for further details.
- 11.2.4 The scheme has been assessed and determined as a Class 'A' scheme in accordance with GG104 Standard for Safety Risk Assessment.

11.3 Urgent and Emergency Works

- 11.3.1 Due to the requirement for TTM for almost all maintenance activities, the ability to conduct reactive maintenance will be constrained to the use of TTM.
- 11.3.2 Road traffic collision damage repairs are carried out as they occur, and future schemes will be



co-ordinated with other assets where possible.

- 11.3.3 The Service Providers should utilise existing procedures for conducting emergency maintenance when defects occur in live lanes (e.g. mobile lane closure with Impact Protection Vehicles (IPV's) and rolling blocks (in accordance with Chapter 8)).
- 11.3.4 Safety defects should be made safe in line with the Service Providers obligations, then fully resolved outside of peak times under TTM to minimise network disruption and the level of risk exposure to maintenance operatives. There may be occasions that require TTM to be left on the carriageway until there is a safe time to return and undertake a full repair e.g. repair to a parapet which is close to the edge of carriageway, surfacing damage.
- 11.3.5 Non-urgent reactive activities (category 2 defects) should be rationalised along with other activities within a planned TTM closure.

11.4 Response and Repair Times

- 11.4.1 Specifically, in relation to technology faults, it is assumed at this stage the A66 Road Closure Gates and associated systems will be considered 'critical' equipment and therefore it is assumed that failure of this system will be classed as Performance Category 1 Defects.
- 11.4.2 Impacts on contractual key performance indicators (KPIs) will need to be considered. Category 1 defects may occur to highway, structure assets and electrical hazards associated with technology equipment.
- 11.4.3 For emergency maintenance to deal with category 1 defects, TTM lane closures will need to be installed and at times normally with assistance from the Police.



12 TECHNOLOGY ASSESSMENT

12.1 Stakeholder Technology Aspirations

- 12.1.1 There is common consensus from all the stakeholder participation and feedback that the route would benefit from additional technology in particular:
 - Greater CCTV coverage for greater operational efficiency during severe weather events and incident response time
 - Enforcement to improve safety
 - Additional VMS for better journey time reliability
 - Queue protection/stopped vehicle detection to improve safety

12.2 Constraints

- 12.2.1 Whilst there is a need for more extensive technology, no communications network currently exists on the A66 and this existing gap has always limited technology delivery along the route.
- 12.2.2 There are no plans for further rollouts of the NRTS transmission network and any such decision would need to be taken by regional or Major Project schemes based on their design requirements and technology provision.
- 12.2.3 As the scheme construction is not contiguous through the route, it is not an option to install end to end communications infrastructure along the project limits, but it could be part of a NRTS improvement along the route.
- 12.2.4 There are environmental constraints to be considered regarding the installation of technology assets.

12.3 Highways England Technology Strategies

- 12.3.1 In the Highways England publication "Connecting the country Planning for the long term", the main themes that are relevant to a technology strategy for the A66 include:
 - Connected vehicle provision
 - Expressway status
 - Operations
- 12.3.2 The Digital Roads Strategy (in development) sets out how Highways England can start moving into a more technology driven and evolving SRN. The recommendations will need to be considered when it is published.

12.4 Connected Vehicle Provision

- 12.4.1 As the A66 is part of the SRN, infrastructure will be needed for connected vehicle provision. Work is ongoing to determine the detailed requirements for connected vehicles but will typically entail ducts, chambers, cabinets, power and communications infrastructure (fixed and wireless).
- 12.4.2 The presence of early adopters of connected vehicle technology on the network is likely to be from Road Period 2 onwards. At some point it is realistic to assume that connectivity on the SRN will be mandatory for all vehicles where it will be possible to communicate all safety related traffic information via Vehicle to Infrastructure (V2I) connectivity.
- 12.4.3 Based on the current programme the start of works will coincide with the Road Period 3.
- 12.4.4 As the vehicle fleet become more connected this would enable a change in the design of roads and the way Highways England interacts with customers. For example, gantries and VMS may



no longer be required, migrating from on-road signage to in-vehicle intelligent messaging and possibly control.

12.5 Expressway Status

12.5.1 Therefore, there is no current requirement for the technology requirements of GD 300 to inform the future design other than possibly for part of future NRTS transmission infrastructure.

12.6 Operations

- 12.6.1 Operations will evolve as the road network becomes increasingly linked through telecoms networks and connected assets. For example, use of CCTV for incident and severe weather response.
- 12.6.2 As CAV roll-out picks up pace, Highways England may introduce routine digital communications directly to vehicles, communicating safety-related and routing information directly to the fleet. These factors should combine to provide much greater journey reliability and safety.

12.7 Technology Maintenance

- 12.7.1 There are a number of future technologies that, as they become more widely available, would assist in providing a cohesive maintenance strategy. These technologies would help to minimise maintenance intervention and include:
 - IP enabled equipment reduces the need for equipment outstations and technology infrastructure required for the scheme, meaning less infrastructure to maintain. In addition, IP enabled equipment allows easier remote monitoring and diagnostics, reducing maintenance visits to the roadside equipment that is installed.
 - **Materials technology** Developments in this area include self-healing display screens and self-cleaning surfaces.
 - **Higher specification of equipment** higher grade equipment could extend equipment life and increase durability. Examples include longer back-up battery lives in equipment such as emergency light fittings, or uninterruptable power supplies. Consequently, this would mean less need to access equipment for maintenance.
 - **Infrastructure Inspections** With the increased use of drone technology, it is likely that more maintenance work would be carried out remotely, for example bridge pier inspections via CCTV.
 - In-vehicle technology as communication technology speeds increase, it is highly likely that next generation telecommunications will provide road users with more information via mobile phone and in-car systems. This is currently being trialed around the world, and may reduce the amount of roadside infrastructure required, thus reducing maintenance and improving workforce safety.

12.8 Summary

- 12.8.1 While it is clear that there is a current aspiration for more technology on the route it has been historically hindered by the lack of a communications backbone. This may be now be less of a constraint with the availability of wireless NRTS solutions.
- 12.8.2 Highways England has a long-term objective to optimise roadside technologies across the strategic road network. Optimisation could include a more proportionate approach to technology deployment that reduces the capital and operational costs and minimises the environmental impact. As connected vehicle penetration increases this will entail migrating from on-road signage to in-vehicle intelligent messaging.
- 12.8.3 This objective will expect to become more realistic when construction is due to commence on



the A66 around 2025.



13 ENVIRONMENTAL ASSESSMENT

13.1 Introduction

13.1.1 This chapter provides an overview of the environmental assessment undertaken for the assessment of the Recommended Preferred Route. The full assessment and assessment of the longest and shortest routes is provided in the Environmental Assessment Report (EAR) (ref. HE565627-ARC-EGN-A66-RP-ZM-1055).

13.2 Cultural Heritage

13.2.1 The proposed route will result in 26 assets experiencing change which is likely to result in significant effects.

Construction

- 13.2.2 Following mitigation, large adverse significance of effects have been identified on the following receptors:
 - Roman camp, 350m east of Redlands Bank
- 13.2.3 Following mitigation, moderate adverse significance of effects have been identified on the following receptors:
 - Bowes Conservation Area
 - Church of St. Mary
 - Alms table at Countess Pillar
 - Countess Pillar
 - Settlement 1/3 mile (540m) ENE of Brougham Castle
 - Roman marching camp 450yds (410m) NE of Brovacum
 - Roman fortlet, 200m SSE of Castrigg
 - Warcop Roman camp and length of Roman road, 285m south west of Moor House
 - Milestone to the east of Whinfell Park
 - Two milestones
 - Cross Lanes farmhouse
 - Rokeby Park
 - Sandford Moor barrows
 - Brougham Castle Bridge
 - Kirkby Thore Hall
 - Church of St. Michael
 - Bowes railway station

Operation

- 13.2.4 Following mitigation, large adverse significance of effects have been identified on the following receptors:
 - Roman fort and prehistoric enclosed settlement 400m west of Carkin Moor Farm
 - Roman camp, 350m east of Redlands Bank
- 13.2.5 Following mitigation, moderate adverse significance of effects have been identified on the



following receptors:

- Bowes Conservation Area
- Church of St. Mary
- Alms table at Countess Pillar
- Countess Pillar
- Settlement 1/3 mile (540m) ENE of Brougham Castle
- Roman fortlet, 200m SSE of Castrigg
- Warcop Roman camp and length of Roman road, 285m south west of Moor House
- Milestone to the east of Whinfell Park
- Two milestones
- Rokeby Grove
- Stable to west of Rokeby Grove
- Cross Lanes farmhouse
- Sundial at Rokeby Grove
- Ravensworth Lodge and attached outbuildings
- Rokeby Park
- Kirkby Thore Hall
- Church of St. Michael
- 13.2.6 Based on advice from Historic England, a retaining structure will be built for Carkin Moor Scheduled Monument to reduce the amount of land-take required and therefore reduce impact on the Monument.

13.3 Landscape

Construction

- 13.3.1 The construction of the proposed route would result in localised changes of a large adverse significance of effects, to landscape character in LCTs 8b-Broad Valleys, Gritstone Vale and Rokeby Registered Park and Gardens; and result in localised changes of a moderate adverse significance of effects to 6-Intermediate Farmlands, 10-Sandstone Ridge, 11a-Foothills, Gritstone Upland Fringe and Lower Dale. Options C, E, H, K and N would have a greater impact on local landscape character due to the loss of existing countryside and introduction of new highway to areas further away from the influence of the existing A66. Although outside the AONB boundary, options E, H, and I, have potential to impact it's setting, in particular where the option alignments E and H would result in the loss of existing countryside within LCT 6 and 8b. The construction activities associated with Option K would lead an adverse effect on the setting and visual amenity of the to the Grade II* listed registered parks and Gardens of Rokeby Park.
- 13.3.2 There would also be a deterioration of visual amenity at representative viewpoints.

Operation

13.3.3 The proposed route would result in localised changes of a moderate adverse significance of effect, to landscape character in LCTs 00-Urban Areas, 6-Intermediate Farmlands, 8b-Broad Valleys, 10-Sandstone Ridge, 11a-Foothills, Gritstone Upland Fringe, Gritstone Vale, Rokeby Registered Park and Gardens and Lower Dale. Options C, E, H, K and N would have a greater impact on local landscape character due to the loss of existing countryside and introduction of new highway to areas further away from the influence of the existing A66. Although outside the



AONB boundary, options E, H, and I, have potential to impact it's setting, in particular where the proposed route would result in the loss of existing countryside within LCT 6 and 8b. The construction activities associated with Option K would lead an adverse effect on the setting and visual amenity of the to the Grade II* listed registered parks and Gardens of Rokeby Park.

- 13.3.4 There would remain a deterioration of visual amenity at the representative viewpoints during year 1 of the proposed route's operation.
- 13.3.5 It is anticipated that at Design year 15, the proposed route's embedded landscape and visual mitigation measures will have sufficiently matured to reduce the operational effects on the majority of landscape and visual receptors to non-significant levels.

13.4 Biodiversity

13.4.1 The proposed route is likely to result in 31 significant impacts during construction of which 9 are expected to be large, and during construction 15 significant impacts of which 2 are expected to be large.

Construction

- 13.4.2 Following mitigation, large adverse significance of effects have been identified on the following receptors (including value):
 - River Eden SAC (very high).
 - River Eden and Tributaries SSSI (very high).
 - Rivers and Streams S41 Priority Habitat (very high).
 - White Clawed Crayfish (very high).
 - Aquatic Invertebrates (medium-high).
 - North Pennine Moors SPA (very high).
- 13.4.3 Following mitigation, moderate adverse significance of effects have been identified on the following receptors (including value):
 - River Eden SAC (very high).
 - River Eden and Tributaries SSSI (very high).
 - Rivers and Streams S41 Priority Habitat (very high).
 - White Clawed Crayfish (very high).
 - Birds (medium).
 - Fish (medium-high).
 - 'Important Hedgerows' and Hedgerows S41 Habitat (medium).
 - Aquatic Invertebrates (medium).

Operation

- 13.4.4 Following mitigation, large adverse significance of effects have been identified on the following receptors (including value):
 - North Pennine Moors SPA (very high).
- 13.4.5 Following mitigation, moderate adverse significance of effects have been identified on the following receptors (including value):
 - Rivers and streams S41 priority Habitat (very high).
 - White Clawed Crayfish (very high).



- River Eden SAC (very high).
- River Eden and Tributaries SSSI (very high).
- Rivers and Streams S41 Priority Habitat (very high).
- Birds (medium).
- Fish (medium-high).
- 'Important Hedgerows' and Hedgerows S41 Habitat (medium).
- 13.4.6 The project is at the early stages of design. However, the following design measures have been assumed in the assessment should be considered:
 - Post-construction planting will aim to enhance the ecological value of the Highways England soft estate in the vicinity of the proposed route. This will be measured by applying the metric calculation published by Highways England in April 2018 within Chief Highway Engineer Memorandum 422/18 (Highways England, 2018). Where possible, this will include reinstating and re-linking severed linear wildlife corridors with new planting. Consideration will be given to the inclusion of locally sourced native plant species within planting proposals and the application of sensitive management and monitoring regimes.
 - To avoid loss of riparian habitat, fragmentation of riparian wildlife corridors and impacts to riverbed, it is recommended that new bridges are designed as clear span structures with abutments set well back from the river's edge.
 - To avoid entrapment of animals and to protect water quality in adjacent watercourses and wetland habitats, a suitable drainage design should be implemented.

13.5 Materials

Construction

13.5.1 Based on the information available for this stage, there are no likely significant effects on material resource and waste receptors.

Operation

13.5.2 During the operation of the project, material resource use and waste generation are expected to be very limited. Therefore, no likely significant effects are anticipated.

13.6 Geology and Soils

Construction

13.6.1 Following the implementation of mitigation, no likely significant effects have been identified.

Operation

13.6.2 There would be no likely significant effects during operation, as permanent mitigation would have been applied during construction.

13.7 Road drainage and Water environment

Construction

13.7.1 The proposed route would have a Moderate Adverse effect on Trout Beck (and flood plains) only during construction. All other likely significant effects associated with groundwater and water supply; watercourses and floodplains; and surface water quality were all identified as 'slight'.

Operation

13.7.2 Following the implementation of mitigation, no likely significant effects have been identified.



13.7.3 An FRA would be undertaken at PCF Stage 3, focusing in particular on Sections 6 and 8, where the proposed route interacts most with watercourses and floodplains. Any works impacting the floodplain (areas of Flood Zones 2 and 3) will be accompanied by a suitable floodplain compensation strategy to include measures to manage the impacts of loss of floodplain storage or conveyance.

13.8 Climate

Construction

13.8.1 Owing to the temporary nature of the construction works the effects on climate are not anticipated to be significant.

Operation

- 13.8.2 During operation it is estimated that the recommended preferred route will cause an increase of 2,322,495 tonnes of CO₂e emissions over 60 years.
- 13.8.3 The estimated Green House Gas (GHG) emissions would be well below the 5th UK carbon budget (2028-2032). The effect of the proposed route would therefore be negligible and would not be significant.

13.9 Air Quality

Construction

13.9.1 Following the implementation of mitigation, no likely significant effects have been identified.

Operation

- 13.9.2 The recommended preferred route would not result in an exceedance of the Air Quality Strategy (AQS) objectives for NO₂ and PM₁₀ and therefore impacts are not considered to be significant, based on the currently available information.
- 13.9.3 Two out of the five ecological receptors modelled predicted exceedances of the AQS objective as such, nitrogen deposition was calculated for the two sites. The impact of the proposed route on nitrogen deposition for both ecological receptor locations is not considered significant.

13.10Noise

Construction

13.10.1 The qualitative assessment of construction impacts during the construction phase of Route 3

– 'recommended preferred route' indicates that there would be 280 dwellings which could potentially experience a potential for significant effect due to construction noise.

Operation

- 13.10.2 From the assessment of operational road traffic noise impacts for Route 3 'recommended preferred route' the following is concluded:
 - In the short term
 - 1330 dwellings would experience a perceptible increase in road traffic noise level of greater than 1dB(A). Of these 100 dwellings would experience this increase above a daytime Significant Observed Adverse Effect Level (SOAEL).
 - 364 dwellings would experience a perceptible decrease in road traffic noise level of greater than 1dB(A). Of these 40 dwellings would experience this decrease above a daytime SOAEL.



- In the long term
- 443 dwellings would experience a perceptible increase in road traffic noise level of greater than 3dB(A). Of these 16 dwellings would experience e this increase above a daytime SOAEL.
- 177 dwellings would experience a perceptible decrease in road traffic noise level of greater than 1dB(A). Of these 39 dwellings would experience this decrease above a daytime SOAEL.
- During the night-time no dwellings above a night-time SOAEL would experience a perceptible increase in road traffic noise level of greater than 3dB(A).
- During the night-time 12 dwellings above a night-time SOAEL would experience a perceptible decrease in road traffic noise level of greater than 3dB(A).
- 13.10.3 In summary up to 260 receptors could experience a significant adverse noise effect and up to 160 receptors could experience a significant beneficial noise effect.

13.11Population & Health

Construction

- 13.11.1 The route is likely to result in the permanent acquisition of 10 private assets and permanent land take (0-50%) of multiple private assets. It is also likely to result in the loss of development land in Section 2: A6/A66 Interchange, which is assessed as having a slight impact.
- 13.11.2 The route would result in a significant impact to agricultural land with the permanent loss of Grade 2 and Grade 3 agricultural land estimated at 147.64ha.
- 13.11.3 There is likely to be a moderate level of severance to 31 PRoW during construction it should be noted that due to construction phasing these impacts are unlikely to occur simultaneously.
- 13.11.4 Throughout the construction of the proposed route there will likely be some negative health impacts on the most vulnerable receptors arising from several factors: the magnitude of noise and vibration created by the on-site machinery, dust and air pollution created by the on-site machinery, obstruction of roads and public access by site works etc. However these effects would be temporary for the duration of the construction activities.

Operation

13.11.5 No significant effects are anticipated during operation.

13.12Summary of Environmental Impacts

- 13.12.1 Based upon the findings of this EAR it has been determined that the Recommended Preferred Route would result in some likely significant effects during operation however mitigation measures would be fully defined at PCF Stage 3. It is worth noting that the assessment has assumed a worse case scenario based upon currently available information. Additional information would be available at PCF Stage 3 following the completion of surveys and further consultation with statutory and non-statutory bodies. Therefore, the assessment of likely significant effects is likely to be revised at PCF Stage 3.
- 13.12.2 The selected option alignments have, in most cases, equal or lesser impacts than the alternative option alignments. Where this is not the case, justifications for the selection of the Recommended Preferred Route are provided in the EAR.
- 13.12.3 The alternative option alignments are also not considered to have significant potential to achieve the scheme's Environmental Objectives in comparison with the Recommended Preferred Route.



13.13Enhancement Opportunities

- 13.13.1 In line with national policy consideration should be given to ensuring the soft estate is landscaped in such a way as to provide habitats of more ecological value than those that are lost and to enhance connectivity e.g. by altered management of retained habitat and/or planting treelines/hedgerows to provide safe commuting routes for wildlife. This could also include enhancement of areas required for temporary land-take during construction e.g. compound areas and access tracks and retro-fitting of culverts. Improved environmental outcomes, including a net gain in biodiversity from the Highway England's activities are also a target with Highways England's Biodiversity Plan (Highways England, 2015), which aims to halt the decline in the vitality of habitats and plant and animal populations on and around their network. Detailed and species-specific enhancement measures should be considered at future PCF stages once ecological surveys have been undertaken. Based on current understanding the following enhancement opportunities have been identified:
 - Enhancement habitat within water courses to be more suited to species for which the River Eden SAC is designated (i.e. white-clawed crayfish/Atlantic salmon etc.). This would involve planting of vegetation/increasing the depth/shallowing, reinforcement of the banks.
 - Stream enhancements for otter, water vole and/or white-clawed crayfish, this could include deepening of stream/shallowing etc.
- 13.13.2 The following Population and Health opportunities have been identified and the feasibility will be investigated further at PCF Stage 3:
 - Opportunities for enhancing access and connectivity for WCH through the provision of a
 footpath/cycleway along the route which could be partially achieved through improving
 provisions along the de-trunked sections of the A66 (for example upgrade to cycle path,
 more separation from traffic, improved landscaping, wider pathways).
 - New and improved crossing facilities across the route to improve connectivity and safety and enhance the permeability of the area.
 - Returning non-operational highway estate to community use/ownership (in agreement with relevant land owners) following completion of construction.
 - Investment in community initiatives such as tree planting on community land/open space as a means of enhancing the local landscape amenity.
- 13.13.3 Other enhancement opportunities identified include:
 - Where practicable, any surpluses or permanently displaced soils would be reinstated to provide thicker profiles which would improve resilience to intense rainfall.
 - Any structures within the watercourses can be designed to improve flow conveyance and drainage systems can be designed to provide wider benefits and potentially reduce runoff into the receiving system where this may alleviate flooding downstream.

13.14Policy Compliance

13.14.1 A full review of the each of the option alignments against national policy undertaken at PCF Stage 1 is presented in a National Policy Accordance Statement (HE565627-ARC-GEN-A66-RP-ZM-1069) and still relevant at PCF Stage 2. A summary of the key policy risks associated with the Recommended Preferred Route is presented below.

| Topic | Relevant text from NNNPS | Option Alignment | Policy Risk |
|----------------------------------|---------------------------------|------------------|---|
| Internationally designated sites | Where a proposed development on | Α | There are designated sites of international and |



| and Sites of Special Scientific Interest (Includes National Nature Reserves) | es internationally | С | national importance located within 200m of the option alignment |
|--|--|---|--|
| | | E | New crossing over Trout Beck (tributary of River Eden SAC and River Eden & Tributaries SSS) could result in loss of small number of broadleaved trees and permanent shading of c.80m stretch of riparian habitat and c.40m stretch of river. |
| | normally be granted. | Н | There are designated sites of international and national importance located within 200m of the option alignment |
| | | I | There are designated sites of international and national importance located within 1km of the option alignment |
| | | J | There are designated sites of international and national importance located within 500m of the option alignment |
| Watercourses and Flood risk | When determining an application the Secretary of State should be satisfied | A | Elements of the proposed option are located in Flood Zones 2 and 3. |
| | that flood risk will not be increased elsewhere | | Option A may have potential impacts on rates of runoff and pollution risk and the floodplains and |



| | | | wider catchments of the Thacka Beck and River Eamont. The impact will depend on the extent of the works within the floodplain and the nature of any works to these watercourses. |
|---|--|---|---|
| | | С | Option C is likely to have potential impacts on the culverted section of the LightWater as well as the upstream reaches and its floodplain. |
| | | E | Elements of the option alignments are located in Flood Zones 2 and 3. |
| | | I | Elements of the proposed option alignments are located in Flood Zones 2 and 3 |
| The historic environment (designated heritage assets) | Where the proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, the Secretary of State should refuse | A | The development of this option could result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. |
| | consent unless it can be demonstrated that the substantial harm or loss of significance is necessary in order to deliver substantial public benefits that | C | The development of this option could result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. Option C could directly |
| | outweigh that loss or harm | | impact the Countess Pillar (listed building). |
| | | E | The development of these option alignments is |



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| opticexperiments optice | evelopment of this ion alignment is ected to result in nanent, negative s on the settings of ral Archaeological s; Historic Buildings adscapes potentially ecreasing their significance. option alignment d have a physical |



| | | | and Prehistoric settlement (scheduled monument). |
|---|---|---|---|
| Land use: open space/sports and recreational buildings and land and agricultural land | The Secretary of State should not grant consent for development on existing open space, sports and recreational buildings and land, including playing fields, unless it is determined that the benefits of the project (including need) outweigh the potential loss of such facilities, taking into account any positive proposals made by the applicant to provide new, improved or compensatory land or facilities. | A | This option alignment would lead to permanent land-take of public open space (recreation ground) which is found to the north of the proposed route. |
| Landscape & Visual Impact | Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant | С | Both construction activities and the operational phase of the proposed route would be clearly visible from sensitive viewpoints (to north of Whinfell Forest Centre Parcs, looking north), seen in the context of the existing main road. |
| | constraints, the aim should be to avoid or minimise harm to the landscape, providing reasonable | E | Both construction activities and the operational phase of the proposed route would be clearly visible from sensitive viewpoints. |
| | mitigation where possible and appropriate. | Н | The construction phase would result in notable changes to the landscape character of the area immediately surrounding the proposed route (particularly levels of tree cover along the old Roman road). |



| | | I | The construction phase would result in notable changes to the landscape character of the area immediately surrounding the proposed route. Both construction activities and the operational phase of the proposed route would be clearly visible |
|---------------------|---|---|--|
| | | | from sensitive viewpoints. |
| | | J | Limited parts of the proposed route may be visible from sensitive viewpoints. |
| | | K | Existing roadside trees between the existing A66 and Rokeby Park would restrict perceptual effects on the Park. The construction phase would however still result in notable adverse perceptual effects on the southern part of the Park. Construction works associated with the widening would be clearly visible from sensitive viewpoints. |
| Noise and vibration | The Secretary of State should not grant development consent unless satisfied that the proposals will | A | It is expected that Option A would increase road traffic noise at Penrith A6 Junction with A66 due to the new junction layout. |



| meet, the following aims, within the context of Government policy on sustainable development: avoid significant adverse impacts on health and quality of life from | С | Option C will increase road traffic noise between Sowerby and Appleby West Morland due to the introduction of the new alignment and reductions at Brougham where the existing A66 is bypassed. |
|---|---|--|
| noise as a result of the new development; mitigate and minimise other adverse impacts on health and quality of life from noise from the new development; and | E | Option E would lead to an increase in road traffic noise for receptors to the north of Temple Sowerby and reductions in road traffic noise between Sowerby and Appleby West Morland as a result of the implementation of bypassing the existing A66. |
| □ contribute to improvements to health and quality of life through the effective management and control of noise, where possible. | Н | Option H would increase road traffic noise for receptors at Powis House and Roman Vale and reduce road traffic noise for receptors located in Crackenthorpe. |
| | I | Option I would increase road traffic noise due to reductions in the areas the new alignment would bypass. |
| | J | Option J would lead to an increase in road traffic noise in Bowes. |
| | К | Option K would lead to an increase in road traffic noise for receptors at Greta Bridge. |
| | N | Option N would lead to increases in road traffic noise between Greta Bridge and Gilling West and perceptible decreases |



| | | | at Ravensworth, where traffic flow is reduced on the existing road network |
|--|---|---|---|
| Nationally designated areas: National Parks, the Broads & development consent in these areas except in Natural Beauty The Secretary of State should refuse development consent in these areas except in exceptional circumstances and | E | The route would bring the A66 closer to the North Pennines AONB than its current alignment, thereby potentially increasing its perceived influence on local landscape character and tranquillity. | |
| | where it can be demonstrated that it is in the public interest. | | There may be some limited visibility of the proposed dualling and re-alignment, but the proposed route would be seen in the context of the existing A66 and would not result in notable changes to the perceived character of the North Pennine Moors AONB. |
| | | J | The western end of this section (where the road is already dualled) clips the boundary with the North Pennines AONB. |
| Civil and military aviation and defence interests | Where, after reasonable mitigation, operational changes and planning obligations and requirements have been proposed, development consent should not be granted if the Secretary of State considers that: | | Option I passes adjacent to the Warcop MOD Training Ground. Access to the site from the A66 may be temporarily restricted during construction. Engagement is on-going with the MoD site to keep them informed about the design/option. |



| ☐ the benefits of the proposed development are outweighed by the harm to aerodromes serving business, training or emergency service needs; or | |
|--|--|
| ☐ the development would significantly impede or compromise the safe and effective use of defence assets or significantly limit military training. | |



14 TRAFFIC & ECONOMICS ASSESSMENT

14.1 Introduction

14.1.1 This chapter provides an overview of the modelling and economic appraisal work undertaken for the assessment of the Recommended Preferred Route.

14.2 Traffic Assessment

- 14.2.1 The scheme has been assessed using the A66 transport model (A66TM) which was developed at PCF Stage 1 and updated at PCF Stage 2. The A66TM uses the North Regional Transport Model (NRTM) as a basis, with the key elements of the model structure retained, and the networks, representation of demand and validation refined along the A66 corridor.
- 14.2.2 The A66TM model development and forecast follow TAG guidelines, in particular:
 - TAG unit M2 variable demand modelling;
 - TAG unit M3-1 highway assignment modelling; and
 - TAG unit M4 forecasting and uncertainty.
- 14.2.3 The NRTM covers the whole of the North-East Region, the County of Cumbria from the North-West region and northern districts of North Yorkshire. The A66 sits entirely within the NRTM area, with the Strategic Road Network (SRN) in the model area shown in **Figure 14-1**.

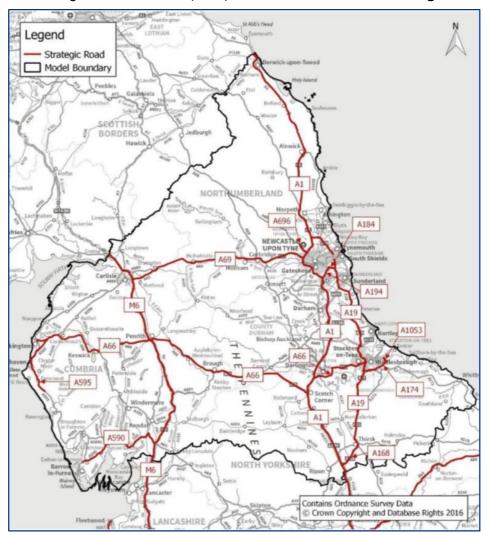


Figure 14-1: Strategic Road Network in NRTM area



- 14.2.4 The extent of both the A66TM model simulation and buffer areas have been retained from NRTM, however the A66TM simulation area is further subdivided to include a fully modelled area containing a more detailed level of coding enhancing the network detail along the A66 corridor.
- 14.2.5 The A66TM keeps the same model structure as the NRTM, with a highway SATURN supply model and a variable demand model system using DIADEM.
- 14.2.6 A review of existing models and data was carried out, and subsequently additional volumetric traffic data was collected along the A66 corridor. A comprehensive set of existing data was available from the development of the NRTM, including information on travel patterns, traffic volumes and network performance. The combination of existing and new data provided a comprehensive, up to date dataset, suitable for the development of a traffic model of the A66 corridor.
- 14.2.7 The geographical extent of the network is based on the NRTM. There has been some refinement to the level of detail included in the network, with increased network definition in the A66 corridor where needed and reduced definition in areas remote from the scheme. The highway element of the A66TM includes both, junction simulation and link-based capacity restraint
- 14.2.8 The time periods modelled represent an average AM peak period hour (07:00-10:00), an average hour in the inter-peak (10:00–16:00) and an average PM peak period hour (16:00–19:00). The time periods match those used in the NRTM. The base year model represents an average March weekday in 2015. This is consistent with NRTM and reflects that the origin destination (OD) dataset, traffic count dataset and journey time dataset are being adopted for the A66TM. The model represents cars for commute, other and employers' business journey purposes, light goods vehicles and heavy goods vehicles.
- 14.2.9 The results of the matrix calibration and validation in terms of flows across screen lines, and assignment validation in terms of traffic flow validation and journey time validation indicate that the model performs well overall and in the fully modelled area. Overall, the design of the modelling framework and performance are considered appropriate to assess highway schemes along the A66 corridor.
- 14.2.10 The variable demand model represents mode choice, destination choice and macro time of day choice demand responses. The demand model considers highway and rail modes.
- 14.2.11 Forecast year models have been developed for 2031, representing the scheme opening year; 2046 the scheme design year; and 2051.
- 14.2.12 An uncertainty log prepared in line with TAG Unit M4 has been produced, taking account of local sources of demand supply uncertainty concerning future developments and schemes in the model simulation area.
- 14.2.13 The National Trip End Model version 7.2 (NTEM 7.2) provides forecast trip end growth factors for car and rail. Light goods and heavy goods vehicle forecasts have been derived using Department for Transport Road Traffic Forecasts (2018).
- 14.2.14 Using the full variable demand modelling framework, Core Do Minimum and Do Something forecasts for the Recommended Preferred Route scheme have been produced. The key impacts both in the Do Minimum and Do Something scenarios are a change in the trip distribution in response to change in travel costs. The Do-Something demand change is driven by the scheme travel time improvements along the A66 and impact on assignment model re-routing and demand model re-distribution in response to the cost changes.
- 14.2.15 Using these VDM traffic forecasts for each forecast year, in conjunction with Highways England long term traffic count data (WebTRIS), Annual Average Daily Traffic Flows (AADT) have been calculated for the Do Minimum and Do Something Scenarios for the A66. Average forecast traffic flows across all section of the A66 between M6 J40 and Scotch Corner are shown in **Table 14-1**.



| Scenario | | Year | | |
|--------------|-----------------------|--------|--------|--------|
| | | 2031 | 2046 | 2051 |
| Do Minimum | Total Flows (Vehs) | 23,959 | 27,668 | 28,638 |
| Do Comothina | Total Flows (Vehs) | 31,164 | 37,176 | 39,101 |
| Do Something | % Diff between Do-Min | 30% | 34% | 37% |

Source: Mott MacDonald

Table 14-1: Do Minimum and Do-Something A66 AADT Two-Way Flow (vehicles)

- 14.2.16 Comparing the Do Minimum and Do Something travel times along the A66 scheme corridor generate time savings of 10-15 minutes across the different modelled time periods and years.
- 14.2.17 The requirement for alternative growth scenarios is set out in TAG Unit M4. Using an approach agreed with the Department for Transport Low and High growth scenarios were produced based on rates taken from the 2018 Road Traffic Forecasts (Scenarios 6 and 2 respectively).

14.3 Economic Assessment

- 14.3.1 The economic appraisal, which allows Benefit to Cost Ratios (BCRs) to be estimated, is based primarily on calculations of user benefits in terms of time savings, changes in fuel and vehicle operating costs, and reduced road accidents.
- 14.3.2 The economic assessment of a scheme focuses on determining the costs and benefits of the scheme. By comparing the costs and benefits of the scheme over a 60-year assessment period from the proposed opening year, a Benefit Cost Ratio (BCR) can be calculated. The BCR, along with other impacts that can only be assessed qualitatively, are combined to determine the value for money of the scheme. The results are then used to allow decision makers to make informed decisions by comparing the different options under consideration, and to help prioritise schemes across the country.
- 14.3.3 Benefits appraised for the A66 scheme have been categorised as established monetised impacts, evolving monetised impacts, indicative impacts and non-monetised impacts, as per the Department for Transport's (DfT) Value for Money Framework¹ (see Table 14-2).

| Established Monetised Impacts | Evolving Monetised Impacts | Indicative Monetised Impacts | Non-monetised Impacts |
|---|--|------------------------------|---|
| Level 1Journey time savings | Journey Time Poliability / Positiones | Landscape monetication | Distributional impacts |
| Vehicle operating costs Accidents Noise Air quality Construction delays | Reliability / Resilience Output in imperfectly competitive markets (10% of business benefits) | monetisation | impacts assessment Biodiversity Cultural Heritage Water Environment |
| Greenhouse gases Indirect taxes | | | |

Table 14-2: Monetised and Non-Monetised Benefits Assessed for the A66

14.3.4 The overall appraisal is based on a comparison between the "With Scheme" and "Without

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/630704/value-for-money-framework.pdf



- Scheme" scenarios, referred as the 'Do-Something' and 'Do-Minimum' respectively in the Stage 2 Combined Modelling and Appraisal Report.
- 14.3.5 Established monetised impacts are based on well-researched methods, and their monetary value is used to generate the initial Benefit to Cost Ratio (BCR). Hence for A66, road user benefits (journey times, vehicle operating cost, user charge), safety benefits, noise, air quality, greenhouse gases and indirect tax revenues are included in the initial BCR.
- 14.3.6 The evolving monetised impacts have less evidence to support the estimation of the monetary value and are included to generate the adjusted Benefit to cost Ratio. For A66, that includes journey time reliability, resilience and wider impacts, which are added to the established monetised impacts to estimate the adjusted BCR.
- 14.3.7 Monetisation methodologies of Indicative monetised impacts are not considered sufficiently widely-accepted and have a high degree of uncertainty in the magnitude of the impacts.
- 14.3.8 Non-monetised benefits are qualitative assessments, based on a seven-point scale. For A66 scheme, non-monetised impacts comprise of distributional impacts assessment, landscape, biodiversity, cultural heritage and water environment.
- 14.3.9 Economic assumptions for PCF Stage 2 are based on the TAG Databook issued in May 2019, V1.12.
- 14.3.10 Costs are defined as the total amount of money spent on constructing and maintaining the scheme, as follows:
 - Scheme costs are construction costs, land costs and preparation costs (planning and designing the scheme), as well as supervision costs during its construction.
 - Traffic-related maintenance costs, such as non-routine reconstruction, resurfacing, surface
 dressing attributable to the investment (such traffic-related costs may be applicable to rail and
 public transport schemes, as well as highways investments) stated in TAG Unit A1.2.
- 14.3.11 The Present Value of Benefits (PVBs) for the Proposed Route option is substantial, with an estimated £665.88 million (discounted to 2010). The greatest portion of monetised benefits is expected to arise for business users. It is seen that benefits for business users of the A66 Northern Trans-Pennine Project account for nearly £578m (86%), followed by £56m (8.5%) for commute, and £39m (5.8%) for other users.
- 14.3.12 Over the 60-year appraisal period, the scheme is forecast to generate the initial BCR of 1.28. With adjusted present value of benefits of £907m, adjusted BCR of 1.74 is expected.
- 14.3.13 To address safety concerns arising from these accidents, a speed limit of 40/50 mph was adopted on a number of the single-lane carriageway sections, compared to a speed limit of 60/70 mph elsewhere across the route. Dualling these sections to a modern design standard will increase capacity and address current safety concerns resulting in the removal of the lower average speed limits on the A66 especially. For this reason, the scheme is expected to result in journey time savings and potentially a slight increase in journey time reliability.
- 14.3.14 Increased road capacity and quality are expected to result in increased average speeds. This is expected to lead to increased vehicle operating costs. While this represents a dis-benefit to road users, there is expected to be a corresponding benefit to the exchequer from increased indirect tax revenue.
- 14.3.15 Due to increased average speeds, the scheme would also be expected to have adverse impacts on greenhouse gas emissions. According to current assessments this is not considered to be significant.



- 14.3.16 Due to the single carriageway sections across the A66 and the lack of alternative roads, it is expected that any construction could lead to increased delays, especially for online improvements.
- 14.3.17 During construction, the scheme is expected to lead to reduced access to services and increased severance due to lack of alternative roads for local communities. These adverse impacts can be mitigated through appropriate mitigation measures and efficient delivery and will be appraised as part of the social and distributional impact appraisal.
- 14.3.18 As the scheme is not within or very close to densely clustered urban centres (such as functional urban areas) the agglomeration benefits are not expected to be significant. Also, with the surrounding areas being both scarcely populated and no indications that transport is a barrier to local employment, there are no expected impacts on labour supply or movement to more/less productive jobs.
- 14.3.19 Any improvements across this route could potentially facilitate and support planned future developments in the study area, however as no site-specific impacts are expected and the scheme is in a non-urban area, dependent developments are not expected to be significant.
- 14.3.20 The scheme is unlikely to significantly change driver security. Also, a number of impacts such as affordability, accessibility, option and non-use values are not expected to be relevant as they are primarily relevant for public transport schemes involving changes to travel fares. Local evidence does not suggest that the scheme is expected to have significant townscape impacts. Also, due to the scheme scope there are no expected physical activity or journey quality impacts.



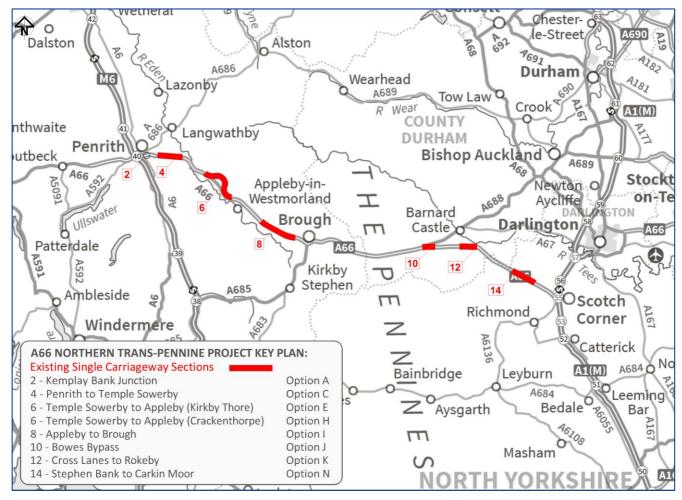
15 THE RECOMMENDED PREFERRED ROUTE

15.1 Description of the Recommended Preferred Route

15.1.1 The Recommended Preferred Route, as shown in Figure 15-1 encompasses the following options:

| Project Section | Preferred Route Option |
|---|------------------------|
| M6 J40 to Kemplay Bank Roundabout | Option A |
| Penrith to Temple Sowerby | Option C |
| Temple Sowerby to Appleby (Kirkby Thore) | Option E |
| Temple Sowerby to Appleby (Crackenthorpe) | Option H |
| Appleby to Brough | Option I |
| Bowes Bypass | Option J |
| Cross Lanes to Rokeby | Option K |
| Stephen Bank to Carkin Moor | Option N |

Figure 15-1: A66 Complete Preferred Route Recommendation

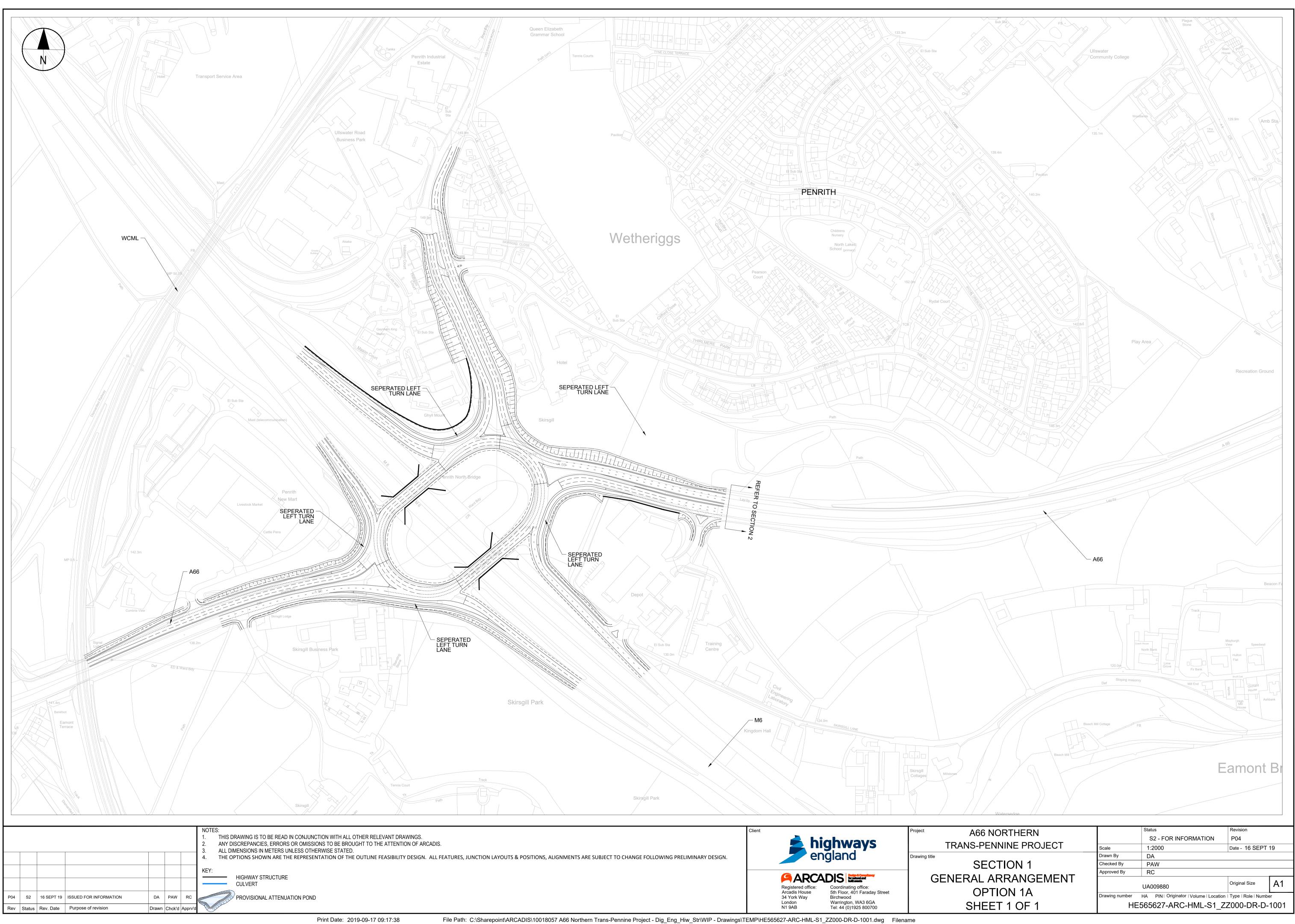


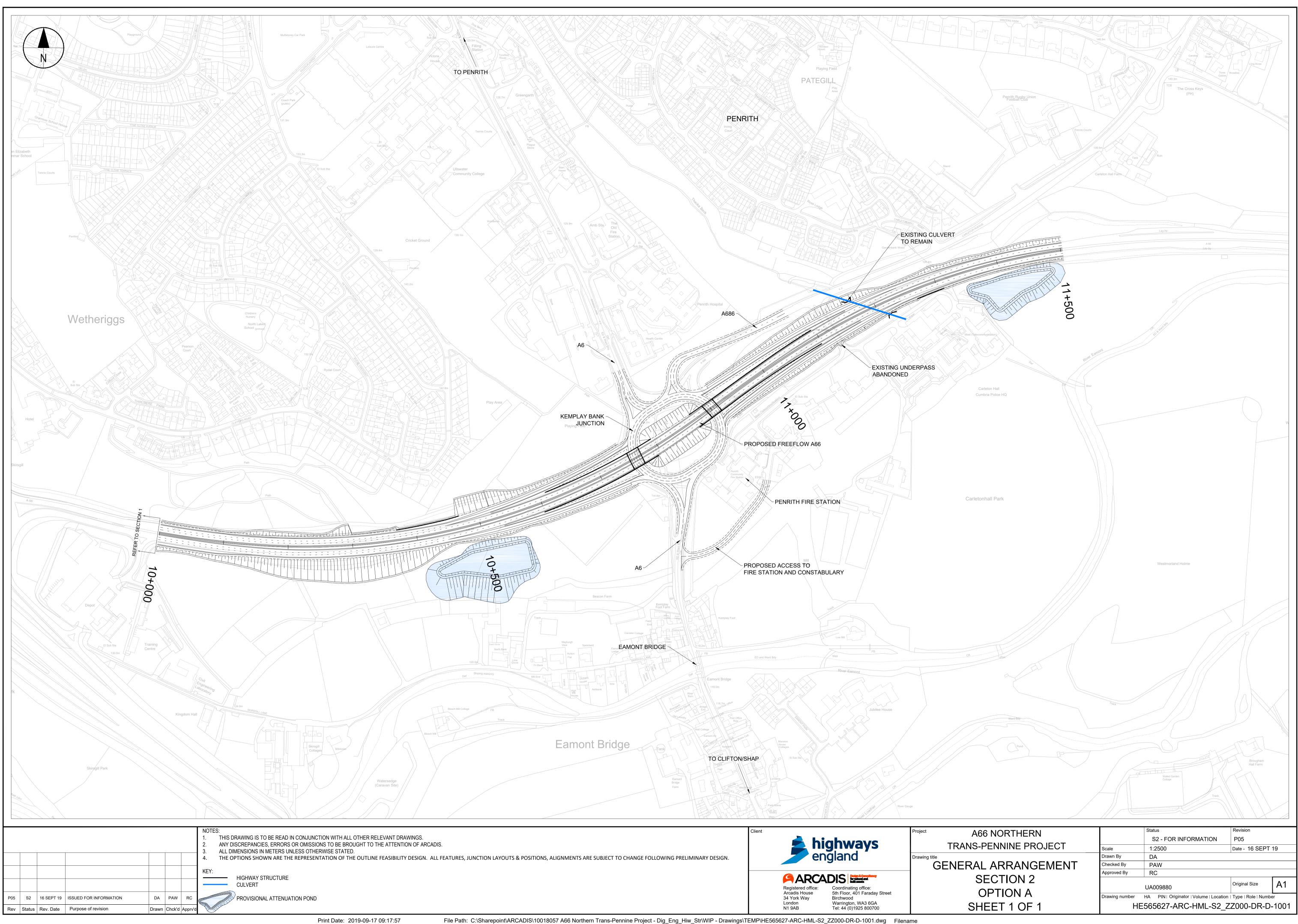
15.1.2 It is proposed that all interventions will be dual two lane carriageways utilising compact grade separated junctions

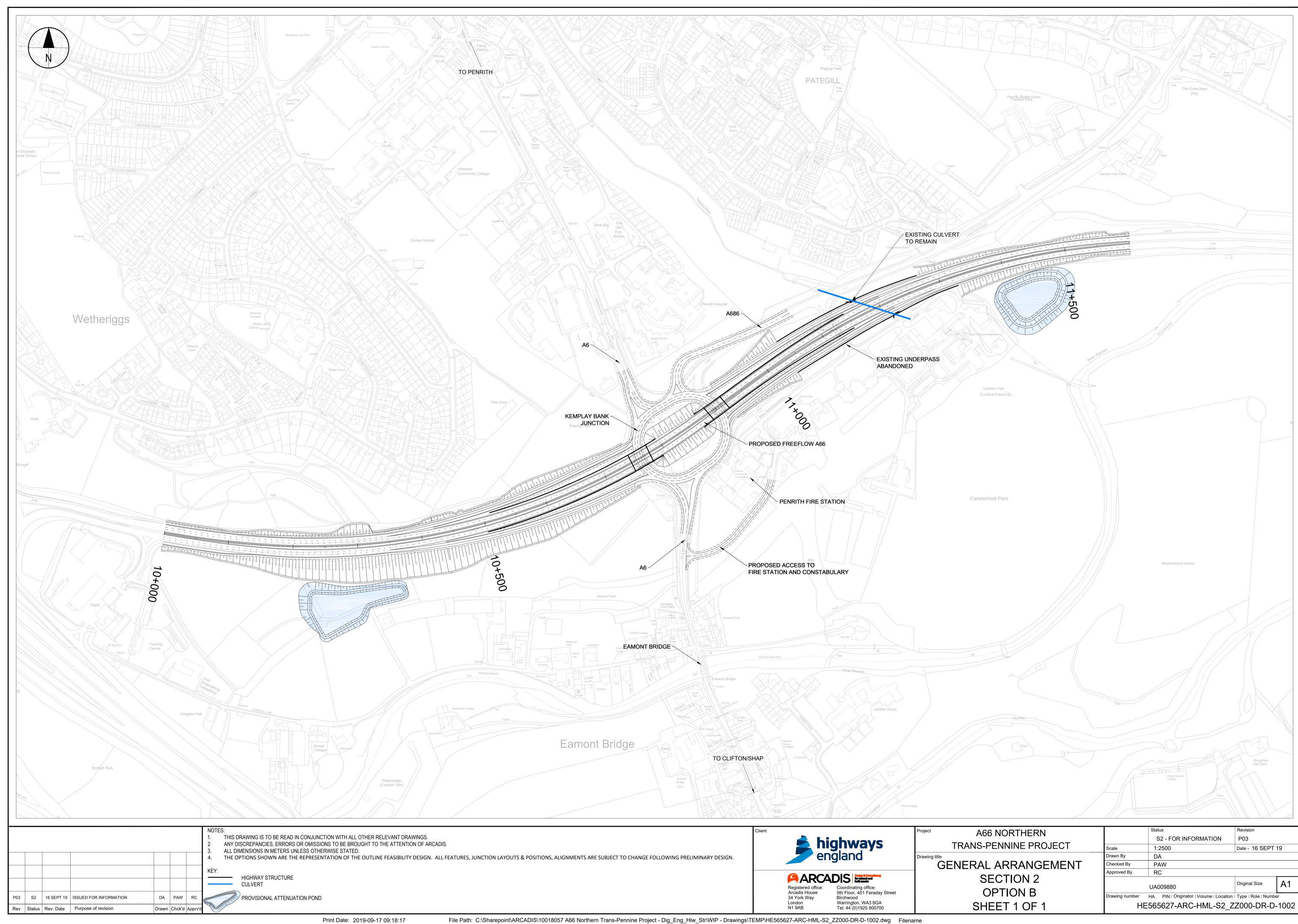


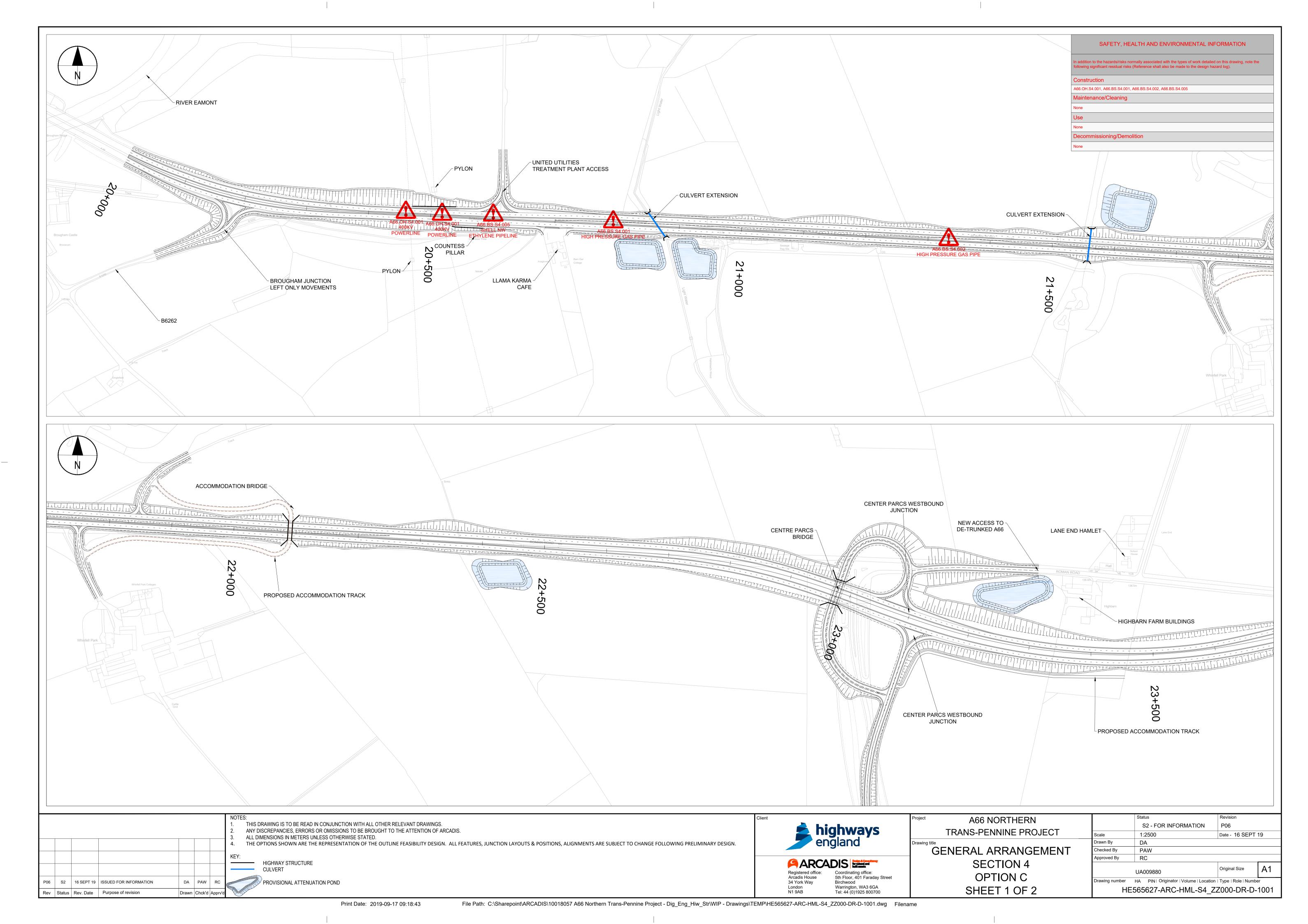
APPENDIX A

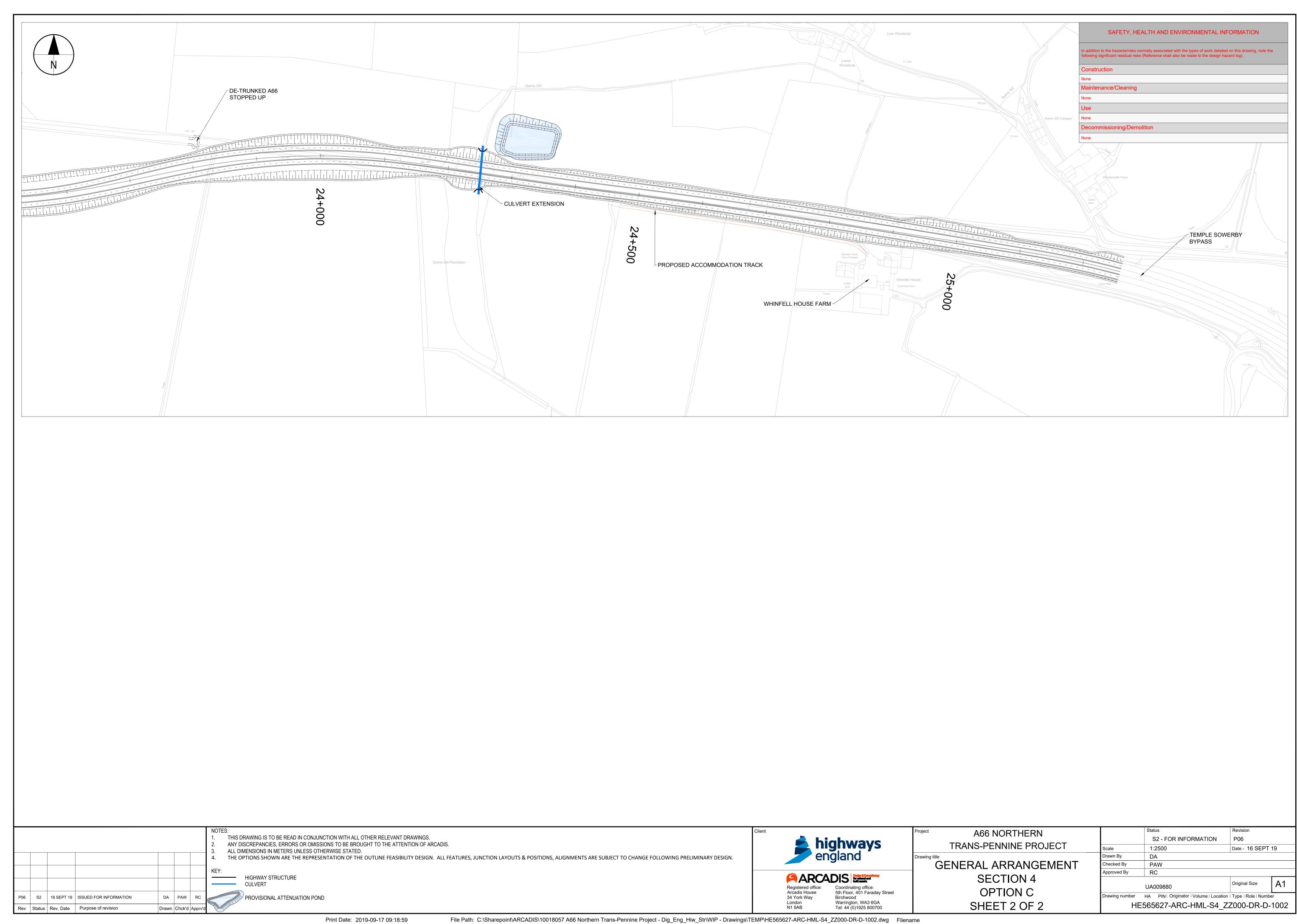
Shortlist Option Plans

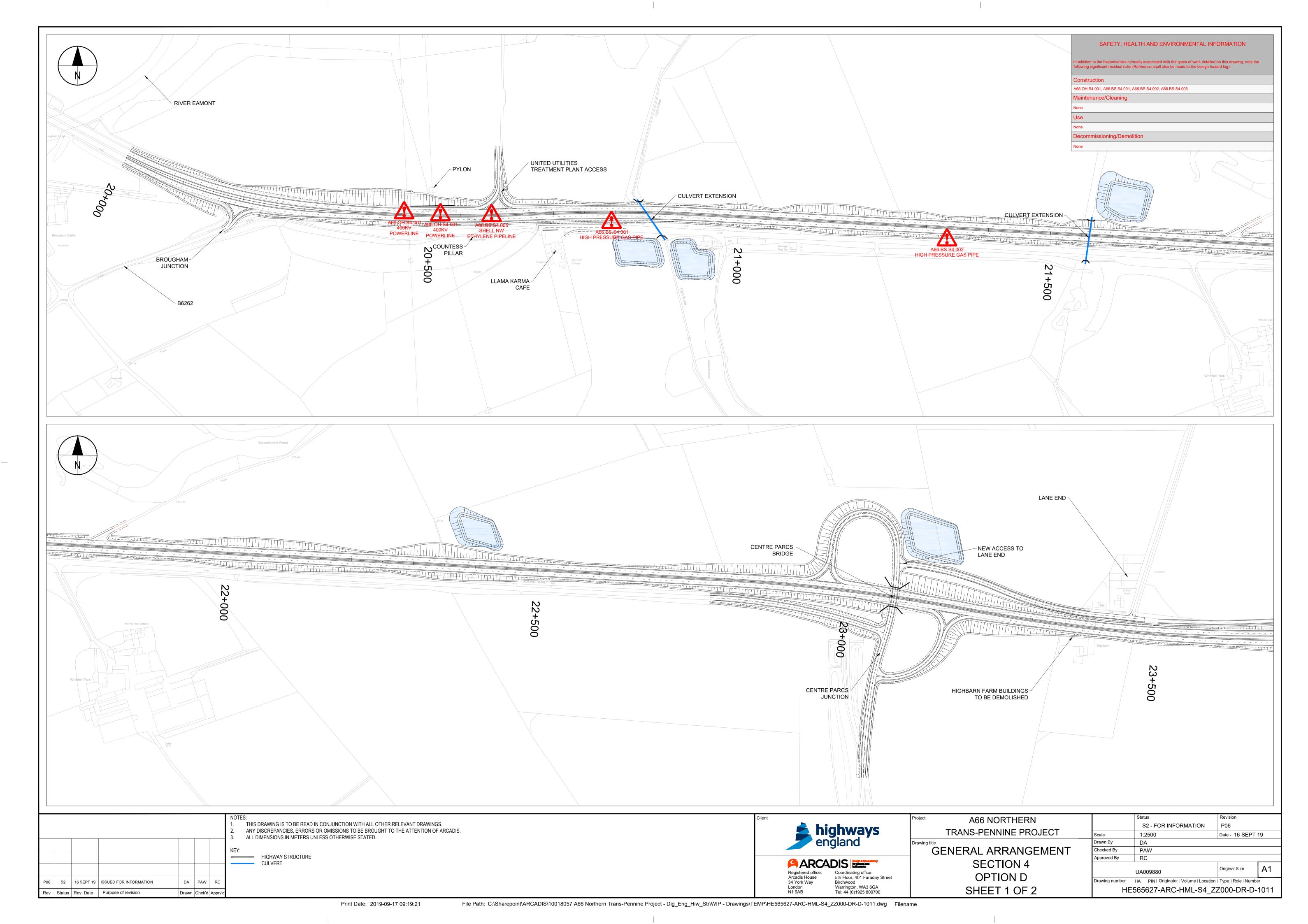


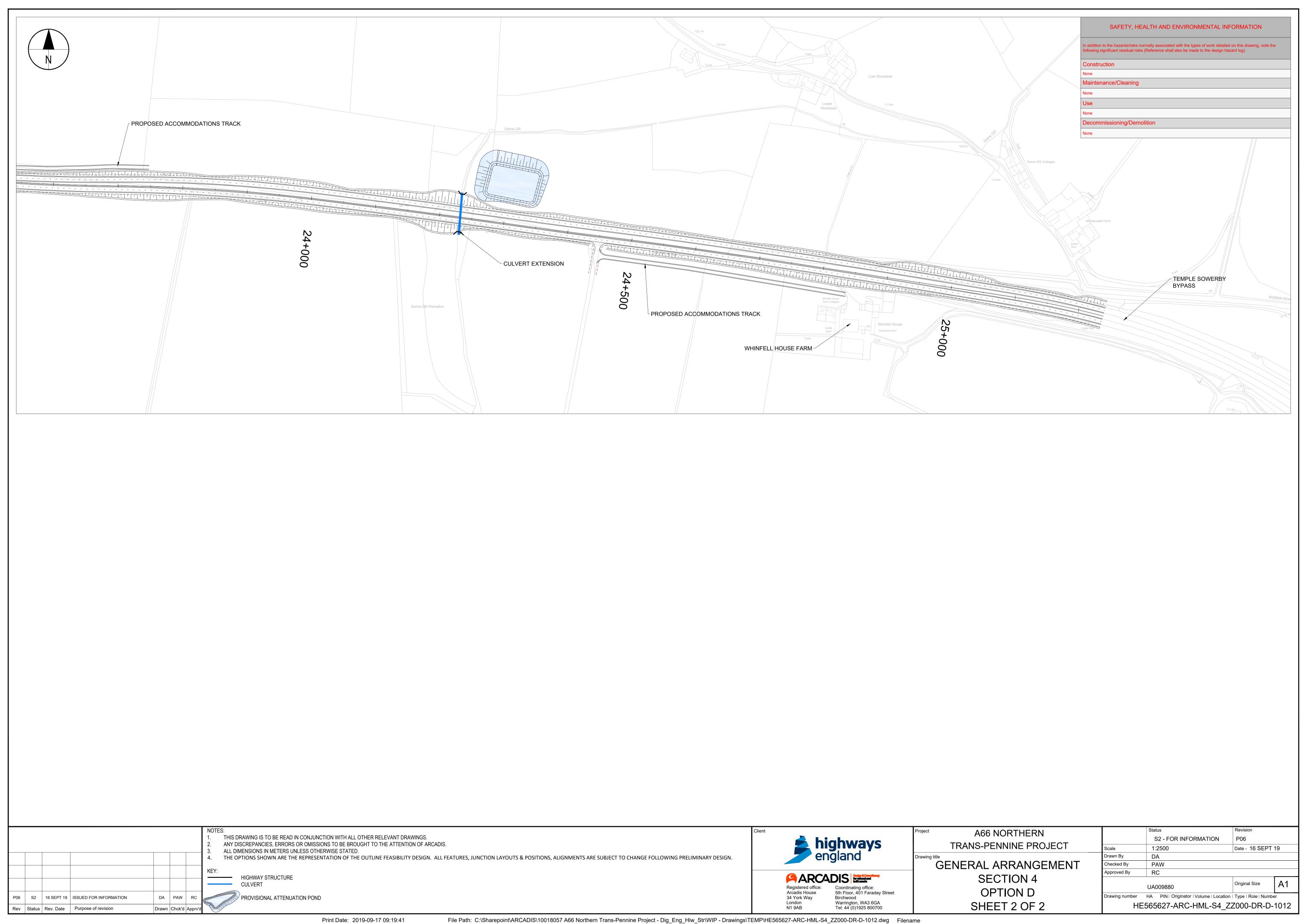


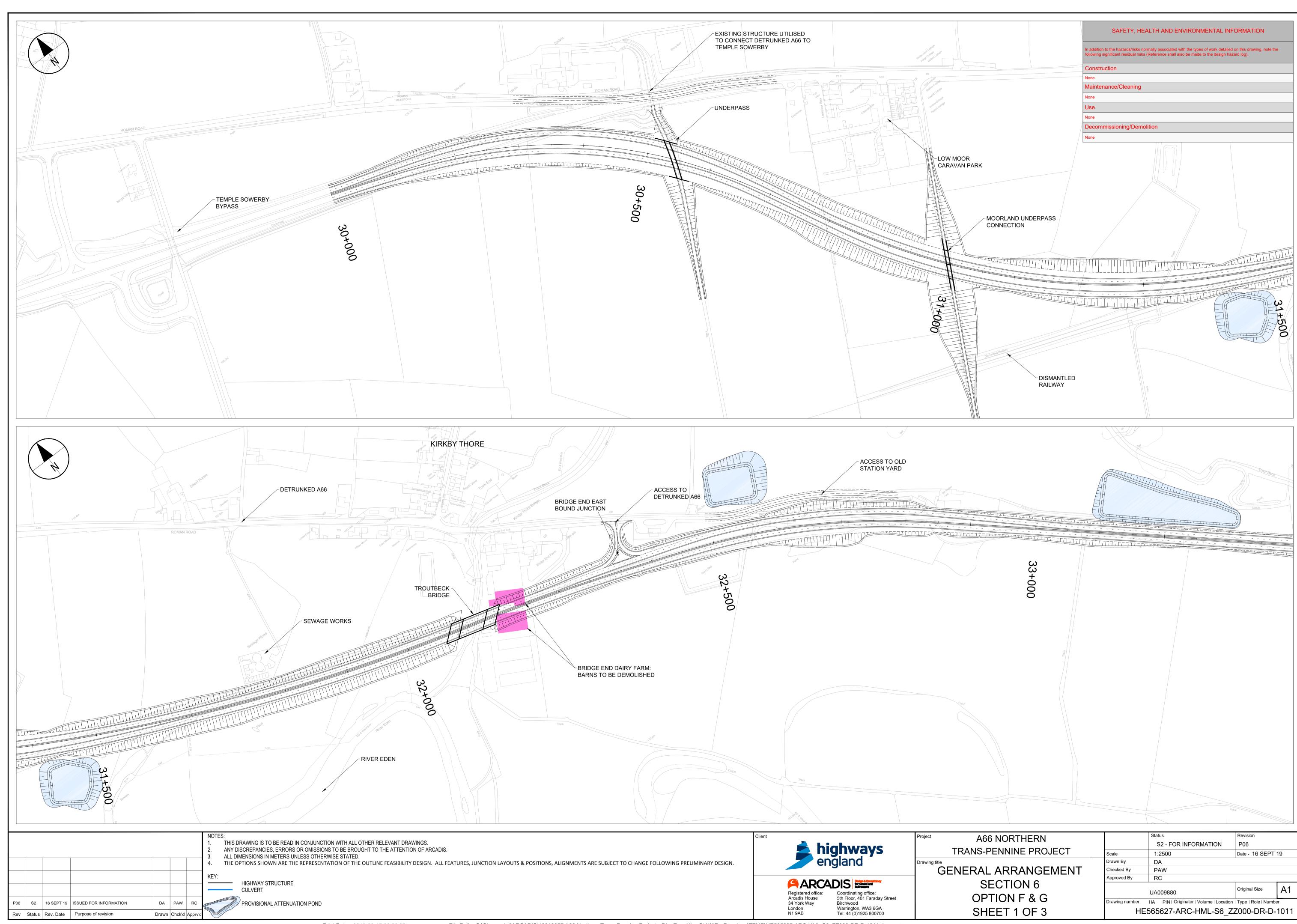


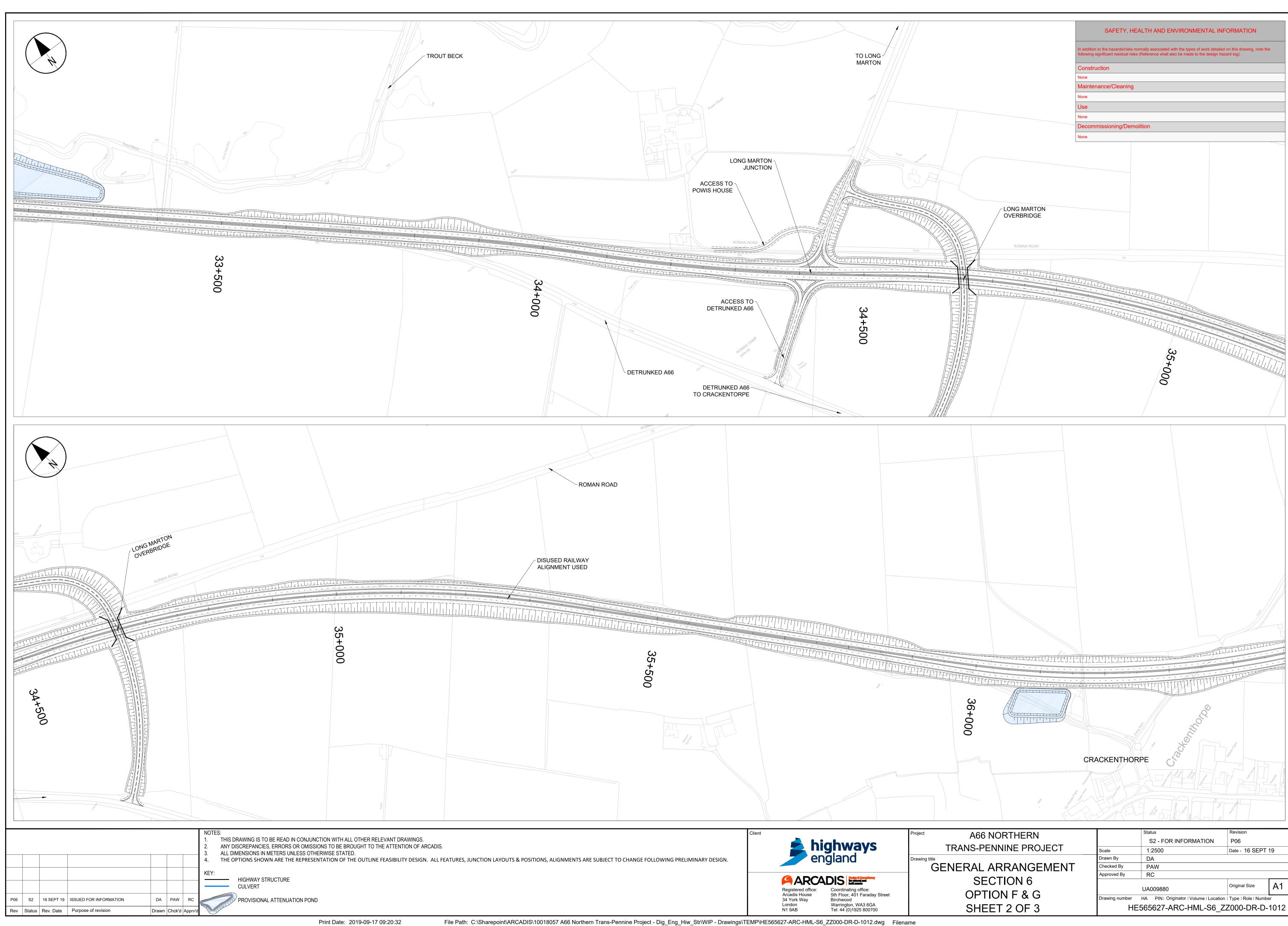


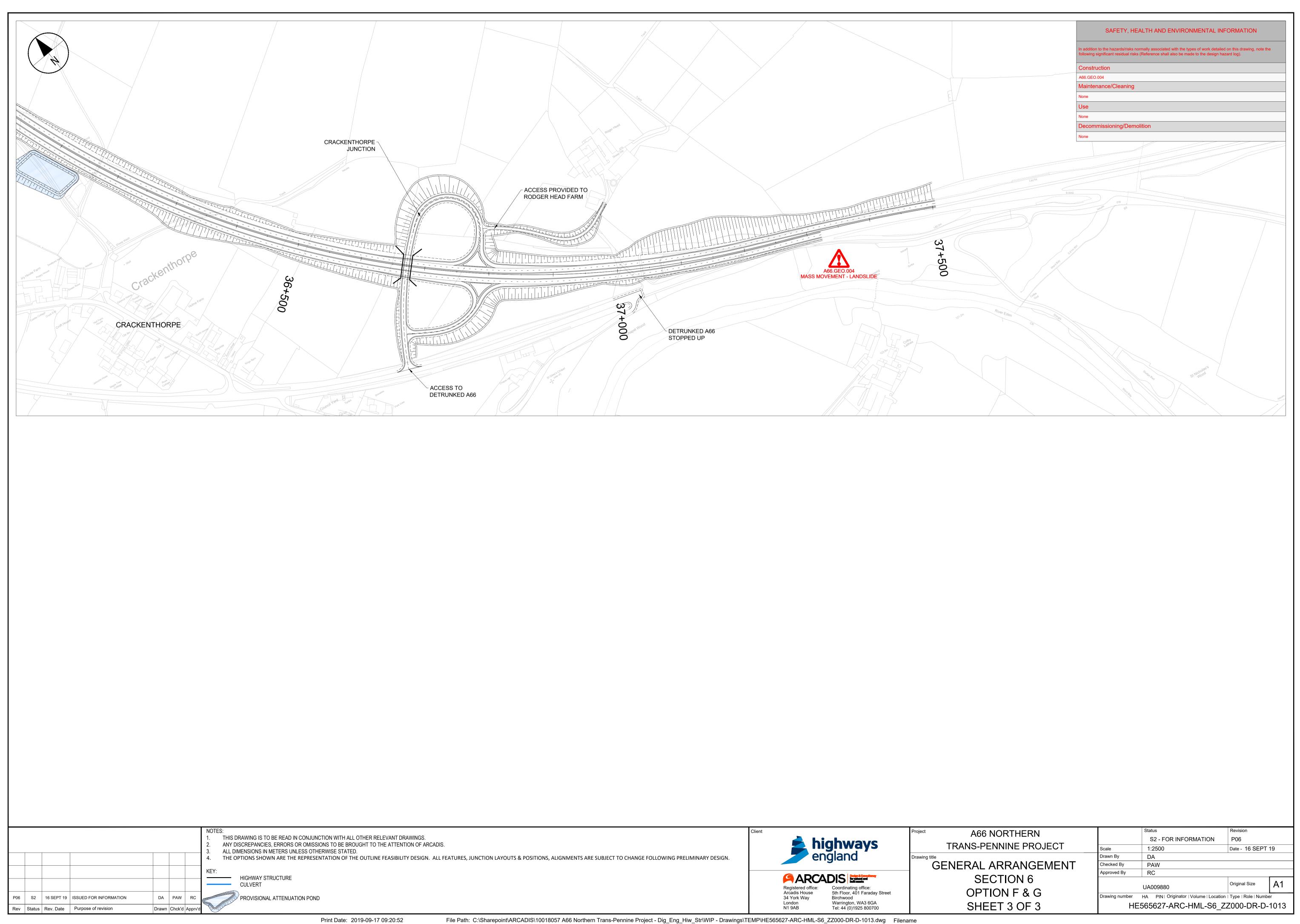


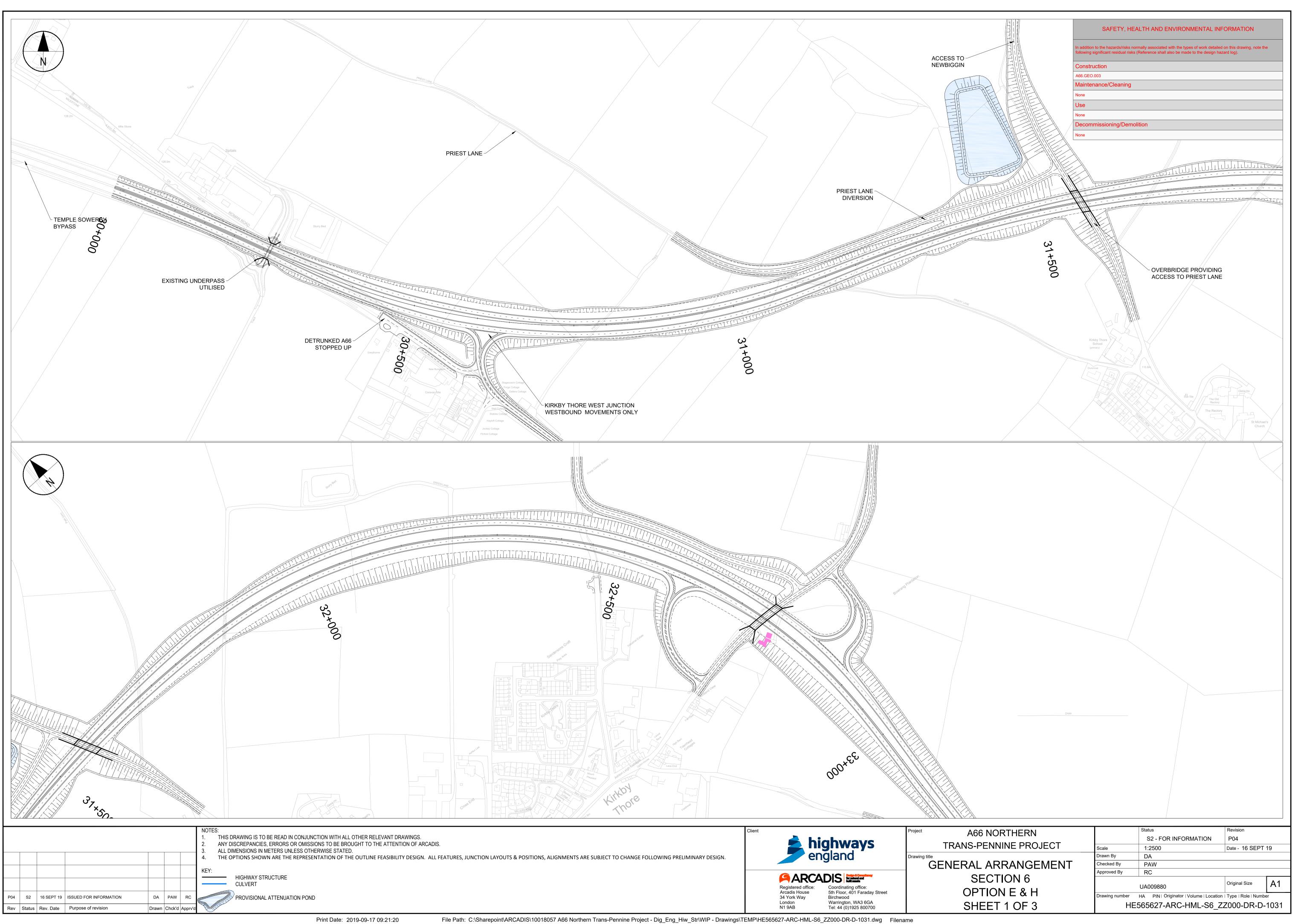


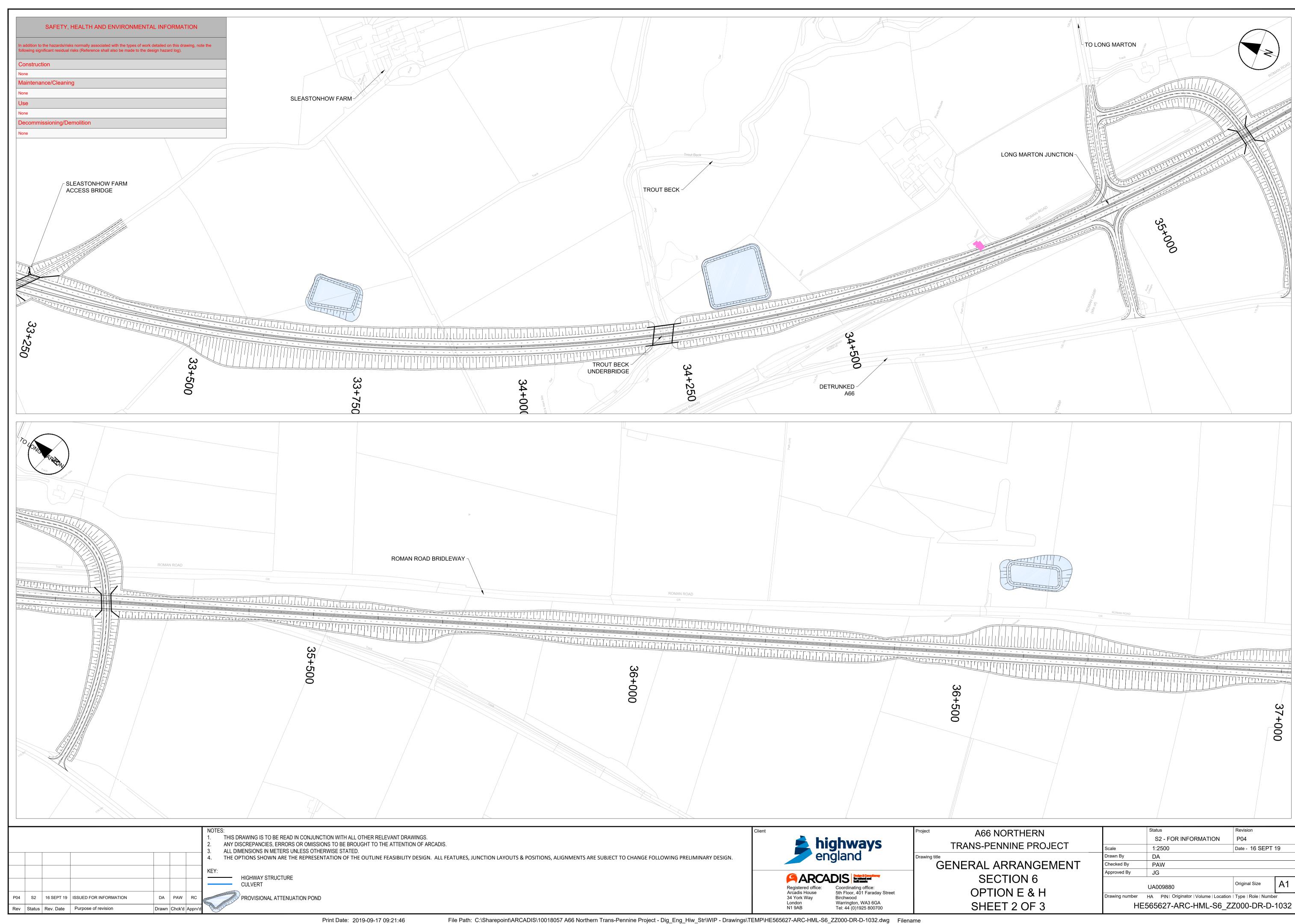


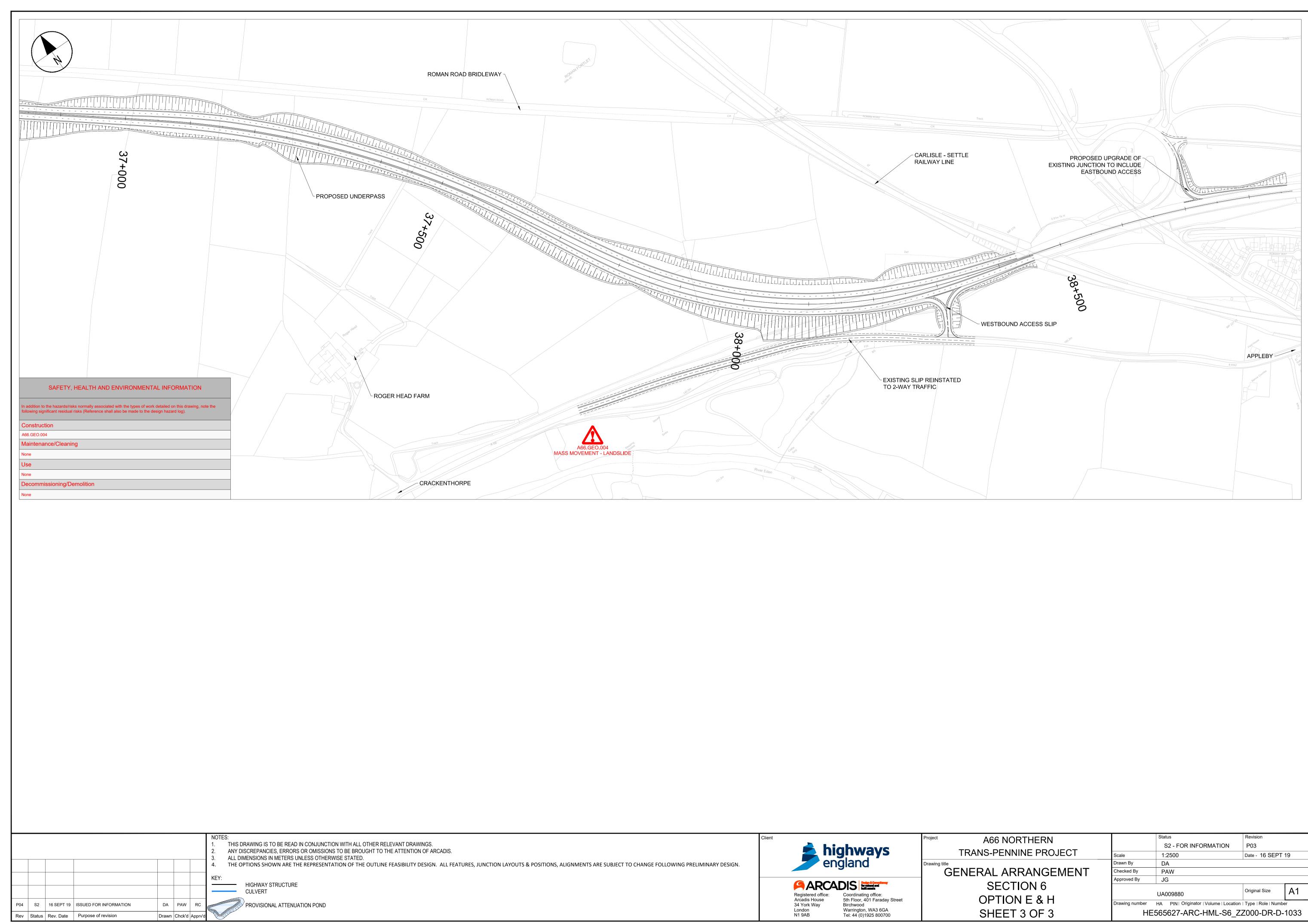




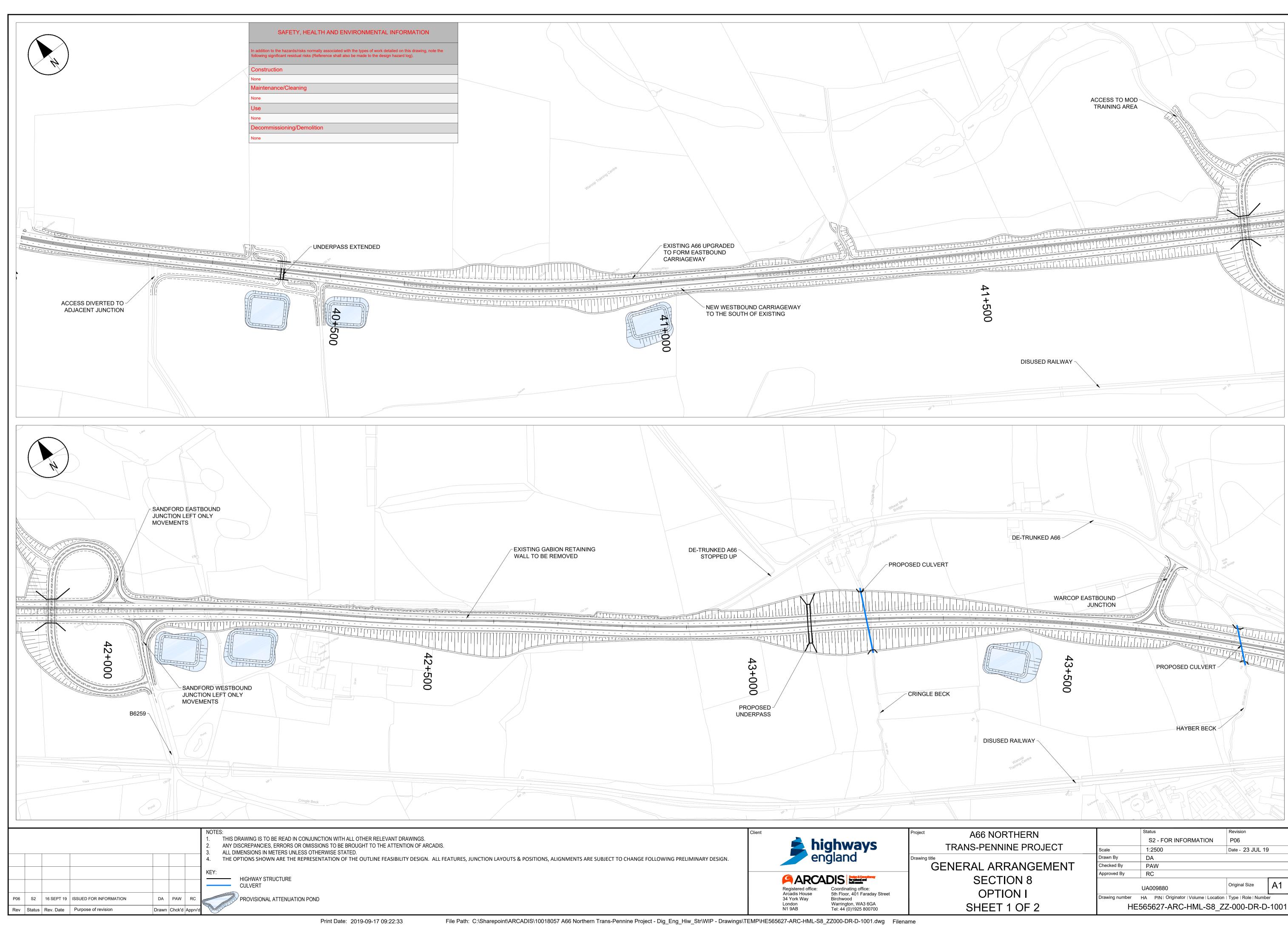


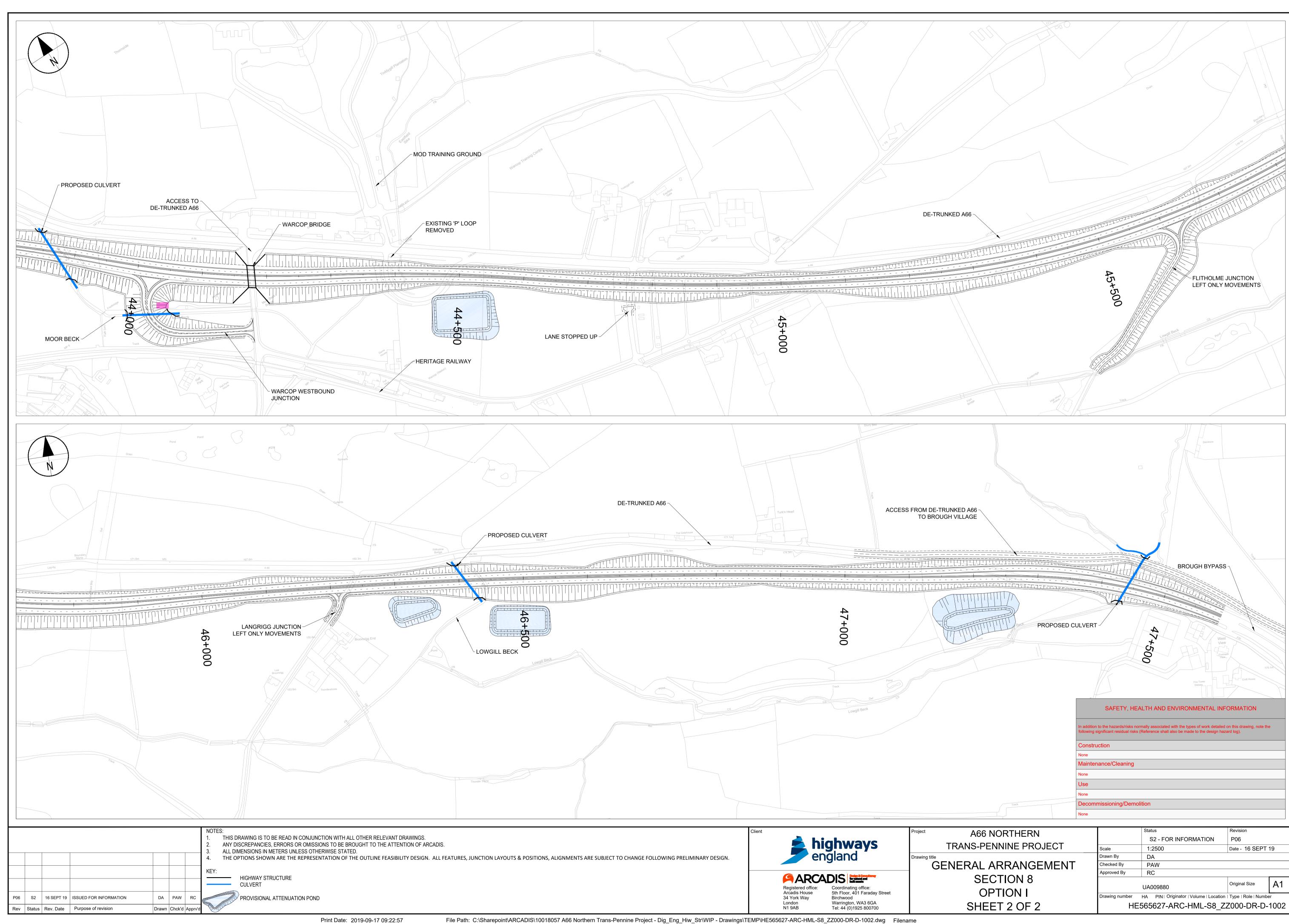


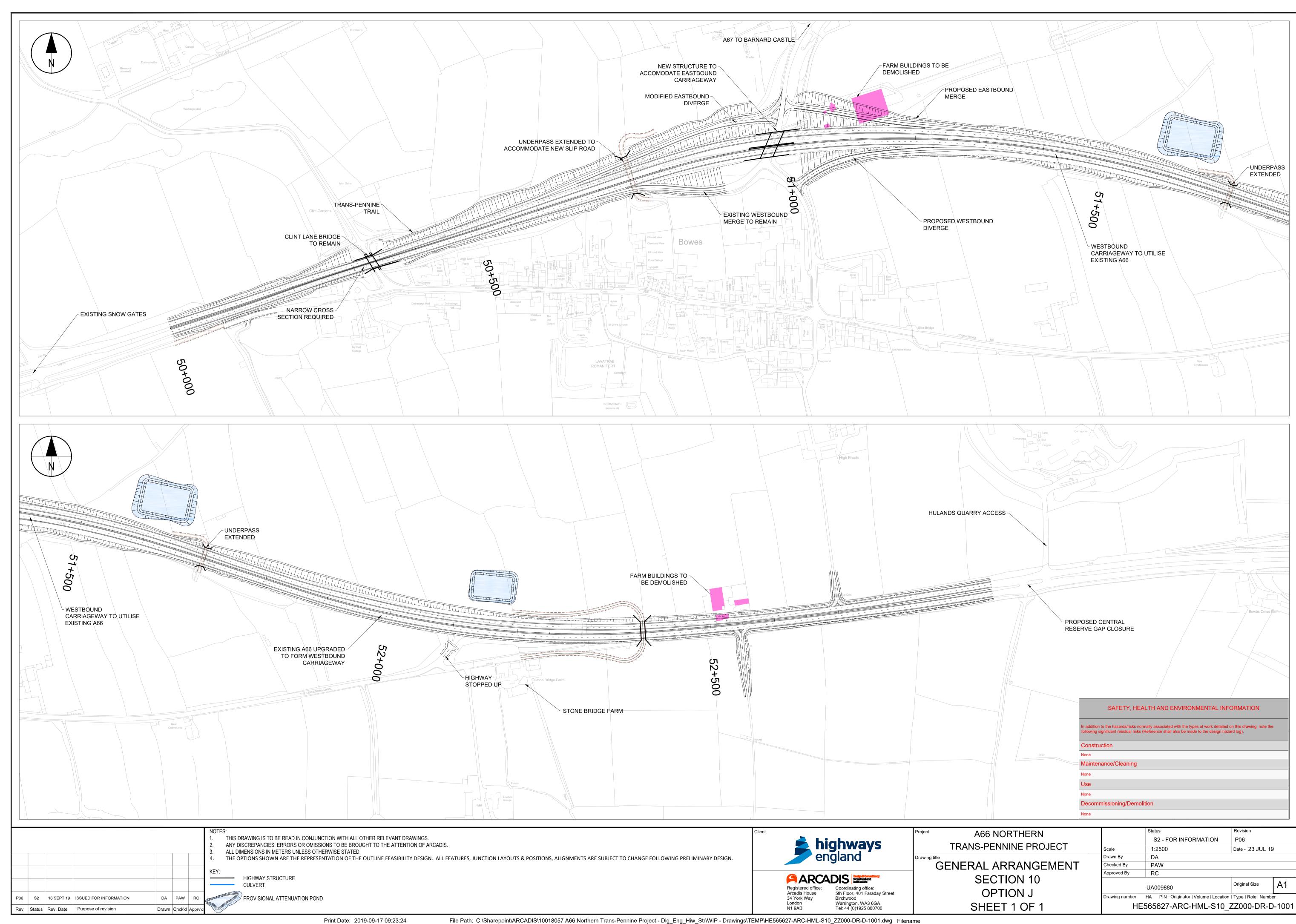


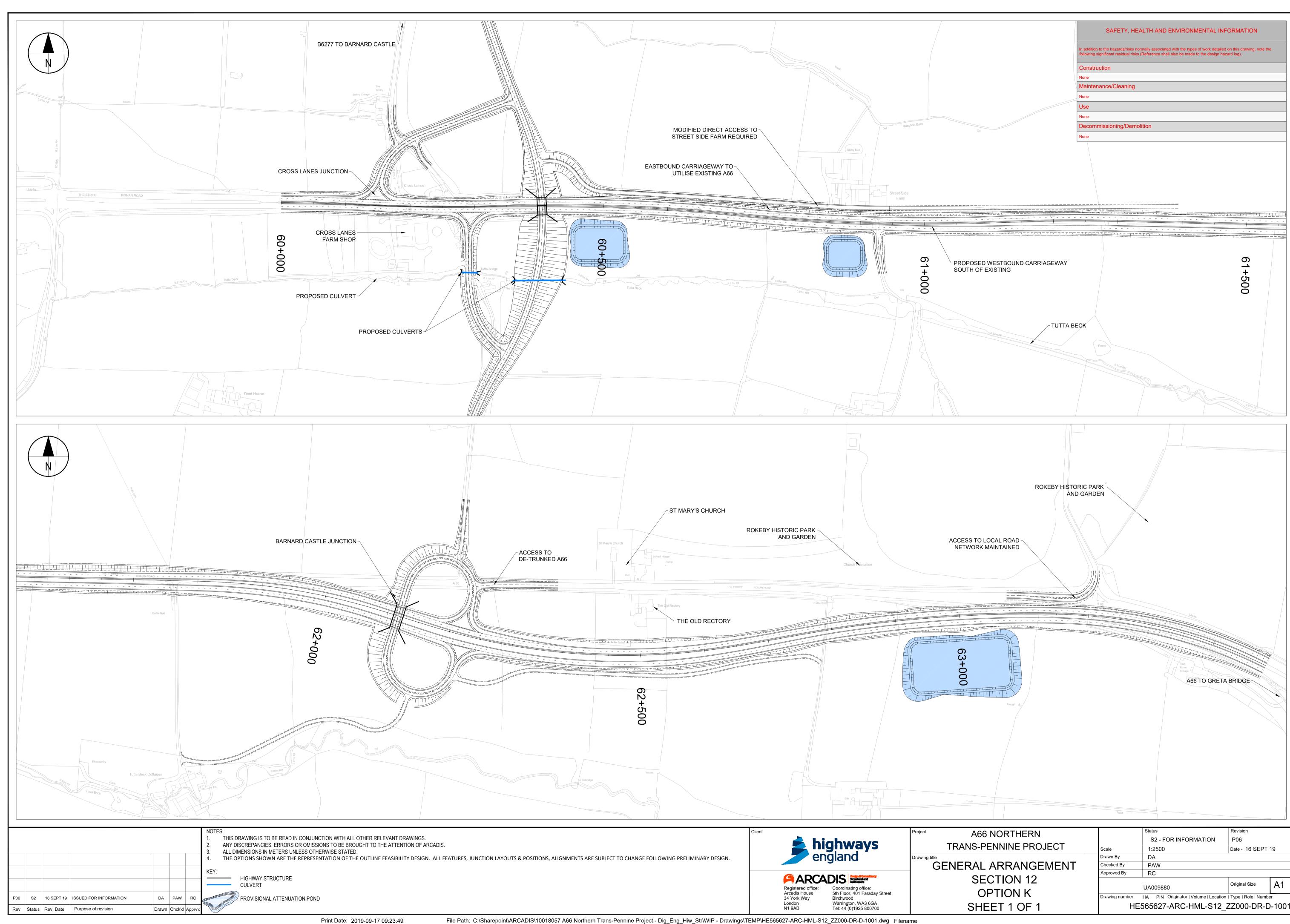


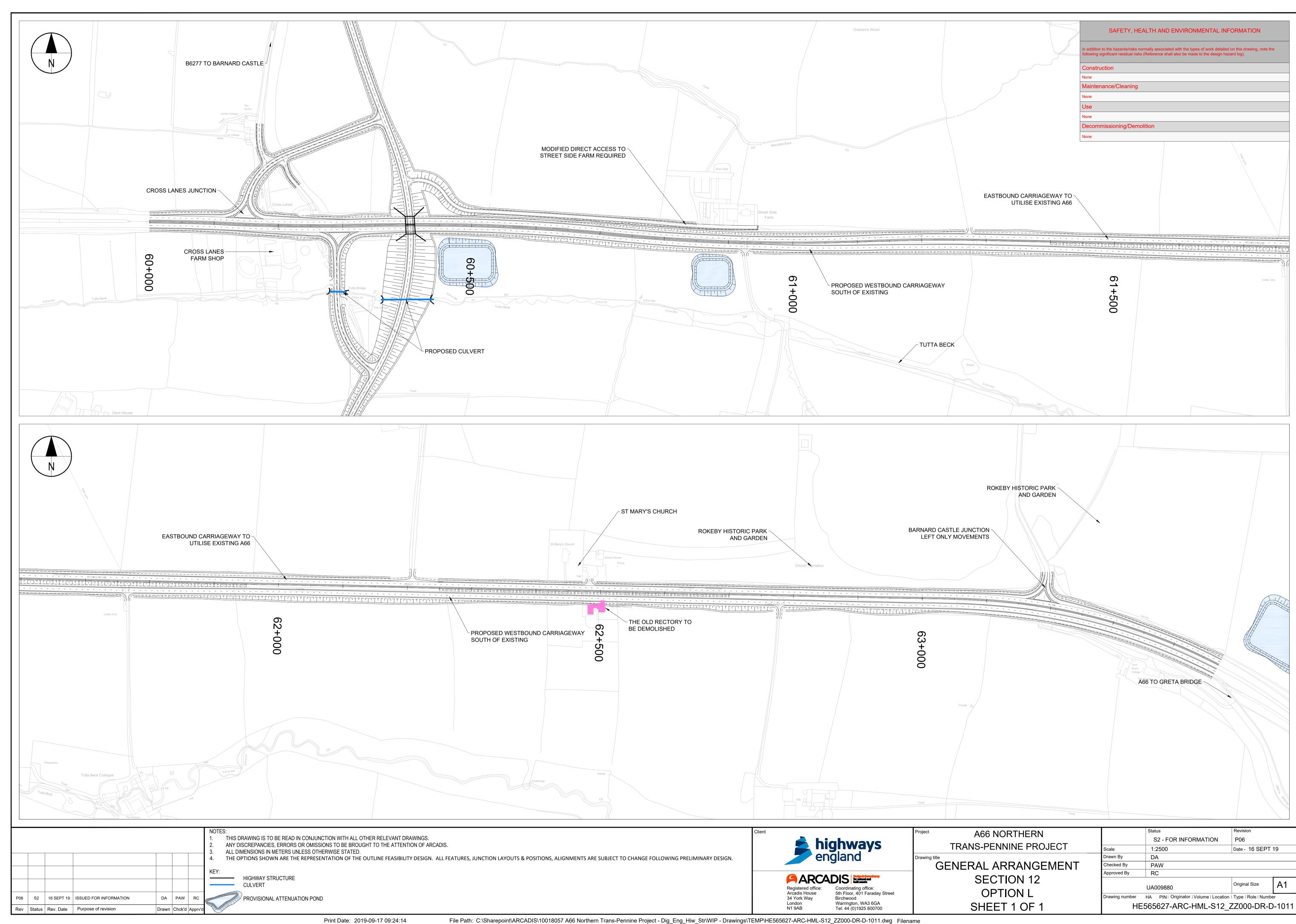
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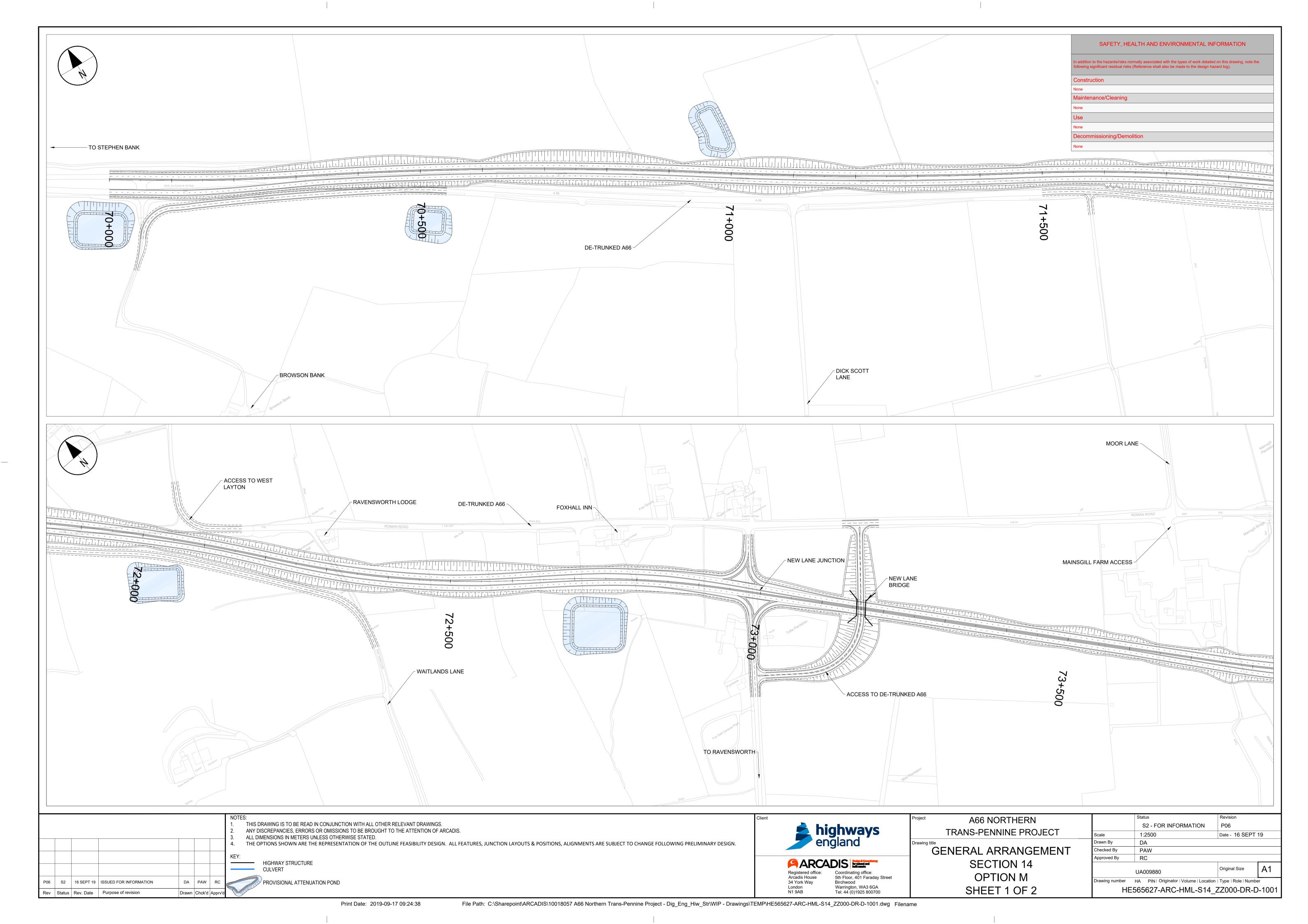


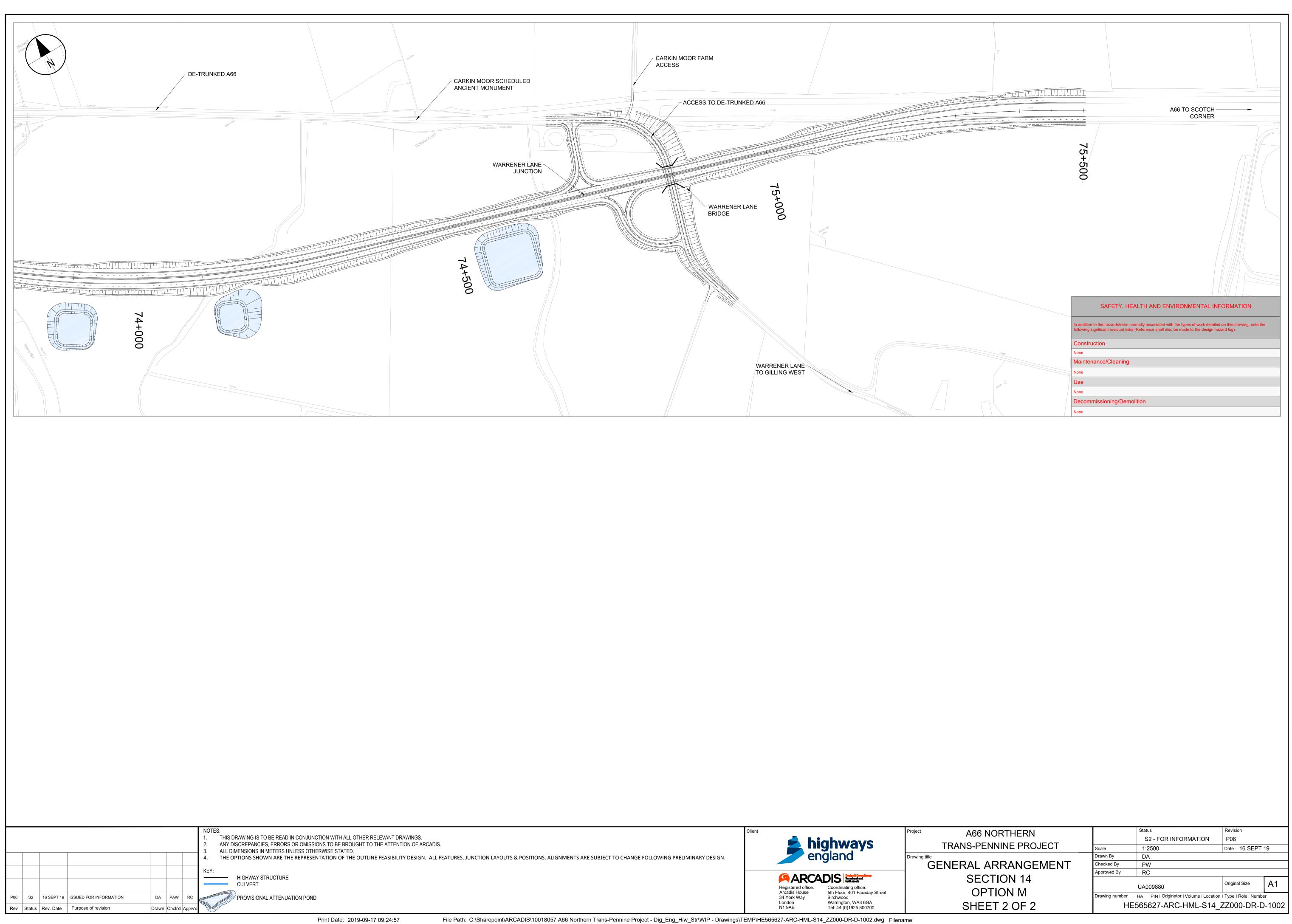


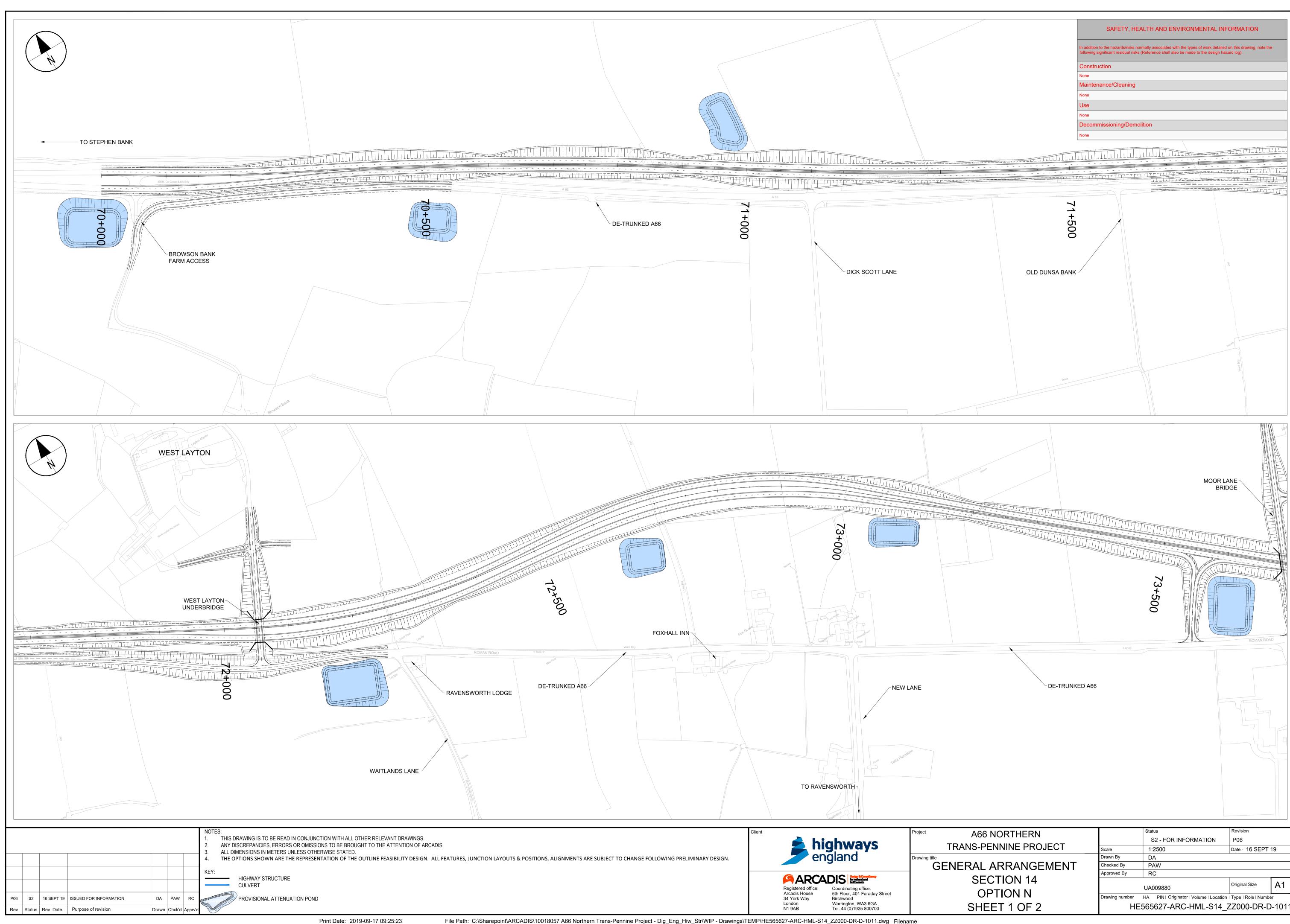


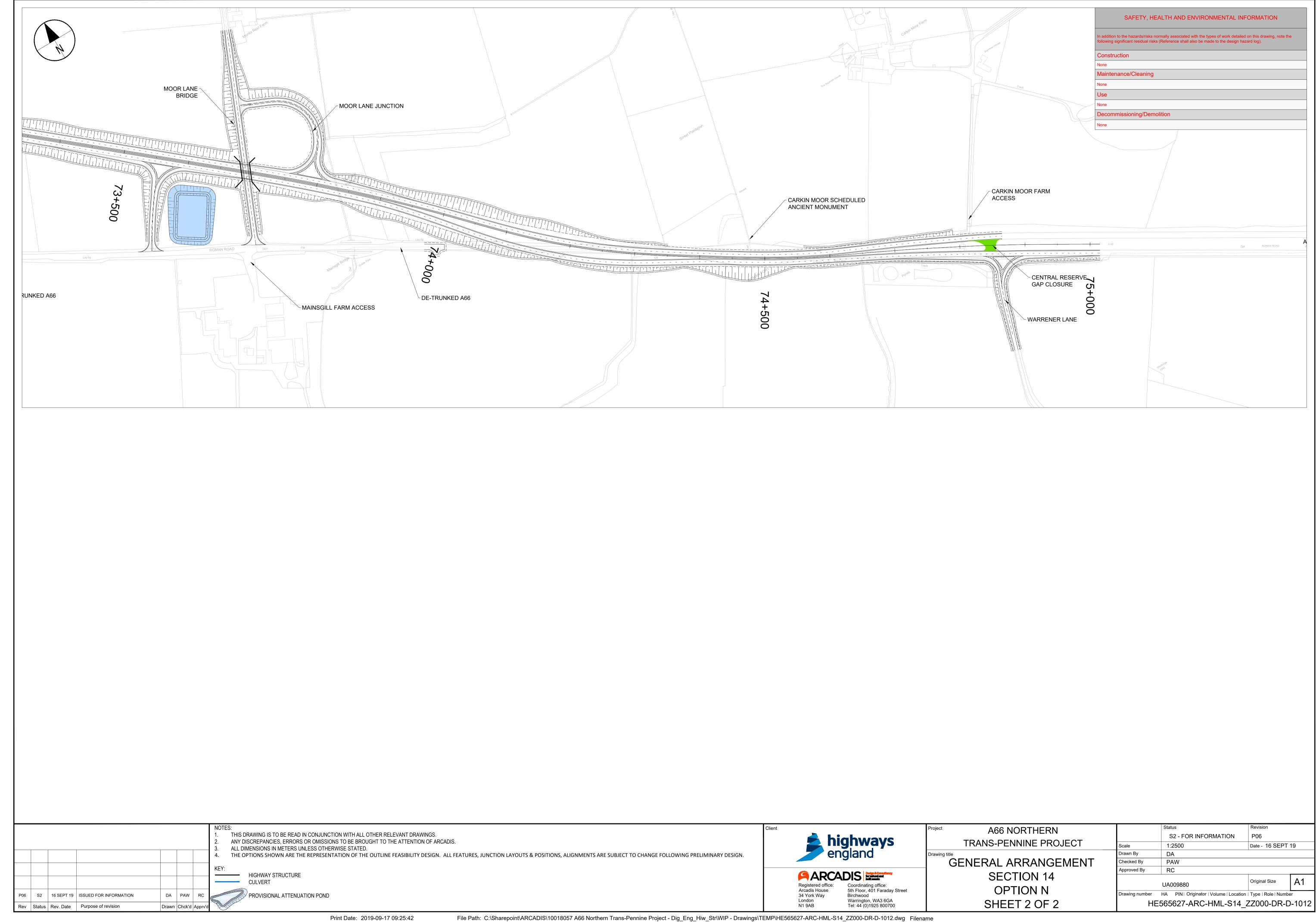


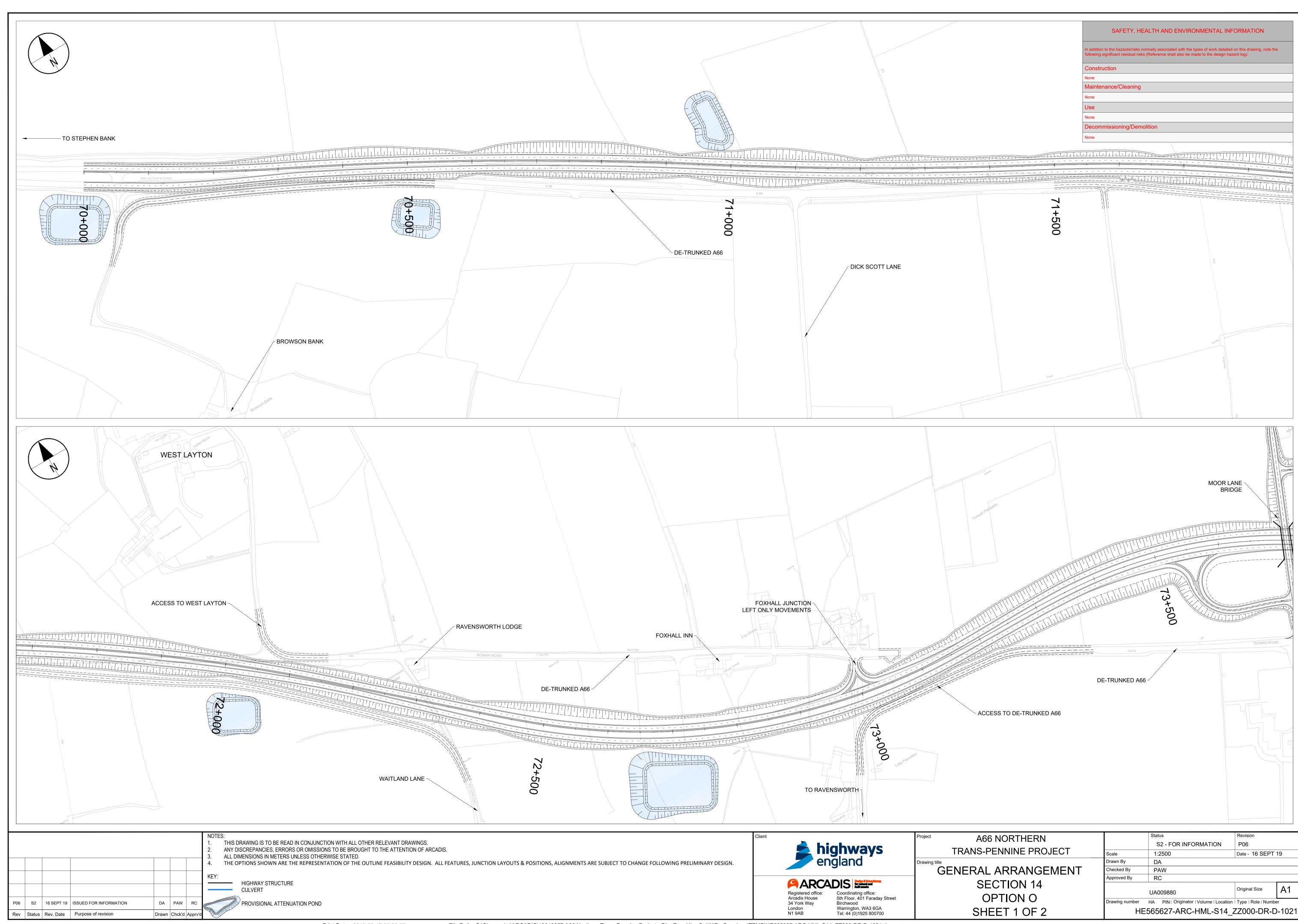


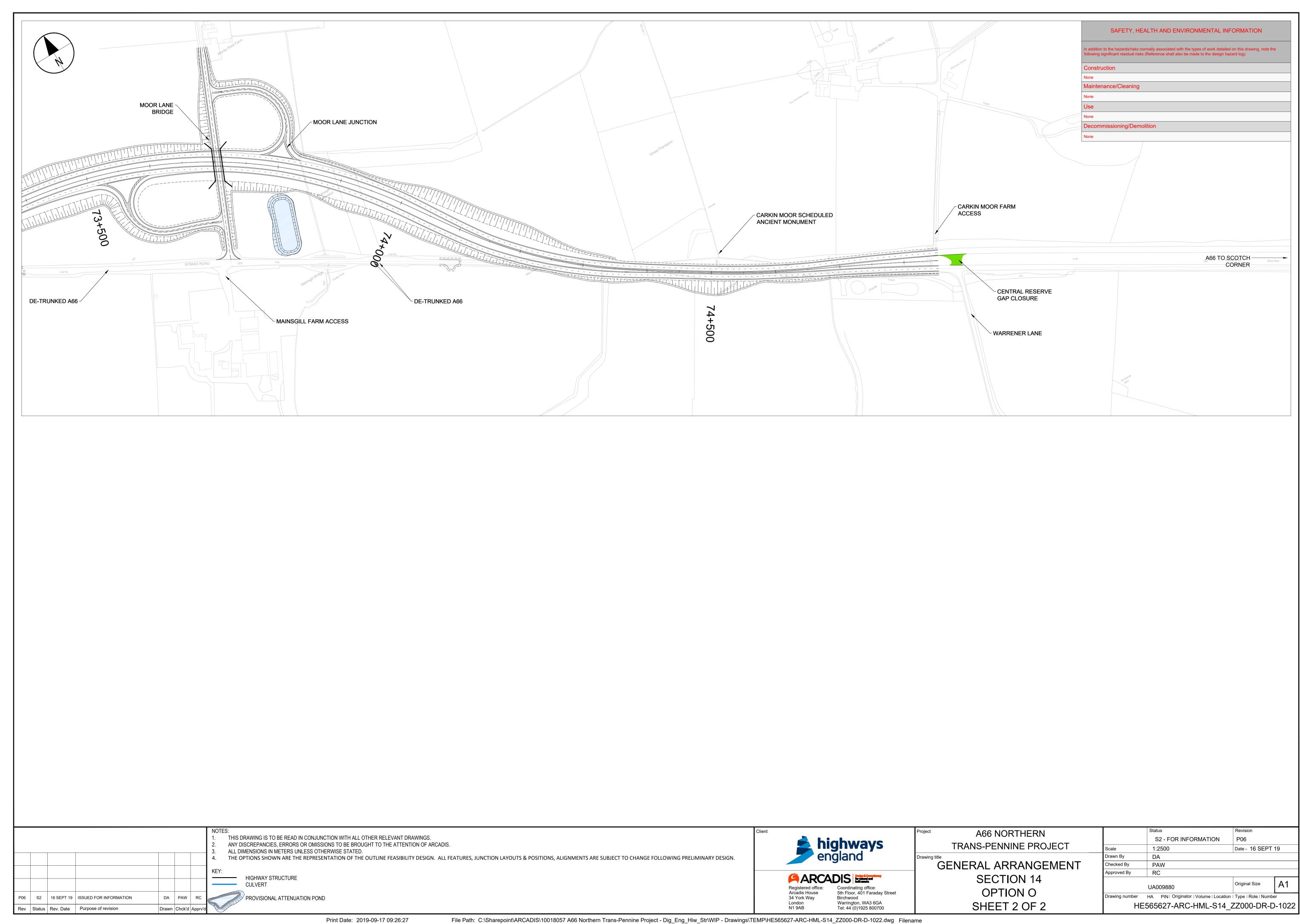


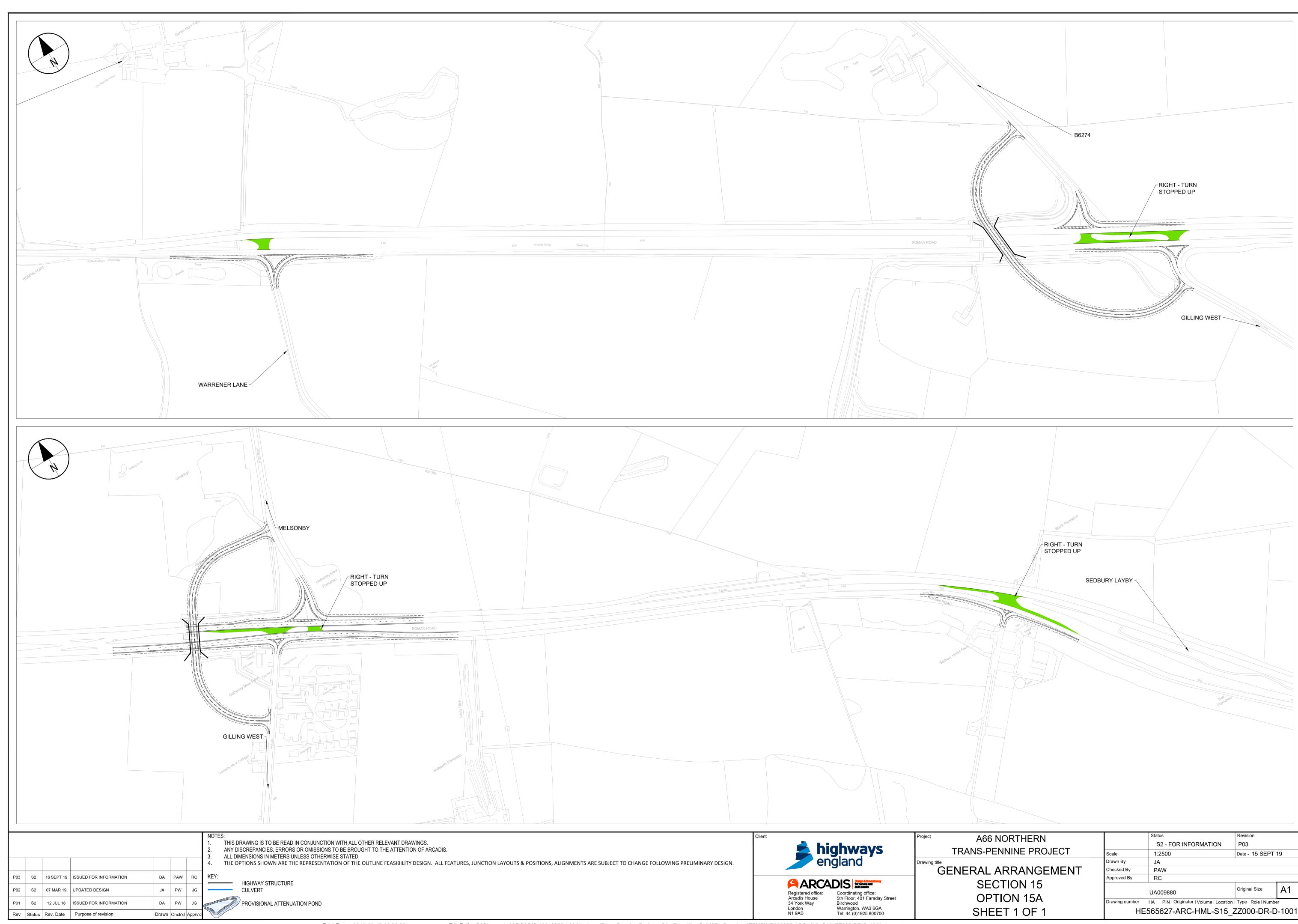


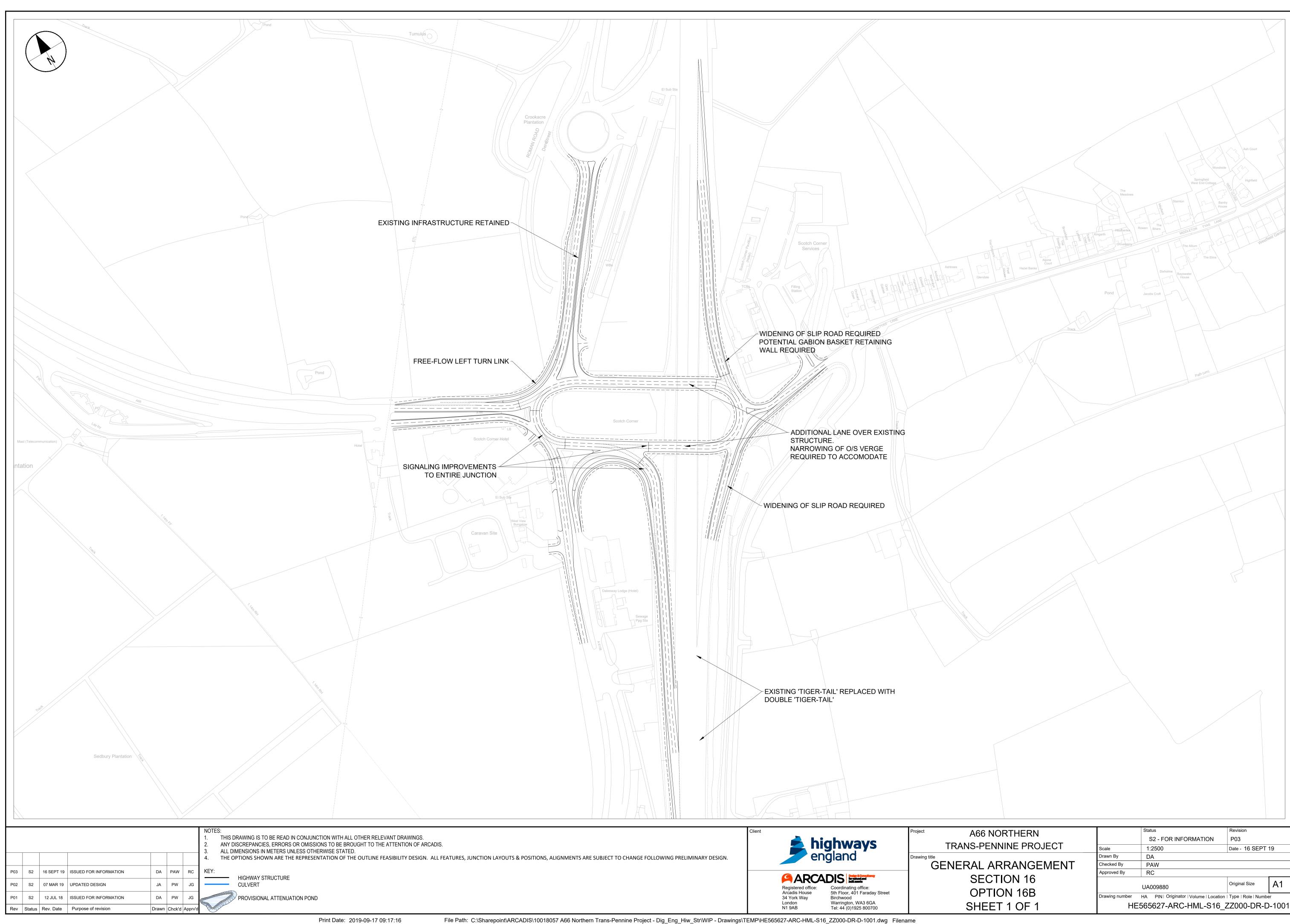












A66 Northern Trans-Pennine Project Scheme Assessment Report



APPENDIX B

PRA Workshop Appraisal Tables

| Kemplay Bank Rounda | bout | | | | |
|---|--|---|----------------------------|--|---------------------------|
| Consultation Responses Note 1 | | Kemplay Bank Roundabou | t- Underpass Option A (2B) | Kemplay Bank Roundabou | t- Overpass Option B (2E) |
| No of members of public who strongly agree | e or tend to agree with option relative to | 295/392 | | 77/80. | |
| lo. of members of public who strongly disa | gree or tend to disagree with option | 30/3 | 392 | 187/ | 197 |
| o. of organisations and groups who strong lative to total No. of responses | lly agree or tend to agree with option | 12/3 | 392 | 2/1 | 97 |
| o. of organisations and groups who strong | yly disagree or tend to disagree with option | 0/3 | 92 | 7/1 | 97 |
| | | An underpass will cause minimal visual intrusion | 152 | An overpass will be better value for money / cheaper / cost less | 6 |
| Positive key themes ra | aised regarding option | An underpass will be quieter / reduce traffic noise | 68 | An overpass will cause less disruption / fewer delays - to traffic flow during construction | 6 |
| | | An underpass is my preferred option / the best / sensible option / logical choice | 44 | An overpass is my preferred option / the best / sensible option / logical choice | 5 |
| | | An underpass will be more expensive / cost considerably more | 9 | An overpass will be visually intrusive | 38 |
| Negative key themes r | aised regarding option | An underpass will cause disruption / delays - to traffic flow during construction | 6 | An overpass will be noisy / increase traffic noise | 31 |
| | | An underpass will be more complicated / take longer to deliver | 5 | An overpass will be visually intrusive - spoil the landscape / view | 17 |
| Project Objective | Appraisal Criteria length of option | Stage 1 | Stage 2 | Stage 1 | Stage 2 |
| · economic growth | reduction in journey time (compared to Do Minimum) ^{Note 2} | 7,0417 | | reduction in JT - 0.2 mins | |
| · improve connectivity | economic benefits (compared to Do Minimum) ^{Note 2} | No differentiator between the options at this stage | | No differentiator between the options at this stage | |
| · improve access for tourism and local services/jobs | William I | No differentiator between the options at this stage | | No differentiator between the options at this stage | |
| · improve road safety | safety in operation | No differentiator between the options at this stage | | No differentiator between the options at this stage | |
| · improve journey time reliability | safety in constructionimprovement in JTR compared to Do | No differentiator between the options at this | | No differentiator between the options at this | |
| · improve A66 as strategic connection | Minimum improvement in resilience compared | stage No differentiator between the options at this | | stage No differentiator between the options at this | |
| | to Do Minimum | stage No differentiator between the options at this | | stage No differentiator between the options at this | |
| · improve resilience · improve NMU provision | · opportunities to improve NMU provision | stage Easier for NMU's to navigate Kemplay Bank Junction as the A66 through traffic will be | | stage Easier for NMU's to navigate Kemplay Bank Junction as the A66 through traffic will be | |
| · reduce community severance | · reduction in severance | segregated No differentiator between the options at this stage | | segregated No differentiator between the options at this stage | |
| | · Landscape | The dominance of the existing roundabout junction in this part of Penrith means that the option would not notably alter the character of the townscape | | The dominance of the existing roundabout junction in this part of Penrith means that the project would not notably alter the character of the townscape although an overpass option would likely have a greater impact than an underpass | |
| | Biodiversity Water environment and drainage | No likely significant effects identified May have potential impacts on rates of runoff and pollution risk and the floodplains and wider catchments of the Thacka Beck and River Eamont. | | No likely significant effects identified May have potential impacts on rates of runoff and pollution risk and the floodplains and wider catchments of the Thacka Beck and River Eamont. | |
| | · Cultural Heritage | Following mitigation three assets will experience change which would result in significant effects | | Following mitigation three assets will experience change which would result in significant effects | |
| minimise environmental impacts and ptimise environmental improvement pportunities | · Air quality | Option would result in an exceedance of the AQS objectives for NO2 & PM10 though impacts are not considered to be significant | | Option would result in an exceedance of the AQS objectives for NO2 & PM10 though impacts are not considered to be significant. There would potentially be a greater adverse impact than the underpass option | |
| | · Noise | It is expected that the option would increase road traffic noise at Penrith A6 Junction with A66 due to the new junction layout. | | It is expected that the option would increase road traffic noise at Penrith A6 Junction with A66 due to the new junction layout. An overpass option would potentially have a greater adverse impact | |
| | Planning – compliance with NPS | No differentiator between the options at this stage Would lead to land-take of public open | | No differentiator between the options at this stage Would lead to land-take of public open | |
| | · Population and Health | space (recreation ground) which is found to the north of the project and the severance of two PRoW. | | space (recreation ground) which is found to the north of the project and the severance of two PRoW. | |
| | Geology and SoilsClimate | No likely significant effects identified No likely significant effects identified | | No likely significant effects identified No likely significant effects identified | |
| | · Materials | No likely significant effects identified | | No likely significant effects identified No likely significant effects identified | |
| | Cost of option | £76M | | £76M | |
| | Land take outside highway boundary Property demolition | Minimal landtake requied None | | Minimal landtake required None | |
| Other criteria | Impact on property | Minimal | | Minimal | |
| | Construction impacts | 1180 days | 1268 days | 1101 days | 1232 days |

| Penrith to Temple Sow | verby | | | | | |
|---|--|---|--|---|---|--|
| Consultation Responses Note 1 | | Online | otion D (4B) | Southern bypass – Option C (4A) | | |
| Consultation Responses | | Online – Option D (4B) | | Southern bypass – O | Southern bypass – Option C (4A) | |
| No of members of public who strongly agree or tend to agree with option relative to total No. of responses | | 82/297 | | 206/325 | | |
| No. of members of public who strongly disa to total No. of responses | gree or tend to disagree with option relative | 112 | /297 | 30/325 | | |
| No. of organisations and groups who strong relative to total No. of responses | gly agree or tend to agree with option | 4/ | 297 | 7/325 | | |
| No. of organisations and groups who strong relative to total No. of responses | gly disagree or tend to disagree with option | 3/: | 297 | 4/325 | | |
| | | Northern diversion will align better with existing roads / conditions / minimal re- alignment | 11 | Southern diversion will minimise impact on nearby buildings - demolition | 62 | |
| Positive key themes ra | aised regarding option | Northern diversion is my preferred option / the best / sensible option / logical choice | 7 | Southern diversion will pass further from / route traffic from - Lane End | 32 | |
| | | Northern diversion will minimise impact on nearby buildings - demolition | 5 | Southern diversion is my preferred option / the best / sensible option / logical choice | 15 | |
| | | Northern diversion will impact on nearby buildings - demolition | 16 | Southern diversion will result in land grab - fields / farms / farm land | 4 | |
| Negative key themes r | aised regarding option | Northern diversion will be noisy / increase traffic noise - in Lane End | 2 | Southern diversion will be more expensive / cost considerably more | 2 | |
| | | Northern diversion will impact on nearby people / communities - in Lane End | 2 | Southern diversion is unacceptable / strongly oppose | 1 | |
| Project Objective | Appraisal Criteria length of option | Stage 1 5.2km | Stage 2 | Stage 1 5.2km | Stage 2 | |
| · economic growth | reduction in journey time (compared to Do Minimum) ^{Note 2} | reduction in JT - 1.0 mins | | reduction in JT - 1.1 mins | | |
| · improve connectivity | economic benefits (compared to Do Minimum) ^{Note 2} | No differentiator between the options at this | | No differentiator between the options at this | | |
| improve access for tourism and | Minimum)***- | stage No differentiator between the options at this | | No differentiator between the options at this | | |
| local services/jobs · improve road safety | safety in operation | stage No differentiator between the options at this stage | | stage No differentiator between the options at this stage | | |
| · improve journey time reliability | · improvement in JTR compared to Do | No differentiator between the options at this | | No differentiator between the options at this | | |
| · improve A66 as strategic connection | Minimum improvement in resilience compared | stage No differentiator between the options at this | | stage No differentiator between the options at this | | |
| · improve resilience | to Do Minimum | stage No differentiator between the options at this | | stage No differentiator between the options at this | | |
| · improve NMU provision | · opportunities to improve NMU | stage potential to provide NMU access between | | stage potential to provide NMU access between | | |
| reduce community severance | provision reduction in severance | Penrith & Temple Sowerby No notable preference between either option | | Penrith & Temple Sowerby No notable preference between either option | | |
| , | Landscape | No significant impacts identified. | | No significant effects identified. | | |
| | · Biodiversity | Potential impacts on biodiversity receptors (rivers and streams, Section 41 priority habitat, protected birds, "important hedgerow", amphibians (including great crested newt), bats, otter and red squirrel) | | Potential impacts on biodiversity receptors (rivers and streams, Section 41 priority habitat, protected birds, "important hedgerow", amphibians (including great crested newt), bats, otter and red squirrel) | | |
| | · Water environment and drainage | Likely to have potential impacts on the culverted section of the LightWater as well as the upstream reaches and its floodplain. | | Likely to have potential impacts on the culverted section of the LightWater as well as the upstream reaches and its floodplain. | | |
| | · Cultural Heritage | Could directly impact the Countess Pillar and the settlement to the east-north-east of Brougham Castle. Expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. | | Could directly impact the Countess Pillar and the settlement to the east-north-east of Brougham Castle. Expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. | | |
| minimise environmental impacts and optimise environmental improvement opportunities | · Air quality | Option would not result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. | | Option would not result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. | | |
| | · Noise | Option would increase road traffic noise between Brougham and Temple Sowerby due to the introduction of the new alignment | | Option would increase road traffic noise between Brougham and Temple Sowerby due to the introduction of the new alignment and reductions at Lane End/High Barn where the existing A66 is bypassed | | |
| | · Planning – compliance with NPS | No differentiator between the options at this stage | | No differentiator between the options at this stage | | |
| | · Population and Health | Option would lead to the loss of agricultural land and require the demolition of High Barn Farm, which may impact upon businesses. | | Option would lead to the loss of agricultural land, which may impact upon agricultural businesses | | |
| | · Geology and Soils | No likely significant effects have been identified | | No likely significant effects have been identified | | |
| | · Climate | No likely significant effects have been identified | | No likely significant effects have been identified | | |
| | · Materials | No likely significant effects have been identified | | No likely significant effects have been identified | | |
| | Cost of option | £93M | | £93M | | |
| | Land take outside highway boundary Property demolition | Less land take required Loss of High Barn buildings | | Greater land take required | | |
| Other criteria | Impact on property | Loss of High Barn buildings | | Route further away from residential | | |
| | Construction impacts | 917 days | 811 days | properties at Lane End 841 days | 686 days | |
| | Significant risks | significant stats applicable to both options | significant stats applicable to both options | significant stats applicable to both options | significant stats applicable to both options | |

| Temple Sowerby to Appleby – Kirkby Thore | | | | | | | |
|---|--|---|--|--|---|--|--|
| Consultation Responses Note 1 | | Northern Bypass | s – Option E (6J1) | Southern bypass – Option F (6H1) | | | |
| No of members of public who strongly agree or tend to agree with option relative to total No. of responses | | 263/420 | | 146/375 | | | |
| No. of members of public who strongly disagree or tend to disagree with option relative to total No. of responses | | 101 | /420 | 174/375 | | | |
| No. of organisations and groups who strong relative to total No. of responses | gly agree or tend to agree with option | 8/- | 420 | 4/375 | | | |
| No. of organisations and groups who strong relative to total No. of responses | gly disagree or tend to disagree with option | 3/- | 420 | 7/375 | | | |
| | | Northern bypass will remove / reduce HGVs / lorries / larger vehicles - Kirkby Thore | 156 | Southern bypass will be a more direct / shorter route | 57 | | |
| Positive key themes r | aised regarding option | Northern bypass will be a more direct / shorter route - to British Gypsum | 48 | Southern bypass will be better value for money / cheaper / cost less | 19 | | |
| | | Northern bypass is my preferred option / the best / sensible option / logical choice | 38 | Southern bypass is my preferred option / the best / sensible option / logical choice | 11 | | |
| | | Northern bypass will be a longer / slower route | 22 | Southern bypass will not remove / reduce HGVs / lorries / larger vehicles - Kirkby Thore | 26 | | |
| Negative key themes | raised regarding option | Northern bypass will be noisy / increase traffic noise | 13 | Southern bypass will impact on the environment / cause great environmental damage - flood plains / flooding | 23 | | |
| | | Northern bypass will be more expensive / cost considerably more | 12 | Southern bypass will impact on nearby buildings - demolition - Bridge End Farm | 17 | | |
| Project Objective | Appraisal Criteria | Stage 1 | Stage 2 | Stage 1 | Stage 2 | | |
| · economic growth | length of option reduction in journey time (compared | 4.7km reduction in JT - 1.4 mins | | 4.2km reduction in JT - 1.3 mins□ | | | |
| · improve connectivity | to Do Minimum) Note 2 economic benefits (compared to Do | No differentiator between the options at this | | No differentiator between the options at this | | | |
| improve connectivity improve access for tourism and local | Minimum) ^{Note 2} | stage No differentiator between the options at this | | stage No differentiator between the options at this | | | |
| services/jobs | · safety in operation | stage | | stage | | | |
| · improve road safety | · safety in construction | No differentiator between the options at this stage | | No differentiator between the options at this stage | | | |
| · improve journey time reliability | · improvement in JTR compared to Do Minimum | No differentiator between the options at this stage | | No differentiator between the options at this stage | | | |
| · improve A66 as strategic connection | · improvement in resilience compared to Do Minimum | No differentiator between the options at this stage | | No differentiator between the options at this stage | | | |
| · improve resilience | | No differentiator between the options at this stage | | No differentiator between the options at this stage | | | |
| · improve NMU provision | · opportunities to improve NMU provision | opportunity for grade separated NMU facilities crossing the A66 | | opportunity for grade separated NMU facilities crossing the A66 | | | |
| · reduce community severance | · reduction in severance | greater access to adjacent villages All options improve and reduce the impact of severance by diverting the A66 away from it current central position within the | | greater access to adjacent villages All options improve and reduce the impact of severance by diverting the A66 away from it current central position within the | | | |
| | · Landscape | village Would bring the A66 closer to the North Pennines AONB than its current alignment, thereby potentially increasing its perceived influence on local landscape character and tranquillity. | | village No likely significant effects have been identified | | | |
| | · Biodiversity | Potential impact on designated sites of international and national importance located within 200m of both options (River Eden SAC and River Eden & Tributaries SSSI). | Crosses Trout Beck where extensive channel realignment is evidenced through historic maps. Channel has migrated south by approximately 20m in recent years, giving an indication of the direction in which the watercourse is eroding. Design would need to incorporate any future movement. | Potential impact on designated sites of international and national importance located within 200m of both options (River Eden SAC and River Eden & Tributaries SSSI). | Extends across a disused railway line that provides a wildlife corridor for potentially multiple species groups and a feature that is locally rare. Whilst there will has been little recent movement of the watercourse due to the railway and farm buildings and reinforcement for the river, these current constraints/revetments would need to be reviewed. The lateral movement of the River Eden will also need to be considered in this location. | | |
| · minimise environmental impacts and optimise environmental improvement opportunities | · Water environment and drainage | Has a direct impact on the Trout Beck and its floodplains (mainly Flood Zone 3). | Placement of the embankment across the floodplain of the Trout Beck causes flood water to build up on the upstream side of the embankment. No properties fall within the zone of increased flood depths. | Has a direct impact on both the River Eden and Trout Beck and their floodplains (both Flood Zone 2 and Flood Zone 3) | Placement of the embankment across the floodplain of the Trout Beck causes flood water to build up on the upstream (north east) side of the embankment. It would also be expected that flood water from the River Eden would be constrained on the south west side of the embankment. Residential and commercial properties, as well as existing roads in Kirkby Thore, fall within the zone of increased flood depths. | | |
| | · Cultural Heritage | Expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. | | Expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. | | | |
| | · Air quality | Would not result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. | | Would not result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. | | | |
| | · Noise | Would lead to an increase in road traffic noise for receptors to the north of Temple Sowerby and reductions in road traffic noise along the existing A66 which is bypassed | | Would increase road traffic noise between Temple Sowerby and Appleby West Morland due to the introduction of the new alignment and reduce traffic noise for receptors close to the existing alignment. | | | |
| | · Planning – compliance with NPS | No differentiator between the options at this stage | | No differentiator between the options at this stage | | | |
| | · Population and Health | Lead to the loss of agricultural land, which may impact upon agricultural businesses. | | Lead to the loss of agricultural land, which may impact upon agricultural businesses. Also lead to the loss of agricultural land and the demolition of farm buildings found at Bridge End Farm, which may impact upon agricultural businesses. | | | |
| | · Geology and Soils | No likely significant effects have been identified | | No likely significant effects have been identified | | | |
| 1 | · Climate | No likely significant effects have been identified | | No likely significant effects have been identified | | | |

| | · Materials | No likely significant effects have been identified | | No likely significant effects have been identified | |
|----------------|------------------------------------|--|-------------------------------------|--|---|
| | Cost of option | £130M | | £95M | |
| | Land take outside highway boundary | Both northern options would require greater land take outside of the current trunk road boundary | | Both northern options would require greater land take outside of the current trunk road boundary | |
| Other criteria | Property demolition | No demolition identified | 1 No. residential property required | Demolition of Bridge End Farm buildings | Demolition of Bridge End Farm buildings |
| | Impact on property | Minimal | | Minimal | |
| | Construction impacts | No notable preference between either option | | No notable preference between either option | |
| | Significant risks | Abandoned mine workings | | River Eden flood plain | |

| Temple Sowerby to Ap | ppleby – Crackenthorpe |) | | | |
|--|--|---|---|---|---|
| Consultation Responses Note 1 | | Northern Bypass closest to 0 | Crackenthorpe – Option G (F2) | Northern Bypass furthest away from Crackenthorpe – Option H (G2) | |
| No of members of public who strongly agree or tend to agree with option relative to total No. of responses | | 79/303 | | 243/350 | |
| No. of members of public who strongly disarto total No. of responses | gree or tend to disagree with option relative | 144 | /303 | 39/35 | 0 |
| No. of organisations and groups who strong relative to total No. of responses | lly agree or tend to agree with option | 4/3 | 303 | 6/35 | 0 |
| No. of organisations and groups who strong | yly disagree or tend to disagree with option | 40 | 2002 | 2/25 | |
| relative to total No. of responses | | | 303 I | 3/35 | I |
| | | By-pass closest to Crackenthorpe will align better with existing roads / conditions / minimal re-alignment | 7 | By-pass furthest from Crackenthorpe will avoid unsuitable land - landslips - River Eden | 52 |
| Positive key themes ra | aised regarding option | By-pass closest to Crackenthorpe will utilise / align with disused rail tracks | 7 | By-pass furthest from Crackenthorpe is my preferred option / the best / sensible option / logical choice | 39 |
| | | Is my preferred option / the best / sensible option / logical choice | 5 | By-pass furthest from Crackenthorpe will pass further from / route traffic from - Crackenthorpe | 28 |
| | | By-pass closest to Crackenthorpe will use unsuitable land - landslips - River Eden | 45 | By-pass furthest from Crackenthorpe will impact on heritage site - original Roman road | 13 |
| Negative key themes r | raised regarding option | By-pass closest to Crackenthorpe will pass too close to the River Eden | 17 | By-pass furthest from Crackenthorpe will impact on biodiversity / wildlife / habitats | 6 |
| | | By-pass closest to Crackenthorpe will use unsuitable land - flood plains / flooding | 10 | By-pass furthest from Crackenthorpe will impact on existing public rights of way | 4 |
| Project Objective | Appraisal Criteria length of option | Stage 1 3.25km | Stage 2 | Stage 1 3.7km | Stage 2 |
| · economic growth | reduction in journey time (compared to Do Minimum) Note 2 | reduction in JT - 1.0 mins | | reduction in JT - 0.9 mins | |
| · improve connectivity | economic benefits (compared to Do | No differentiator between the options at this | | No differentiator between the options at this | |
| · improve access for tourism and local | Minimum) ^{Note 2} | stage No differentiator between the options at this | | stage No differentiator between the options at this | |
| services/jobs | · safety in operation | stage No differentiator between the options at this | | stage No differentiator between the options at this | |
| · improve road safety | safety in constructionimprovement in JTR compared to Do | stage No differentiator between the options at this | | stage No differentiator between the options at this | |
| · improve journey time reliability | Minimum | stage No differentiator between the options at this | | stage No differentiator between the options at this | |
| · improve A66 as strategic connection | to Do Minimum | stage No differentiator between the options at this | | stage No differentiator between the options at this | |
| · improve resilience | | stage | | stage opportunity for grade separated NMU | |
| · improve NMU provision | · opportunities to improve NMU provision | opportunity for grade separated NMU facilities crossing the A66 | | facilities crossing the A66 greater access to adjacent villages | |
| · reduce community severance | · reduction in severance | Both options improve and reduce the impact of severance by diverting the A66 away from it. | | Both options improve and reduce the impact of severance by diverting the A66 away from it. | |
| | · Landscape | No likely significant impacts. | Extends corose a disused railway line but | No likely significant impacts. | |
| | · Biodiversity | There are designated sites of international and national importance located within 200m of both options (River Eden SAC and River Eden & Tributaries SSSI). | Extends across a disused railway line, but this section of habitat is more defunct and considered to be of lower value (albeit it does contain old bridges/walls that may support bat roosts). Is close to the River Eden SAC, in an area where there are issues with bank/road stability. | There are designated sites of international and national importance located within 200m of both options (River Eden SAC and River Eden & Tributaries SSSI). | Crosses area that supports mature/established grasslands and thus may include important habitats (in their own right) and interesting invertebrate communities. However it would be possible to recreate species rich grasslands and habitat networks in alternative locations. |
| | · Water environment and drainage | No likely significant impacts. Expected to result in permanent, negative | | No likely significant impacts. Expected to result in permanent, negative | |
| · minimise environmental impacts and | · Cultural Heritage | impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. | | impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. | |
| optimise environmental improvement opportunities | · Air quality | No exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. | | No exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. | |
| | · Noise | Would increase road traffic noise for receptors at Powis House and Roman Vale and reduce road traffic noise for receptors located in Crackenthorpe. | | Would increase road traffic noise for receptors at Powis House and Roman Vale and reduce road traffic noise for receptors located in Crackenthorpe. | |
| | · Planning – compliance with NPS | No differentiator between the options at this stage | | No differentiator between the options at this stage | |
| | · Population and Health | Would lead to the loss of agricultural land, which may impact upon agricultural businesses. | | Would lead to the loss of agricultural land, which may impact upon agricultural businesses. | |
| | · Geology and Soils | No likely significant impacts. | | No likely significant impacts. | |
| | · Climate · Materials | No likely significant impacts. No likely significant impacts. | | No likely significant impacts. No likely significant impacts. | |
| | Cost of option | £70M | | £80M | |
| | Land take outside highway boundary | Both northern options would require greater land take outside of the current trunk road boundary | | Both northern options would require greater land take outside of the current trunk road boundary | |
| Other criteria | Property demolition Impact on property | none greater chance of impact on land owners | | none minimal impact of land owners as route | |
| | Construction impacts | Potentially shorter construction period | | follows the natural boundary potentially longer construction period | |
| | Significant risks | Historical land slip issues | | No significant risks identified | |

| Appleby to Brough | | | | | | |
|---|--|---|---------|--|--|--|
| Consultation Responses Note 1 | | Option I (8C1 & 8A2) | | | | |
| No of members of public who strongly agretotal No. of responses | ee or tend to agree with option relative to | 205/ | /283 | | | |
| No. of members of public who strongly disarrelative to total No. of responses | agree or tend to disagree with option | 20/: | 283 | | | |
| No. of organisations and groups who stron relative to total No. of responses | gly agree or tend to agree with option | 8/2 | 183 | | | |
| No. of organisations and groups who stron relative to total No. of responses | gly disagree or tend to disagree with option | 1/2 | 83 | | | |
| | | Is my preferred option / the best / sensible option / logical choice | 30 | | | |
| Positive key themes r | aised regarding option | Will be safer / improve safety conditions | 27 | | | |
| | | Is necessary - the only possible / available option | 18 | | | |
| | | Will be noisy / increase traffic noise | 6 | | | |
| Negative key themes i | raised regarding option | Will result in land grab - fields / farms / farm land | 5 | | | |
| | | Will provide poor access / connections - local roads / towns / villages | 5 | | | |
| Project Objective | Appraisal Criteria | Stage 1 | Stage 2 | | | |
| | · length of option | 7.6km | | | | |
| · economic growth | · reduction in journey time (compared to Do Minimum) ^{Note 2} | reduction in JT - 1.7 mins | | | | |
| · improve connectivity | · economic benefits (compared to Do Minimum) ^{Note 2} | Option to improve connectivity, though magnitude of impact is unavailable at this stage | | | | |
| improve access for tourism and local services/jobs | | Option to improve access, though magnitude of impact is unavailable at this stage | | | | |
| · improve road safety | safety in operation safety in construction | Option to improve safety in operation, though magnitude of impact is unavailable at this stage | | | | |
| · improve journey time reliability | · improvement in JTR compared to Do Minimum | Option to improve JTR, though magnitude of impact is unavailable at this stage | | | | |
| · improve A66 as strategic connection | · improvement in resilience compared to Do Minimum | Option to improve resilience, though magnitude of impact is unavailable at this stage | | | | |
| · improve resilience | | Option to improve resilience, though magnitude of impact is unavailable at this stage | | | | |
| · improve NMU provision | · opportunities to improve NMU provision | Increased opportunity for grade separated NMU facilities crossing the A66. Greater NMU access between villages available by the utilisation of the de-trunked A66 | | | | |

| · reduce community severance | · reduction in severance | Option improves and reduces the impact of severance by diverting the A66 away from the existing trunk road | |
|---|------------------------------------|--|--|
| | · Landscape | Notable changes to the landscape character of the area immediately surrounding the project | |
| | · Biodiversity | No likely significant impacts. | |
| | · Water environment and drainage | Potential impacts on the floodplains and wider catchment of the Hayber Beck. | |
| | · Cultural Heritage | Potential physical and settings impact on Warcop roman camp. Expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. | |
| minimise environmental impacts and optimise environmental improvement opportunities | · Air quality | Would not result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. | |
| | · Noise | Would increase road traffic noise for receptors between Sandforth and Brough and Great Ormside and Brough. | |
| | · Planning – compliance with NPS | | |
| | Population and Health | Loss of agricultural land, which may impact upon agricultural businesses. | |
| | · Geology and Soils | No likely significant impacts. | |
| | · Climate | No likely significant impacts. | |
| | · Materials | No likely significant impacts. | |
| | Cost of option | £144M | |
| | Land take outside highway boundary | land take required outside of existing boundary | |
| Other criteria | Property demolition | none | |
| | Impact on property | minimal | |
| | Construction impacts | 714 days | |
| | Significant risks | | |

| Bowes Bypass | | | | | | | |
|---|--|--|----------|--|--|--|--|
| Consultation Responses Note 1 | | Option J (10A) | | | | | |
| No of members of public who strongly agre total No. of responses | e or tend to agree with option relative to | 177. | /250 | | | | |
| No. of members of public who strongly disa relative to total No. of responses | gree or tend to disagree with option | 7/2 | 250 | | | | |
| No. of organisations and groups who strong relative to total No. of responses | gly agree or tend to agree with option | 9/2 | 250 | | | | |
| No. of organisations and groups who strong relative to total No. of responses | gly disagree or tend to disagree with option | 1/2 | 250 | | | | |
| | | Is my preferred option / the best / sensible option / logical choice | 46 | | | | |
| | | Will be safer / improve safety conditions | 12 | | | | |
| Positive key themes ra | aised regarding option | Will provide an improved junction - A66 / A67 | 10 | | | | |
| | | Is necessary - the only possible / available option | 5 | | | | |
| | | Will be noisy / increase traffic noise | 5 | | | | |
| Negative key themes r | aised regarding option | Will provide poor access / connections - the Street | 5 | | | | |
| | | Will provide poor access / connections - fields / farms / farm land | 4 | | | | |
| Project Objective | Appraisal Criteria | Stage 1 | Stage 2 | | | | |
| | · length of option | 2.85km | <u>-</u> | | | | |
| · economic growth | · reduction in journey time (compared to Do Minimum) ^{Note 2} | reduction in JT - 0.3 mins | | | | | |
| · improve connectivity | · economic benefits (compared to Do Minimum) ^{Note 2} | Option to improve connectivity, though magnitude of impact is unavailable at this stage | | | | | |
| · improve access for tourism and local services/jobs | | Option to improve access, though magnitude of impact is unavailable at this stage | | | | | |
| · improve road safety | safety in operationsafety in construction | Option to improve safety in operation, though magnitude of impact is unavailable at this stage | | | | | |
| · improve journey time reliability | · improvement in JTR compared to Do Minimum | Option to improve JTR, though magnitude of impact is unavailable at this stage | | | | | |
| · improve A66 as strategic connection | · improvement in resilience compared to Do Minimum | Option to improve resilience, though magnitude of impact is unavailable at this stage | | | | | |
| · improve resilience | | Option to improve resilience, though magnitude of impact is unavailable at this stage | | | | | |
| | · opportunities to improve NMU | All current grade separated crossings | | | | | |

| · reduce community severance | · reduction in severance | All movements catered for at Bowes Junction | |
|---|------------------------------------|--|--|
| | · Landscape | The western end of this section (where the road is already dualled) clips the boundary with the North Pennines AONB. The construction phase would result in notable changes to the landscape character of the area immediately surrounding the project | |
| | · Biodiversity | There are designated sites of international and national importance located within 200m of the proposed option (Bowes Moor SSSI) | |
| | · Water environment and drainage | No likely significant impacts. | |
| minimise environmental impacts and optimise environmental improvement | · Cultural Heritage | The development of this option is expected to result in permanent, negative impacts on the settings of several Archaeological Remains; Historic Buildings and Landscapes potentially decreasing their significance. | |
| opportunities | · Air quality | Option would not result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. | |
| | · Noise | Option would lead to an increase in road traffic noise in Bowes | |
| | · Planning – compliance with NPS | | |
| | · Population and Health | Option would lead to the loss of agricultural land and require the demolition of properties, the disused Bowes Train Station and Low Broats Farm, which may impact upon businesses. | |
| | · Geology and Soils | No likely significant impacts. | |
| | · Climate | No likely significant impacts. | |
| | · Materials | No likely significant impacts. | |
| | Cost of option | £64M | |
| | Land take outside highway boundary | land take required | |
| Other criteria | Property demolition | Option would lead to the loss of agricultural land and require the demolition of properties, the disused Bowes Train Station and Low Broats Farm | |
| | Impact on property | as above | |
| | Construction impacts | 889 days | |
| | Significant risks | | |

| Cross Lanes to Rokeby | | | | | | | |
|---|---|---|--|---|-------------------------|--|--|
| Consultation Responses Note 1 | | Southern Bypass - 0 | Option K (12A) | Online - Option | Online – Option L (12B) | | |
| No of members of public who strongly agree total No. of responses | e or tend to agree with option relative to | 148/277 | | 70/263 | | | |
| No. of members of public who strongly disa to total No. of responses | gree or tend to disagree with option relative | 29/277 | | 89/263 | | | |
| No. of organisations and groups who strong relative to total No. of responses | gly agree or tend to agree with option | 29/277 | | 6/263 | | | |
| No. of organisations and groups who strong | gly disagree or tend to disagree with option | 4/277 | | 3/263 | | | |
| relative to total No. of responses | | Route South of Old Rectory is my preferred | | Route North of Old Rectory is my preferred | | | |
| | | option / the best / sensible option / logical choice | 20 | option / the best / sensible option / logical choice | 9 | | |
| Positive key themes ra | aised regarding option | Route South of Old Rectory will minimise impact on nearby buildings - demolition | 40 | Route North of Old Rectory will be a straighter road / fewer bends | 9 | | |
| | | Route South of Old Rectory will cause less damage to heritage site - Church of St Mary | 12 | Route North of Old Rectory will reduce traffic / ease congestion - Barnard Castle - HGVs / lorries / larger vehicles | 9 | | |
| | | Route South of Old Rectory will provide poor access / connections - Barnard Castle | 6 | Route North of Old Rectory will provide Eastbound movement junction only - Rokeby | 9 | | |
| Negative key themes r | aised regarding option | Route South of Old Rectory will provide too many / superfluous all movement junctions | 2 | Route North of Old Rectory will provide poor access / connections - for HGVs / lorries / larger vehicles - unsuitable / inadequate bridge | 8 | | |
| | | Route South of Old Rectory will be noisy / increase traffic noise | 1 | Route North of Old Rectory will provide poor access / connections - for HGVs / lorries / larger vehicles - unsuitable / inadequate bridge | 7 | | |
| Project Objective | Appraisal Criteria | Stage 1 | Stage 2 | Stage 1 | Stage 2 | | |
| · economic growth | length of option reduction in journey time (compared) | 3.45km | | 3.45km reduction in JT - 0.5 mins | | | |
| | to Do Minimum) ^{Note 2} | reduction in JT - 0.6 mins | | reduction in 31 - 0.5 mins | | | |
| · improve connectivity | economic benefits (compared to Do Minimum)^{Note 2} | No differentiator between the options at this stage | | No differentiator between the options at this stage | | | |
| improve access for tourism and local services/iobs | | No differentiator between the options at this stage | | No differentiator between the options at this stage | | | |
| · improve road safety | safety in operation | No differentiator between the options at this stage | erentiator between the options at this | | | | |
| · improve journey time reliability | safety in construction improvement in JTR compared to Do | No differentiator between the options at this | | stage No differentiator between the options at this | | | |
| · improve A66 as strategic connection | Minimum improvement in resilience compared | stage No differentiator between the options at this | | stage No differentiator between the options at this | | | |
| · improve resilience | to Do Minimum | stage No differentiator between the options at this | | stage No differentiator between the options at this | | | |
| · improve NMU provision | · opportunities to improve NMU provision | stage Increased opportunity for grade separated NMU facilities crossing the A66 | | stage Increased opportunity for grade separated NMU facilities crossing the A66 | | | |
| · reduce community severance | · reduction in severance | No notable preference between either option | | No notable preference between either option | | | |
| , | · Landscape | No likely significant impacts. | | No likely significant impacts. | | | |
| | Biodiversity | No likely significant impacts. | | No likely significant impacts. | | | |
| | · Water environment and drainage | May have a direct impact on the Tutta Beck and River Greta and their associated floodplains. | | May have a direct impact on the Tutta Beck and River Greta and their associated floodplains. | | | |
| | · Cultural Heritage | Could have a settings impact on the Greta Bridge Roman Fort and Rokeby Park. | | Could have a settings impact on the Greta Bridge Roman Fort and Rokeby Park. Potential significant impacts on Church of St Mary and two milestones. | | | |
| minimise environmental impacts and optimise environmental improvement opportunities | · Air quality | Would not result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. | | Would not result in an exceedance of the AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available information. | | | |
| | · Noise | Increase in road traffic noise for receptors along the existing A66. | | Increase in road traffic noise for receptors along the existing A66. | | | |
| | · Planning – compliance with NPS | No differentiator between the options at this stage | | No differentiator between the options at this stage | | | |
| | Population and Health | Would lead to the loss of agricultural land and require the demolition of a residential property (The Old Rectory) | | Would lead to the loss of agricultural land, which may impact upon businesses. | | | |
| | Geology and Soils Climate | No likely significant impacts. No likely significant impacts. | | No likely significant impacts. No likely significant impacts. | | | |
| | Materials | No likely significant impacts. | | No likely significant impacts. | | | |
| | Cost of option | £71M | | £60M | | | |
| | Land take outside highway boundary | Greater land take required | | less land take required Old rectory | | | |
| Other transfer | Property demolition | No notable preference between either option | | Old rectory No notable preference between either option | | | |
| Other criteria | Impact on property Construction impacts | No notable preference between either option 662 days | | No notable preference between eitner option 641 days | | | |
| | Significant risks | No significant risks identified | | Potential issue for HGVs needing to travel WB when egressing from Barnard Castle junction | | | |

| Statistics Representation Companies of the Companies | Stephen Bank to Carkin Moor | | | | | | | |
|--|---|---------------------------------------|--|---------|--|-----------------------------|---|---------|
| Part | Consultation Responses Note 1 | | Southern Bypass - Option M (14A) | | Northern Bypass – Option N (14F) | | Hybrid – Option O (14G) | |
| Page 12 Page | No of members of public who strongly agree or tend to agree with option relative to | | 112/301 | | 150/306 | | 32/278 | |
| The content of the first displaced in the property of the present of the presen | No. of members of public who strongly disa | agree or tend to disagree with option | 79/204 | | ERIONA | | 122/270 | |
| ## A Composed late of process and many states and the design with the design of the composition for many states and many state | relative to total No. of responses No. of organisations and groups who stron | | | | | | | |
| Property | No. of organisations and groups who stron | oly disagree or tend to disagree with | | | 14144 | | | |
| Produce for from some regarding option Produc | option relative to total No. of responses | | | | | I . | | |
| Positive to the manuface rigarding sparing of comments of the | | | scheduled monument - Roman Fort / | 41 | Is my preferred option / the best / sensible option / logical choice | 28 | Is my preferred option / the best / sensible option / logical choice | 4 |
| Project Objective Appelland his property from the property from t | Dealthin from themse are | aload recording antion | | 16 | Will be quieter / reduce traffic noise | 15 | | 1 |
| Region lay Personal Crisina and Control Cond Annual Acquired Internal Stage 2 Annual Crisina and England Control Contr | Positive key trieffles to | aised regarding option | | 7 | | 13 | Will minimise impact on nearby people / communities - Gilling West | 1 |
| Will be roundy received regarding option Froged Chipactive Approisal Ciferia in Figure 2 in Stage 2 in Stage 2 in Stage 2 in Stage 3 in Stage 2 in Stage 3 in Stage 2 in Stage 3 in Stage 4 in Stage 3 in Stage 4 in Stage 3 in Stage 3 in Stage 3 in Stage 4 in Stage 3 in Stage 4 in Stage 3 in Stage 3 in Stage 4 in Stage | | | Will cause less disruption / fewer delays - to traffic flow during construction | 6 | Mainsgill Farm Shop | 13 | | |
| House of the miles | | | | 9 | scheduled monument - Roman Fort / prehistoric settlement | 7 | Will not be a straight road / too many bends | 8 |
| Frequency Collective - excounse growth - improve connections - im | Negative key themes r | aised regarding option | Mainsgill Farm Shop | 4 | bends | 2 | · | 8 |
| Segret of regions Substitution | | | bridleways / equestrian provision / crossing points - Mainsgill Farm | | deliver | | local roads in close proximity | - |
| So Districtural formation of the Control of Tr. 1 arms reprine controlls reprine contro | Project Objective | | | Stage 2 | | Stage 2 | | Stage 4 |
| regione connectionly touchespeed to the control of | · economic growth | reduction in journey time (compared | | | | | | |
| in grown accords for Southmen de control and train tour de referenche or specimen at the control and the contr | · improve connectivity | economic benefits (compared to Do | | | | | No differentiator between the options at this stage | |
| and processes and design in operations of the stage in construction to stage in construction of the stage in | | Minimum)**** | No differentiator between the options at this | | No differentiator between the options at this | | No differentiator between the antions at this stone | |
| improve promy firm reliability improve A66 as strategy controlled to the provided to the prov | | | No differentiator between the options at this | | No differentiator between the options at this | | | |
| International provisions Improve MALI provision Impr | | | • | | 9 | | ' ' | |
| sequence of the contraction of the stage of the contraction of the contract of | | Minimum | stage | | stage | | | |
| improve NaMU provision improv | | to Do Minimum | stage | | stage | | No differentiator between the options at this stage | |
| Interest NAU provision organization for the decidence consensing the AGE design for the contraction of the decignated and reduces the impact of severance by desiring the AGE away from to current certain position Treduction in severance organization of the decignated and reduces the impact of severance by desiring the AGE away from to current certain position to | · improve resilience | | | | | | No differentiator between the options at this stage | |
| reduce community severance reduction in severance by deverting the A68 away from its current certain position in severance by deverting the A68 away from its current certain position in severance by deverting the A68 away from its current certain position in severance by deverting the A68 away from its current certain position in severance by deverting the A68 away from its current certain position in severance by deverting the A68 away from its current certain position in severance by deverting the A68 away from its current certain position in severance by deverting the A68 away from its current certain position. Landscape No likely significant impacts. There are no designated sites of international and severance by deverting the A68 away from its current certain position. There are no designated sites of international and severance of the A68 and the A68 away from its current certain position. A 8 Sci-) located within 200m of Option of Cystion of Sisting and the A68 away from its current certain position. A 9 Side of Sisting and Sisting | · improve NMU provision | | Increased opportunity for grade separated NMU facilities crossing the A66 | | NMU facilities crossing the A66. Greater NMU access between Ravensworth and Fox Hall available by the utilisation of the de-trunked A66 | | Increased opportunity for grade separated NMU facilities crossing the A66. | |
| Biodiversity immediated and application (SSS) and immediated and produced (SSS) and (S | · reduce community severance | | severance by diverting the A66 away from its current central position | | severance by diverting the A66 away from its current central position Option to the north maintains access to Ravensworth via de-trunked A66. | | severance by diverting the A66 away from its current central position | |
| Biodiversity international and rational migrotationes (SSSI a SAC) located within 20th of Option SAC SAC SAC SAC SAC SAC SAC SAC | | Landscape | | | | | | |
| Cultural Heritage Pesistoric settlement. Provided not result in in prysical impacts to the format provided impacts to the format provided impacts and committee environmental impacts and committee environmental impacts and committee environmental impacts and committee environmental improvement of the currently and the currently available information. Air quality A | | · Biodiversity | international and national importance (SSSI | | international and national importance (SSSI | | national importance (SSSI & SAC) located within | |
| Cultural Heritage Prelistation settlement. Would not result in an exceedance of the AGS objectives for NO2 and PM10 and impacts and optimise environmental imports and optimise environmental imports are not considered to be significant, based on the currently available appointment of the AGS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available significant, based on the currently available information. Noise Violat increase most inflict noise at noise sensitive exceptors in Dation, Gilling West and Reversionship. Planning – compliance with NPS stage Population and Health which may impact upon agricultural land, which may imp | | | | | | Would maintain the historic | | |
| AS objectives for NO2 and PM10 and impacts an adoptimise environmental impacts and optimise environmental impacts and opt | | · Cultural Heritage | Prehistoric settlement. | | Roman Fort and Prehistoric settlement. | alignment of the Roman | and Prehistoric settlement. | |
| Noise Sensitive receptors and traffic noise at noise sensitive sessitive receptors and traffic noise at noise sensitive sessitive receptors and preceptible decreases Planning—compliance with NPS Planning—compliance with NPS Would lead to the loss of agricultural land, which may impact upon agricultural land, which may i | optimise environmental improvement | · Air quality | AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available | | AQS objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently available | | objectives for NO2 and PM10 and impacts are not considered to be significant, based on the currently | |
| Francey - Compandes with NPAS stage State State No conterestable frequent to options at this stage Noul sead to the loss of agricultural land, which may impact upon agricultural land, which may impact upon agricultural land, which may impact upon agricultural business. Geology and Soils No lively agricultural land, which may impact upon agricultural business. No lively applicant impacts. No lively applicant impact | opportunities | · Noise | Would increase road traffic noise at noise sensitive receptors in Dalton, Gilling West and Ravensworth. | | Would result in increased road traffic noise at West Layton and perceptible decreases at Ravensworth | | | |
| Population and Health business. busi | | Planning – compliance with NPS | | | | | No differentiator between the options at this stage | |
| Geology and Soils No likely asynificant impacts. No likely significant impacts. Climate No likely asynificant impacts. No likely significant impacts. Materials No likely asynificant impacts. No likely significant impacts. No likely asynificant impacts. No likely significant impacts. No likely asynificant impacts. | | Population and Health | which may impact upon agricultural | | | | Would lead to the loss of agricultural land, which may impact upon agricultural business. | |
| Materials No likely significant impacts. No likely significant impacts. No likely significant impacts. Cost of option £110M £114M £ | | | No likely significant impacts. | | | | | |
| Cost of option £110M £114M Land take required Land take required Land take required Land take required Expression from the property demolition none from from from from from from from from | | | | | | | | |
| Other criteria Property demolition none none none none none none none n | | Cost of option | £110M | | £114M | | | |
| Other criteria Impact on property benefits to properties currently fronting onto A66 onto A66 Construction impacts 1:00 days 561 days 11044 days | | | | • | | | | |
| ringue, or property one A68 Onemas as properties currently dross year. Construction impacts 1000 days 68 days. Construction impacts 1000 days 1014 days. | Other criteria | , | benefits to properties currently fronting | | benefits to properties currently fronting | | none | |
| | | 1 117 | onto A66 | | onto A66 | | 7 7 7 | |
| Significant (1988 none none none | | Significant risks | none | | none | | none | |

A66 Northern Trans-Pennine Project Scheme Assessment Report



APPENDIX C

Hazard Elimination Schedule

Scheme Title A66 Northern Trans-Pennine - Stage 2 Optioneering CDM Hazard Elimination & Constraint Schedule Review Tracker

| Review Date | Version Track | Update By: Provide phase & | Category | Activity or Element if appropriate | Location Name (Please be | Summary of Key Changes or Update | Comments |
|-------------|--|----------------------------------|----------|--|--------------------------------------|--|----------|
| 04/01/2017 | | Arcadis | General | Southern | A66 | Initial population based on hazards identified during Hazard | |
| 04/01/2017 | 1 | (Stage 1) | General | Options | Northern Trans- Pennine | Identification Workshop on 04/01/17 - e.g. | |
| 13/11/17 | 2 | Arcadis (Stage 1) | General | Options | A66 Northern Trans- Pennine | General update | |
| 21/02/2018 | 3 | Arcadis (Stage 1) | General | Options | A66 Northern Trans- Pennine | Split into General Long - Short List option Risks | |
| 14/03/2018 | 3 | Arcadis (Stage 1) | General | Options | A66 Northern Trans- Pennine | Design Hazard Review Meeting | |
| 25/04/2018 | 3 | Arcadis (Stage 1) | General | Options | A66 Northern Trans- Pennine | Design Hazard Review Meeting | |
| 07/06/2018 | 3.1 | Arcadis (Stage 1) | General | Options | A66 Northern Trans- Pennine | Design Hazard Review Meeting and Stats input | |
| 11/07/2018 | 3.1 | Arcadis (Stage 1) | General | Prep For TAR | A66 Northern Trans- Pennine | Design Hazard Review Meeting | |
| 03/10/2018 | 4 | Arcadis (Stage 1) | General | Post TAR Review | A66 Northern Trans- Pennine | Design Hazard Review Meeting - Post TAR Actions | |
| 15/10/2018 | 4.1 | Arcadis (Stage 1) | General | Post TAR Review | A66 Northern Trans- Pennine | Design Hazard Review Meeting | |
| 24/03/2019 | 4.2 | Arcadis (Stage 2) | General | Version to be transferred to GIS | A66 Northern Trans- Pennine | Design Hazard Review Meeting - update - GIS Transitional | |
| 24/04/2019 | 4.3 | Arcadis (Stage 2) | General | Version to be transferred to GIS | A66 Northern Trans- Pennine | Design Hazard Review Meeting - update - GIS Transitional | |
| 20/09/2019 | 5 | Arcadis (Stage 2) | General | CSV copy from GIS | A66 Northern Trans- Pennine | Interim HES for Stage 3-5 Preparation | |
| | | | | | | | |
| | | | | | | | |

- INSTRUCTIONS
 1.0 Introduction
 1.1 The CDM Hazard Elimination Schedule (HES) assists the Principal Designer, Principal Contractors, Designers and
 - 1.2 The HES should not be confused with the 'Hazard Log' & 'Hazard Log Report' which are a PCF Product produced and
 - 1.3 The HES should not include general or generic hazards that a reasonably competent contractor would be expected to
 - 1.4 The HES provides a record of actions taken by Designers to apply the principles of prevention and protection during design.
 - 1.5 This information will assist duty holders in ensuring that throughout the design stage residual risks are highlighted and

Designers:
Hazard elimination / reduction construction sequence, materials section, notes on drawings and specifications.

Principal Contractor:
Use of information received, management of H&S and residual risks, construction methodology, inform contractors.

Principal Designer:
Ensuring hazard and constraint identification and residual risks are transferred to Principal Contractor, Specialist Contractors and

Operators: Use of information by those who need it

2.0 Hazard Checklist
2.1 The checklist is an aid to the designer when considering hazards. The list is not exhaustive.

- 3.0 CDM HES
 3.1 the CDM Schedule is split vertically into three parts

 Design Stage hazard and constraint identification, elimination or reduction

 Construction Stage management and Control of residual hazards

 Client / Principal Designer Closeout for Operation & Maintenance 3.2 The CDM HES is also split into separate worksheets as appropriate to the scheme, typically: Instructions Despiritizard Checklist Project Specific Hazards and Constraints Dashboard

- 4.0 Ownership & Responsibility
 4.1 the CDM HES will be controlled and reviewed by the Designer on a monthly basis (or other agreed period).

 Principal Designer

 Ensuring the CDM HES is completed and all parties contribute

 Coordinating the transfer of Information between parties:

 Designer to Principal Contractor (Pre-Construction Information)

 Principal Contractor to Manitainer & Operator (Health & Safety File, O&M Manual)

 Reporting any deficiencies to the Scheme Client Project Manager

- Identifying Hazards and constraints
 Elliminating & Reducing hazards through the design stage
 Updating & maintaining the CDM Schedule
 Communicating information on residual hazards to the Principal Contractor

In addition we request Designers to undertake the following as part of their designs:

- Principal Contractor

 Contributing to the reduction or elimination of hazards through the detailed design stage (buildability reviews

 Updating the CDM Schedule to consider hazards identified during any Contractor design (eg temporary

 Distribution of the CDM Schedule, following input and updating, to those concerned within the contractor's
- 4.2 The above is an aid to manage the CDM Schedule, all parties should be aware of their duties under the CDM Regulations http://www.hise.gov.uk/construction/cdm.htm

5.0 Design Risk Ratings

5.1 Hazard and constraint identification should be undertaken prior to commencement of the design and then throughout the life

5.2 An assessment matrix is used to define the Risk Rating (Risk Rating = Likelihood x Severity)

- The assessment is carried out in several stages:
 Initial Hazard or constraint Rating prior to design measures to eliminate or reduce
 Residual Hazard or Constraint Rating post design measures
 Reduck Hazard or Constraint Rating post construction measures

5.4 Likelihood is a function of frequency of exposure and number people involved

| LIKELIHOOD | Remote | Occasional | Average | Frequent | Probable |
|------------|--------|------------|---------|----------|----------|
| SCALE | 1 | 2 | 3 | 4 | 5 |

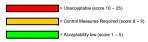
5.5 Severity in relation to the likely personal injury to result from the hazard occurring

| HAZARD SEVERITY | DESCRIPTION | SCALE | |
|-----------------|-----------------------|-------|--|
| Very Low | First aid on site | 1 | |
| Low | Treatment on site | 2 | |
| Moderate | Up to 3 days off work | 3 | |
| High | Major Injury | 4 | |
| Very High | Death | 5 | |

| CONSTRAINT RATING | DESCRIPTION | SCALE |
|-------------------|--------------------|-------|
| Very Low | As set out in PSSR | 1 |
| Low | or EAR | 2 |
| Moderate | | 3 |
| High | | 4 |
| Very High | | 5 |

5.6 Assessment Matrix





6.0 Information to be provided on the Drawings
6.1 The designer has a duty to provide information on residual risks to the principal contractor. Where appropriate this



8.0 Background Information
 8.1 The following table shows examples of Hazard and Risks

| HAZARD | RISK |
|-------------------------|--------------------------|
| Height | Falling |
| Falling objects | Being hit |
| Moving vehicles | Entrapment or crushing |
| Electricity | Electrocution |
| Water | Drowning |
| Trip Hazards | Slips Trips and Falls (S |
| Poor Lighting | ST&F, Sight loss |
| Collapsing ground | Engulfment, asphyxiation |
| Fire & explosion | Burns or asphyxiation |
| Collapsing ground | Engulfment, asphyxiation |
| Fire & explosion | Burns or asphyxiation |
| Hazardous substances | Sickness, skin complain |
| Pressure Systems | Several, according to |
| Noise | Hearing loss |
| Dust | Sickness |
| Confined Space | Asphyxiation |
| Irrespirable atmosphere | Asphyxiation |
| Inundation | Drowning |
| lonicing radiation | Cicknoon |

| Code | Volume codes Description |
|------------|--|
| G | GENERAL Scheme wide generic |
| GEN | information |
| GHS | Health and Safety |
| Н | HIGHWAYS |
| HAC | Highway Approvals & Consents Accommodation |
| HAW | Works |
| HDG | Drainage |
| HEI | Power / Electrical |
| HFE HGT | Fencing |
| HGN | Geotechnical General |
| HKF | Kerbe Ecotuate and |
| HLG | Paved Areas |
| | Road Lighting Motorway |
| HMC | Communications |
| HMK | Road Markings Mainline Geometric |
| HML | Layout |
| HPV | Road Pavements Road Restraint |
| HRR | System (Vehicle and |
| | Pedestrian) |
| HSC HSN | Site Clearance Traffic Signs |
| HSR | Side Roads |
| | Geometric Layout |
| S | STRUCTURES Bridges and Major |
| SBR | Bridges and Major Culverts |
| SGN | General |
| SGT | Geotechnical |
| SMA | Gantries Masts |
| SMN | Minor Structures and |
| SRW | Culverts Petaining Walls |
| SSP | Retaining Walls Special structures |
| STU | Tunnels |
| E | ENVIRONMENT Environmental |
| EAC | Approvals & |
| | Consents |
| EAQ FBD | Air Quality Biodiversity |
| EGN | General |
| EGT | Geology and Soils |
| EHR | Heritage/Historic resources |
| ELS | Landscape |
| ENM | Non-Motorised Users |
| ENV | Noise & Vibration |
| ETS | Townscape |
| EWE | Water Environment |
| VAC | SURVEY |
| VAB VAS | Asbestos survey Accident Statistics |
| VDS | Drainage Survey |
| VES | Environmental Survey |
| VGN | Survey General |
| VGT | Geotechnical |
| | Investigation National Road |
| VNR | Telecommunications |
| VDC | Services (NRTS) |
| VPS | Pavement Systems Structures |
| VSM | management |
| VSS | Stakeholder Surveys |
| VTO | Topographical |
| VTR | Traffic Survey |
| VUT L | Utilities |
| | LEGAL |
| | Statutory Instruments |
| LSI | |
| | Land Ownership |
| LSI | |
| LSI LLO | Land Ownership Boundaries |

| Asphyxiat | ion | | | | | | | |
|----------------------|--------------------------|------------|------------|-----------|--------|-------|------------------|---------------------------------|
| Drowning Sickness | | | | | | | | |
| Sickriess | | J | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Category | General | Highways | Structures | Environme | Survey | Legal | Temporar Traffic | Economic Stakeholder Engagement |
| | | | | | | - | | |
| General | GEN | HAC | SBR | EAC | VAB | LSI | TTM | |
| Highways | GHS | HAW | SGN | EAQ | VAS | LLO | TTW | |
| Structures | | HDG | SGT | EBD | VDS | | | |
| | | | | | | | | |
| Environme | ent | HEL | SGY | EGN | VES | | | |
| | | | | | | | | |
| Survey | | | | | VGN | | | |
| Legal | | HGT | | EHR | VGT | | | |
| Temporar | | | | | VNR | | | |
| | | | | | VPS | | | |
| | | | | | VSM | | | |
| | | HMC | | ETS | VSS | | | |
| | | нмк | | EWE | VTO | | | |
| | | HML | | | VTR | | | |
| | | TIME | | | VIIN | | | |
| | | HPV | | | VUT | | | |
| | | HRR | | | | | | |
| | | | | | | | | |
| | | HSC | | | | | | |
| | | HSN | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | HSR | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | Sections | Sub-Scheme | Status | | | | | |
| | All | A66 NTPP | Open | | | | | |
| | | | | | | | | |
| | Section 1 | | Closed | | | | | |
| | Section 2 | | | | | | | |
| | Section 3 | | | | | | | |
| | Section 4 | | | | | | | |
| | Section 5 | | | | | | | |
| | Section 6 | | | | | | | |
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Hazard Elimination and Residual Risk Register

Designer's Hazard Checklist

Notes

- votes:

 The following Designers Hazard Checklist allows identification of a number of potential hazards that may be present in a generic Highways setting. Each discipline is required to develop and maintain the Designers Hazard Checklist that reflects potential hazards likely to be encountered in the setting or industries in which the scheme will be delivered.
- The list of potential hazards is not exhaustive. For each new project the entire checklist should be reviewed by competent staff as part of a mini workshop or brainstorming exercise to help prompt the identification of hazards in addition to those listed or already considered during an earlier review.
- An individual hazard or an entire section may be marked as not applicable. This records that the hazard area has been considered and judged it to be not applicable.
- 4. All hazards that may result in a medium to high risk rating must be thoroughly assessed and recorded in the Project Specific Hazard and Residual Risk Register Tab.
- Low risk hazards are those that should they occur/be realised may result in at worst first aid treatment only or no damage to assets. Low risk hazards therefore potentially generate Occupational Health Issues which should be considered during the design development process. Key elements are highlighted in brown. Design teams should evidence below which work activities will generate OHH's, what has been considered and their impact will be managed and reduced during project delivery.

| Potential Hazards Arising From: | Comments |
|---|----------|
| Regulation 12(2) - Work involving particular risks (Schedule 3 CDM 2015 / Schedule 4 CDM (NI) 2016) | |
| 1. Work which outs workers at risk of burial under earthfalls, enoulfment in swampland or falling from a height, where the risk is particularly appraisated by the nature of the work or | |
| processes used or by the environment at the place of work or site. | |
| 2. Work which puts workers at risk from chemical or biological substances constituting a particular danger to the health or safety of workers or involving a legal requirement for health | |
| monitoring. | |
| Work with ionising radiation requiring the designation of controlled or supervised areas under regulation 16 of the Ionising Radiations Regulations. | |
| Work near high voltage power lines. | |
| Work exposing workers to the risk of drowning. Work on wells, underground earthworks and tunnels. | |
| work on weils, underground earnworks and uurnes. Work carried out by divers having a system of air supply. | |
| 7. VOIX Carried out by workers in caissons with a compressed air atmosphere. | |
| 9. Work involving the use of explosives. | |
| 10. Work involving the assembly or dismantling of heavy prefabricated components. | |
| | |
| | |
| | |

Risk (without designer's elimination / management measures)

| Ref: | | N/A | Low- explain in comments. | Med/High - transfer to Project Specific Hazard and Residual Risk Register | Designer OHH Action | Comments |
|--------------|---|-------|---------------------------|---|------------------------|---|
| 1 | Existing Constraints | | | | | |
| 1.1 | Existing buildings / adjacent walls / structures | | | Yes | | Residential and agricultural properties may require demolishion |
| 1.2 | Adjacent Land uses / property types | | | Yes | | Residential, agricultural and industrial properties |
| 1.3 | Verges / hedges / ditches / overhanging trees | | Yes | | | Present along all new alignments |
| 1.4 | Adjacent roads / junctions / rdbts etc. | | | Yes | | Existing junctions / carriageways to be modified and incorporated within new alignment |
| 1.5 | Levels of illumination (street lighting) | | Yes | | | Existing carriageway lighting is present in some location |
| 1.6 | Impaired visibility (geometry / furniture etc.) | | | Yes | | Potentially at some locations |
| 1.7 | Cellars / basements / subways etc. | | | Yes | | Limited - check via survey |
| 1.8 | Traffic | | | | | |
| | Volume (tidal / shift orientated) | No | | | | |
| | Type (buses / HGVs etc.) | | | Yes | | This will be an issue to high volumes of HGV and plant movements required as a result of the works |
| | Speeds | | | Yes | | Speed on existing sections vary from 40-70mph |
| | Bus Route / wide load route / EDR | | | Yes | | Liaison taking place with LA's and Bus operators |
| | Accident 'hot-spots' | | | Yes | | Review figures |
| 1.9 | Pedestrians | | | | | |
| | Crossing points (type of crossing) | | | Yes | | Confirm all locations |
| | School crossing patrol | NA NA | | | | Check |
| | Footway availability | | | Yes | | Check |
| | Disabled facilities / access | | | Yes | | Check |
| 1.10 | arrangements Access restrictions | | | | | |
| 1.10 | One way / Prohibited | No | | | | Check |
| | movements | | | | | |
| | Weight / width / height | No | | | | Check - diversion route only |
| | Geometry / Layout restrictions | | | Yes | | Captured in DSR |
| | On-street Parking / driveways | | Yes | | | Potential access issues |
| | Deliveries | | | Yes | | Delveries to local residents, forms, industry. Location of site |
| 1.11 | Railways (level crossings / bridges | NA | | | | compound and storage areas to be considered |
| 1.12 | etc.) Bridleways / Public Rights of way | | | Yes | | Suitable diversions to be put in place |
| 1.13 | Lakes, Rivers and Streams etc. | | | Yes | | Proximity to works, depth of water, risk of flooding to be considered |
| 1.14 | Ground conditions: | | | | | |
| •••••• | Contamination | | | Yes | Yes | Propose carriageway alignment passes through brown field sites which may contain hazardous residue |
| l | Ground water | | | Yes | Yes | Localised issues to consider |
| <u> </u> | Instability | | | Yes | Yes | |
| | Archaeology / SSSI / reserve | | | Yes | | Archaeology sites identified and subject to further investigation - may form constraint to works |
| | Mineral / mine workings | | | Yes | | Mineworking's are an issue at |
| | Previous land uses | | | Yes | | Captured in PCI |
| 1.15 | Working with others (i.e. sharing site) | | | Yes | Yes | Extensive stats diversions required - particularly adjacent Underpass |
| 1.16 | Hazardous / Fragile materials | | | Yes | Yes | Asbestos likely to be present in demolition properties and existing highway infrastructure - Testing Required - SAMP to be produced |
| 1.17 | Restricted working hours (nights etc.) | | Yes | | Yes | Potentially in areas close to residential areas |
| 1.18 1.19 | Occupied Properties Topography | | | Yes Yes | | Work will come close to existing properties Site exposed, hilly and crosses many water features |
| | | ! | | ļ | | |

| 2 | Existing Services | | | | |
|------------|--|----------|------|----------|--|
| 2.1 | Underground | | | | Trial holes required, stats plans, inclusion in PIM |
| | Electrical (SU & private) | | Yes | | C2, C3 and C4 process to be followed |
| •••••• | Gas (low and medium | | Yes | | C2, C3 and C4 process to be followed |
| | pressure) Fuel Pipelines / High | | Yes? | | |
| | Fuel Pipelines / High pressure Gas Mains | | tesr | | |
| • | Water | | Yes | | C2, C3 and C4 process to be followed |
| | Telecommunications | | Yes | | C2, C3 and C4 process to be followed |
| •••••• | Other | NA | | | |
| 2.2 | Overhead Services | | | | Headroom's to be considered |
| ••••• | Electrical | | Yes | | C2, C3 and C4 process to be followed |
| | Telecommunications | | Yes | | C2, C3 and C4 process to be followed |
| 3 | Excavations (Highway /Geotech | | | | |
| • | / Landscaping Team) | | | | |
| 3.1 | Deep excavations | | Yes | Yes | Balance of cut and fill to be considered Excavation in deep cutting - dust issues |
| 3.2 | Interface with services / drainage | | Yes | Yes | |
| 3.3 | Slope / ground stability | | Yes | Yes | Working on steep slopes. Limiting OHH exposure |
| | | | | | be considered during design process - At PC hand |
| | | | | | to demonstrate residual issues captured within get Site specific procedures |
| 3.4 | Ground water / water courses | | Yes | Yes | Working adjacent deep water. Limiting OHH expos |
| | | | | | issues to be considered during design process - A |
| | | | | | handover PC to demonstrate residual issues captu within generic / Site specific procedures |
| 3.5 | Plant movements | | Yes | Yes | Bulk excavation required - considerable plant move |
| 0.0 | T ILLIK THOTOTHORIO | | | | Limiting OHH exposure issues to be considered d |
| | | | | | design process - At PC handover PC to demonstrate residual issues captured within generic / Site spec |
| | | | | | procedures |
| 3.6 | Storage / disposal of material | Yes | | | Storage areas and security to be considered acros extended working areas |
| 3.7 | Vibration though compaction | | | | exerced working areas |
| | Adjacent buildings / cellars / | | | Yes | |
| | walls etc. | | | | |
| 2.0 | Buried services (refer 2.1) | | Yes | Yes | Ref 2.1 |
| 3.8 3.9 | Unplanned settlement | Yes | | <u> </u> | Provide monitoring on affected premises Ref 1.14 |
| 3.9 | Contamination (ground / water) (refer 1.14) | | | Yes | Kel 1.14 |
| 3.10 | Tree roots | Yes | | <u> </u> | Limited |
| 3.11 | Adjacent structures (refer 1.8) | Yes | | <u> </u> | Ref 1.8 |
| 3.12 | Confined Space Conditions | <u> </u> | Yes | <u> </u> | See Drainage, Structures and demolition section |
| | | | | | |

| Į. | (Highways / Pavement Team) | | | | | Limiting OHH exposure issues to be considered duri design process - At PC handover PC to demonstrate residual issues captured |
|------|---|----------|-----|-----|----------|--|
| 4.1 | Adequate safety zones (centre line working) | NA | | | | |
| 4.2 | Coal Tar | | | Yes | Yes | Testing required - See 184 |
| 4.3 | Surfacing Materials (hot materials) | | Yes | | Yes | PC to provide evidence of operational procedures |
| 4.4 | Dust / noise / vibration | | Yes | | Yes | PC to provide evidence of operational procedures |
| 4.5 | Hot Materials (bitmac / thermo / | | Yes | | Yes | PC to provide evidence of operational procedures |
| | tack coat) | | | | | |
| 4.6 | Temporary road surfaces | | Yes | | Yes | PC to provide evidence of operational procedures |
| 4.7 | Haul routes | | | Yes | | Careful planning will be required. Balance of cut an be considered |
| | Holding / storing of lorries on site | | Yes | | | Designers to consider within DCO land boundaries PC to provide evidence of operational procedures |
| 4.9 | Delivery / storage of plant / offices on site etc. | | Yes | | | Designers to consider within DCO land boundaries PC to provide evidence of operational proceduresP provide evidence of operational procedures |
| 4.10 | Separating Public from the works | | Yes | | | Designers to consider with builability contractor PC to provide evidence of operational procedures |
| 4.11 | Impeding visibility (plant / stores / offices etc.) | | Yes | | | PC to provide evidence of operational procedures |
| 4.12 | Joints / vertical level differences | | Yes | | | PC to provide evidence of operational procedures |
| 4.13 | Removal of road markings / studs / A skid | | Yes | | | PC to provide evidence of operational procedures |
| 4.14 | Raised ironwork / increased kerb up-stands | | Yes | | | PC to provide evidence of operational procedures |
| 4.15 | Planing out signal / detector loops | | Yes | | | PC to provide evidence of operational procedures |
| 4.16 | Skid resistance of new surfaces | | Yes | | | Design to consider |
| | | | | | | , , |
| 5 | Kerbing / Footways (Highways Team) | | | | | |
| 5.1 | Manual handling | | Yes | | Yes | Designer to consider access arrangements for plate Placement of Kerbing, Flagging etc. PC to provide of operational procedures |
| 5.2 | Excavation (refer to 3) | | Yes | | | PC to provide evidence of operational procedures |
| 5.3 | Services (refer to 2) | | Yes | | | PC to provide evidence of operational procedures |
| 5.4 | Cutting operations / noise / dust | | Yes | | Yes | Can pre-fabricated units be constructed and brougl to minimise exposure? Cutting of concrete projects. PC to provide evidenc operational procedures |
| 5.5 | Maintaining access | | | Yes | | To be considered during design development |
| 5.6 | Pedestrian management (refer to | | | Yes | | To be considered during design development |
| 5.7 | Existing constraints (refer to 1) | ····· | Yes | | | PC to provide evidence of operational procedures |
| 5.8 | Temporary surfaces / raised ironwork etc. | | Yes | | | PC to provide evidence of operational procedures |
| 5.9 | New / altered geometry | | Yes | | | PC to provide evidence of operational procedures |
| 5.10 | Location of storage areas | | Yes | | <u> </u> | PC to provide evidence of operational procedures |
| 5.11 | Materials | • | Yes | | | PC to provide evidence of operational procedures |
| 6 | Drainage and Ducting Works | | | | | |
| 6.1 | (Drainage/Highways Team) Excavations / Ground conditions / | | | Yes | Yes | Working adjacent aqueduct, overheads |
| 6.2 | Instability | | Yes | | Yes | Can pre-fabricated units be constructed and brough |
| | Confined spaces | | | | | to minimise exposure? PC to provide evidence of operational procedures |
| 6.3 | Leptospirosis / Hepatitis B / Tetanus etc. | | Yes | | Yes | PC to provide evidence of operational procedures |
| 6.4 | Existing services | | Yes | | Yes | PC to provide evidence of operational procedures |
| 6.5 | Manual handling | | Yes | | Yes | PC to provide evidence of operational procedures |
| 6.6 | Lifting operations | | Yes | | Yes | PC to provide evidence of operational procedures |
| 6.7 | Cutting Operations | | Yes | | Yes | Can pre-fabricated units be constructed and broug to minimise exposure? |
| 3.8 | Future Maintenance | | Yes | | Yes | PC to provide evidence of operational procedures Designers to consider future maintenance arrange |
| 6.9 | Sewage | | Yes | | Yes | PC to provide evidence of operational procedures |
| 6.10 | Traffic | | | | | PC to provide evidence of operational procedures |
| 6.11 | Contamination (ground / water / | | Yes | | Yes | PC to provide evidence of operational procedures |
| 6.12 | sewage) Removal of contaminated | | Yes | | Yes | Testing required. PC to provide evidence of operati |
| 6.13 | materials Hazardous gases | <u> </u> | Yes | | Yes | PC to provide evidence of operational procedures |
| 6.14 | Testing operations | | | 1 | | , |
| | Adjacent structures/activities | | | | | |

| Medicant of Bestived Lighting Feed 1 Personal Control Personal Co | | | | | | | |
|--|--------------|--|-------|------|-----|------|---|
| International Continues of Part 1 Yes Continues of Part 2 Yes Yes Continues of Part 2 Yes Yes | 7 | Technology / Street Lighting / | | | | | |
| Property Terring Property P | | | | | | | |
| Best of the control (1982 2) Control of Foliage (1982 2) Description (1982 2) Descrip | | | | | | | |
| Best of the control (1982 2) Control of Foliage (1982 2) Description (1982 2) Descrip | 7 1 | Positioning of columns | | | | | |
| Contributed Jalapsens Services (Contributed Jalapsens Services | | | | Yes | | | Columns to be located away from underground service |
| Contraction of protection of p | | | | | | | identified from utilise drawing, residual risk of unrecorded and miss-recorded service contractor to scan and hand did |
| Secretary and Control and Cont | | | | | | | |
| Consideration (Control) Control (Co | | | No | | | | zone of OH line, all columns within the proximity zone are |
| Production for the count of the sound for the sound of the sound for the sound of t | | obstructions (refer to 7.8 and 2.2) | | | | | fold down. |
| Part | | Excavations (refer 3) | | | | | |
| ** Impacting content visibility ** Impacting content visi | | | | Yes | | | Columns to be located at the back of footways where present |
| Newsonant Administration (Prince) Newsonant Admini | | | | Yes | | | Columns are located away from carriageway access points |
| Noteward reductions by plant of the control of the | | | | | | | and back away from the kerb line as much as possible to reduce impeding visibility. See PIM model |
| Full Product American control of the Control of Control | | Nuisance / obtrusive lighting | | Yes | | | Ensure columns are located away from residential |
| Part Martinese exposure to Yes | • | · Future Maintenance access | No | | | | Columns located at least 1m from slopes and drops |
| Service of the control of the contro | | | | | | | |
| 2 Commence restored / memoral and an approximation of the commence of the comm | | | | Yes | | | Confirm |
| Learning and the control works verying with or a present the control and the control of the cont | 7.2 | | | | Yes | | Potential presence of overheads |
| The control of the co | 7.3 | | | Yes | Yes | | Sufficient spare duct capacity, minimal duct lengths (no |
| Control of the options of the option | | | | | | | facilitate safe cable installation. |
| Second of Assembly Control of Second of Seco | 7.4 | | | Yes | | | PC to provide evidence of operational procedures - competent Electrician |
| Testing operations Well report for the control of | 7.5 | Levels of illumination | | | Yes | | Lighting levels shall be kept as close to the minimum |
| Section of the processing of | | | | | | | obtrusive light and light pollution |
| Page | 7.6 | Testing operations | | • | Yes | • | Street lighting feeder pillars are to be located behind VRS |
| A Working a height (Counter) Field Yea | 7.7 | Type of equipment specified | No | | | | Luminaires specified will be full cut off and a glare rating of |
| Ven Warsing at Required Cocuminar Field working of Regular Cocuminar to filled the Color working of the Color of Color o | | ' ' ' | | | | | at least G4 (BS EN 13201-2 2015) to minimise obtrusive |
| Section of Control Con | 7.8 | | | Yes | | Yes | If required - Columns no taller than 12m have been |
| Production of COSHE Justicing and COSHE | | downs?) (refer 2.2) | | | | | specified, adjacent to OH live fold down columns have beer specified. Limiting OHH exposure issues to be considered |
| Seminate of Controlled | | | | | | | during design process - At PC handover PC to |
| Authorities and the large contains and the large contains and the large contains and an end common and the large contains and an end common and the large contains and an end common and larger greaters are at larger greaters are greaters. A tell and the larger greaters are greaters are at larger greaters are greaters. A tell and the larger greaters are greaters are at larger greaters are greaters. A tell and the larger greaters are greaters are at larger greaters are greaters. A tell and the larger greaters are greaters are attended and the larger greaters are greaters and the larger greaters are greaters are attended and the larger greaters are greaters are at larger greaters are greaters are attended and the larger greaters are | | | | | | | specific procedures |
| mercury, a competed contractor will hower the as it is invested in the process of | 7.9 | Chemicals / COSHH / Jointing | | Yes | | Yes | Removal for existing lamps will need to be undertaken by competent persons as the lamps contain sodium and |
| Yes Yes Potentially Procedure Yes Yes Potentially Procedure | | Hiddelidis | | | | | mercury, a competent contractor will know this as it is |
| Test Train Management (Aff Test) | 7.10 | Animal excretions | | Yes | | Yes | common to all lighting installations over 10 years old. Potentially |
| Access Yes PC to provide evidence of operational procedures Yes Confined spaces Of Materians Institute of the provide evidence of operational procedures To Materians Institute of the provide evidence of operational procedures To Materians Institute of the provide evidence of operational procedures To Materians Institute of the provide evidence of operational procedures To Program Control of the provide evidence of operational procedures To Program Control of the PC to provide evidence of operational procedures To Program Control of the PC to provide evidence of operational procedures To Program Control of the PC to provide evidence of operational procedures To Program Control of the PC to provide evidence of operational procedures To Program Control of the PC to provide evidence of operational procedures To Program Control of the PC to provide evidence of operational procedures To Program Control of the PC to provide evidence of operational procedures To Program Control of the PC to provide evidence of operational procedures To Program Control of the PC to provide evidence of operational procedures To Program Control of the PC to provide evidence of operational procedures To PC to provide eviden | 7.11 | Insect / rodent infestations | | | | | |
| Marriad handling Marriad paces (i.e. Marriad handling Mar | 7.12 | | | | | | |
| Segment of continues appeared to the continues appeared to the continue appeared to the continue appeared to the continues and the continu | | | | | | Voc | |
| Maintenance of equipment / Signs etc. Yes | | manda nananing | | 1.65 | | 1.65 | to minimise exposure? |
| Confined spaces NA Yes Yes Yes Childry Spatian NA Yes Confined spaces Na Confined spaces Na Yes Confined spaces Na Yes Confined spaces Na Yes Na Na Na Na Na Yes Confined spaces Na Na Na Na Na Na Na Na Na N | 7.15 | Materials/substances | | Yes | | Yes | PC to provide evidence of operational procedures PC to provide evidence of operational procedures |
| Pressure systems NA Yes PC to provide evidence of operational procedures | 7.16 | | | | | | Can pre-fabricated units be constructed and brought to site |
| Firings Yes Propagation | 7.17 | Pressure systems | NA | | | | to minimise exposure - chambers? |
| Highways Team Works pass through heavily trafficked area Yes Warks pass through heavily trafficked area Yes Propriet Yes Yes Propriet Yes Yes Propriet Yes Yes Propriet Yes Yes Yes Propriet Yes | 7.18 | | | Yes | | | PC to provide evidence of operational procedures |
| Highways Team Works pass through heavily trafficked area Yes Warks pass through heavily trafficked area Yes Propriet Yes Yes Propriet Yes Yes Propriet Yes Yes Propriet Yes Yes Yes Propriet Yes | 8 | T#I- M / All T | | | | | Desired to seed the |
| Maintaining access (i.e. programme works) Controlling access (gatherine etc.) Controlling access (gatherine etc.) Selfety Zones available Barrier types / positioning of signs (i.e. programme works) May be required at certain access points Yes (i.e. programme works) Fe by provide evidence of operational procedures (i.e. programme works) Was provide evidence of operational procedures (i.e. programme works) Was provide evidence of operational procedures (i.e. procedures works) Setting up equipment / signs etc. Setting up equipment / signs etc. Separating podestrians from works (i.e. programme works) Separating podestrians from works (i.e. programme works) Was paperating podestrians from works (i.e. programme works) Separating podestrians from works (i.e. programme works) Was paperating works (i.e. programme works) Was paperating works (i.e. programme works) Was Constructability consideration Yes Constructability consideration Was Constructabilit | 8 | | | | | | Designer to consider |
| Controlling access (glatemen etc.) Yes Safety Zones available Yes Per bypowle evidence of operational procedures electric. Setting up equipment / signs etc. Setting up equipment / signs etc. Maintenance of equipment / signs etc. Setting up equipment / signs etc. Wes Per bypowle evidence of operational procedures electric ele | 8.1 | Maintaining access (i.e. | | | Yes | | Works pass through heavily trafficked area |
| Safety Zones available Yes PC b provide evidence of operational procedures etc. Setting up equipment / signs etc. Maintenance of equipment / yes PC b provide evidence of operational procedures etc. Setting up equipment / signs etc. Yes PC b provide evidence of operational procedures etc. Yes PC constructability consideration Yes PC constructability consideration Yes Passing / amending traffic provideration etc. Yes PC constructability consideration etc. Yes PC constructability consideration etc | 8.2 | Controlling access (gatemen etc.) | | Yes | | | May be required at certain access points |
| Barrier types / positioning of signs etc. Yes PC to provide evidence of operational procedures etc. Yes PC to provide evidence of operational procedures etc. Yes PC to provide evidence of operational procedures | 0.0 | | | V | | | Kennidand |
| etc. Separating pequipment / signs etc. Yes Yes PC to provide evidence of operational procedures | 8.4 | | | | | | |
| Maintenance of equipment / signs etc. 7 Separating podestrians from works (refer 1.9) 8 Separating vehicles from the works. 9 Site generated traffic (also see 1.8) 10 Temporary restrictions (one-way, speeds, signals etc.) 11 Read closures (diversion routes) 12 Site generated class register of the second routes of the | | etc. | | | | | |
| sens etc. Separating pedestrians from works (refer 1.9) Ves Constructability consideration | 8.5 | Setting up equipment / signs etc. | | Yes | | Yes | PC to provide evidence of operational procedures |
| Separating pedestrians from works (refer 1.9) Constructability consideration | 8.6 | | | Yes | | Yes | PC to provide evidence of operational procedures |
| works (refer 1.9) 8 Separating vehicles from the works. 9 Site generated traffic (also see 1.8) 1.0 Temporary restrictions (one-way, speeds, signals etc.) 1.10 Read closures (diversion routes) 1.2 Site generated local congestion 1.2 Feed Constructability consideration 1.3 Emergency vehicle access 1.4 Altering existing signals / road layouts 1.5 Phasing / amending traffic 1.6 Lovel crossings 1.7 NA 1.8 Welfare (All Teams) 1.9 Level crossings 1.1 Location stude billy office / welfare facilities 1.1 Location stude office / welfare facilities 1.2 Location stude office / welfare facilities 1.3 Emergency 1.4 Location stude office / welfare facilities 1.5 Passing of workforces 1.6 Locations for fire / welfare facilities 1.7 Location stude office / welfare facilities 1.8 Locations for ompound / barrier to e 1.9 Power supply / temporary services 1.9 Power supply / temporary services 1.9 Power supply / temporary services 1.9 Delivery access 1.0 Elevier roacess 1. | 8.7 | signs etc. | | V~~ | | | Constructshillty consideration |
| Separating vehicles from the works. 9 Site generated traffic (also see 1.8) 1.0 Temporary restrictions (one-way, yee | | works (refer 1.9) | | | | | |
| See generated traffic (also see 1.8) 1.0 Temporary restrictions (nne-way, speeds, signals etc.) 1.11 Road closures (diversion routes) 1.2 Site generated local congestion 1.3 Emergency vehicle access 1.4 Alert gesting signals etc.) 1.5 Phasing / amending traffic management 1.6 Level crossings 1.7 Ves 1.8 Designation of the second of the | 8.8 | Separating vehicles from the | | Yes | | | Constructability consideration |
| 1.8 Ves Constructability consideration Speeds, Signals (c.) Constructability consideration Constructability considerati | 8.9 | Site generated traffic (also see | | | Yes | | As 8.1 |
| speeds, signate (c.) IR Road closures (diversion routes) Yes Constructability consideration Yes Constructability consideration Tyes Constructability consideration Constructability consideration Ves Constructability consideration Tyes Constructability consideration Tyes Constructability consideration Tyes Constructability consideration Constructability consideration Constructability consideration Tyes Constructability consideration Constructability consideration Constructability consideration Tyes Constructability consideration Constructab | 8 10 | 1.8) | | Υρε | | | Constructability consideration |
| Road closures (diversion routes) Yes Constructability consideration | | speeds, signals etc.) | | | | | |
| Emergency vehicle access Yes Constructability consideration | 8.11 | Road closures (diversion routes) | | | | | |
| Aftering existing signals / road isouts sign | 8.12 8.13 | | | | | | |
| Phasing / amending traffic management Constructability consideration | 8.14 | Altering existing signals / road | | Yes | | | |
| management Level crossings | 8.15 | Phasing / amending traffic | | Yes | | | Constructability consideration |
| Welfare (All Teams) 1 Location / suitability of office / welfare facilities • Burled services • Overhead obstructions • Power supply / temporary services • Security of compound / burrier to e.e. • Security of compound / burrier to e.e. • Delivery access • Teams of the services • Security of compound / burrier to e.e. • Delivery access • Delivery access | | management | | | | | |
| Location / suitability of office / wefare facilities Wefare facilities Buried services Overhead obstructions Parking for weidsforces Power supply / temporary services Security of compound / barrier to re Delivery access Delivery acc | 8.16 | Level crossings | NA NA | | | | |
| Location / suitability of office / wefare facilities Wefare facilities Buried services Overhead obstructions Parking for weidsforces Power supply / temporary services Security of compound / barrier to re Delivery access Delivery acc | 9 | Welfare (All Teams) | TBC | | | | Locations to be confirmed - populate at later Stage |
| Burled services | 9.1 | Location / suitability of office / | | | | | |
| Overhead obstructions Parking for workforces Power supply / temporary services Security of compound / barrier troe Delivery access Delivery access Th for establishment / removal of | ······ | | | | | | |
| Parking for workforces Power supply / temporary services Security of compound / barrier bree Delivery access Delivery access Thi for sabilishment / removal of | | | | | | | |
| services | | Parking for workforces | | | | | |
| Security of compound / barrier bree Defiver yeaccess This of establishment / removal of | | | | | | | |
| Delivery access Third restablishment / removal of | I | | | | | | |
| .2 TM for establishment / removal of | | | i | | 1 | | |
| | | barrier type | | | | | |
| | 9.2 | Delivery access TM for establishment / removal of | | | | | |
| | 9.2 | Delivery access TM for establishment / removal of | | | | | |

| 10 | Foundations - (Structures | | | | | Bridges, retaining walls, culvert and gantry? |
|--|---|----------|------------|------------|------------|--|
| | Team) | | | | | |
| 10.1 | Adjacent buildings / structures | | | Yes | | Can we locate at suffiecient distance as to eliminate the risk? Monitoring required if not |
| 10.2 | Deep excavations | | | Yes | Yes | Monitoring required |
| 10.3 10.5 | Plant movements Interface with services | | | Yes Yes | Yes Yes | Buildability, adjacent underpass See Stats section |
| 10.6 | Ground contamination | | Yes | 165 | Yes | Testing required |
| 10.7 | Groundwater | | | Yes | Yes | |
| 10.8 10.9 | Confined spaces Piling | | | Yes | Yes | |
| 10.5 | - Noise | | | Yes | Yes | Considered within construction sequencing |
| | - Vibration | | | Yes | Yes | Considered within construction sequencing |
| | - Plant | | | Yes | Yes | Considered within construction sequencing Considered within construction sequencing |
| 10.10 | Pile Cutting Requirements Grouting | | | Yes | Yes | Geotech to confirm |
| | Drilling works | | Yes | | Yes | |
| | - Dust - Pollution | | Yes Yes | | Yes Yes | |
| 10.11 | Others (insert as necessary) | | 165 | | 165 | |
| 10.12 | Underpinning; requirements | | | | | |
| | | | | | | |
| 11.0 | Masonry Construction | NA NA | | | | |
| 12.0 | Timber Construction | | | | : | |
| | | NA | | | | |
| 13.0 | Roofing and Cladding | NA NA | l | | | |
| 14.0 | Glazing | NA. | | | | |
| | | | | | | |
| 15.0 | Structures - Steel Erection | | | | | |
| 15.1 | (Structures Team) Working at height | | Yes | | | Bridge Works?? Is concrete a better option? |
| 15.2 | Lifting operations | | Yes | | | PC to provide evidence of operational procedures |
| 15.3 15.4 | Temporary stability / bracing Connections | | Yes Yes | | | PC to provide evidence of operational procedures PC to provide evidence of operational procedures |
| 15.4 | Unusual sequence or methods | No | 185 | | | |
| 15.6 | Materials, e.g. paints | | Yes | | | PC to provide evidence of operational procedures |
| 15.7 | Provisions for temporary access scaffolding supports | | Yes | | | PC to provide evidence of operational procedures |
| | oupports | | | | | |
| 16.0 | Highways - | | | | | |
| 16.1 16.2 | Adjacent traffic Construction materials | | Yes Yes | | | PC to provide evidence of operational procedures PC to provide evidence of operational procedures |
| 16.3 | Structural works | | Yes | | | PC to provide evidence of operational procedures |
| 16.4 | Adjacent structures | | Yes | | | PC to provide evidence of operational procedures |
| 16.4 | Noise | ! | Yes | | Yes | Generic hazard to be passed to PC - PC to confirm processes and procedures in place. |
| 16.6 | Vibration | | Yes | | Yes | Generic hazard to be passed to PC - PC to confirm |
| | | | | | | processes and procedures in place |
| 17.0 | Structures - Concrete | | | | | Insitu or pre-cast? |
| | Construction (Structures Team) | | | | | |
| 17.1 | Working at height | | Yes | | Yes | Working on overbridges, working adjacent stats, underground/over ground |
| 17.2 | Plant restrictions | | Yes | | | Working on underpass, working adjacent stats, |
| 17.3 | Lifting operations | | | Yes | Yes | underground/over ground Access |
| 17.4 | Noise | | | Yes | Yes | Can we prefab? |
| 17.5 | Vibration | | | Yes | Yes | Can we prefab? |
| 17.6 17.7 | Temporary instability Pre/post tensioning | | | Yes | Yes | Must consider temporary works ?? |
| 17.8 | Materials | | Yes | | | |
| 17.9 | Maintenance | | Yes | | | |
| 17.10 | Pre-cast concrete installation requirements / restrictions | | Yes | | | As above |
| | | | | | | |
| 18.0 | Railway Activities | NA NA | | | | |
| 19.0 | Demolition of Existing | NA. | | | | |
| | Structures | | | Yes | | |
| 19.1 19.2 | Services Adjacent/adjoining structures | | | Yes | | |
| 19.3 | Materials | | | | | |
| | - Hazardous | | | Yes | Yes | Asbestos - Demolition Specialist to be appointed if required- DMP |
| ······································ | - Fragile | | Yes | | Yes | Specialist procedures to be put in place if required |
| 19.4 19.5 | Working at height | | Yes | Yes | Yes Yes | Specialist procedures to be put in place if required Specialist procedures to be put in place if required |
| 19.5 19.9 | Temporary stability Pre/post tensioning | 1 | | 188 | 185 | Specialist procedures to be put in place if required ?? |
| 19.7 | Noise | | Yes | | Yes | Specialist procedures to be put in place if required |
| 19.8 19.9 | Vibration Others (insert as necessary) | | Yes | | Yes | Specialist procedures to be put in place if required |
| 10.0 | Outors (Iliseit as Necessary) | | | | | |
| 20.0 | Future Maintenance and | | | | | Whole life design considerations must be captured |
| | Operation of Facility / Structure, etc. | | | | | |
| 20.1 | Access | | Yes | | | Considered |
| 20.2 | Safety equipment | | Yes | | | Records and training |
| 20.3 20.4 | Testing/inspection Procedures | | Yes Yes | | | Records to be captured See MRSS |
| 20.5 | Final Construction Drawings | | Yes | | | Will be produced - together with AIM |
| 20.6 | Health and Safety File | | Yes | | | In development |
| 20.7 | Others (insert as necessary) | | | | | |
| 21.0 | Future demolition or | | | | | Whole life design considerations must be captured |
| 21.1 | decommission of structure | | Yes | | | |
| 21.1 21.2 | Unusual sequence Pre/post tensioned elements | NA | Tes | | | |
| 21.3 | Materials | NA NA | | | | |
| 21.4 | Adjacent/adjoining structure | | | Yes | | |
| 21.5 21.6 | Temporary stability Imposed Load Restrictions | NA NA | | | | |
| 21.7 | Stability Concept | NA NA | | | | |
| 21.8 | Others (insert as necessary) | | | | | |
| 22.0 | Use of the structure co.c. | | | | | |
| ££.U | Use of the structure as a workplace | | | | | |
| 20.6 | | NA NA | | | | |
| 23.0 | Maintenance and Operation of Facility / Structure etc. | | | | | |
| | | | | | | |
| 24.0 | Water related aspects | | | | | |
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| | | | | = | mently currently brown unknown | | | | | [] Putersial Indian Insuling colorion (See education and Energia) and monitoring injury (Monthern white) breaking increased wheel (milating light profition) angles rester distorbance may result in displacement and changes in light-status. | 2 8 | Denni Jerlim. Schemining Makinki Ion. Smerlegement of miligation, michillege of CDP that small mobile best parallel smaller should be supported to the smaller of the smaller should be smaller to the smaller should be smaller smaller to the smaller smaller should be smaller smal | * | | | | | | | | | | | | | | | | | | | |
| STN AMLOS MADEL Ver | Joseph Nage 2 | Lands Septemb 2008 | er 9. Demolition of existing structure | Option C People Soundsy (Section I) - 1-2 Lig/Newton Cellsigns | SZBSC7 | | | Construction | State of the best thrown educates, series injury or death them efective additioned | The alignment requires the demaillant of 2 uses detailed sublings. The age of the buildings suggest a shed into Minty to be present. Underdiffed strates are also expected to be impacted by the alignment. | | 8 Types 120705 illerations in the digeneral in modifier properties waste decreased the risk, though the it-selfed in the flushier / unit effection. | | | Mauni emains will inding southwe, shariten | 2000 through and further investigation wish. Use are required to confirm the presence of Abbretion and function of potential utilities. Opture in 1988? | | | | | | | | | | | | | | de jule jul | h bests | -000003.070 739-0031,886 |
| 27% AM. 55V-3L-005 Yes | Anada Bage 2 | Environment Septemb 2009 | er 9, Blues and streams SIS priority habiture | Option Earnil [®] Temple Soundley In Applicity 360 | A899 134120 | | | Continuition and operation | Delian reads in a new crossing over Drad Besk and could read in large impacts (significant) to the European designated sites. | Locard regentation, additional chading and potential distorbance to the key interests of the designation. | | Deuts Jerkin. Stide-span beitges. Deutspened of mitigation, including SDMP that would anchool parallel inchanges and solar diseases control messars to demonstrate compliance with relevant missionarishing biolism. Nor further mitigation requirements are Chapter 7 of the SSM | Designer/Control | 2 4 | 13(05)2007 inclusion of wide space bridges, within project design. Contractor is advantable substanted estigation six stegles, developed at Slage 5. | Development of detailed estigation challeges, Use to reduce impact to designation at Stage 3. | | | | | | | | | | | | | ingo. | iledum Medium Me | dun Speille | -282842.522 7290885.125 # |
| 27% AMLENCE COT Yes | Jecalis Nage 2 | Environment Septemb 2008 | er'S, White-shared crayfoli | Cyclan E and? Temple Soundsy Sa Applicity sur- | mently currently leases whereas | | | Continuition | Septiment impact upon designated species of the plan land on species of they let land land land land land land land land | Local expelation, additional dealing and real potential distarbance to the lay interests of the designation. | | Crean Jention. White-quan bridges. Development of miligation, including good CMP that would would be bed granted in histogram and a spall of literapies control amounts of development compliance with referent main semental legislation. For | Designer/Contra dor | 2 4 | 1/(0)/(000) includes of wide span bridges within project design. Centractor to adverse to detailed extigation to obeyon, developed at | Development of detailed retigation strategies. Use to reduce impact to designation at Tage 1. | | | | | | | | | | | | | High. Is | Stellam Medium Mil | dan Sprifts | -00000007 730007 700 8 |
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| 3776 AML SW 36-337 Yes | Jesalis Siage 2 | Encountered Septemb | er 9, Ester building: Own half S. Michael | Option 6 Temple Sourcely 30330 St. Applicity | DE 125905 | | | Continuition | Seekseel Spolised repail too lided building | Impacts in the setting of the fided building. | | Leans Jerkins. Militarius required during continuition would comprise entiting temporary sciencing (where appropriate) and enturing that the dust is leaded by dampering down the | Delinate Inc | 2 1 | Sa adher in deliabel niligalian shaingins developed at Slage S. 1508/2020 Caelmaliar in adhere la deliabel miligalian disalinges. developed at Slage S. | Decaded religation challeges in the developed line at Tage 1. | | | | | | | | | | | | | | Bellum Mellum III | dan best | - ORIGINAL TONNOCTHE |
| \$779 AMALOS MAGES Yes | Aciadis Singe 2 | Lands Septemb 2009 | er'S, Execution of existing structure | Option C - Needship 30.738 (Section I) High Temple Soundsy Serves | 52868 | | | Construction | Salard Etal of Etallih horse adexion, senso injury or dealth from electrocalismes | The alignment requires the demalities of high-flames collage and adjusting flam buildings. Property's expended to far at least 200 years sall. It is requested that adjusting would be prepared. Entire as also expected in the encountered. | | 8 Types 22900 Secular area 12900 Secular analysis project the character as parties of, this evila regular the conquirement for densition. | Tes Designer | | This will be elemented ECgrise C classes | 2005 Clord Figilian Colores, Should Show dendition be regard, surery, and further benefigities such are required to confirm the process of Salandas and Issalian of patential dilities. | | | | | | | | | | | | | Ngs. | Age Said Said | Applicable Specific | - 09685LBIO 7396760.327 |
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| THE AMAZON PA | decade Singe 2 | Environment Soylands 2008 | er S, Statils Pensine Moors SPA | Cyclan I Appliety to Brough | | | | Combruition and operation | Spoliumi mpai lufuripean desputeliste | Possible changes in the native environment and temporary land take of functional land. | | | Drigger/Corts | | miligation disologies, developed at Slage 1. 1398,5009 Card-solve los adhere los desalted miligation disologies, developed at Slage 1. | further survey work required at Stage 1 and to liver follow the development of deficient edigotion studeption became report in designation. | | | | | | + | | | | ++ | + | | High 1 | dedun Medun M | dun berita | OLOTS 2.65 1276/97 046 |
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| | | 2008 | EVOR. | Bringh 236 | 5613 1219K7 | | | agenation | | . The construction activities would be valide to the new distance and lineares the basis of the view. This would result to a nationalise determination to the quality of the view and notably change the values and mental balance of the same. | | to the second to the second se | - | 2 1 | 13(0),3229 Cardination to adhere to detailed mitgation sharingen developed at Taige S. | d Sage S. | | | | | | | | | | | | | | | | |

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| 8279 AMERICANI AND VIN. Ju- | nala Sage 2 Successes | September 16, Ex | od building. Wilminne (LEI) | System Condit. Grow.Laver, to 83890 Rately | | \perp | | Contractor | Cardinald Significant Impact upon the Listed | Impacts to the setting of the Local Build | | | and a 17% may and unique necessition and recording wealthin who is migate physical impacts and improve understanding of the relation and nation of the large assets. | Drague (Code | | uniting from length and over the next? | being a distingtion of electricity. Cone of this line. Detailed editional activities of the control of the con | \perp | | | | | | \perp | \perp | | | | | $\perp \perp \perp$ | | Median Median | linke lands | -22368283 7388336788 |
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| 20.75 AML 550 324.000 Ves. Av | sials Sign 2 Environment | September 15, Bir 2008 ha | ers and shreams, NEE priority start | Option Nand C Strylen Back to Carltin Massr 428 | 715 10964 | | | Combine tion and Operation | Contraint Each option crosses multiple understournes. Contraction coulds in moderate impacts (significant) is designated habitat. | Los, shaling and fragmentation of mall materiousus. | | | continuitors area Destinance of mitigation, including a CEMP that would mustable been justice inchespers and a rule of lampaise control measures in demonstrate compliance with requirements are Chapter of the SEM. | der Canto | | SQU(3) Contractor (coalbern) detailed religation desleges, development Stage S. | Notice survey work required at Stage 1 is attent the development of detailed estigation distinguish reduce report to designation. | | | | | | | | | | | | | | Hapter . | Medium Medium | Shrian Sprifts | -090206.88% \$1060486.310 |
| 2070 AMERICAN SECTION No. 1. | mails Slage 2 Decreases | September 18, To 2008 Ho | pertant Hedgenows' and Openius SEI Hebital | Spilan N. M. Singles Earls to and O. Garlie Maar | | | | Construction | Combinate Separated Hedgeroses' and Hedge SEI Habitat | now. Los, partial less and hagmentation of hedgerow habitat. | | _ | Jenikos Minoresing halistat loss and revealating list halistat. Consinguent of miligation, including a CMSP that small tracket has gracific inchesions and a safer of lampate control research to demonstrate compliance with the control research to demonstrate compliance with the control research to demonstrate compliance with the control relationship facilities. Not Artiste miligation researches and control relationship facilities. Not Artiste miligation. | Desgrav (Carbo dar | | 10/01/17 Centralise tradlere i detailed mitigation-drafegies developed at Sage 1. | Notice surveywork required at Stage I and to like edium the development of detailed mitigation dealingtes to reduce requal to recogions. | | + | + | \top | \top | | | | | | | | | - | Medium Medium | Melun Sprifts | -040705.551 736050F 261 |
| \$5.77 AMLENG SELECT | nada Bage 2 Encounces | September 18, 107 | 2 - Multi-uses | Option M. Stryller Earth to ICE26 | o sereo | $\perp \perp \mid$ | | Construction and | Comband Significant impact to visual receptor | rs - The proposed redigeneed would be | | | | Designer/Control | | | Detailed religation strategies in the developed line | \perp | \perp | | \perp | \perp | \perp | \perp | | $\sqcup \sqcup$ | | \perp | \Box | \Box | No. | Strelam Strelam | Stellan Spells | -08670.000 1256707.036 |
| | | 3008 | | Contain Nithean | | | | aperation | during condinuction | apprisonately. Elies from strengested and shealy while as a middle new incorpriso besture of the landscape, shange the lattense and servid nature of the streng- rending in a middle shange to the natural of the streng. | | | de-time. Mit spatian wastal for required during construction and operation. This is for set and will involve financial of Environment dutions and Committeents. This likely for trailing requirement, such as combinating to communish, lacution industrial finances area from trail from plans, over all sufficients in planting visions rule. | | | 1000/19 Controller tradfered detailed editigation-dradeges developed at Tage 1. | d Sage S. | | | | | | | | | | | | | | | | | |
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| \$677 AM. SW. CLI SEE Vol. 14 | nials Siage 2 Environment | September 16, Lia 2008 | ed building. Cross Lanes Sammhauar | Option Kandi. Overlares to \$2505. Nateby | 0 515671 | | | Comitraction and Operation | Contract Synfact repair or the bird but | ding Impaints the setting of the fided builds | 1 1 | . (200) | And the state of t | Certaster | 2 1 | 100531 Contractor tradlerer i absolute religation disablerer developed at Tage 3. | Detailed mitigation strategies in the developed. Use at Stage 1. | | | | | | | | | | | | | | Median | Stedam Stedam | Median Specific | -00011470 (5960@AD) |
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| 897N AMLENV.122.030 YH. A | nada Sage 2 Encourses | September 16, Su 2008 Ga | ety Fark Registered Fark and Size. | Option Kandii Oppolianes to ISSISS Ruleby | B 525908 | | | Contraction | Combined Synthant impact to Falleby First Registered Park and Corden | Significant Impact to the setting of Robels Park Registered Pork and Garden | | Creats | Sighting structures etc. Debits: Stilligation would be required during construction. This is to be set and within the Record of Environment Authors. | Gettastes | | 1005/17 Certain traders i disalled edigities dislegts, developed at Slage S. | Detailed militarium strategies to be developed. To be at Tage 1. | | | | | | | | | | | | | | Median | Medium Medium | Sindum Spriits | -20MES2.516 7369361.796 |
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| 550 MALES SALARS 196 M | | 2008 | | Certite Masor curin unite | endy currently town unknown | | | Calcalan | or recoglises during combraction. | ed) Noterial hold at less, linguistation [seesing and linegoigl and mortalization yield schools with the breeding increased steal (minding light published and/or note distorbase many result in displacement and shangers in | | | Jentine. Microscop habitat lass and remission habitat. Development of mitigation, including a CIMP that would mission be not year include to sole of lampaise control messages for development and or d'impaise control messages for development and marginates with referent motionnemical lampaistes. For facilities mitigation | | | 24(01)25 Cantractor transferor i detailed religation dissippe, developed at Slage 3. | Mum the development of detailed mitigation distinguish melane impact to morphies. | | | | | | | | | | | | | | | | | 1 |
| NETS AMERICAN VIS. A | nals Eage 2 Encouncer | September 16, 12 2008 | 23 Mars Frage | Options N, M Septen Earth to and O Garter Many | | | | Contraction | Contraint Significant Impact to Conducion of Author conduction | treat indigitament and sharges in behavior. The conduction activities would be with within the parts of the LCT adjusced in the propert and result is a subdantial fail. | | ines | imparenests are Chapter 7 of the GAE. Jentine. Militarium would be required during construction. This is to set and within the financial of Environment Julium. | Smigram/Cantra | | 38/08/35 Cardinalise localitere i detailed edityation dralegies developed at Taige S. | Delabel mitigation strategies in the developed line of lines 1. | | + | + | + | + | | | | | | + | | | Medium | Medium Medium | Median Specific | -048793395 7366480306 |
| | | | | 446 | PSA NOMES | | | | | project and result in a substantial last localized change in the landscape chanal immediately adjacent in the office section of the project. | | · | and Commitments. This littly to include measures, such as settly building to companies, busine industrial fedurace away from an and morphors, use of facility, on lighting structure sets. | - | | • | | | | | | | | | | | | | | | | | | • |
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| 1880 WE'CED WE'CED THE | | | or 24, Culter-ted materizaness consisting the full width of the highway alignment. Gingle Best, follow like | MJ | | | | | | M Collapsing ground, buried dirusture. Collapse leading to slip, Irig, fall or serious injury for workforce. | | Engels (10): E - Bair produbt. E - Louiste existing value to another new for source to the control under an interface propagation for any programment of the source of all distingue. In Paul applicable. C * That applicable. | | 2 1 | duction rates attended the sales in. The notice that the sales is a same the impact from the sales is and undertake appropriate design measures in the red diagn. | | | | | | | | | | | | | | | | ON 100 A 2011 7271 246 A 201 |
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| TENES AND GROSS WAS | ARCION Nage 2 | | or 24, Culterfiel autorosome creating the full width of the highway alignment transport this (Interfie Longit Best). | | X78087 526342 | | | Continuition | Maand Calmind unincounts crossing the I width of the highway oligoneed. | Id Collapsing ground, buried dirusture. Collapse insiding to slip, Intp. fell or serious. Injury for user filterier. | | Angelia NDs. E - Not youthin. It - Grazie exciting valuets and/or new trades in the conformal and under the appropriate object recognition of the conformal and under the appropriate application. C - Not applicable. | n Dager | | Into control be anothed as all sharful males interest the solarsts. The miligation will be in assemble regard than the solarsts and under take appropriate design measures in the med stages. | Notice all large | | | | | | | | | | | | ~ ~ | - 140 | and an open th | -240067.616 7271366.626 80 |
| 23902 AMS GROUN DOG Yes | MODEL Nagr 2 | Gestechnial Septemb 2008 | er 24, Proposed water tunnel minimum 1.1 internal diameter with insert level. 6. Ter better modifiered. Unabour 8 to was combroated. | n Option 1 Applicity to Surendy Brough Section ScI and Se2 | 374200 528600 | | | Combination | Paparel vales huned minimus 1.16 internal dameter with numbles of below said from Challes of this said continuated. | If Leavel's persons, there is a potential it in may be damaged, it Albely water will be al- high persons and could cause injury to condituding warders. | | E-Bid possible. E-Bid possible. E-Guarier-rading under turner()): promotify-and-rade paperprint design resources los promotify-and-rade paperprint design resources los applicables. Participation C-Bid applicables. C-Bid applicables. | to. Desgree | 1 2 | Early discussions with Toles aware and Highways Ingland in assertion (The Jurnel was conditional of II present is will be memory to deformine prolinion resources and if removing, utility discusses, utilities. | Broke at Hage 1 | | | | | | | | | | | | No. | n lage lage | Section specific | -241208.34 327(868.046) |
| 28398 AM GRO N. DOS Yes | MODEL Sug-2 | General 2009 | er 24, Brids associated with the Industrial development. | Option 1 Appletoy to formerly Bringh Section Sci and Sci | | | | Continuition | Massed Erds executable with the Instantial development. | Historical land-var leading to palential impact from contamination including patential historical clinicitums e.g. foundations. Workform contain with contaminating reaction required logisms, leading to injury or death. | | Angela NSs. E - Net yearder. E - Entan mit well ground investigation. It is a service or my ground confillence, some if environmental shall assumement and formediation is empired. I - Net applicable. C - Net applicable. | us. Designer | | Notational disables as the for observer. Select to Salar 6 Tile contentrated and consumed and obligation ensures. PSS Approals 0 | Service at Slage 3 | | | | | | | | | | | | Medium Lin | Net Applicable | gilludder Smillen general | -34803.564 7377066.665 2 |
| 31094 A66, GRO, SSZ, GRO. Yes. | ARCIES Nage 2 | Gasterbrokel Systems 2008 | 24. Leading lained in the worth of the side. | Cyplan I Barres Pigana Kramedy Decilian Sila | ACCAST \$12776 | | | Continuition | Ausditionaled to the with of the old | An interest to present gas only since through the will exist interestabilities the since the since and the since the | 2 4 | Angeliachts (* 1 May persons) — Folkerer ist and practice recognition on the contraction of participation of processing providing and association and for constitution in registers (* 1 Mail application C. The register in the contraction of the contraction of the contraction of the participation of the contraction of the contraction of the participation of the contraction of the contraction of the contraction of the contraction of the participation of the contraction of the co | Trigger | | Appropries y most energiption and most most state of the control point of the control and make right for ground y an eight be a point and the control and the | house at Engr 3 | | | | | | | | | | | | Medium Lin | a Line Line | Section specific | 23866 572 TSNAE 645 |
| 11199 AM GEO 103 GEO VA | ANCHORS Stage 2 | Gentralinial - Septemb General 2009 | er 24. Published for doubleton features are natural confirm lessed on limentume the area. | Option I Sewes Bigions. Section 125e | | | | Combrattion | Mazard Polevical for dissolution features and soluted solders based on Senestione in dress. | Collapsing ground. Callayer bealing to stip, the long, fall or serious/open to workflowe. | | Augula (18). E - Try les aveill entiring area il presider. E - Carry sul rear- triculare and introduce ground investigazione la defennitare the patiential di associativi della dissolativi in ballarear and entered caroline. I - Not applicable. C - Not applicable. | les Designer | | Carry out non-trivialer and trivialer ground-mentioprisms in determine the patential risk east identity with disolidate belown. | Sevine at Engs 1 | | | | | | | | | | | | Ngo to | dam Medium Mediu | m Smilan general | 228581300 7270891319 8 |
| 13396 AMLGRO 323.008 Yes. | ARCKETS Nage 2 | General Septemb | er 24, Karthwark Defends, recorded on Hagglins. | Option I Bown Bigson. Samely Session 32a | | | | Continuition | Barthwerk Crisnis. | Number determination of making defects. Polanization that machines to expense of brading to hybry of watchines. | | Jagela HS. 1-Sai punitis: 8 - Geste hissal Gaganer in segent: or titul ner through and neithwark covers, see this requested; 1-Sai applicatio. C Sai applicatio. | to. Designer | | personial reliabilisations between the segment of the control of t | Review of Elege S | | | | | | | | | | | | Age. So | stam Silvelium Silvelium | en Section general | -224917.005 12794H.846 |
| 21390 AML GPQ 322,005 Ves. | MODES Sug-2 | Geolegicolai 2008 | er 24, Transaction of solloutings. | Option 1 Bowes Egono. Service 22a | 3968L7 123777 ax | 51309 | | Combraction | Parmation of soft collettings. | Excavations between chanage Ch. 50 *100m and Ch. 10 *100m responsancier the Satemann Framulian at challow depth and between Ch. 12 *200m and Ch. 12 *100m (the Street Limentium Member may the recovaries of layer (to worther other to musing plant). | | Engelanthi. E-fleit peadle: E-fleiter nik with grandismerligdien. It is assen nieni di bluberi inibak ani inoperate Indegra ini degga. E-fleit peglastite. C-fleit applicatio. | ns Drigger | | Appropriate gentenheted ground transligation is stiretilly distinct land-sub and others design of salling. | Broke at Stage 3 | | | | | | | | | | | | Figh. Sa | | Section specific | -222964.770 7289121.681 8 |
| 31998 AM GRO 333.00W VH | MODEL Nagr 2 | | er 26, Peul max enumeter ed al approximation of thirteage On 13 of Plan Selection S. 17th and E. Sienlagf. | | 40090 12900 | | | Continuition | Mased Period as encodered all approximat sharings Ch. 53 =975m fertures=5.11 and 0.56m ligit. | High post condination writteness. Sult be ground at formation level. Occupational Health Issues Injury to the worldlover on untiable ground. | | Jogefachtlis. E Epocalize elimente rickly were recovaring the Prof. 1 for - Resizes rick with ground investigation in corns notes of peril and incorporate budges into design. 1 - But application. C. Nat application. | In Drigger | | The Proof appears to be very bounded, before ground the religious may be required to confer this. Over exchangion may be required to exchangion may be required to exchange the Proof. | Review at Stage 3 | | | | | | | | | | | | Median Lin | in in | Smiller specific | *27854.287* 7786827.527 |
| 18770 AMI GRO 102 GG7 Yes | MCNOTS Stage 2 | | er 26, Erioting-dirustrums instudier An undertintige at approximate chains Ch. 52 4852m. | | 39925 12254 | | | Combination | Dating drantom suchde de underfraige al approximate distinge \$2-805m. | Additional load from writer dualing classificating the shouless and floorabilism of the varietings and underpases. The overlatings is surroutly too narrow to accommodate a dual certifigeness. Colleges of shouless and for tripey from moving plant. | | E-Bair pandahi. E-Bair pandahi. E-Bair nahiny mbingsi di sinahines. And metaning salik in assemmalahi mula sebining and shangen is hadi. E-Bair applicable. C-Bair applicable. | Ini Drigger | | Take islem minassauri during the dings place. In his ingrad distribution and mining with will be required in assumedate road with reag and obsegue in load. | federal like 1 | | | | | | | | | | | | Ngo. | in in | Section specific | 229029-049 7289208-246 |
| 18775 AML GRO. 535.007 Ves. | MODES Slage 2 | Gestednisal Septemb 2008 | er 21, Entiting structures include: An aure lasting at approximate change Ch. 52 +215m. | Option 1 Names Egono. Somety Section 12a | 39800 123540 | | | Continuition | Placed Entiting devalues include. An acedes of approximate chainage Ch. 52 4255. | tige. Additional load from order shading on all being (the shadour and loanshines of the underlying conductive or to another logic source of the production of the conductive or the shadour order order or the shadour order or the shadour order or | | Degelantilis E - Bail passible. E - Entine milding miletige of disordance. In and relating walls to accommodate road sold-roag and charges in lead. I - Not applicable. C - Not applicable. | n langur | 1 4 | To be later retransment during the design place. Bedreign of design place. Bedreign of design place. Bedreign of the later reprinciple of the later and soldering and changes in later. | Notes at Easy 1 | | | | | | | | | | | | Ngs La | | Section year to | -024691.002 7346611.735 |
| 18770 AM. GRO. 192.007 Yes. | MCSDIS Stage 2 | Gesterheist Septemb 2008 | er 20, Existing strustures reducte: Undergo Societal at approximate charages C SC +685m; and associated retaining wide. | COption 1 Bowes Egono. Surveyly Section 22a | 200200 122724 | | | Combration | Paland Dalling drashers, reclude: Undergood last led all approximate change Ch. «Blim, and associated relating wall | Additional load from order dualing of affecting the shoulure and foundation of the underlying and undergases. The underlyin accessify increases in accessified a dual integration, Colleges of shoulure and/or injury from | | Employetts 1: That possible 1: Entrance richty entrage of structures, the and estateing with its accommodate road with ring and shanges in load. 1: That applicable. C: Not applicable. | na Drigger | | To be folders reformanced during the design phase. So design of design and reforming works will be required to accommodate read with read authority and changes in found. | Service at Stage 1 | | | | | | | | | | | | Page in | | Section specific | -23400.000 7389039.639 4 |
| 33775 AMILORO 823.000 Yes | ANCHERS Nage 2 | Gesterinski Septemb 2008 | er 25, New subset gragated für raufe apit 12a and 12b für dig vasid in stadt. Proposed subset all chainages/Ch. 0 +210m. | n Option K GreatLaws to formerly Greta Bridge Smiller IDs | 454907 129490 | | | Continuition | New value? prepared for reade agine 32s and 23h for the mail is said. Proposed valued at charinge Ch. 62 = 200s. | moving plant. Colleging ground, buried directors. Colleges inside to slip, lety, fell or serious injury for workforce. | | Angelantilis E - Said prosidile E - Guardementing culterful analyse new York culterful in the construction and under full an appropriate design enrocures to reduce roll of damage. 3 Year applicable. C - Year applicable. | n Jorgan | 2 1 | Jeru cannot be assisted as at short the native stresses the submit. The mitigation will be to be about the superior to be submit and without the appearance of the submit of submit of submit of submit or submit of submit or submit of submit or submit of sub | Broke at Rage 1 | | | | | | | | | | | | | n High High | Section specific | -01478C073 739898E48 |
| 18776 AML GRO. 322.005 Ves. | ARCIDIS Nage 2 | Gestedinisid Septemb 2008 | er 21. Sieu saken'i proponed für raude opti 22a and 224 für diprosed in saufs. Proponed sukeni ali shotnage (2. 60 +280m. | e Option K Overlanes to Series Sulge Section 12s | 4050M 52070 | | | Continuition | Nazard Sine colord proposed for roads option 12s and 12h for the roads such. Proposed colored at chainings Ch. 62 +280s. | Collapsing ground, buried dirusture. Collapsing broding to dip, trip, fell or serious. Injury for use Mileson. | | Angelia NDs E - Not possible. It - cause existing subsets and/or new for subsets is the continuated and understate appropriate design resources to reduce risk of damage. 1 - Not application. C - Not applicable. | n Inqui | 2 1 | Intercement the another con- ductible readon attention to the colories. The mitigation will be to assess the angust from the colories and colories appropriate design encourse, in the meditings. | Broke at Eliop 1 (in | | | | | | | | | | | | High High | n High High | British specific | -21476 HW 736HM X2 |
| 32777 AMA (MIC 122 AMI) 1944 | ARCIZOS Nagy 2 | Constructivated - Societies Constructivated - 2009 | ne 25. Named of the dissolution features are soluted similars based on the place. The arm. | Operan K Owenizamen he formen for Greek Bridge frecition 12/a | | | | Continue | Place of the distribution for the second and a final section of the distribution for the entire or a second on the entire or in second on the entire or in second on the entire or in second or or in se | Collegeing growni. Colleges Inselling to sign. She top, fell or serious righty to workflow. | | Bagdinistis. 12 Tryll accord management grandle. 15 Cony and con- trol of the control of the con | fei Desgran | | Second mentiograms to reversing the granuformalisms in the analysis of Tendino 21 in the analysis of Tendino 21 in the effect of the properties. Complete the entry of the ent | Review at Higgs 3 | | | | | | | | | | | | Page. 60 | Shedun Shedun | Market promoted | SPERIOR AND TOTAL TO AN |

| CRECT Hazard Triangle E2 Reference | Display in Sentified by Madels | By Nage Daugher Mexided | Date Added Design Activity or Elec | ment Location No. | ne Seilan Name - Enlings Nati | Northngs Easter Start | ngs End Northings End Chanage Start Eadi | Canage Sart ling Northing | Change End Easing End Northing | Place Silvaired | Maximil Or Constraint | aand or Combrant Description | in Generalin | mor of Design Subsity | Dreign helter Dreig State State Untelligend | printed Drogo initial Side Searchy Stat Saling Dec Sta | & Charter Authors, Toll Signer me | o Clemate Sob | Sign Self Autom Sy Size | Design Residud Risk Likelihand | Drago Drago Breaked Breaked B Bak Breakly Eating | | Desgree Connects | Seekend Seekend | Designer Designer Contractor Contractor Discussion Discussion Comments Date | and Carted mann Showers pared Implemented ing minution or | armitta Carretta armitta Carretta arbust Inesty | Northead Street | Community Commun | Managed Simples Since Clear Cod Comments | Managari Clare Ray Designari Clare Sal Comments Sale | Bristal Certral Std. Sheaver Driats Sequent | Add to Operation feedily and Maleriness Salety file Manual | included Property and Million Soliton Million Course | Cleat Cleat Smithed Smith Smithed Smith | Core PE So d Sector Septed So y Soing | Drawings SHE BEX Sequent TEST | Nondom SuBulli Owner Completion | Series Suite End Ser Sed CV CV Re Regnel Properti Ca | ge initial Design Rating Residual Risk agany Balling Category | Deni Communition Institutifficia Convent Bioli Exiting Cuting Uningpany | Signer Cor Cor Stati | stitution or credition to the control to the contro | |
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| 18779 AMA GRO 124 GRO | Yes ARCHOES | Sugr 2 Gestedniss | September 21, Stew culter is for route 2009 16ft and 34g. | Service MF | Stephen Kink in 42179 Gelin Maur | 50050 | | | | Combrattion | Hazard | er unberts for route options 3 d 16g | Colleges in Injury for an | g graend, bushed directure. Insiding to dig, trip, felf or serial and filmen. | | | design men applicable | millin. E - Gazzle existing culser for and/or new to be contributed and under take appropriate recurs to reduce risk of damage. 1- Nat n. C - Nat applicable. | for Designer | 2 | | Area count for another as all shortful realizations of the softmanners or resting cubers. The religation will be to assess the organi from the submissional undertake appropriate design reassums in the real slages. | Notes al Eage 1 | | | | | | | | | | | | | | | | | . Age | 4. | fection specific | - | 334 73604SLDRF |
| 18779 JAM GRO 114 006 | Yes ARCIDIS | Slage 2 Geoledonial | Segientier 25, Palential for shallow is 3008 | Section SE | Beylen Bankin 612954 Gester Maur | 14 132310 | 415495 109805 | | | Combraction | Hasard Pr | terial for studies bedrack. | due to inp | edrati oving recordin s. hjury ur draft to sortlinin spet from mang plast. | | | | milde. E. Enduce this with ground overligatio extent of challow bedone and recognister the design. I - Not applicable. C. Not applicable | in the Designer | | | Appropriate protendented ground provingation to establish location of studies leadents and assess subsidier reconstant method. | Notes at Eage 1 | - | | | | | | | | | | | | | | | | | - - | Beclan specific | 3 | 200 7262778.028 |
| 12790 AM. GHO 124.007 | VH. MICROS | Nage 3 Gentestmad General | | berlinn 50 | Replex Kinh bi Carlos Mose | | | | | Continuition | | leetiid für Yeikerisal meking- mesi une fürmblissen. | | The mine workings betweeth the distance applians beauling to Collapse breauling to day, trip, fall in injury to workflown. | | | infrastre on the patents 1 - Not appl | and may are if youth. I Corp at the original confidence of the second of the original confidence of the second date of account of the hazarati note working philatin. C. that applicable. | r Yes Sesigner | | | Datable interior (study to be solvinities, with a financing from the religible in transmit the patrol rate to the patrol rate to the patrol single if we had be produced to southed. Her sourced influences to request if they had any information regurning this had any information regurning this had any information regionsing this had an offert land. | Roma of Stage 3 | 34 | | | | | | | | | | | | | | | | h Median | Stellum Stellum | Britan general | 8 | 296 726460 206 |
| 36170 AM GRO 123.007 | YH. MICHOEL | | September 29, Existing shoultures and 2008 Society of approximal \$2.4500m, and amenia warb. | | | 12000 | | | | Combrattion | | SDm; and associated returning | g walls. The underline overlinking accommon Callagor of moving plan. | | | | and return changes in I | milite. E-Reduce risk by endergys of sinushure trig with its accurrentable road withring and a hand. I-Yout applicable. C-Not applicable. | In Desgree | | | To be taken only account during the design place. Redesign of distributes and reliabing with will be required to accommodate rise with reign and changes in land. | | - | | | | | | | | | | | | | | | | - | - | Beslän gesific | 4 | 222 726896.728 |
| 16175 AM GRO.122.000 | Vis ARCIDIS | Nage 2 Gentrelmini | Inglimiter 20, Earthwark Definition, 2008 hagiles | Section 32s | Overlands to Greta Bridge | | | | | Construction | Hazard D | ribust Selecis. | Purifier de Puberdidir Inading la | Medication of mobiling defects. Initial functions to mammal a injury of worklasse. | | | manuf. | millin. E - Gredenheisel Engineer is impedi erflusels und enflusels un eng., scartisis in messarel regardel in desge place (E 1 - Not applicable. C - Not applicable. | No. Docum | | | Control hold of Egyptical for Support and amending the critical marchinesh and all defends during all the summy, with appropriate militagation removames in the controlled during the design phase. Earl Sweet all the control of the control of 4 12 and 15 feet of 16 FOSE degraphs 7 | Notes at Eage 1 | - | | | | | | | | | | | | | | | | h lander | Belun Melun | perior promise | -07386 8 | MADS TOTOGRATICAL |
| 345.NE AME GRO 322.004 | Yes ARCIDITS | Nage 2 Geolechnial General | September 25, Risks associated with 6 3008 development. | the Industrial Option 6 Surveyly Section 12a | Great Bridge | | | | | Continuition | Maxand | is associated with the histori selapment. | Promote to | I land use leading to patential one contamination including limiterial circulares e.g. ses. Workline contail with satisfigmand or reposed to give a injury or death. | | 2 . | | uslin. It-finlum tils ett grund metligdin namet grund smillion, asses å mid tils assessent and from datum is I - Sat applicable. C-Sad applicable. | in In Designer | | | Scholansel dockers or the for election. Enter to Table 6 15th contaminated land assessment or mitigation resource. PEX Approals 7. | Review at Stage 5 | Cased | | | | | | | | | | | | | | | | dan law | tet Net Spythadd pplicable | Section general | 2 2238 | 600 7272120 306 |
| 36176 AMA GRO 112 005 | VH ARCIDIS | Nage 2 Geolechnical | September 25, 51. Mary's Chunchissa 2008 of nazir option 136 for charages Ch. 62 +625 +629. | sted 130w north Option K elween Sammely SandOh 62 Section 12a | Great Bridge | SS SISSON | | | | Combination | | Mary's Church listated 120m size option 126 between chair 1421 and Ox 62 4279. mage to mixing drydone ret | - 1 | ell mouscharts the grampe of with S. Mary's Chards | | a = 200 | | ein this by using Noute Option 12st which muss. 8. Many V. Church assisting the area. R. Not. 9. I. Not applicable. C. Not applicable. Include: T. Milliandous in decays to reduce visits. | Tes Designer | | | More dualing in this area further seath to asset the growquest or adopt proposed reade option Cla. The fourties of the dry doors and | Sevine at Rape 1 | 3 | | | | | | | | | | | | | | | 7 | idea | in line | Bellan gesilki | 4 | DES 7389176.880 |
| | Vis. ARCIDIT. | Sage 2 Geolechnical | eE78. September 21, Damage to mixing de 2008 wath including politics GDAVE reference 2000 | | | ET SERVETS | 410941 109040 | | | Continuition | | ds relading galaxy and - 168. Syringe 21,000K | COMS leading to | of retaining directures. Callague a serious/rejury or death. | | | dry dates a applicable | wall damage. 1 - Not applicable. C - Not b. | f fins Designer | 2 | | will be determined, and the aggregation mitigating design | Strains at Slage 3 | lan . | | | | | | | | | | | | | | | | ion l | - 1- | Section specific | 3 | 285 7262966.966 |
| 163.77 AM. GRO. NEL GRO | Ves ARCHOES | Suge 2 Gestednisal | 3008 Silfami Sig. | | | N SOUN | | | | Combraction | | ne coloris lie route aglices à d 14g. | | g grand, butted disalture. Irading to dig, trip, fall or seria. and filmen. | | | application. | millin. E-lacate entiting salverfu and/or new a les confirmation and underlake appropriate recurs los reduces risk of damage. 1- Nati n. C- Nati applicable. | tes Designer | 2 | | Description of the assisted as all shafted in administration of the watermanners or enaling solute for The enligation will be to assess the impact to on the collection of under take appropriate design measures, in the send slages. | Broke at Eage S | - | | | | | | | | | | | | | | | | | ngo Ingo | Bellin geifti | - | 200 7288786.060 |
| 16179 AM GRO 124 000 | Yes ARCIDIS | Suge 2 Gestednisal | Seglender 25, New cuberts for raule 2009 181 and 34g. | Section SSF | | 12 108000 | | | | Combraction | | | injung to m | g grand, buied drudure. Insideg in dig, inje, fall ar sense aurkliene. | | | design man application | milde. It - Counter-entiting culter is and/or new is become/miled and underlishe appropriate resource to media mile of diamage. I - Not is. C - Not applicable. | tes Desguer | 2 | | Date control for availables of shariful control interest like with manners or existing colories. The estigation will be to council to organic from the colories and under faith agrangiant design necessars in the seed stages. | Reine al liage I | - | | | | | | | | | | | | | | | | n ingo | | lection specific | - | 720042.307 |
| 161.79 AM. GEO 324.000 | Yes ARCIDIS | Suge 2 Geolecholad | September 21, Stew colors is for route 3008 10ff and 14g. | 3.2.2 | | 500,000 | | | | Contraction | Manard to | ne sidne is lie rande siglions 2 d 14g | ida, SBF Colleging Colleges in Injury for w | g grand, builed drudure. Inading to stip, trip, fall or seria workfarse. | | s 20 | griantitis E-flad pass subsets ini design mas applicable. | uside. E - Guarie esisting culter is and/or new a les construcied and undertake appropriate neurons to reduce risk of damage. I - Not n. C - Not applicable. | fies Designer | 2 | | fate count for availed as all decided readers interest title witness are sailing suberful The mitigation will be to assess the impact for mitigation will be to assess the impact for mitigation and with risks appropriate design measures, in the send stages. | Series al liage I | in the second | | | | | | | | | | | | | | | | . No. | igo Pago | declars specific | - | N. 353 72586 W. 362 |
| MEAN AND GROUND AND GR | Yes JACODES | Ringe 3 Genteshmad General | the area. | | Replies East his Carles Mose | | | | | Construction | Mased N | terdial for disculation between toral circles haved on Senesis me. | | g grund. Callague brailing in di ar unious injury in mobilinus. | | - | | aveit energ ere if pusible. F. Cery act en mel triviatie ground benedigsteller, blied en en der besteller besteller besteller besteller dat int ansatzler vill disseller bestern an artise. I - Staf applicable. C. Staf applicable. | The Desgree | | | Dissent investigation increasing the ground constitution in the states of infrastructure and infrastructure in the states of an experience of complete that country tasks as an exemple of the states | | Ser . | | | | | | | | | | | | | | | | h Shellon | Selun Selun | Britan general | 9 | 689 726029-989 |
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| 161.19 Add. GRO. 134.000 | Vis. Mccacis. | Nings 2 Gesterbread | Systemater 20, Paternial for Instances 2028 Line of over fluorible one. | Equatorying - Option % Surmorly Section SEP | Simples Rading (2000) Carlos Maso | 80780 | | | | Construction | Makeril Pr | leetiid für folianisi/meking- mekinne/fündblume. | Polential I Section 16 Colleges in Injury for an | the mine-workings beneath the E-make option booking in unlay booking be slig, Ivig, fall or write and filmon. | | | Detruite an | and many are if youther. If Corp and more continuous ground from the power of the original for a long of the model of the continuous ground and the continuous and th | Post Sougher | 2 | | Defaulted missing shady to the submit after, with a financial grows in medigation in course. The plants risk in the propert. At the most stage of a small for produce it is stated of the commit landscore in compact of they fail any silmouth requestly failed any silmouth requestly failed and all risk some entiry that is failed on their land. | Produce of Straight S | in the second | | | | | | | | | | | | | | | | lan | ine Law | Section general | -01875 | 60 731768 JW |