

**M42 Junction 6 Improvement
Scheme Number TR010027**

Volume 7.1

**Planning Statement and National Policy
Statement Accordance Table**

Regulation 5(2)(q)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
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**Planning Statement and National Policy Statement for National
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Executive Summary

Location of the scheme and description of proposals

This application for development consent has been submitted by Highways England for M42 Junction 6 Improvement (the Scheme) proposing the creation of a new junction (Junction 5A) approximately 1.8 kilometres (km) south of the existing Junction 6 of the M42 and a new 2.4 kilometre-long dual carriageway link road between the new Junction 5A and Clock Interchange with a free flow slip road to the A45 Coventry Road (A45). There will be capacity and junction improvements at Clock Interchange.

The development will comprise the realignment and modification of the B4438 Catherine-de-Barnes Lane (Catherine-de-Barnes Lane), Clock Lane and St. Peters Lane located west of the M42, and East Way to the north east of M42 Junction 6. The Scheme will also include the modification and improvements to public rights of way, footbridges and private accesses, emergency refuge areas, overhead gantries and message signing along the M42.

The host local authority is Solihull Metropolitan Borough Council (SMBC). The development also includes the provision of a reconfigured sports facility for the Warwickshire Gaelic Athletic Association (WGAA) at Páirc na hÉireann.

Background to the Scheme

The proposed development aims to address the current congestion and journey reliability issues on the M42 motorway at Junction 6, as well as the predicted growth in traffic associated with future planned development in the area. Junction 6 is currently a major access point to Birmingham Airport, the National Exhibition Centre, Birmingham Business Park, the National Motorcycle Museum and National Conference Centre, Birmingham International Railway Station and in the future, the High Speed 2 (HS2) Birmingham Interchange Station.

The main objectives of the Scheme are to:

- Ensure the safe and reliable operation of the road network;
- Increase the capacity of Junction 6;
- Improve access to key businesses and support economic growth in the area; and
- Helping cyclists, walkers and other vulnerable users of the network.

Consultation and engagement

The pre-application stage of the process to attain development consent commenced in 2016 and Highways England undertook a non-statutory consultation on proposed options from 9 December 2016 to 27 January 2017.

The statutory consultation ran for six weeks from 9 January 2018 to 9 March 2018, and a further targeted consultation from 4 September 2018 to 2 October 2018, as required by section 42 (s42), section 47 (s47) and section 48 (s48) of the Planning Act 2008. The consultation was held for statutory consultees, local communities and other interested parties to view the Scheme and understand the impacts.

Details of the consultation and engagement carried out, comments received and how these have been addressed within the Scheme can be found within the Consultation Report [TR010027/APP/5.1] which is in Volume 5 of the Development Consent Order (DCO) application.

The Scheme set out within the DCO application has given consideration to all comments and representations received through the extensive consultation and engagement activities held. The proposed development drawings can be found within the General Arrangement Plans [TR010027/APP/2.4]. Detailed information on land that is required for the Scheme as well as justification for requirement can be found within compulsory acquisition information in Volume 3.

The Scheme is classified as a Nationally Significant Infrastructure Project (NSIP), and needs development consent under the Planning Act 2008. Highways England has applied to the Secretary of State for Transport for a DCO through the Planning Inspectorate (the Inspectorate) in accordance with section 14 (s14) section 22 (s22), and section 31 (s31) of the Planning Act 2008. The draft DCO [TR010027/APP/3.1] is found in Volume 3 of the DCO application.

An Environmental Statement [TR010027/APP/6.1] is set out in Volume 6 of the DCO application. This document reflects the findings of the Environmental Impact Assessment and outlines and assesses the potential impacts of the Scheme, setting out proposals for mitigation which are secured through the schedule of requirements in the draft DCO.

Planning policy context

The strategic objectives of the Scheme align with national policy, notably the National Policy Statement for National Networks (NPSNN) and the National Planning Policy Framework (NPPF). The NPSNN specifically states in paragraph 2.2 that,

“There is a critical need to improve the national networks to address road congestion and crowding on the railways to provide safe, expeditious and resilient networks that better support social and economic activity; and to provide a transport network that is capable of stimulating and supporting economic growth. Improvements may also be required to address the impact of the national networks on quality of life and environmental factors” (Paragraph 2.2 of the National Policy Statement).

The mitigation measures incorporated in to the Scheme ensure that any impacts that may potentially be incurred are not without adequate justification.

The Scheme should facilitate economic growth, which was specifically considered in the design of the development. The Scheme is in accordance with local development plans including the Solihull District Local Plan 2013: Shaping a Sustainable 2013 as the Local Plan identifies that there is significant potential for economic growth based on key economic assets including Birmingham Airport and the National Exhibition Centre, with the M42 being the gateway to this potential growth.

Conformity with national and local planning policy is considered in further detail in Chapter 5 of this Planning Statement.

1 Introduction

1.1 Purpose and structure of this Planning Statement

- 1.1.1 This Planning Statement has been prepared for the proposed M42 Junction 6 Improvement (hereafter referred to as the 'Scheme') for which authorisation is sought by means of DCO. It supports the DCO application submitted by Highways England to the Planning Inspectorate (the Inspectorate), acting on behalf of the Secretary of State for Transport (SoS).
- 1.1.2 A Planning Statement is not a specific requirement of the Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009 (as amended) (the Regulations) for an application for development consent; however it has been submitted as part of a suite of supplementary documents which support the application, in accordance with section 5(2)(q) of the Regulations. The Planning Statement provides an effective mechanism for consolidating relevant planning information into a single location.
- 1.1.3 The Examining Authority (ExA) and SoS must decide an application for development consent in accordance with the relevant National Policy Statement (NPS), as per section 104(3) of the Planning Act 2008.
- 1.1.4 This Planning Statement therefore sets out in detail the case for the Scheme, the Scheme objectives and the options and alternatives considered. It also demonstrates how the Scheme complies with NPSNN and local planning policy where material to the decision. Accordingly it draws upon the conclusions of the supporting application documents and interprets them against planning policy considerations which have been identified as having relevance to the Scheme.
- 1.1.5 The structure of this document is as follows:
- Chapter 1: Introduction
 - Chapter 2: The Scheme
 - Chapter 3: The Need for the Scheme
 - Chapter 4: Scheme Development and Options Considered
 - Chapter 5: National Planning Policy Context
 - Chapter 6: Conclusions

2 The Scheme

2.1 Description of the existing route corridor

2.1.1 The Scheme would be implemented within an area broadly defined by:

- the M42 Junction 7 to the north;
- Bickenhill and Hampton in Arden to the east;
- Birmingham Airport and Catherine-de-Barnes to the west; and
- M42 Junction 5 to the south.

2.2 Existing land uses and environmental character

2.2.1 **Figure 2.1** shows the Order limits for the Scheme as a red line. The Order limits represent the limits of land to be acquired and used for the Scheme.

2.2.2 Land use in the area is marked by a contrast of urban development north of the A45 set against the more open, agricultural landscapes to the south and east of M42 Junction 6, which are defined by fencing and hedgerows.

2.2.3 Land immediately west of the M42 and north of the A45 is occupied by major commercial and transport developments including the National Exhibition Centre (NEC), Birmingham Business Park, Birmingham International Railway Station and Birmingham Airport. Further commercial development in the form of the National Motorcycle Museum (incorporating the National Conference Centre) is located directly off M42 Junction 6.

2.2.4 A large tract of open space located adjacent to the north-eastern boundary of M42 Junction 6 and close to the new HS2 Interchange Station has been identified for future development by Solihull Metropolitan Borough Council (SMBC) to facilitate delivery of the proposed mixed use UK Central development.

2.2.5 The M42 Junction 6 is a crucial junction on the Strategic Road Network (SRN) and sits within the section of M42 that forms the southern and eastern arms of the Birmingham Box area on the SRN.

2.2.6 The M42 Junction 6 is situated on the edge of Green Belt land referred to as the Meriden Gap. This mostly rural area to the south and east of M42 Junction 6 separates Coventry from the West Midlands conurbation.

2.2.7 Parts of Bickenhill and Hampton in Arden are designated conservation areas due to their built heritage interest, and contain various listed buildings of different grades and importance. Listed buildings are also associated with the village of Eastcote located south of Hampton in Arden, which contains a historic moated site designated as a Scheduled Monument.

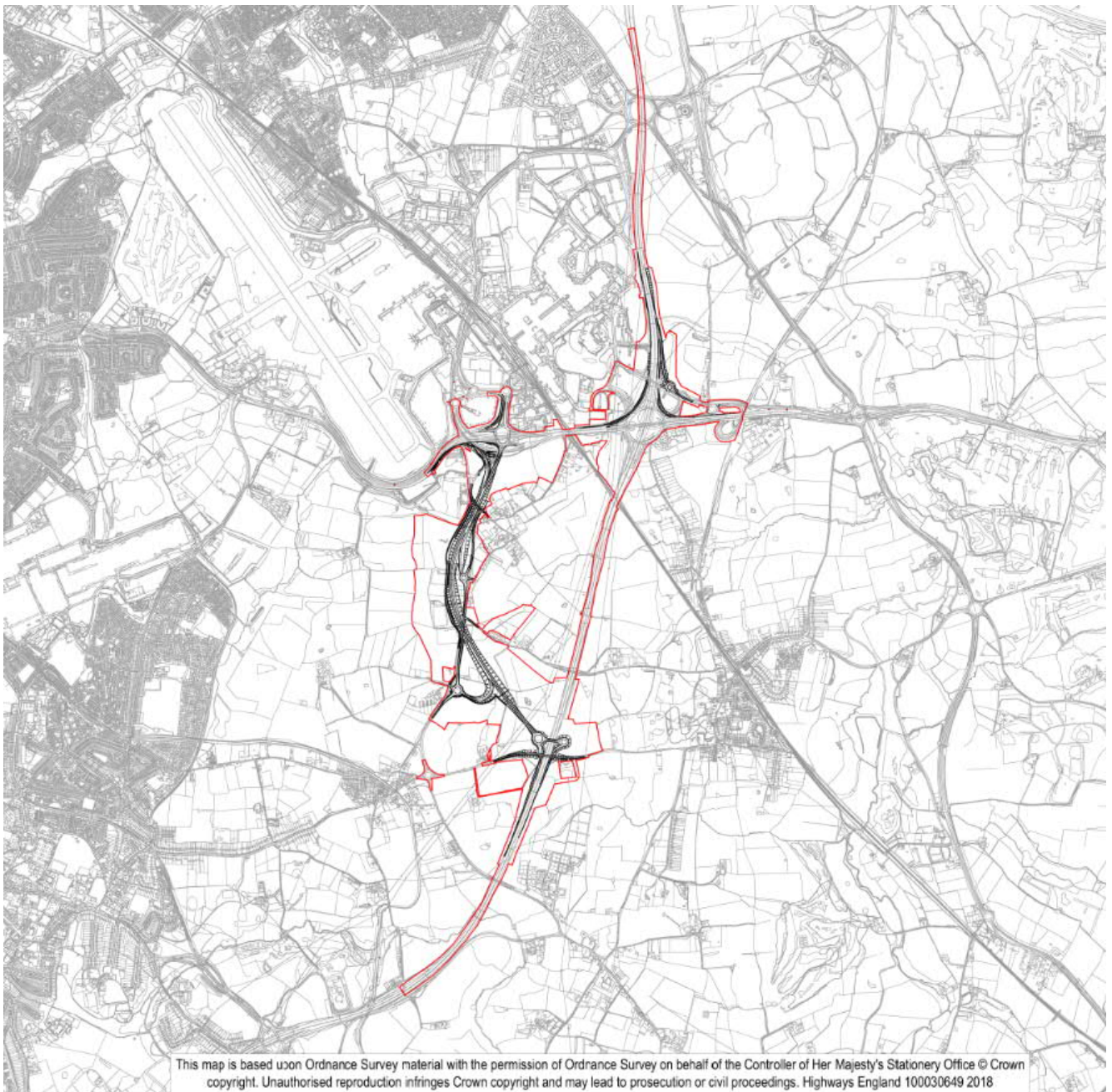


Figure 2.1: Map of proposed Scheme

- 2.2.8 Areas protected at the national level for their biodiversity value include Bickenhill Meadows Site of Special Scientific Interest (SSSI), located across the two units to the south and west of Bickenhill village, and the River Blythe SSSI to the east of the M42.
- 2.2.9 Local Wildlife Sites have been designated across the area. These are principally associated with established features such as woodland, grassland and watercourses, and include Aspbury's Copse scheduled ancient woodland adjacent to the B4102 Solihull Road (Solihull Road), Castle Hill Farm Meadows west of Bickenhill Village and Hollywell Brook north of M42 Junction 6.

- 2.2.10 Shadow Brook Meadows Local Nature Reserve, located near the junction of Catherine-de-Barnes Lane and Shadowbrook Lane, is a designated site of interest for its meadow and wet woodland habitats.
- 2.2.11 A number of individual trees, tree groups and woodland to the west of Hampton in Arden, to the east of Bickenhill, close to the M42 near Friday Lane, and surrounding the junction of the Solihull Road and Catherine-de-Barnes Lane, are afforded protection by Tree Preservation Order (TPO). Further afield, TPOs are also in place to the north of Eastcote, within Catherine-de-Barnes, and across the extensive woodlands of Hampton Coppice and Bickenhill Plantations.
- 2.2.12 A network of public rights of way traverses the area to the south of the A45, providing connections between the villages and settlements to the east and west of the M42 and the local road network. The long distance Green Man Trail route stretches from Castle Bromwich in the north to Solihull town centre, parts of which follow the existing public rights of way and local road networks to pass through Hampton in Arden and Bickenhill.
- 2.2.13 Undesignated recreational routes comprise a segregated cycle path along Catherine-de-Barnes Lane, and the Grand Union Canal located west of Catherine-de-Barnes, both of which have recreational value.
- 2.2.14 A significant amount of equipment and apparatus associated with public utilities is located around the M42 Junction 6. Other apparatus in the local area includes various 400kV and 132kV overhead transmission cabling and associated infrastructure, the Severn Trent Water Aqueduct and buried pipelines.

2.3 Scheme proposals

M42 Junction 5A

- 2.3.1 A new junction (M42 Junction 5A) is proposed approximately 1.8km south of M42 Junction 6. This dumb-bell junction would comprise two roundabouts immediately north of Solihull Road, each positioned either side of the M42 motorway and connected by a new bridge over the M42. The new junction would have south facing slip roads only, enabling M42 northbound traffic to exit the M42 motorway and join a new dual carriageway link road, and traffic travelling from the mainline link road to join the M42 motorway in a southbound direction.
- 2.3.2 The existing Solihull Road overbridge would be demolished and rebuilt on a slightly modified alignment to accommodate the new slip roads.

Dual carriageway link road and the local road network

- 2.3.3 A new 2.4km long dual carriageway link road would connect M42 Junction 5A with the A45 at Clock Interchange, replacing the existing connection between Catherine-de-Barnes Lane and Clock Interchange. The link would be predominately positioned in cutting to minimise visual and environmental impacts on Bickenhill and the surrounding countryside.
- 2.3.4 Catherine-de-Barnes Lane would be realigned between the Birmingham Dogs Home and Clock Interchange, and the existing connection to Clock Interchange would be closed.

- 2.3.5 A new roundabout (Barber's Coppice roundabout) to the east of Birmingham Dogs Home would provide access to the northbound carriageway of the link road, for the nearby properties and the WGAA sports facility (referred to by the users as Páirc na hÉireann). From Barber's Coppice roundabout, the realigned Catherine-de-Barnes Lane would pass over the link road on a new bridge. The existing T-junction with Shadowbrook Lane would be realigned to the north of its current location.
- 2.3.6 North of Barber's Coppice roundabout; Catherine-de-Barnes Lane, St Peters Lane and Clock Lane would provide local access only, with no direct access onto the A45.
- 2.3.7 A new roundabout (Bickenhill roundabout) located to the west of Bickenhill village would connect Catherine-de-Barnes Lane to St Peters Lane, and the link road southbound off-slip. From Bickenhill roundabout, Catherine-de-Barnes Lane would connect to Clock Lane via a new overbridge crossing the link road, and to St Peters Lane, via a modified T-junction.

A45 Coventry Road and Clock Interchange

- 2.3.8 The link road would connect to the A45 via a reconfigured Clock Interchange roundabout, which would be widened to have three lanes, new traffic signals, and improvements to slip roads joining the interchange. On the approach to the Clock Interchange from the mainline link road, a segregated left turn lane would enable traffic to join the A45 and head westbound. Spurring off the northbound carriageway of the link road, prior to the junction at Clock Interchange, a new free flow slip road would allow road users to connect to the existing link leading to Airport Way; allowing direct access to Birmingham Airport and the NEC.
- 2.3.9 The existing segregated lane from Bickenhill Lane to the A45 eastbound would be closed. Works would also be undertaken to realign and widen Bickenhill Lane, immediately north of Clock Interchange.

M42 Junction 6 free flow links

- 2.3.10 A free flow link for A45 eastbound to M42 northbound traffic would be constructed on the north-west quadrant of the junction, with an underpass constructed beneath the existing NEC access. To facilitate construction of this link, a sloped abutment on the existing East Way overbridge would be replaced with a retaining wall.
- 2.3.11 A free flow link from the M42 southbound to A45 eastbound would be constructed on the north-eastern quadrant of the junction. The existing connection to East Way would be modified through the introduction of a new slip road and roundabout to maintain access from the M42 southbound to the NEC.
- 2.3.12 The slip road from the A45 eastbound to the East Way roundabout would be closed, and the loop connecting East Way with the settlement of Middle Bickenhill would be upgraded to provide two-way access.
- 2.3.13 The existing M42 northbound to A45 westbound free flow link would be closed to traffic, and the M42 northbound off-slip road would be improved to accommodate four lanes of traffic and provide network resilience.

Modifications to the M42 motorway

- 2.3.14 Modifications would be undertaken to the M42 between Junctions 5 and 7 to alter the location and spacing of several emergency refuge areas (ERAs), and to accommodate the additional signing, gantries and road markings required by the new road layout.

Modifications to the WGAA

- 2.3.15 The link road would sever the existing access to the WGAA facility from Catherine-de-Barnes Lane, and will require land currently used for sports pitches. Modifications would be made to reconfigure the access and the layout of the affected pitches using adjacent land to the south of the facility, in order to secure its continued operation and viability.

Land acquisition and accommodation works

- 2.3.16 Land currently subject to a range of uses would be permanently taken to accommodate the engineering, drainage and environmental components of the Scheme, and temporarily for construction purposes.
- 2.3.17 New tracks, gated accesses and an accommodation overbridge across the link road (to the south east of Barber's Coppice roundabout) would enable landowners, residents and businesses to continue to access their property and land interests.

Road signage, markings, barriers, lighting and surfacing

- 2.3.18 New road signage and markings would be installed across the Scheme. Barriers would be installed on new and improved sections of road, with the appropriate type of road surfacing applied to new and improved sections of road depending on local conditions.
- 2.3.19 The new Junction 5A on the M42 and Clock Interchange would be lit, and some slip roads and local road junctions would be partially lit.

Earthworks and drainage

- 2.3.20 A combination of earthworks cuttings and embankments would be used to reduce the environmental impact of the Scheme, and to achieve the desired levels to connect into the existing road network.
- 2.3.21 Drainage infrastructure comprising kerb drains, gullies, filter drains, reed bed systems, pumping stations, underground storage tanks, culvert extensions and swales would be installed to capture, direct, store, treat and discharge carriageway run-off into drainage networks maintained separately by Highways England and SMBC.
- 2.3.22 Several new access tracks would be formed to allow drainage infrastructure to be inspected and maintained.

Landscaping and Boundary Treatments

- 2.3.23 Measures comprising improved grassland, trees, hedgerows and scrub planting would be used to: integrate the Scheme into the local landscape; create and enhance ecological habitats; screen new road infrastructure in existing views; provide visual interest to road users; and compensate for vegetation loss.
- 2.3.24 Boundaries created or altered by the Scheme would predominantly be demarcated using wooden post and rail fencing and hedgerows.

Non-Motorised User (NMU) provisions

- 2.3.25 Measures comprising footpaths, cyclepaths, underpasses and bridge crossings would be implemented at locations throughout the Scheme to enable the continued movement of non-motorised users on routes affected by temporary or permanent closures and diversions.
- 2.3.26 Enhancements would also be made to existing routes and facilities, including the relocation of existing bus stops affected by the Scheme.

2.4 Planning history of the Scheme

- 2.4.1 The Order Limits and the wider area beyond its immediate boundaries have been subject to a number of previous planning applications. On review of the planning applications submitted within the Order Limits from 2015 (taken from the SMBC online planning portal), two planning applications of significance have been identified and are discussed below.
- 2.4.2 As part of the wider economic development of the area, planning application PL/2015/51409/PPOL for a proposed Motorway Service Area (MSA) has been submitted (June 2015) to SMBC by Extra MSA Group, and is currently pending determination. This proposed development includes a new Junction 5A in broadly the same location as is proposed within the Scheme and broadly to the same design specification as described in paragraphs 2.3.1 and 2.3.2 above. In contrast to the proposed Junction 5A arrangement to be authorised by the DCO, the MSA planning application also includes an on slip road to the M42 northbound and off-slip road from the southbound M42 carriageway.
- 2.4.3 If the MSA is granted planning permission prior to the commencement of development of the Scheme authorised by the DCO, and subject to any binding agreement between both parties, it is anticipated that the applicant for the MSA scheme would construct Junction 5A in accordance with their planning permission. The MSA scheme includes its own mitigation and compensation measures to address the impact resulting from the loss of ancient woodland and other woodland due to the Junction 5A layout.
- 2.4.4 If the MSA is refused planning permission or planning permission is not forthcoming prior to the commencement of development of the Scheme, Highways England would only construct the southern junction as would be authorised by the DCO; i.e. without the inclusion of the north facing on-slip and off-slip roads or the spur road off the Junction 5A roundabout that would lead to the proposed site for the MSA.

- 2.4.5 In developing the preliminary design for Junction 5A within the Scheme, Highways England has taken the view that as the MSA currently does not benefit from planning permission it should not be considered a committed development. Accordingly the Scheme has been designed in a way that is optimal to deliver the scheme objectives. Nevertheless, Highways England has engaged with the applicant for the MSA scheme and sought to ensure that, where practicable, the design of Junction 5A would not preclude the MSA scheme being delivered if authorised following the implementation of the Scheme. Highways England will continue to engage with the applicant for the MSA as proposals for both schemes develop.
- 2.4.6 Within the Order Limits the other relevant planning application includes application PL/2016/00451/PPFL for the demolition of a garden centre (Class A1) and a bungalow (Class C3) and erection of motel (Class C1) and retention of tea room/restaurant (Class A3) (Resubmission of application PL/2012/01098/FULM) (Permission granted, June 2016). This application has currently not been implemented and it is envisaged that implementation would not be hindered by the Scheme.
- 2.4.7 A full assessment of the cumulative effects of the Scheme has been undertaken, with the results reported in the Environmental Statement (ES) Chapter 16 Assessment of cumulative effects [TR010027/APP/6.1].

2.5 The requirement to seek a DCO and an Environmental Impact Assessment

- 2.5.1 The Scheme is a NSIP, as defined under s22 (1)(a) of the Planning Act 2008, as the Scheme principally comprises the construction of a highway wholly in England and the SoS would be the highway authority for the highway.
- 2.5.2 As the Scheme is a NSIP, a DCO is required to authorise and allow its construction and operation. This is sought from the SoS, submitted through the Inspectorate, under s37 of the Planning Act 2008.
- 2.5.3 The Scheme requires an Environmental Impact Assessment (EIA) as defined by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations).
- 2.5.4 An EIA Scoping Report was prepared to comply with section 10 of the EIA Regulations and an ES [TR010027/APP/6.1] has been submitted as part of the DCO application. The ES provides an assessment of the potential impacts of the Scheme and subsequent mitigation to be provided for the Scheme.

2.6 Order Limits and Limits of Deviation

- 2.6.1 The Order Limits represent the anticipated maximum extent of land in which the Scheme would take place. This is 255.6ha (although not all this land take would be permanent).

2.6.2 The Scheme requires 152.7ha of land subject to compulsory acquisition (freehold to be acquired where not already held by Highways England), the temporary possession alone of 38.91ha and the temporary possession of 60.63ha of land over which permanent rights will also be acquired. It should be noted that 70.27ha of the land to be acquired or used permanently is land contained within the existing highway boundary.

2.7 Host and neighbouring authorities

2.7.1 **Figure 2.2** illustrates the context plan of authority boundaries consulted in relation to the Scheme.

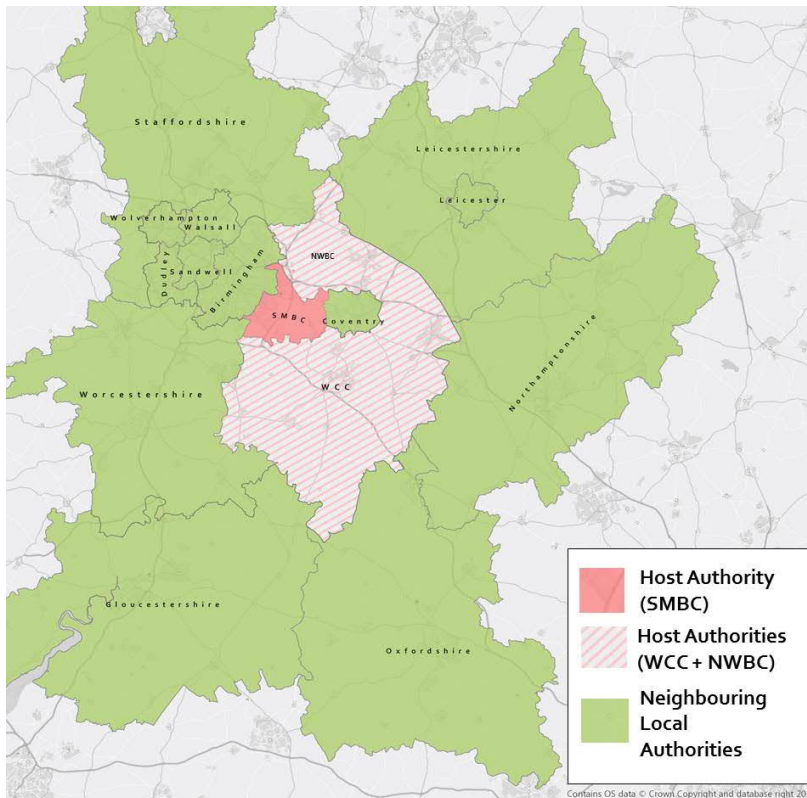


Figure 2.2: Map of the local authorities consulted

2.7.2 The extents of the Scheme are located predominately within the administrative boundary of SMBC, with the exception of the northern extent of the Order Limits on the M42; where the administrative boundary of Warwickshire County Council and North Warwickshire Borough Council encroaches into the eastern section of the M42 highway boundary.

2.7.3 **Appendix 2** of this Planning Statement provides full details of the local planning policies relevant to the Scheme.

2.8 The applicant

2.8.1 The applicant is Highways England, which is the Strategic Highway Authority as defined in the Infrastructure Act 2015. Highways England is responsible for the maintenance and improvement of the trunk road and motorway network in England.

3 The Need for the Scheme

3.1 Requirements of the Planning Act 2008

3.1.1 The NPSNN sets out the need and Government policies for nationally significant infrastructure rail and road projects for England. It is used by the SoS as the primary basis for making decisions on development consent applications related to such projects. S104 of the Planning Act 2008 states that, where there is a relevant national policy statement in place, as with the Scheme, then the SoS must decide the application in accordance with the NPSNN unless one of the four exceptions listed in s104 applies. The exceptions do not apply to the Scheme and this Planning Statement sets out the need for the Scheme by reference to the NPSNN and other national and local policy.

3.2 Strategic context

- 3.2.1 Highways England's license requires it to establish and maintain a clear understanding of the pressures upon and impacts of its network at both a national and route level (including in the preparation of route strategies), and be aware of the actions needed to improve conditions for users, and manage or mitigate existing problems, to inform the future development and improvement of the network and its performance.
- 3.2.2 The Scheme was first announced in the Autumn Statement 2014, and was subsequently included in the Road Investment Strategy (RIS) 2015-2020¹, which outlines Government's plan for long term investment in the SRN.
- 3.2.3 The RIS describes the requirement for the Scheme in the context of the wider transport developments, HS2. 'With work set to start in 2017 and the first trains between London and Birmingham planned for 2026, HS2 is fast becoming a reality. To drive maximum benefits, it is important that we give full and early consideration to how the SRN can dovetail with, and support, HS2. Connectivity to stations, particularly the new Parkway Stations, is vital. Access to HS2 stations will be assisted by the planned improvements to the M1 in Nottingham (Junctions 24 – 25), as well as schemes on the M1 in Yorkshire (Junctions 32 – 35A) and the M42 (Junction 6) near Birmingham Airport' (Part 1 - page 41).
- 3.2.4 The RIS definition of the Scheme states the requirement for a, 'comprehensive upgrade of the M42 Junction 6 near Birmingham Airport, allowing better movement of traffic on and off the A45, supporting access to the airport and preparing capacity for the new HS2 station' (Part 2 - page 40).
- 3.2.5 Together with the regional requirement providing the passage to central Birmingham from the east and to Coventry from the west, the M42 Junction 6 is a key section of the SRN linking the long distance transient route between the M5 and M1 navigating around the cities along the M42 and providing connections

¹https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/410029/ris-for-2015-16-road-period-print-version.pdf

onto the M40 and M6. The London and Scotland West Route Strategy² (L&SW) report published in April 2015 identified challenges and issues with this route.

- 3.2.6 The M42 forms two sides of the Birmingham Box and serves both longer distance strategic trips and a large number of local commuter journeys. Although the introduction of Smart Motorway technology on this stretch of the M42 significantly improved its operation, the planned scale of new development in the area, including the new HS2 station, will require further capacity enhancements, particularly around Junction 6 (L&SW p10).

3.3 Regional growth

- 3.3.1 The Scheme and surrounding roads are intrinsic to the movement of customers in and out of the area to enable the growth in the transport, manufacturing, technology, retail and the leisure and tourism sectors.
- 3.3.2 The SRN facilitates the existing links to all the other major modes of transport. Birmingham Airport currently employs more than 6,000 people and manages the flow of 13 million passengers per year and Birmingham International Railway station serves 4.5 million passengers per year. Both are looking at expanding their operations over the coming years as set out in their respective strategic plans; Birmingham Airport Draft Master plan 2018 outlining a growth of 18 million passengers and West Midlands and Chiltern Route Study setting out a growth of up to 6.7 million passengers. Both businesses would benefit from significant changes at Clock Interchange, creating additional capacity on the A45 and enabling alternate routes for traffic entering and leaving their facilities.
- 3.3.3 There are two large scale employment sites currently expanding their facilities. Birmingham Business Park is home to over 100 companies including Rolls Royce, Fujitsu, EE and IMI. Set within 148 acres of mature parkland, it has planning consent for a further 17 acres of development land. Jaguar Land Rover (JLR) at Solihull, currently employ more than 10,000 staff and have recently invested in technology upgrades to build the next generation of Land Rover models and are looking to expand their facilities in the future. Both sites would benefit from a greater reliability and resilience in the network to ensure consistency and continuity for their activities.
- 3.3.4 HS2 phase 1 gained Royal Assent in February 2017 and has been designed to link London and Birmingham through a high speed rail network. The Birmingham Interchange Station has recently been in consultation; outlining the automated people mover and plaza which will provide connectivity between the station, car parks, public transport facilities, the NEC and Birmingham Airport. Construction is planned to start in 2019 for completion by 2026.
- 3.3.5 To maximise the economic benefits that HS2 will bring to the region, there are proposals to utilise the surrounding 350 acres to create a mixed-use development site called Arden Cross for housing, commercial, retail and leisure space. The accessibility to the new station is reliant on alleviating the current congestion and

²[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/600319/London to Scotland West Final.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/600319/London_to_Scotland_West_Final.pdf)

providing additional capacity for the expected 42% of London-West Midlands passengers using Birmingham Interchange Station.

- 3.3.6 All of the above developments are outlined in SMBC's draft local plan November 2016 Appendix 2. The various investments form an essential part of a larger £1.63 billion Government Growth Strategy which is being developed with local partners, through UK Central (UKC) and Solihull Urban Growth Company (UGC) as described in their master plan.
- 3.3.7 In combination all these developments in the area create a gateway to the Midlands as part of the Midlands Engine Growth Strategy.
- 3.3.8 In addition to the medium and long term growth in the area, Birmingham won the bid to host the Commonwealth Games in 2022. With seven of the 17 events being held at the NEC and the remaining in other venues in and around Birmingham, there is a requirement for free flowing traffic during the games to help the events run smoothly allowing competitors and spectators ease of access.
- 3.3.9 In addition to the developments outlined above that are in current operation, there are three existing large scale leisure sector businesses.
- 3.3.10 The NEC has 19 exhibition halls and 34 conference suites, and includes Genting Arena. It holds around 500 events per year including some of the Nation's largest events, bringing approximately 6 million visitors into the area annually. With a car parking capacity of over 16,500, this creates heavy peak movements of traffic at the most popular events. Although measures are in place to control traffic flows for these events they require extensive operations increasing the costs and risks associated with day to day management. The facility would benefit from increasing capacity and providing alternative routes in and out of the area.
- 3.3.11 The National Motorcycle Museum has an annual visitor tally of 250,000 directly connecting off the M42 Junction 6. The microprocessor optimised vehicle actuation (MOVA) dynamically staggering the traffic lights assists in managing movement providing a window to exit the facility (the exit onto Junction 6 is not signalised) but with larger events at their conferencing facility there is queuing out of the museum. The facility would benefit from reduction in volumes of traffic passing around the junction.
- 3.3.12 Resorts World is a shopping, entertainment and leisure destination adjacent to the NEC contributing to the regular movement of visitors to the area.

3.4 Current operational condition

- 3.4.1 The existing SRN assets around and including M42 Junction 6 are in a good condition and all available operational interventions are already implemented as follows:
- a. NEC Operational Plan for event management;
 - b. MOVA traffic management system installed to control the traffic signals around Junction 6;
 - c. Variable Message Signs (VMS) providing information for high attendance events;

- d. West Midlands Police motorcycle resource for key events;
- e. solar powered CCTV monitoring of the junction 24/7;
- f. yellow box markings to prevent “junction blocking” on the island;
- g. keep clear road markings on the island; and
- h. ramp metering off Junction 6 for the north and south facing M42 motorway on-slips was deactivated.

3.4.2 There are no further planned operational works.

3.5 The Scheme objectives

3.5.1 The Scheme has two strategic requirements in line with the RIS commitment, namely:

- a. increasing capacity, providing improved journey time reliability and reducing congestion at the M42 Junction 6 and for better movement of traffic on and off the A45; and
- b. unlocking the potential for economic growth in the surrounding area, delivering ahead of the need for growth from HS2 and the surrounding developments.

3.5.2 The Scheme has four specific objectives:

- a. **Making the network safer: Promote reliable and safe operation of the road network.** The Scheme will improve the safety of the network by providing additional capacity, reducing driver stress and enabling safer access to and from the motorway.
- b. **Support the smooth flow of traffic: Increase the capacity of the junction supporting smoother flow of traffic around the M42 Junction 6.** The scheme will improve traffic flow by removing a significant amount of vehicles from the roundabout at junction 6. It will also provide improvements to Clock Interchange on the A45 to the west of junction 6 to increase its capacity and to ensure it can manage the increased traffic using it.
- c. **Encourage economic growth: To improve access to key businesses and support economic growth in the area from the new HS2 Birmingham interchange station and connectivity to Birmingham Airport.** Junction 6 provides a connection between the SRN, and the A45, providing strategic **access** to Birmingham (to the west) and Coventry (to the east). It provides the main access to an expanding Birmingham Airport, Birmingham International Railway Station and JLR, the NEC, the National Motorcycle Museum and National Conference Centre, and the HS2 Birmingham Interchange station, expected to be operational by 2026. Current congestion and journey time reliability issues on the M42 and at junction 6 are significant constraints to future investment and economic growth. An improvement to the junction will encourage continued investment in the regional economy and support new corporate, commercial and residential opportunities, for example the proposals by UK Central for a mixed-use development immediately north-east of junction 6, which will maximise the benefits HS2 can bring to the region.

- d. **Helping cyclists, walkers and other vulnerable users of the Network: To replace or re-route existing severed links and provide new routes.** It will improve the non-motorised user (NMU) routes in the area, providing improved access across the A45 to link with other NMU provision in the area.

3.5.3 In addition to the Scheme objectives listed above, the Scheme also will contribute to meeting the following secondary objectives:

- a. **Deliver better environmental outcomes: The Scheme will mitigate and compensate its biodiversity impacts.** The Scheme must not increase the numbers of air quality management areas and or noise important areas and should seek opportunity to reduce the existing measured levels. Habitats identified and removed are to be replaced.
- b. **Improve user satisfaction: Seek to minimise disruption and road closures during construction.** This would be achieved through improvements in journey time reliability, less peak-time congestion, driver experience enhancement and a reduction in accidents. Disruption through construction should also be reduced through completing the majority of construction works offline and applying suitable traffic management and communication.
- c. **Achieving real efficiency: The scheme should aim to match or improve the allocated budget within the category of £250m to £500m as defined in the RIS investment plan commitments.** In order to ensure an efficient cost solution is proposed, the scheme is to take account of the latest working practices and design efficiencies without reducing benefits against the specific scheme objectives.
- d. **Keeping the network in good condition: Replace pavement associated with SRN connection points at Junction 6.** Any new on and off slip road connections and junction improvements will replace existing pavement to ensure a smooth transition between joints in the network and extend the life of the assets.

3.6 The need case

3.6.1 In line with the strategic context, regional growth and current conditions, the following strategic cases were considered to assess the requirement for an intervention comparing it with the scenarios of 'do nothing' and 'do minimum'.

3.6.2 The network has been modelled to show current network performance defined in Chapter 6 of the Transport Assessment Report [TR010027/APP/7.2]. With a 'do nothing' scenario, based on the network flows measured and modelled in the base year 2016, the assessment indicates that the existing network in the area already experiences capacity problems in the PM peak hour. The M42 Junction 6 is one of the busiest interchanges in the country. It currently operates close to capacity and is subject to variable traffic flows, particularly from the NEC.

3.6.3 If a scheme were not implemented, the exacerbation of the following issues for this part of the national road network would occur compared against the objectives.

- a. **Safety Network** - Further deterioration in safety is predicted in future years, resulting in increased accident rates in and around M42 Junction 6. Increasing congestion, coupled with the high level of drivers unfamiliar with the area (due to facilities such as the airport, NEC and HS2 traffic), are likely to have a detrimental impact on safety on this section of the SRN;
- b. **Relieve Congestion** - M42 Junction 6 is noted as already being at capacity, with current event demands contributing to significant congestion on the M42 mainline and local road network. The existing SRN does not have the capacity locally to accommodate the growth in the area. This leads to significant delays and congestion in comparison with the rest of the country. This is particularly pertinent as it is at a location where high reliability is particularly important due to the large and increasing volume of scheduled flights, events and trains that are accessed via Junction 6. At present, congestion levels severely affect the resilience of this section of the M42 and are becoming increasingly difficult to manage, particularly during high peak periods when events and flight flows reach their highest point. This is likely to worsen over time as future congestion is predicted to increase with no or little further infrastructure investment, and;
- c. **Economic Growth** - Significant development is planned in the area surrounding the M42 Junction 6, which will have a marked impact on the economy, connectivity and accessibility. The level of congestion predicted during peak hours in future years means M42 Junction 6 will operate at an unacceptable level to service the economic growth.

3.6.4 Under 'do minimum', all minor interventions have been exhausted excluding ongoing maintenance. The traffic lights at the bottom of slip road onto Junction 6 have been switched off to alleviate traffic build up, operational plans are in place between the NEC and Highways England to manage traffic in an organised fashion to control movements in congested areas during key events and there is continual surveillance monitoring in place together with traffic officer road management to mitigate existing operational issues. A pinch point improvement scheme was carried out in late 2014/early 2015 partially widening the circulatory carriageway and eastbound approach slip road at Junction 6 to provide temporary relief to queue lengths until 2019 only. The improvement effects of this intervention have already passed.

3.6.5 Considering all factors above there is a need to 'do something'. An intervention is required to meet the objectives of; creation of additional capacity at Junction 6, alleviating congestion which would unlock additional investment and further economic growth; enhance accessibility between key assets in the area, including the new HS2 station; improve the operation of the strategic corridor; and improve journey time reliability.

3.7 Commitment

3.7.1 The Scheme commitment has been maintained since it was set out in the 2015 to 2020 Delivery Plan, which stated 'We will be developing the options in more detail and preparing the scheme for public consultation in 2016, this will take into account planned station developments linked to HS2. We anticipate being able to

recommend a preferred route in early 2017. We are planning to start construction in 2020'. Subsequent updates of the delivery plan have confirmed that the scheme is still required and is on target for the start of construction in 2020 to support the construction of HS2 Birmingham Interchange Station and growth in the area.

4 Scheme development and options considered

4.1 Overview

- 4.1.1 The Scheme has been subject to a process of staged development and evolution between its inception in 2014 and DCO application in 2019. A detailed description and analysis of the options considered is available in the ES Chapter 4 Scheme history and alternatives [TR010027/APP/6.1].
- 4.1.2 Additionally the Consultation Report [TR010027/APP/5.1] describes in detail how the design has evolved to take into account comments from stakeholders.

4.2 Options development and shortlisting

- 4.2.1 Work was initially undertaken by Highways England to define the problem and develop potential solutions to meet the project objectives and to inform the RIS.
- 4.2.2 Following the identification of the need for an intervention, as described in Chapter 3 above, Highways England continued to develop options that would meet the objectives of the Scheme. These options were developed on the basis of improving the junction through adoption of the following principles:
- a. adding an additional junction either north, south or both north and south of M42 Junction 6; or
 - b. reconstruct M42 Junction 6 with improved geometry to allow better free-flow movements; or
 - c. provide a collection of individual Do Minimum or Do Something improvements, either individually or combined, that could provide traffic relief.
- 4.2.3 During this process a total of 40 options were identified for strategic assessment. This development included a workshop, held by Highways England in January 2016. The purpose of the workshop was to obtain a broader view of the options and included representatives from SMBC as local highway authority, and Birmingham City Council and the NEC.
- 4.2.4 In order to assist their appraisal and differentiation, these options were allocated into the following themes:
- a. Theme 1-North and South Junctions-6 Initial Options;
 - b. Theme 2 Southern Junction-13 Options;
 - c. Theme 3 Interchange- 5 Options;
 - d. Theme 4 Northern Junction-3 Options; and
 - e. Theme 5 Do Something/Do Minimum-13 Options.
- 4.2.5 An initial sifting exercise was then undertaken and 22 options were discounted.
- 4.2.6 The 18 remaining options were then compared to establish their relative performance using Department for Transport's (DfT) Early Assessment and Sifting Tool (EAST). EAST is a decision support tool that enables options to be summarised in a clear and consistent format. Whilst the tool does not provide a

recommendation it does provide high-level information on how options perform and compare.

- 4.2.7 The EAST assessment concluded that options within all five themes could potentially be developed as suitable solutions to meet the Scheme objectives, but that there was considerable design variation across some of the options. The assessment also recorded that some of the individual options may perform better if combined, noting that the southern junction options generally outperformed others.
- 4.2.8 Based on the assessment, six options were selected to be progressed for further assessment.
- 4.2.9 The remaining six options were subject to further assessment and testing using the DfT's Transport Analysis Guidance (TAG) framework based on the following factors:
- a. Environmental
 - b. Highways Design/Geometry
 - c. Safety
 - d. Stakeholder Consultation
 - e. Buildability Assessment
 - f. Cost Estimates
 - g. Traffic Assessment
- 4.2.10 Continued development and TAG assessment resulted in the selection of 3 options, Option 1, Option 2 and Option 3, which were promoted at a non-statutory public consultation between 9 December 2016 and 27 January 2017.
- 4.2.11 A series of workshops were held after the public consultation exercise to evaluate the consultee response, alongside other information gathered from the ongoing assessment and modelling of the Scheme, in order to identify a preferred option for taking forward to the next stage of development.
- 4.2.12 The workshops also considered an objection raised by the WGAA as the link road component of one of the consultation options would affect a number of sports pitches under their ownership. In response, three further variants of Option 1 were developed (Option 1A, Option 1B and Option 1C) to avoid or reduce impacts on this recreational facility.
- 4.2.13 Following the assessment, Option 1B was selected as the preferred option based on the following outcomes and considerations:
- a. would meet the requirements of the brief set out in the DfT's RIS 2015-2020;
 - b. received the largest support at public consultation (as Option 1, prior to the Option 1B variant being introduced);
 - c. when compared to the other options, Option 1B would have the least impact on Green Belt land, private properties and statutory utilities;

- d. would have a greater likelihood of receiving planning consent due to the ability to demonstrate policy compliance;
- e. would have the fewest departures from highway design standards;
- f. would have a reduced impact on the WGAA facility;
- g. offered good value for money;
- h. the link road would be positioned in cutting to reduce potential landscape, visual and noise effects, and offered greater scope for mitigation; and
- i. would not preclude future potential junction improvement works being undertaken, and would not preclude the development of the MSA.

4.2.14 Highways England formally announced the modified Option 1B as their preferred route on 7 August 2017.

4.3 Scheme development following preferred route announcement

- 4.3.1 Following publication of the preferred option in August 2017, the design of the Scheme continued to be developed and refined in response to the following:
- a. the emerging findings of the EIA, traffic modelling and economic appraisal;
 - b. the outcomes of project team design review workshops;
 - c. feedback gained from statutory consultation held between 9 January 2018 and 9 March 2018, and further targeted consultation held in between 4 September 2018 and 2 October 2018;
 - d. information obtained through intrusive and non-intrusive investigations, surveys, sampling and modelling undertaken as part of the design-development and EIA processes; and
 - e. engagement with statutory organisations and other stakeholders regarding the form and location of the Scheme, and environmental mitigation requirements.

- 4.3.2 As with initial design development, a staged approach was adopted. Design work was paused at design fix milestones during the preliminary design in order to enable consultation, modelling and assessment activities to be undertaken, and to ensure that the design included people's views and concerns based on:
- a. Design Fix - November 2017: this incorporated the preliminary design undertaken between August 2017 and November 2017, and developed the Preferred Route in more detail to understand what detailed assessment work was required, and formed the basis of the statutory consultation exercise held between 9 January 2018 and 9 March 2018.
 - b. Design Fix - April 2018: this incorporated the design between November 2017 and April 2018, which developed the design further including understanding the outcome from the statutory consultation feedback
 - c. Design Fix – October 2018: this incorporated the period from April 2018 to October 2018, which undertook further design taking into account of feedback from statutory consultation, further targeted consultation held in between 4

September 2018 and 2 October 2018. In addition this also included the emerging outcomes of ongoing surveys and the Environmental Impact Assessment process; to ensure mitigation appropriate to the assessments were included in the scheme being promoted.

5 National Planning Policy context

5.1 Introduction

- 5.1.1 This chapter provides an assessment of the Scheme's strategic alignment and conformity with relevant national planning policies within the NPSNN. A comprehensive assessment of the Scheme's conformity with the NPSNN is contained within **Appendix 1**. A further assessment of the Scheme's accordance with relevant local policy, as well as local transport policies and programmes is set out in **Appendix 2**.
- 5.1.2 In the National Infrastructure Delivery Plan 2016, the Government is clear about the importance of investment in transport infrastructure to stimulate economic growth and the role of a functional transport system as essential to the success of the UK economy. The NPSNN and other policy documents highlighted below demonstrate Government's commitment to support investment in the strategic road network.

5.2 Policy context

National Planning

- 5.2.1 The following are national level planning policy documents which are of relevance to the Scheme:
- a. NPSNN 2014.
 - b. National Planning Policy Framework 2018 (NPPF).
- 5.2.2 The NPSNN is the key planning policy document for the Scheme, as it provides the framework for the recommendations of the Examining Authorities for NSIPs.
- 5.2.3 **Table 5.1** demonstrates how the Scheme conforms to the objectives and aspirations set out within national planning and Government policy at a strategic level.

Local Development Plans

- 5.2.4 The Scheme is located within the administrative boundary of SMBC.
- 5.2.5 The Solihull Local Plan 2013 replaced the saved policies of the Solihull Unitary Development Plan and is now the Council's statutory development plan and the starting point in planning decisions. This is further detailed in **Appendix 2**.
- 5.2.6 Local authorities provide important input into NSIPs, providing local perspectives and have a monitoring and enforcing role once a DCO is granted. However, if there is a conflict between local planning policy and policy within the NPSNN, the latter will prevail.

5.3 Conformity with National Policy

National Policy Statement for National Networks 2014

- 5.3.1 The NPSNN was published in December 2014 and sets out the need for, and Government's policies to deliver, development of NSIPs on the national road and rail networks in England.
- 5.3.2 Section 104 of the Planning Act 2008 states that when deciding a NSIP application, the SoS must have regard to any National Policy Statement (NPS) which relates to the development being considered. The SoS will therefore use the NPS as the primary basis for decision making on development consent applications for national networks and NSIPs in England.
- 5.3.3 The NPSNN sets out the Government's vision and policy against which the SoS will make decisions on applications for development consent for NSIPs on the strategic road and rail networks.
- 5.3.4 Paragraph 1.2 of the NPSNN states that:
- "Under section 104 of the Planning Act the Secretary of State must decide an application for a national networks nationally significant infrastructure project in accordance with this NPS unless he/she is satisfied that to do so would:
- *lead to the UK being in breach of its international obligations;*
 - *be unlawful;*
 - *lead to the Secretary of State being in breach of any duty imposed by or under any legislation;*
 - *result in adverse impacts of the development outweighing its benefits;*
 - *be contrary to legislation about how the decisions are to be taken".*
- 5.3.5 The NPSNN clarifies that where it refers to other documents "*these other documents may be updated or amended over the time span of the NPS, so successor documents should be referred to*".
- 5.3.6 The NPSNN is not scheme-specific and does not set out a programme of road schemes, but instead deals with road and rail at a strategic level. It also sets out the principles by which applications for road and rail schemes should be assessed.
- 5.3.7 NPSNN paragraph 2.2 states that:
- There is a critical need to improve the national networks to address road congestion and crowding on railways to provide safe, expeditious and resilient networks that better support social and economic activity; and to provide a transport network that is capable of stimulating and supporting economic growth.
- 5.3.8 The NPSNN sets out general policies in accordance with which applications relating to national networks infrastructure are to be decided. Paragraph 4.2 states that:
- Subject to the detailed policies and protections in this NPS, and the legal constraints set out in the Planning Act, there is a presumption in favour of

granting development consent for national networks NSIPs that fall within the need for infrastructure established in this NPS. The statutory framework for deciding NSIP applications where there is a relevant designated NPS is set out in s104 of the Planning Act.

5.3.9 Paragraph 4.3 states that: “In considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the Examining Authority and the Secretary of State should take into account:

- *Its potential benefits including the facilitation of economic development, including job creation, housing and environmental improvement, and any long-term or wider benefits...*
- *Its potential adverse impacts, including any longer-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.”*

5.3.10 Paragraph 2.22 of the NPSNN states that:

Without improving the road network, including its performance, it will be difficult to support further economic development, employment and housing and this will impede economic growth and reduce people’s quality of life. The Government has therefore concluded that at a strategic level there is a compelling need for development of the national road network.

5.3.11 In the summary of need on page 9 of the NPSNN, the following vision and strategic objectives are set out:

“The Government will deliver national networks that meet the country’s long-term needs; supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system. This means:

- *Networks with the capacity and connectivity to support national and local economic activity and facilitate growth and create jobs*
- *Networks which support and improve journey quality, reliability and safety*
- *Networks which support the delivery of environmental goals and the move to a low carbon economy*
- *Networks which join up our communities and link effectively to each other.”*

5.3.12 The conformity of the objectives of the Scheme with the ‘vision and strategic objectives’ of the NPSNN is set out in **Table 5.1**

Table 5.1: Comparative objectives of the Scheme with the NPSNN

Summary of Need (NPSNN Chapter 2): Government's Vision and Strategic Objectives	Scheme Conformity
<p>The Government will deliver national networks that meet the country's long-term needs; supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system.</p>	<p>It has been identified that congestion and journey reliability issues at Junction 6 of the M42 are constraining investment and economic growth in the local area, with further impacts on the strategic road network (SRN) between London and Scotland. The junction is predicted to exceed its capacity by 2019. The Scheme has been designed to address the identified issues, promoting economic growth, reducing journey times and ensuring the continued safe and reliable operation of the SRN.</p>
<p>Networks with the capacity and connectivity to support national and local economic activity and facilitate growth and create jobs.</p>	<p>As outlined in the Transport Assessment Report [TR010027/APP/7.2] The Scheme is forecast to improve traffic flows at the junction, as well as relieving the demand for traffic using the gyratory through the provision of the segregated left-turning lane from A45 eastbound to M42 northbound, segregated left-turning lane from M42 southbound to A45 eastbound and the Mainline link road between the new Junction 5A and Clock Interchange. The Scheme also supports economic growth and improves access to key business by providing strategic highway connections for the region's economic hubs including Birmingham, Solihull and Coventry, in addition to key infrastructure and businesses including Birmingham Airport, Birmingham International railway station, NEC, NMM/NCC, and the future HS2 Birmingham Interchange railway station. These employment sites are essential to sustained economic growth in the region.</p>
<p>Networks which support and improve journey quality, reliability and safety.</p>	<p>The Scheme will save journey time on the majority of routes. This is demonstrated in detail in the Transport Assessment Report [TR010027/APP/7.2] where the findings of the journey time assessment are summarised. This is attributed to the re-assignment of traffic for the movements</p>

Summary of Need (NPSNN Chapter 2): Government's Vision and Strategic Objectives	Scheme Conformity
	<p>of south to west and west to south at Junction 6 to the new mainline link road. The Scheme is estimated to achieve a 1.1% reduction in KSI (killed or seriously injured) accidents on the national road network. This and the wider improvements to safety will be achieved by providing additional capacity, reducing driver stress and enabling safer access to and from the motorway. Further details on road safety can be found in Section 4 of the Transport Assessment Report [TR010027/APP/7.2]</p>
<p>Networks which support the delivery of environmental goals and the move to a low carbon economy.</p>	<p>As detailed in the ES [TR010027/APP/6.1], the relevant environmental targets are presented in the NPSNN Compliance Table in Appendix 1 of this document.</p>
<p>Networks which join up our communities and link effectively to each other</p>	<p>Connections between people and communities will be improved through the implementation of the Scheme. This will be achieved through the provision of high quality NMU routes including a new NMU footbridge over the A45 (to the east of Clock Interchange). These NMU routes will maintain or improve pedestrian and cyclist movements between various communities in the region.</p>

5.3.13 The key policy topics of the NPSNN in relation to the impacts of the Scheme are addressed below. Please note the Schemes conformity with all elements of the NPSNN is set out in Appendix 1.

Air quality

5.3.14 The possibility of a project having an adverse impact on health through air quality is recognised within the NPSNN. If significant effects are considered likely, mitigation measures to avoid, reduce or compensate for these should be identified by Highways England. This includes possible cumulative impacts.

5.3.15 Paragraphs 5.12 and 5.13 of the NPSNN state: "...The Secretary of State must give air quality considerations substantial weight where, after taking into account mitigation, a project would lead to a significant air quality impact in relation to EIA and/or where they lead to a deterioration in air quality in a zone/ agglomeration...The Secretary of State should refuse consent where, after taking

into account mitigation, the air quality impacts of the scheme will: result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Directive becoming non-compliant; or affect the ability of a non-compliant area to achieve compliance within the most recent timescales reported to the European Commission at the time of the decision

- 5.3.16 Chapter 6 Air quality of the ES [TR010027/APP/6.1] summarises the findings of the air quality assessment undertaken as part of the Scheme. This chapter concludes that the changes in air quality emissions as a result of the Scheme are not considered to give rise to significant adverse air quality effects. In this regard the Scheme meets the policy requirements within the NPSNN with regard to air quality.

Biodiversity

- 5.3.17 Paragraph 5.29 of the NPSNN state that 'Where a proposed development on land within or outside a SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), development consent should not normally be granted. Where an adverse effect on the site's notified special interest features is likely, an exception should be made only where the benefits of the development at this site clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSIs...'
- 5.3.18 As described in Chapter 2, section 2.2, the Scheme passes in close proximity to Bickenhill Meadows SSSI, located across two areas to the south and west of Bickenhill village.
- 5.3.19 As shown in **Figure 5.1** Bickenhill Meadows SSSI consists of two units: Unit 1 to the north west is known as First Castle Meadow and Unit 2 to the south east as Shadowbrook Meadows. Both comprise species-rich grassland situated on predominantly neutral soils overlying Keuper Marl (Mercia Mudstone). The sites support a variety of grasses and plants; including species associated with wet grassland habitat.



Figure 5.1 Bickenhill Meadows SSSI

- 5.3.20 Borehole and dipwell monitoring on and adjacent to the two units of the Bickenhill Meadows SSSI has been undertaken to inform the environmental impact assessment and understand the underlying geology of the units and their interaction with the local hydrology.
- 5.3.21 The survey and subsequent assessment work undertaken to date, on and around Unit 1 (labelled 1 in **Figure 5.1**) notes that the Scheme would not significantly disrupt the flow of groundwater or surface water to the site. Chapters 9 Biodiversity and 14 Road drainage and the water environment of the ES [TR010027/APP/6.1] therefore conclude that the Scheme would not result in significant adverse environmental effects on Unit 1.
- 5.3.22 Survey and subsequent assessment work in and around Unit 2, (labelled 2 in **Figure 5.1**), as reported in Chapter 14 Road drainage and the water environment of the ES [TR010027/APP/6.1], indicates that without mitigation the Scheme would affect approximately 21% of the surface water catchment area of this unit; thus resulting in a potentially significant adverse effect on the wet grassland flora.
- 5.3.23 Chapter 9 Biodiversity of the ES [TR010027/APP/6.1] and accompanying appendices proposes mitigation to reduce the potential effects on Unit 2.

- 5.3.24 A pumped mitigation solution has been developed to mitigate for the loss of surface water catchment at Shadowbrook Meadows SE unit. The design principles of the pumped solution consist of a collection drain on the western slope of the mainline link road cutting to intercept surface water flows that would otherwise have drained towards the SSSI. The collection drain would discharge to a sealed collection sump, from where water would be pumped and/or captured from an alternative water source(s) to an appropriate reed bed/ditch feature in the vicinity of Shadowbrook Meadows SE unit. This feature would act as a recharge trench, from which water would drain through to the sand, gravel and clay deposits in the upper layers of the substrata within the SSSI. The above design principle has been developed in consultation with and agreed in principle with Natural England.
- 5.3.25 Highways England will continue to refine the mitigation solution using: data obtained from the ongoing dipwell monitoring; and information gathered from further analysis of the local topography and existing water sources. These refinements will seek to identify a sustainable drainage mechanism to mitigate the effects of the Scheme on Bickenhill Meadows SSSI. Highways England will seek to agree any refinements to the mitigation approach with Natural England prior to commencement of the Scheme.
- 5.3.26 With the implementation of the mitigation measures proposed, which are captured in the Register of Environmental Commitments and Actions (REAC) (Appendix 3.1 in [TR010027/APP/6.2]), the ES therefore concludes that the Scheme would not give rise to significant adverse effects on Unit 2.
- 5.3.27 Taking into account the measures set out above, as the Scheme would not give rise to significant adverse effects on the Bickenhill Meadows SSSI and therefore, nor would it give rise to impacts on the broader SSSI network, the Scheme is considered to comply with the policy requirements set out in paragraph 5.29 of the NPSNN.

Sites of Local Biodiversity Importance

- 5.3.28 Paragraph 5.31 of the NPSNN states ‘Sites of regional and local biodiversity and geological interest (which include Local Geological Sites, Local Nature Reserves and Local Wildlife Sites and Nature Improvement Areas) have a fundamental role to play in meeting overall national biodiversity targets, in contributing to the quality of life and the well-being of the community, and in supporting research and education. The Secretary of State should give due consideration to such regional or local designations. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent.’
- 5.3.29 Local Wildlife Sites are also present within the Order Limits. These are principally associated with established features such as woodland, grassland and watercourses, and include Asbury’s Copse ancient woodland adjacent to the Solihull Road, Castle Hill Farm Meadows west of Bickenhill, and Hollywell Brook north of M42 Junction 6.
- 5.3.30 Chapter 9 Biodiversity of the ES [TR010027/APP/6.1] concludes the Scheme would result in direct loss of habitat from Asbury’s Copse and Castle Hill Farm

Meadows. At Aspbury's Copse a total of 0.99ha of woodland will be lost, of which 0.46ha is designated ancient woodland habitat, resulting in a significant effect. There will be a 1.17ha loss to Castle Hill Farm Meadows Local Wildlife Site, an impact of no more than a moderate magnitude, which is still a significant effect.

- 5.3.31 The impact on Aspbury's Copse, which is defined as ancient woodland is discussed in detail in the Ancient Woodland section of this Chapter.
- 5.3.32 Whilst there is a direct impact on Castle Hill Farm Meadows, the Scheme includes replacement habitat to compensate for this loss. This is illustrated in the Environmental Masterplan **Figure 8.8** of the Environmental Statement [TR010027/APP/6.1].

Ancient Woodland

- 5.3.33 As set out in paragraph 5.32 of the NPSNN 'Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the national need for and benefits of the development, in that location, clearly outweigh the loss.'
- 5.3.34 As shown on the **Figure 5.2** the proposed Junction 5A is situated in close proximity to Aspbury's Copse which includes an area of ancient woodland. Based on the preliminary design it is currently estimated that a total of 0.99ha of woodland at Aspbury's Copse will be lost during construction, of which 0.46ha is designated as ancient woodland. The total amount of ancient woodland lost is equivalent to 17.6% of its total current area (2.62 ha) of woodland and ancient woodland habitat.

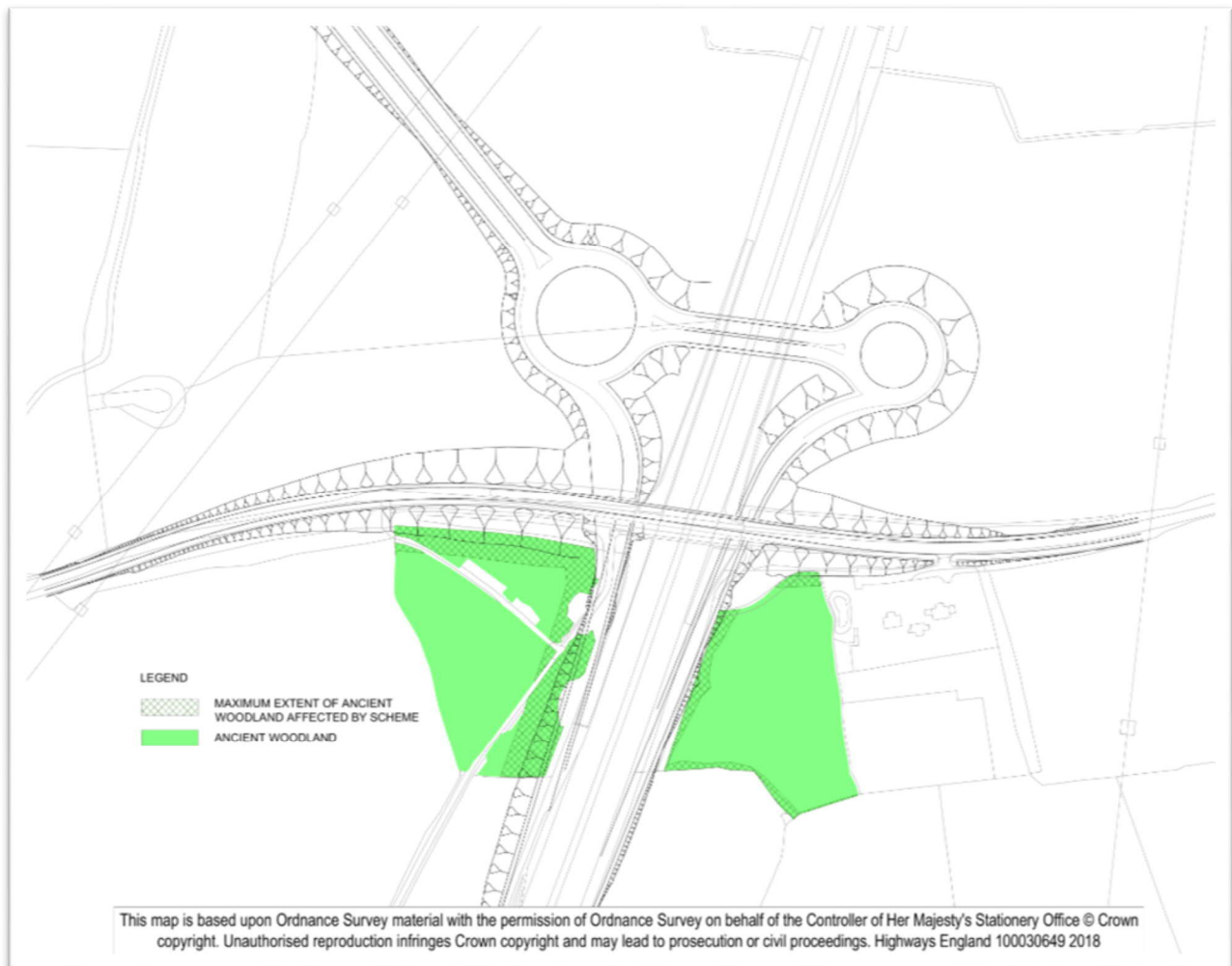


Figure 5.2: Maximum extent of ancient woodland affected by the Scheme

5.3.35 The majority of ancient woodland that would be lost at Aspbury's Copse is as a result of the on-slip and off-slip road locations for Junction 5A. As set out in Chapter 4 Scheme history and alternatives of the ES [TR010027/APP/6.1] the final location of the junction was broadly fixed in August 2017 following an extensive options selection process^[1] and public consultation on three potential options in December 2016. The three options subject to consultation in December 2016 were all capable of meeting the stated objectives of the Scheme. The option selected at preferred route announcement in August 2017^[2], reflected the fact that, of the persons that responded to the consultation in December 2016, it was the preferred option and was considered to have a lesser impact on the residents of Bickenhill village and the Bickenhill Meadows SSSI than the other two options. For this reason this option was chosen as the preferred route.

^[1] Also refer to the details of Chapter 4 of the M42 Junction 6 Improvement Technical Appraisal Report: https://highwaysengland.citizenspace.com/he/m42-junction-6-improvement/supporting_documents/Technical%20Appraisal%20Report_web.pdf

^[2] Refer to the Preferred Route Announcement Leaflet: https://highwaysengland.citizenspace.com/he/m42-junction-6-improvement/results/m42-j6-preferred-route-announcement_web.pdf

- 5.3.36 Notwithstanding this, throughout the design development process considerable effort has been made to lessen the impact of the Scheme on Aspbury's Copse. The report in Appendix 4 shows that the proposed location of Junction 5A within the Scheme would have the least impact on the ancient woodland. This design includes an approved departure from Highways England's standards which greatly reduce land take requirements in the woodland area.
- 5.3.37 Although the affected area falls within the designated boundary of the ancient woodland, botanical survey has demonstrated that the affected habitats are largely dominated by a poor ground flora and canopy, with the majority of ground-flora associated with ancient woodland located outside the affected area by the Scheme. As a result of information provided by Highways England for the MSA planning application (refer to Chapter 2, section 2.4), Natural England has recently removed a small area of woodland from the ancient woodland designation which would be impacted by the slip roads. It is, however, acknowledged that the Scheme will result in an area of irreplaceable habitat for which loss cannot be mitigated. Chapter 9 Biodiversity of the ES [TR010027/APP/6.1] confirms that Highways England will therefore seek to compensate for the loss of ancient woodland through translocation of soils and woodland replanting.
- 5.3.38 In devising an appropriate compensation package for the ancient woodland loss, Highways England has worked with Natural England to identify an appropriate ratio of woodland replanting and to establish the most suitable locations within the Order Limits for it. As set out in Appendix 3.1 to the Environmental Statement Appendices [TR010027/APP/6.3], the REAC, and on the Draft Environmental Masterplan (Figure 8.8 in the Environmental Statement Figures [TR010027/APP/6.2]), confirms that an area of approximately 1.9ha of new woodland will be replanted (following soil translocation) to compensate for this loss; at a ratio of no less than 3:1. This has been discussed with Natural England and agreed in principle. In most part it is proposed that this compensation woodland would be planted contiguously with the existing Aspbury's Copse.
- 5.3.39 Overall it is considered that the national and regional need for the Scheme, as set out in Chapter 3 of this Planning Statement, together with the design rationale for the Junction 5A layout in Appendix 4, demonstrates that: 1) the impact on the ancient woodland at Aspbury's Copse is necessary to minimise impacts to the Bickenhill Meadows SSSI and the residents of Bickenhill Village, and 2) that Highways England has sought to take all reasonable steps to reduce the impact on this woodland within the preliminary design and to provide sufficient land within the Order Limits to compensate for this loss.

Flood risk

- 5.3.40 When determining an application the SoS should be satisfied that flood risk will not be increased elsewhere and only consider development appropriate in areas at risk of flooding where (informed by a flood risk assessment, following the Sequential Test and, if required, the Exception Test), it can be demonstrated that:

- a. within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location; and
- b. development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning; and priority is given to the use of sustainable drainage systems. (p.67 of the NPSNN)

5.3.41 The majority of the Scheme falls within Flood Risk Zone 1, with a section of the Scheme north of Junction 6 falling within Flood Risk Zones 2 and 3. The Scheme therefore includes a detailed Flood Risk Assessment (FRA) Report [TR010027/APP/6.10]. This demonstrates that the Scheme incorporates appropriate drainage systems and would not increase the risk of flooding within or surrounding the Scheme.

Cultural heritage

5.3.42 An assessment of any likely significant heritage impacts has been undertaken as part of the EIA for the Scheme and is presented in Chapter 7 Cultural heritage of the ES [TR010027/APP/6.1]. The methodology for this assessment complies with the NPSNN in describing the significance of any impact on both heritage assets and their setting. It was also determined through desk-based assessment and consultation with relevant bodies, and reflected in the draft mitigation approach in Chapter 7 Cultural heritage of the ES, that field evaluation, including a comprehensive programme of trial trenching, will be undertaken prior to the commencement of development.

5.3.43 The principles of the impact methodology rest upon independently evaluating the value of the cultural heritage resources and the magnitude of effect upon the resources. 'Heritage significance' and 'cultural heritage value' must both be assessed when considering the effect of a development on heritage assets. Cultural heritage value is used to assist in the determination of the significance of effects on heritage assets.

5.3.44 The NPSNN details the important considerations that should be taken into account when determining a project such as the Scheme. Paragraph 5.133 states "*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 consent unless it can be demonstrated that the substantial harm or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm*". The asset's conservation should be given great weight, increasing with the importance of the asset, as the historic environment is irreplaceable once lost.

5.3.45 As set out in Chapter 7 Cultural heritage of the ES [TR010027/APP/6.1] the cultural heritage assessment does not report any significant adverse effects arising from the Scheme on any listed buildings.

5.3.46 As set out in Chapter 7 Cultural heritage of the ES [TR010027/APP/6.1] the Order Limits of the Scheme include an area of land within the Bickenhill Village Conservation Area at the northern junction of St Peters Lane and Catherine-de-

Barnes Lane. The ES reports that there will be a significant effect on the conservation area that cannot be avoided.

- 5.3.47 Whilst such an impact will occur to the character and setting of the conservation area, the land is required to allow Catherine-de-Barnes Lane to be realigned alongside the proposed mainline link road and provide a new access to St Peters Lane. Such works are essential to ensure future access to local residents and road users is maintained. The nature of the effect is such that it is not considered to result in substantial harm to the conservation area and therefore does not conflict with the test within paragraph 5.133 of the NPSNN.
- 5.3.48 Highways England has undertaken a full desk-based survey of the site and surroundings and undertaken a geophysical survey of the site to establish the potential for archaeological remains to be found. The desk-based survey does not identify any sites of known archaeological importance within the Order Limits however this could not be verified by the geophysical survey work undertaken for the site. Chapter 7 Cultural heritage of the ES [TR010027/APP/6.1] therefore applies the precautionary principle and therefore reports that if not mitigated the Scheme has the potential to result in moderate adverse significant effects to unknown archaeology.
- 5.3.49 Highways England will however undertake a full programme of trial trenching prior to the commencement of development and, in line with established practice, any significant archaeological remains found will be recorded and preserved to avoid damage being caused. To this extent the Scheme is deemed to fully satisfy the policy requirements within the NPSNN.

Landscape

- 5.3.50 The landscape and visual impacts of the Scheme, both during construction and operation, have been assessed in compliance with the NPSNN, as detailed in Chapter 8 Landscape of the ES [TR010027/APP/6.1]. This includes reference to the relevant landscape character assessments; relevant local planning policies for further detail; and any significant effects (considering a number of factors, including visibility, conspicuousness, views, visual amenity, noise and light pollution, local amenity, tranquillity and nature conservation).
- 5.3.51 The Scheme will not impact any National Park, Area of Outstanding Natural Beauty or the Broads, which have the highest status of protection in the NPS in relation to landscape and scenic beauty.
- 5.3.52 Local designations are also recognised for their local value and as such, are recommended within the NPSNN for particular consideration, although they are not to be used as sole reasons to refuse consent (refer to paragraph 5.156 of the NPSNN).
- 5.3.53 As explained in paragraph 5.157 of the NPSNN in determining the Scheme in relation to landscape impacts, due consideration should be given to whether the design addresses “*environmental effects on the landscape and siting, operational and other relevant constraints, to avoid adverse effects on landscape or to minimise harm to the landscape, including by reasonable mitigation*”..

- 5.3.54 Chapter 3 The project of the ES [TR010027/APP/6.1] summarises how the design of the Scheme has evolved to take into account environmental considerations, including how the alignment of the mainline link road was lowered in places and planting will be used to lessen the landscape and visual impacts of the Scheme and integrate the Scheme into the landscape.
- 5.3.55 Chapter 8 Landscape of the ES [TR010027/APP/6.1] reports on the landscape and visual assessment undertaken for the Scheme. Within this Chapter it is recognised that the Scheme falls within an area surrounded by existing rail and road infrastructure but that it will result in landscape and visual changes and effects to the area. As set out in in Chapter 8 Landscape of the ES, the Scheme design incorporates landscape mitigation and through additional planting and landscaping seeks to avoid adverse landscape effects in the area in the medium to long-term. To this extent the Scheme is deemed to meet the requirements within paragraph 5.157 of the NPSNN.

Green Belt

- 5.3.56 The Scheme will pass through land designated as Green Belt within the Solihull Local Plan.
- 5.3.57 As Paragraph 5.171 of the NPSNN confirms, “linear infrastructure linking an area near a Green Belt with other locations will often have to pass through Green Belt land”. It states further that “The identification of a policy need for linear infrastructure will take account of the fact that there will be an impact on the Green Belt and as far as possible, of the need to contribute to the achievement of the objectives for the use of land in Green Belts”. The policy recognises the likelihood for linear infrastructure schemes to pass through designated Green Belt land that in some instances Green Belt will be impacted.
- 5.3.58 The RIS 2015-2020, which sits alongside the NPSNN (see Paragraph 1.21 of the NPSNN) sets out a long-term approach to improve England’s motorways and major roads. The Scheme forms part of the RIS and has been identified by Government as one of a number of nationally important infrastructure projects which are required to revitalise the economy and accordingly £250-500m of Government funding has been allocated for its delivery³.
- 5.3.59 In line with paragraph 5.171 of the NPSNN, at the time the Scheme was allocated for inclusion within the RIS, and national policy, the broad impact arising from the Scheme on Green Belt is acknowledged,
- 5.3.60 Notwithstanding this, Paragraph 5.170 of the NPSNN states that “the general policies controlling development in the countryside apply with equal force in Green Belts but there is, in addition, a general presumption against inappropriate development within them. Such development should not be approved except in very special circumstances. Applicants should therefore determine whether their proposal, or any part of it, is within an established Green Belt and, if so, whether their proposal may be considered inappropriate development within the meaning

³ Road Investment Strategy: Investment Plan - list of commitments (2014) DfT, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/381496/roads-investment-strategy-summary-of-schemes.pdf (accessed 07/2018)

of Green Belt policy. Metropolitan Open Land, and land designated as Local Green Space in a local or neighbourhood plan, are subject to the same policies of protection as Green Belt, and inappropriate development should not be approved except in very special circumstances”. This is consistent with Paragraph 87 of the NPPF July 2018 which states that “as with previous Green Belt policy, inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances.”

- 5.3.61 Even though the impact on the Green Belt from the Scheme has been acknowledged, the Scheme itself would, by definition, be considered inappropriate development within the Green Belt. Given that there is no viable alternative route for the Scheme that avoids passing through the Green Belt, and that there is a proven national need for the Scheme (refer to Chapter 3) it is clear that very special circumstances exist that outweigh any harm caused to the openness of the Green Belt.

People and communities - sports facilities and recreation

- 5.3.62 The NSPNN sets out the requirement that any open space, sports or recreational buildings that would be lost through a development should be replaced by at least an equivalent provision, if not better, in a suitable location.
- 5.3.63 Paragraph 5.174 of the NPSNN states that “the Secretary of State should not grant consent for development on existing open space, sports and recreational buildings and land, including playing fields, unless an assessment has been undertaken either by the local authority or independently, which has shown the open space or the buildings and land to be surplus to requirements, or the Secretary of State determines 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”. (page 80)
- 5.3.64 As is shown on the General Arrangement Plans [TR010027/APP/2.4], the Scheme would result in the WGAA facilities being directly impacted in the following way:
- a. the main access from Catherine-de-Barnes Lane being severed/lost;
 - b. parking along the club’s main access and adjacent to Pitch 2 (north eastern pitch) being lost;
 - c. Pitch 2 (to the east of Pitch 1) being lost; and
 - d. Pitch 3 (southern pitch) being potentially impacted (subject to final design of the Scheme).
- 5.3.65 The WGAA facility is regionally important with a membership of over 2000. The club is the principal Gaelic games sports facility in the West Midlands and is administered by the WGAA County Board. It is currently the home grounds of Britain WGAA and hosts numerous Warwickshire Gaelic football and hurling matches as well as the provincial knockout championships and the British University Gaelic football Championships. With this in mind Highways England fully acknowledges that there is a local and regional need for the facility and that

all reasonable efforts should be made to mitigate the impact of the Scheme on the club.

- 5.3.66 Taking into account the impact on the WGAA Highways England has sought to mitigate the impact on the club by identifying land within the Order Limits to re-provide, through reconfiguration, the facilities that will be impacted or lost by the Scheme. Work has been undertaken to identify the land take requirements to facilitate the reconfiguration of the club, and this has been shared with the WGAA and engagement with the WGAA is continuing. Highways England has also engaged with the landowners of the land for reconfiguration directly and the indication is that this could be purchased by agreement, subject to reasonable terms being achieved. The preliminary design for the Scheme also defines the new access for the club off the realigned Catherine-de-Barnes Lane at Barber's Coppice roundabout.
- 5.3.67 The land identified within the Order Limits to allow the reconfiguration of the club is considered to be fully sufficient and comparable in size to land affected to allow the full re-provision/reconfiguration of the facilities affected by the Scheme to current standards. By incorporating this mitigation into the Scheme, it is considered that the WGAA would be able to remain in their current location during construction and following operation of the Scheme. To this extent Highways England is satisfied that it has met the requirements in paragraph 5.174 of the NPSNN.

Noise and vibration

- 5.3.68 Noise and vibration are considered within NPSNN as having the potential to cause a wide range of impacts. Factors that will determine likely noise impacts (there would be similar impacts for vibration) include:
- *“Construction noise and the inherent operational noise from the proposed development and its characteristics;*
 - *The proximity of the proposed development to noise sensitive premises (including residential properties, schools and hospitals) and noise sensitive areas (including certain parks and open spaces);*
 - *The proximity of the proposed development to quiet places and other areas that are particularly valued for their tranquillity, acoustic environment or landscape quality such as National Parks, the Broads or Areas of Outstanding Natural Beauty; and*
 - *The proximity of the proposed development to designated sites where noise may have an adverse impact on the special features of interest, protected species or other wildlife. (page 84)”*
- 5.3.69 As per the noise and vibration policy within NPSNN, the impacts of the Scheme have been thoroughly assessed against relevant standards and the results are detailed in Chapter 12 Noise and vibration of the ES [TR010027/APP/6.1].
- 5.3.70 The Scheme demonstrates good design through the optimisation of the layout to minimise noise emissions and, where possible, the use of landscaping, cuttings, bunds or noise barriers to reduce noise transmission.

- 5.3.71 Paragraph 5.195 of the NPSNN states that the SoS should not grant development consent unless satisfied that the proposals will meet the following aims within the context of Government policy on sustainable development:
- *Avoid significant adverse impacts on health and quality of life from 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*
 - *Contribute to improvements to health and quality of life through the effective management and control of noise, where possible.*
- 5.3.72 In determining an application, the SoS should consider whether requirements are needed which specify that the mitigation measures put forward by Highways England are put in place to ensure that the noise levels from the project do not exceed those described in the assessment or any other estimates on which the decision was based.
- 5.3.73 Mitigation measures for the project should be proportionate and reasonable and may include one or more of the following:
- *Engineering: containment of noise generated;*
 - *Materials: use of materials that reduce noise, (for example low noise road surfacing);*
 - *Lay-out: adequate distance between source and noise-sensitive receptors; incorporating good design to minimise noise transmission through screening by natural or purpose built barriers; and*
 - *Administration: specifying acceptable noise limits or times of use (e.g., in the case of railway station PA systems) (pages 85-86).*
- 5.3.74 As is set out in Chapter 12 Noise and vibration of the ES a full assessment of noise and vibration effects arising from the Scheme has been undertaken. The Scheme is not considered to give rise to any operational significant adverse noise and vibration effects. The Scheme therefore meets the requirements within the NPSNN.

NPSNN summary

- 5.3.75 The Scheme has been developed to be in conformity with the NPSNN. A full assessment of how the Scheme conforms to the NPSNN objectives, including its technical assessment requirements, is provided in Appendix 1 of this Planning Statement.

National Planning Policy Framework (July 2018)

- 5.3.76 The NPPF is a high-level document, detailing the Government's planning policies for England and shaping locally prepared plans through its framework. The NPPF states that, "Plans and decisions should apply a presumption in favour of sustainable development" (paragraph 11).
- 5.3.77 The relationship between the NPSNN and NPPF is described in paragraphs 1.17 – 1.20 of the NPSNN, which state that while the strategic aims of the NPPF and

NPS are consistent, the two have differing roles. For NSIPs this means that while the NPS forms the main policy consideration, the NPPF is part of the overall framework for national planning policy and may be relevant in some cases.

5.3.78 For NSIPs such as the Scheme, the NPPF does not provide specific policies, with the NPS and Planning Act 2008 being the primary consideration in decision making. Paragraph 5 of the NPPF states that:

“The Framework does not contain specific policies for nationally significant infrastructure projects. These are determined in accordance with the decision-making framework in the Planning Act 2008 (as amended) and relevant national policy statements for major infrastructure, as well as any other matters that are relevant (which may include the National Planning Policy Framework)”

5.3.79 NPPF policy when considered in relation to the topical issues outlined in Section 5.3 of this Planning Statement expresses similar requirements as the NPSNN, and further reflects the alignment of these documents.

6 Conclusions

- 6.1.1 The need for the Scheme, as set out in Chapter 3, has arisen due to regional growth and the need to address current congestion and journey reliability issues on the M42 at Junction 6. These issues have been identified as a significant constraint to future investment and economic growth and as a result, major infrastructure investment is required to improve the junction.
- 6.1.2 The main objectives of the Scheme are to:
- a. promote the safe and reliable operation of the road network;
 - b. increase the capacity of the junction;
 - c. improve access to key businesses;
 - d. support economic growth; and
 - e. helping cyclists, walkers and other vulnerable users of the network.
- 6.1.3 The network has been modelled to show current network performance defined in chapter 6 of the Transport Assessment Report [TR010027/APP/7.2]. With a 'do nothing' scenario, based on the network flows measured and modelled in the base year 2016, the assessment indicates that the existing network in the area already experiences capacity problems in the PM peak hour. The M42 Junction 6 is one of the busiest interchanges in the country. It currently operates close to capacity and is subject to variable traffic flows, particularly from the NEC.
- 6.1.4 If a scheme were not implemented, the exacerbation of the following issues for this part of the national road network would occur compared against the objectives.
- a. **Safety Network** - Further deterioration in safety is predicted in future years, resulting in increased accident rates in and around M42 Junction 6. Increasing congestion, coupled with the high level of drivers unfamiliar with the area (due to facilities such as the airport, NEC and HS2 traffic), are likely to have a detrimental impact on safety on this section of the SRN.
 - b. **Relieve Congestion** - M42 Junction 6 is noted as already being at capacity, with current event demands contributing to significant congestion on the M42 mainline and local road network. The existing SRN does not have the capacity locally to accommodate the growth in the area. This leads to significant delays and congestion in comparison with the rest of the country. This is particularly pertinent as it is at a location where high reliability is particularly important due to the large and increasing volume of scheduled flights, events and trains that are accessed via Junction 6. At present, congestion levels severely affect the resilience of this section of the M42 and are becoming increasingly difficult to manage, particularly during high peak periods when events and flight flows reach their highest point. This is likely to worsen over time as future congestion is predicted to increase with no or little further infrastructure investment, and;

- c. **Economic Growth** - Significant development is planned in the area surrounding the M42 Junction 6, which will have a marked impact on the economy, connectivity and accessibility. The level of congestion predicted during peak hours in future years means M42 Junction 6 will operate at an unacceptable level of service to service the economic growth.
- 6.1.5 The NPSNN, National Infrastructure Delivery Plan (NIDP) and the RIS set out a strong position of support in delivering national networks that meet the country's long-term needs, whilst supporting a prosperous and competitive economy and improving the quality of life for all.
- 6.1.6 The improvement in the road network is consistent with national and local planning objectives for the economy, sustainability and the environment. Through increased connectivity and reliable journey times, the Scheme would assist in making the region more attractive for businesses and improve mobility for local travellers.
- 6.1.7 The Scheme is a NSIP, as such, a DCO is required to authorise and allow its construction, operation and maintenance, along with the compulsory acquisition of all land necessary to enable this. The Order Limits of the Scheme are located within the administrative boundary of SMBC and are positioned to the west, southwest and east of M42 Junction 6.
- 6.1.8 The ExA and SoS must determine this DCO in accordance with the NPSNN, as per s104(3) of the Planning Act 2008. Accordingly this Planning Statement (Chapter 5) and NPSNN Accordance Table (**Appendix 1**) demonstrate the Scheme's conformity with national and local planning policy.
- 6.1.9 The Scheme is supported by an extensive EIA to establish the impacts and mitigation measures needed to meet the Scheme objectives and to keep environmental impacts to a minimum.

Appendix 1 – NPSNN Accordance Table

Table 1: National Policy Statement for National Networks Chapter 3

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
3	WIDER GOVERNMENT POLICY ON THE NATIONAL NETWORKS		
3.2 (Environment and social impacts)	The Government recognises that for development of the national road and rail networks to be sustainable these should be designed to minimize social and environmental impacts and improve quality of life.	<p>The objectives of the Scheme are:</p> <ul style="list-style-type: none"> • Making the network safer: Promote reliable and safe operation of the road network. • Support the smooth flow of traffic: Increase the capacity of the junction supporting smoother flow of traffic around the M42 Junction 6. • Encourage economic growth: To improve access to key businesses and support economic growth in the area from the new HS2 Birmingham interchange station and connectivity to Birmingham Airport. • Helping cyclists, walkers and other vulnerable users of the Network: To replace or re-route existing severed links and provide new routes through use of designated funds. <p>Whilst the Scheme does have impacts (as expressed in the Environmental Statement), the Scheme has been designed to meet the above objectives and will minimise social and environmental impacts and improve quality of life [TR010027/APP/6.1]. In addition the Scheme would result in an improvement to noise at a number of sensitive receptors and improvements to non-motorised users due to the alignment and integrated design features of the Scheme. These improvements would improve the quality of life at these locations.</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
3	WIDER GOVERNMENT POLICY ON THE NATIONAL NETWORKS		
		The Scheme would deliver environmental and social benefits as discussed within Chapter 3, the Case for the Scheme.	
3.3	In delivering new schemes, the Government expects applicants to avoid and mitigate environmental and social impacts in line with the principles set out in the NPPF and the Government's planning guidance. Applicants should also provide evidence that they have considered reasonable opportunities to deliver environmental and social benefits as part of schemes.	The Scheme would bring a range of environmental and social benefits including the reduction of congestion and the facilitation of economic growth in the area. This will be through providing easier access to amenities such as Birmingham Airport, the NEC and a range of other features.	
3.17 (Sustainable transport)	There is a direct role for the national road network to play in helping pedestrians and cyclists. The Government expects applicants to use reasonable endeavours to address the needs of cyclists and pedestrians in the design of new schemes. The Government also expects applicants to identify opportunities to invest in infrastructure in locations where the national road network severs communities and acts as a barrier to cycling and walking, by correcting historic problems, retrofitting the latest solutions and ensuring that it is easy and safe for cyclists to use junctions.	<p>Chapter 13 Population and health of the Environmental Statement [TR010027/APP/6.1] reports the outcomes of an assessment to identify the likely significant effects on pedestrians, cyclists and equestrians (non-motorised users) who travel on parts of the road and public rights of way networks that would be altered as a consequence of the Scheme.</p> <p>The requirements of non-motorised users have been identified and appropriate provisions have been incorporated into the design of the Scheme to: enhance accessibility through the provision of new and altered cycleways and footways; reduce traffic-related severance by providing bridge crossings; and maintain connectivity by modifying and diverting existing routes.</p> <p>Within the Scheme, such provisions would include; a new access road and footpath parallel to the mainline link road, footpath diversions, an NMU overbridge over the A45 at Church Lane and improved cyclepaths on the A45 to Junction 6.</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
3	WIDER GOVERNMENT POLICY ON THE NATIONAL NETWORKS		
		<p>The provisions summarised above demonstrate that the potential impacts on cyclists and pedestrians arising from the Scheme have been addressed and that where practicable, enhanced provisions have been made.</p>	
<p>3.21 (Accessibility)</p>	<p>Applicants are reminded of their duty to promote equality and to consider the needs of disabled people as part of their normal practice. Applicants are expected to comply with any obligations under the Equalities Act 2010.</p>	<p>An Equality Impact Assessment has been undertaken on this Scheme to ensure the proposal is inclusive to all transport options for all users.</p> <p>The Scheme includes provision for an additional bus-stop on the free-flow link to Airport Way with additional footway/cycleway connections to the nearby NMU network as is outlined in Chapter 13 Population and health of the Environmental Statement [TR010027/APP/6.1]. The provision of a footway/cycle way overbridge crossing the A45 eliminates the interface with live carriageway traffic crossings at the Clock Interchange and the permanent closure of the M42 northbound diverge slip road free-flow link to A45 westbound eliminates the uncontrolled crossing interface between pedestrians, cyclists and live free-flowing traffic at the M42 Junction 6 roundabout.</p> <p>The existing local road network severed by the Scheme will be realigned to retain connectivity between the villages of Catherine-de-Barnes and Bickenhill and access to the strategic road network will be provided through connector roads onto the new dual carriageway link road.</p> <p>The Scheme is considered to result in a net improvement to the NMU facilities within the vicinity of the Scheme</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
3	WIDER GOVERNMENT POLICY ON THE NATIONAL NETWORKS		
3.22	<p>Severance can be a problem in some locations. Where appropriate applicants should seek to deliver improvements that reduce community severance and improve accessibility.</p>	<p>Chapter 13 Population and health of the Environmental Statement [TR010027/APP/6.1] reports the outcomes of an assessment which considers the likely significant effects of traffic-related severance on non-motorised users and the journeys they currently undertake between communities and their facilities.</p> <p>Measures have been incorporated into the design of the Scheme to enable non-motorised users to continue to make journeys between communities that would be affected by the Scheme once operational.</p> <p>Within the Scheme, provisions to reduce severance would include; a new access track and footpath running parallel to the mainline link road, an NMU overbridge over the A45 at Church Lane and improved cyclepaths on the A45 to Junction 6.</p> <p>The proposed Scheme will provide wider benefits by enabling greater access between communities through the provision of the new NMU overbridge as well as new cycle routes, which give an option for more sustainable modes of travel.</p>	

Table 2: National Networks National Policy Statement Chapter 4

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
4	ASSESSMENT PRINCIPLES		
<p>4.5 (General principles of assessment – Business Case)</p>	<p>Applications for road and rail projects (with the exception of those for SRFIs, for which the position is covered in paragraph 4.8 below) will normally be supported by a business case prepared in accordance with Treasury Green Book principles. This business case provides the basis for investment decisions on road and rail projects. The business case will normally be developed based on the Department’s Transport Business Case guidance and WebTAG guidance. The economic case prepared for a transport business case will assess the economic, environmental and social impacts of a development. The information provided will be proportionate to the development. This information will be important for the Examining Authority and the Secretary of State’s consideration of the adverse impacts and benefits of a proposed development. It is expected that NSIP schemes brought forward through the development consent order process by virtue of Section 35 of the Planning Act 2008, should also meet this requirement.</p>	<p>A business case has been prepared for the M42 DCO in line with the Treasury Green Book Principles. This considers the business strategy of Highways England; the problem identified with current congestion and reliability issues at junction 6; forecast demands and the likely effect of these on future capacity; and the drivers of change. The economic case is put forward, with all key impacts of the Scheme being assessed as positive. These are balanced against a number of environmental impacts which vary from fairly positive (air quality) to fairly negative (noise, landscape, cultural heritage, biodiversity and the water environment); and the social impacts, which are mostly positive with the noted exception of the severance of local villages (fairly negative). The estimated project costs are detailed as approximately £282.3 million. The commercial and management cases are additionally detailed. Overall, the value for money is assessed as very high.</p>	

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4	ASSESSMENT PRINCIPLES		
4.6 (local transport model)	Applications for road and rail projects should usually be supported by a local transport model to provide sufficiently accurate detail of the impacts of a project. The modelling will usually include national level factors around the key drivers of transport demand such as economic growth, demographic change, travel costs and labour market participation, as well as local factors. The Examining Authority and the Secretary of State do not need to be concerned with the national methodology and national assumptions around the key drivers of transport demand. We do encourage an assessment of the benefits and costs of schemes under high and low growth scenarios, in addition to the core case. The modelling should be proportionate to the scale of the scheme and include appropriate sensitivity analysis to consider the impact of uncertainty on project impacts.	<p>A hierarchical approach to modelling has been used involving the following:</p> <ul style="list-style-type: none"> • The Policy Responsive Integrated Strategy Model (PRISM) for the West Midlands; • M42 Junction 6 Local Area Model (LAM); • M42 Junction 6 Operational Model (OM); and • Operational capacity models of individual and/or linked junctions. <p>The models have followed DfT WebTAG requirements. The modelling demand was based on the latest uncertainty logs for the local authorities in addition to the latest demand assumptions for HS2 Birmingham Interchange railway station and Birmingham Airport. Sensitivity test were also undertaken for a “low growth” and a “high growth” scenario.</p>	
4.15 (Environmental Impact Assessment)	All proposals for projects that are subject to the European Union’s Environmental Impact Assessment Directive and are likely to have significant effects on the environment, must be accompanied by an environmental statement (ES), describing the aspects of the environment likely to be significantly affected by the project. The Directive specifically requires an environmental impact assessment to identify, describe and assess effects on human beings, fauna and flora, soil, water, air, climate, the landscape, material assets and cultural heritage, and the interaction between them. Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 sets out the information that should be	An Environmental Statement has been prepared in accordance with the Infrastructure Planning (EIA) Regulations 2017. The Environmental Statement presents a description of the Scheme, the likely significant environmental effects of the Scheme, the measures to avoid or reduce such effects and the alternatives considered. Chapter 5 EIA methodology and consultation of the Environmental Statement [TR010027/APP/6.1] sets out the approach taken to prepare the EIA.	

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4	ASSESSMENT PRINCIPLES		
	<p>included in the environmental statement including a description of the likely significant effects of the proposed project on the environment, covering the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project, and also the measures envisaged for avoiding or mitigating significant adverse effects. Further guidance can be found in the online planning portal... In this NPS, the terms 'effects', 'impacts' or 'benefits' should accordingly be understood to mean likely significant effects, impacts or benefits.</p>		
4.16	<p>When considering significant cumulative effects, any environmental statement should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been granted, as well as those already in existence)...</p>	<p>Chapter 16 Assessment of cumulative effects of the Environmental Statement [TR010027/APP/6.1] sets out how the effects of the Scheme would combine and interact with the effects of other development. The cumulative effects assessment has been undertaken in accordance with PINS Advice Note 17: Cumulative Effects Assessment published December 2015.</p> <p>The cumulative impact assessment has identified a number of receptors where in combination impacts may arise, particularly during construction where works would be in close proximity to the identified receptors. These effects may include visual, noise and dust effects. There are short term and temporary significant effects during construction and due to the nature of the works, there are limited opportunities for mitigation measures to address these effects.</p>	

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4	ASSESSMENT PRINCIPLES		
		<p>During operation, a significant cumulative effect is likely to remain on the landscape character of the area in the event identified developments in the vicinity of the Scheme are progressed.</p> <p>Completed developments already in existence have been considered as part of the baseline environmental conditions reported within Chapters 6 to 15 of the Environmental Statement [TR010027/APP/6.1].</p>	
4.18	<p>In some instances it may not be possible at the time of the application for development consent for all aspects of the proposal to have been settled in precise detail. Where this is the case, the applicant should explain in its application which elements of the proposal have yet to be finalised, and the reasons why this is the case.</p>	<p>Detail of the Scheme design is shown on the Works Plans and the Engineering Drawings and Sections [TR010027/APP/2.3 and TR010027/APP/2.8] and the Chapter 4 of this document for the Scheme. The Scheme involves linear and non-linear works. The Draft DCO [TR010027/APP/3.1] provides the limits of deviation both laterally and vertically. The purpose of this is to provide Highways England with a necessary, but proportionate degree of flexibility when constructing the Scheme.</p>	
4.19	<p>Where some details are still to be finalised, applicants are advised to set out in the environmental statement, to the best of their knowledge, what the maximum extent of the proposed development may be (for example in terms of site area) and assess the potential adverse effects which the project could have to ensure that the impacts of the project as it may be constructed have been properly assessed.</p>	<p>The maximum design parameters referenced in the draft DCO have been assessed in the Environmental Statement [TR010027/APP/6.1]. The realistic worst case scenario has been considered where applicable within the EIA. Additionally where there are elements of the Scheme that have not been finalised, or refer to temporary works, the realistic 'worst case' scenario has been considered.</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
4	ASSESSMENT PRINCIPLES		
4.21	In cases where the EIA Directive does not apply to a project, and an environmental statement is not therefore required, the applicant should instead provide information proportionate to the project on the likely environmental, social and economic effects	EIA is required – not relevant	
4.22 (Habitats Regulations Assessment)	The applicant should seek the advice of Natural England and, where appropriate, for cross-boundary impacts, Natural Resources Wales and Scottish Natural Heritage to ensure that impacts on European sites in Wales and Scotland are adequately considered.	The requirement to undertake an Appropriate Assessment was screened out on the basis that the Scheme would not result in any likely significant effects on European sites.	
4.23	Applicants are required to provide sufficient information with their applications for development consent to enable the Secretary of State to carry out an Appropriate Assessment if required. This information should include details of any measures that are proposed to minimise or avoid any likely significant effects on a European site. The information provided may also assist the Secretary of State in concluding that an appropriate assessment is not required because significant effects on European sites are sufficiently unlikely that they can be excluded.	The requirement to undertake an Appropriate Assessment was screened out on the basis that the Scheme would not result in any likely significant effects on European sites.	

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4	ASSESSMENT PRINCIPLES		
4.26 (Alternatives)	<p>Applicants should comply with all legal requirements and any policy requirements set out in this NPS on the assessment of alternatives. In particular:</p> <ul style="list-style-type: none"> • The EIA Directive requires projects with significant environmental effects to include an outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental effects. • There may also be other specific legal requirements for the consideration of alternatives, for example, under the Habitats and Water Framework Directives. • There may also be policy requirements in this NPS, for example the flood risk sequential test and the assessment of alternatives for developments in National Parks, the Broads and Areas of Outstanding Natural Beauty (AONB). 	<p>Chapter 4 Scheme history and alternatives of the Environmental Statement [TR0100/27/APP/6.1] sets out the main alternatives considered by Highways England and how the preferred option was determined through consideration of environmental effects at different stages in the design-development process.</p> <p>Chapter 3 The project of the Environmental Statement [TR0100/27/APP/6.1] describes the design of the Scheme that has been subject to formal EIA procedures, as developed from the consideration of reasonable alternatives relating to design, technology, location, size, scale and construction.</p>	
4.27	<p>All projects should be subject to an options appraisal. The appraisal should consider viable modal alternatives and may also consider other options (in light of the paragraphs 3.23 to 3.27 of this NPS). Where projects have been subject to full options appraisal in achieving their status within Road or Rail Investment Strategies or other appropriate policies or investment plans, option testing need not be considered by the examining authority or the decision maker. For national road and rail schemes, proportionate option consideration of alternatives will have been undertaken as part of the investment decision making process. It is not necessary for the Examining Authority and the decision maker to</p>	<p>The options considered and appraised as part of the Scheme's development is set out in detail in Chapter 4 Scheme history and alternatives of the Environmental Statement [TR0100/27/APP/6.1].</p>	

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4	ASSESSMENT PRINCIPLES		
	reconsider this process, but they should be satisfied that this assessment has been undertaken.		
4.28 - 4.29 (Criteria for “good design” for national network Infrastructure)	<p>Applicants should include design as an integral consideration from the outset of a proposal.</p> <p>Visual appearance should be a key factor in considering the design of new infrastructure, as well as functionality, fitness for purpose, sustainability and cost. Applying “good design” to national network projects should therefore produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction, matched by an appearance that demonstrates good aesthetics as far as possible.</p>	<p>A description and analysis of the options considered is provided in the Environmental Statement Chapter 4 Scheme history and alternatives [TR010027/APP/6.1]. 31 Initial options were identified for consideration including a do-nothing option. Each option was initially assessed qualitatively to determine its viability with respect to engineering impact, environmental impact, buildability impact, traffic impact (connectivity and resilience) and impact on overhead electricity pylons. Subsequent to further assessments and engagement with stakeholders, the options were narrowed down to 6. These 6 options were then evaluated using the DfT’s TAG framework (ref 4.4) based on the following factors:</p> <ul style="list-style-type: none"> • Environmental • Highway geometry • Safety • Stakeholder consultation • Buildability assessment • Cost estimate • Traffic assessment <p>Final viable options were presented at a public consultation which influenced the selection of the preferred option which was a variation of the current proposed option. Subsequently, the preferred option was developed and refined following feedback through EIA, traffic modelling, economic appraisals, statutory consultations.</p>	

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4	ASSESSMENT PRINCIPLES		
		<p>As set out in Chapter 4 Scheme history and alternatives of the Environmental Statement [TR010027/APP/6.1] the proposed Junction 5A and the 2.4km link road is designed to avoid visual/aesthetic and noise impact on the adjacent properties near to Catherine-de-Barnes Village and Bickenhill Village, and also avoid impacting on the aviation safeguarding surface associated with Birmingham Airport . This has resulted in the dual mainline link road constructed largely beneath existing ground level through a cutting. Drainage attenuation features have been designed to incorporate feedback from Birmingham Airport and its concerns about bird habitats forming around attenuation ponds beneath as close to the aviation safeguarding surface.</p>	
4.33	<p>The applicant should therefore take into account, as far as possible, both functionality (including fitness for purpose and sustainability) and aesthetics (including the scheme's contribution to the quality of the area in which it would be located). Applicants will want to consider the role of technology in delivering new national networks projects. The use of professional, independent advice on the design aspects of a proposal should be considered, to ensure good design principles are embedded into infrastructure proposals.</p>	<p>Functional requirements of the Scheme, as a highways infrastructure project, are led by technical documents setting out parameters for new road design, such as DMRB and supporting Highway Design Standards for infrastructure. Compliance with these requirements will ensure the Scheme is fit for purpose.</p> <p>The Scheme features technological equipment to enable operational monitoring and control of traffic during incidents and maintenance would be located along the length of the Scheme. This would include CCTV cameras and variable message signs to provide information to drivers.</p>	

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4	ASSESSMENT PRINCIPLES		
		<p>Stakeholder engagement was undertaken early in the design process and has formed an integral part of the design development process. The design has been developed with input from stakeholders (both external to Highways England and internal through safety audits of design features and rationale log auditing).</p> <p>The stakeholder engagement process and use of the HE's design panels demonstrates independent advice has been sought on the design aspects of the Scheme which has ensured good design principles have been embedded into the proposals.</p> <p>The impact of the new Junction 5A will affect the operations on the M42 Smart Motorway. To address this, additional technology will be provided including CCTV cameras, variable message signs and signals.</p>	
4.34	<p>Whilst the applicant may only have limited choice in the physical appearance of some national networks infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting and design measures relative to existing landscape and historical character and function, landscape permeability, landform and vegetation.</p>	<p>The Environmental Statement [TR010027/APP/6.1] identifies and describes key features of the design that mitigate adverse environmental effects within close proximity of the Scheme.</p> <p>Furthermore, the Consultation Report [TR010027/APP/5.1] identifies concerns expressed by stakeholders which have been addressed in the design.</p>	

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4	ASSESSMENT PRINCIPLES		
4.35	Applicants should be able to demonstrate in their application how the design process was conducted and how the proposed design evolved. Where a number of different designs were considered, applicants should set out the reasons why the favoured choice has been selected....	Refer to response to paragraphs 4.28-4.29 and paragraphs 4.33 and 4.34 in this table. The Scheme has been designed in accordance with the technical standards specified in the DMRB. The evolution in the design from 40 options down to the proposed Scheme has been determined based on guidance specified the DfT TAG criteria, EIA, stakeholder engagement and design standards, this is described in the ES Chapter 4 Scheme history and alternatives [TR010027/APP/6.1].The Scheme has been designed to satisfy the technical standards (DMRB) which set out the operational requirements for a highway. These ensure the Scheme can be operated efficiently.	
4.40 (Climate change adaptation)	New national networks infrastructure will be typically long-term investments which will need to remain operational over many decades, in the face of a changing climate. Consequently, applicants must consider the impacts of climate change when planning location, design, build and operation. Any accompanying environment statement should set out how the proposal will take account of the projected impacts of climate change.	The UK Climate Projections 2009 (UKCP09) for temperature and precipitation variables have been obtained and analysed for the Scheme, and are summarised in Chapter 15 Climate of the Environmental Statement [TR010027/APP/6.1]. For the Midlands there is projected to be an increase in annual temperatures and increased seasonality in rainfall, with wetter winters and drier summers expected. The mitigation requirements, which respond to these future scenarios are addressed within Chapter 15 Climate of the Environmental Statement [TR010027/APP/6.1]. Whereby operational measures include use of attenuation features to detain runoff and manage overall outfall into the drainage network.	

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4	ASSESSMENT PRINCIPLES		
4.41	Where transport infrastructure has safety-critical elements and the design life of the asset is 60 years or greater, the applicant should apply the UK Climate Projections 2009 (UKCP09) high emissions scenario (high impact, low likelihood) against the 2080 projections at the 50% probability level.	The UK Climate Projections 2009 (UKCP09) for temperature and precipitation variables have been obtained and analysed for the Scheme, and are summarised in Chapter 15 Climate of the Environmental Statement [TR010027/APP/6.1]. For the Midlands there is projected to be an increase in annual temperatures and increased seasonality in rainfall, with wetter winters and drier summers expected. The mitigation requirements, which respond to these future scenarios are addressed within Chapter 15 Climate of the Environmental Statement [TR010027/APP/6.1]. Whereby operational measures include use of attenuation features to detain runoff and manage overall outfall into the drainage network.	
4.42	The applicant should take into account the potential impacts of climate change using the latest UK Climate Projections available at the time and ensure any environment statement that is prepared identifies appropriate mitigation or adaptation measures. This should cover the estimated lifetime of the new infrastructure...	The UK Climate Projections 2009 (UKCP09) for temperature and precipitation variables have been obtained and analysed for the Scheme, and are summarised in Chapter 15 Climate of the Environmental Statement [TR010027/APP/6.1]. For the Midlands there is projected to be an increase in annual temperatures and increased seasonality in rainfall, with wetter winters and drier summers expected. The mitigation requirements, which respond to these future scenarios are addressed within Chapter 15 Climate of the Environmental Statement [TR010027/APP/6.1]. Whereby operational measures include use of attenuation features to detain runoff and manage overall outfall into the drainage network.	

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4	ASSESSMENT PRINCIPLES		
4.43	<p>The applicant should demonstrate that there are no critical features of the design of new national networks infrastructure which may be seriously affected by more radical changes to the climate beyond that projected in the latest set of UK climate projections. Any potential critical features should be assessed taking account of the latest credible scientific evidence on, for example, sea level rise (e.g. by referring to additional maximum credible scenarios such as from the Intergovernmental Panel on Climate Change or Environment Agency) and on the basis that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime through potential further mitigation or adaptation.</p>	<p>Chapter 15 Climate of the Environmental Statement [TR010027/APP/6.1] indicates that the Scheme is designed to be resilient to impacts from weather events and climatic conditions and designed in accordance with current planning, design and engineering practice and codes. The assessment has found that, based on the mitigation built into the design and assumed management practices, as well as the UKCP09 climate change projections, information from other environmental disciplines, and details on Scheme design, that none of the potential impacts identified would be significant (and are therefore classed as non-significant).</p>	
4.44	<p>Any adaptation measures should be based on the latest set of UK Climate Projections, the Government's national Climate Change Risk Assessment and consultation with statutory consultation bodies. Any adaptation measures must themselves also be assessed as part of any environmental impact assessment and included in the environment statement, which should set out how and where such measures are proposed to be secured.</p>	<p>Chapter 15 Climate of the Environmental Statement [TR010027/APP/6.1] concludes that based on the embedded mitigation (these adaptation measures are as described in NPSNN Paragraph 4.40 of this Appendix) built into the design and assumed management practices, information from other environmental disciplines, details on scheme design, and taking into account UKCP09 Climate change projects, that none of the potential climate change impacts identified would be significant. Stakeholder comments provided on flood risk and water management that indirectly relate to climate resilience impacts are summarized in Chapter 14 Road drainage and the water environment of the Environmental Statement [TR010027/APP/6.1].</p>	

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4	ASSESSMENT PRINCIPLES		
4.52 (Pollution control and other environmental protection Regimes)	There is a statutory duty on applicants to consult the Marine Management Organisation (MMO) on nationally significant projects which would affect, or would be likely to affect, any relevant marine areas as defined in the Planning Act (as amended by section 23 of the Marine and Coastal Access Act 2009)...	No impact on marine areas	
4.53	When an applicant applies for an Environmental Permit, the relevant regulator (the Environment Agency) requires that the application demonstrates that processes are in place to meet all relevant Environmental Permit requirements...	As set out in the Consents and Agreements Position Statement [TR010027/APP/3.3] no environmental permits have been applied for.	
4.54	Applicants are encouraged to begin pre-application discussions with the Environment Agency as early as possible. It is however expected that an applicant will have first thought through the requirements as a starting point for discussion. Some consents require a significant amount of preparation; as an example, the Environment Agency suggests that applicants should start work towards submitting the permit application at least 6 months prior to the submission of an application for a Development Consent Order, where they wish to parallel track the applications. This will help ensure that applications take account of all relevant environmental considerations and that the relevant regulators are able to provide timely advice and assurance to the Examining Authority.	As set out in the Consents and Agreements Position Statement [TR010027/APP/3.3] no environmental permits have been applied for.	

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4	ASSESSMENT PRINCIPLES		
4.61 (Safety)	The applicant should undertake an objective assessment of the impact of the proposed development on safety including the impact of any mitigation measures. This should use the methodology outlined in the guidance from DfT (WebTAG) and from the Highways Agency.	<p>An assessment of accident impacts has been completed using COBALT (COst and Benefit to Accidents – Light Touch) version 2013_02 and a separate safety assessment was also undertaken.</p> <p>Observed accident records for 2011 to 2015 (inclusive) were used on modelled links within the study area.</p> <p>A base year of 2016, opening year 2023 and design year 2038 were modelled for the COBALT assessment.</p> <p>The assessment followed DfT WebTAG guidance.</p>	
4.62	They should also put in place arrangements for undertaking the road safety audit process. Road safety audits are a mandatory requirement for all trunk road highway improvement schemes in the UK (including motorways).	A Stage 1 Road Safety Audit (RSA) has been carried out for the Scheme. Additional Road Safety Audits will be conducted in accordance with DfT and Highways England guidance as the design progresses.	
4.64	The applicant should be able to demonstrate that their scheme is consistent with the Highways Agency's Safety Framework for the Strategic Road Network and with the national Strategic Framework for Road Safety. Applicants will wish to show that they have taken all steps that are reasonably required to: minimise the risk of death and injury arising from their development; contribute to an overall reduction in road casualties; contribute to an overall reduction in the number of unplanned incidents; and contribute to improvements in road safety for walkers and cyclists.	<p>The Construction, Design and Management (CDM) regulations 2015 require due consideration for health and safety of all stakeholders through the project life.</p> <p>An assessment of accident impacts has been completed using COBALT, the assessment forecasted a reduction in accidents across the extent of the Scheme.</p> <p>The Scheme was designed in accordance with technical documents produced by the DfT and Highways England which include the Design Manual for Roads and Bridges (DMRB) and Manual for Contract of Highway Works (MCHW). Compliance with Highways England's safety governance procedures including consultation with Operations Technical Leadership group and production of Operational Safety documents was a mandatory</p>	

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4	ASSESSMENT PRINCIPLES		
		<p>aspect of the Scheme design management process to ensure operational risks were identified and mitigated.</p> <p>The Consultation Report [TR010027/APP/5.1] describes the process of engagement with key stakeholders including Highways England's Asset Support Contractor, Solihull MBC and other key landowners. Feedback from this process has been utilised to inform the design development process.</p> <p>A Stage 1 Road Safety Audit has been carried out. Further Road Safety Audits will be carried out as the design progresses in compliance with Highways England and DfT requirements.</p>	
4.65	<p>They will also wish to demonstrate that: they have considered the safety implications of their project from the outset; and they are putting in place rigorous processes for monitoring and evaluating safety.</p>	<p>The Scheme development process is required to comply with the Construction, Design and Management (CDM) regulations 2015. This requires due consideration for health and safety of all stakeholders through the project life cycle.</p> <p>The Consultation Report [TR010027/APP/5.1] describes the process of engagement with key stakeholders including Highways England's Asset Support Contractor, Solihull MBC and other key landowners. Feedback from this process has been utilised to inform the design development process.</p> <p>A Stage 1 Road Safety Audit has been carried out. Further Road Safety Audits will be carried out as the design progresses in compliance with Highways England and DfT requirements.</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
4	ASSESSMENT PRINCIPLES		
4.76 - 4.77 (Security considerations)	<p>Where national security implications have been identified, the applicant should consult with relevant security experts from CPNI [Centre for the Protection of National Infrastructure] and the Department for Transport, to ensure that physical, procedural and personnel security measures have been adequately considered in the design process and that adequate consideration has been given to the management of security risks. If CPNI and the Department for Transport (as appropriate) are satisfied that security issues have been adequately addressed in the project when the application is submitted, they will provide confirmation of this to the Secretary of State, and the Examining Authority should not need to give any further consideration to the details of the security measures during the examination.</p> <p>The applicant should only include such information in the application as is necessary to enable the Examining Authority to examine the development consent issues and make a properly informed recommendation on the application.</p>	<p>No specific national security implications have been identified for the Scheme, however the detailed design of the Scheme will, as appropriate, incorporate safety and security standards that meet the requirements of the CPNI.</p>	
4.81 - 4.82 (Health)	<p>As described in the relevant sections of this NPS, where the proposed project has likely significant environmental impacts that would have an effect on human beings, any environmental statement should identify and set out the assessment of any likely significant adverse health impacts.</p> <p>The applicant should identify measures to avoid, reduce or compensate for adverse health impacts as appropriate. These impacts may affect people simultaneously, so the applicant, and the Secretary of State (in determining an application for development consent) should consider the</p>	<p>A qualitative assessment of health effects has been undertaken within the Chapter 13 Population and health of the Environmental Statement [TR010027/APP/6.1].</p> <p>The assessment draws upon information and conclusions contained within various assessments reported within this ES (e.g. Air Quality, Landscape, Noise and Vibration, and Climate) and separate reports, such as the Transport Assessment. The assessment concludes that overall effects on health during construction would be neutral (although effects on health from access to work and training are positive), and effects on health during</p>	

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4	ASSESSMENT PRINCIPLES		
	cumulative impact on health.	<p>operation would be beneficial (although effects on health from climate change are neutral). Factors which influence health and are considered include:</p> <ul style="list-style-type: none"> • Access to healthcare service and other social infrastructure • Access to open space and nature • Air quality noise and neighbour amenity • Accessibility and active travel • Access to work and training • Social cohesion and lifetime neighbourhoods • Climate change <p>As the effects are either neutral or beneficial no further specific mitigation measures have been identified.</p>	

Table 3: National Networks National Policy Statement Chapter 5

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
5	GENERIC IMPACTS		
5.6 - 5.9 (Air quality)	<p>Where the impacts of the project (both on and off-scheme) are likely to have significant air quality effects in relation to meeting EIA requirements and/or affect the UK's ability to comply with the Air Quality Directive, the applicant should undertake an assessment of the impacts of the proposed project as part of the environmental statement.</p> <p>The environmental statement should describe:</p> <ul style="list-style-type: none"> existing air quality levels; forecasts of air quality at the time of opening, assuming that the scheme is not built (the future baseline) and taking account of the impact of the scheme; and any significant air quality effects, their mitigation and any residual effects, distinguishing between the construction and operation stages and taking account of the impact of road traffic generated by the project. <p>DEFRA publishes future national projections of air quality based on evidence of future emissions, traffic and vehicle fleet. Projections are updated as the evidence base changes. Applicant's assessment should be consistent with this but may include more detailed modelling to demonstrate local impacts. In addition to information on the likely significant effects of a project in relation to EIA, the Secretary of State must be provided with a judgement on the risk as to whether the project would affect the UK's</p>	<p>A detailed air quality assessment has been undertaken as part of the EIA, and is reported in Chapter 6 Air quality of the Environmental Statement [TR010027/APP/6.1]. The assessment records the findings of air quality monitoring undertaken at representative locations to establish existing pollutant levels in the areas surrounding the Scheme, and predicts the existing and future air quality conditions for both the Do-Minimum (without scheme) and Do-Something (with scheme) scenarios, using traffic forecasts and projections to model and predict the pollutant levels arising from vehicle emissions and other sources at the local and regional level. Both construction and operational effects have been considered in the assessment, the findings of which have been used to determine whether the Scheme complies with the EU Air Quality Directive.</p> <p>The evaluation of the significance of local operational air quality effects is reported in Chapter 6 Air quality [TR010027/APP/6.1]. The assessment concludes there are no predicted annual average concentrations of NO2 or PM10 above the air quality objective in either the years of construction or first year of operation for the scheme in the air quality study area. Therefore, there are no small, medium or large changes in air quality above the air quality objectives expected and as such no significant air quality effects are predicted.</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
5	GENERIC IMPACTS		
	ability to comply with the Air Quality Directive.		
5.13	<p>The Secretary of State should refuse consent where, after taking into account mitigation, the air quality impacts of the scheme will:</p> <ul style="list-style-type: none"> • result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Directive becoming non-compliant; or • affect the ability of a non-compliant area to achieve compliance within the most recent timescales reported to the European Commission at the time of the decision. 	<p>The detailed air quality assessment reported in Chapter 6 Air quality of the Environmental Statement [TR010027/APP/6.1] has identified that the Scheme would not be progressed within a local authority defined Air Quality Management Area. Nor would the Scheme result in concentrations at receptor locations that would exceed the air quality objectives.</p>	
5.14 - 5.15	<p>The Secretary of State should consider whether mitigation measures put forward by the applicant are acceptable. A management plan may help codify mitigation at this stage. The proposed mitigation measures should ensure that the net impact of a project does not delay the point at which a zone will meet compliance timescales.</p> <p>Mitigation measures may affect the project design, layout, construction, operation and/or may comprise measures to improve air quality in pollution hotspots beyond the immediate locality of the scheme. Measures could include, but are not limited to, changes to the route of the new scheme, changes to the proximity of vehicles to local receptors in the existing route, physical means including barriers to trap or better disperse emissions, and speed control. The implementation of mitigation measures may require working with partners to support their delivery.</p>	<p>Chapter 6 Air quality of the Environmental Statement [TR010027/APP/6.1] indicates that no specific mitigation is necessary during the operation of the Scheme.</p> <p>The Outline Environment Management Plan [TR010027/APP/6.11] and supporting Register of Environmental Actions and Commitments in Appendix 3.1 of the Environmental Statement Appendices [TR010027/APP/6.3] presents the mitigation measures identified as necessary to manage construction related air quality effects, and details who would be responsible for their implementation and any associated monitoring requirements.</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
5	GENERIC IMPACTS		
5.17 (Carbon emissions)	Carbon impacts will be considered as part of the appraisal of scheme options (in the business case), prior to the submission of an application for DCO. Where the development is subject to EIA, any Environmental Statement will need to describe an assessment of any likely significant climate factors in accordance with the requirements in the EIA Directive. It is very unlikely that the impact of a road project will, in isolation, affect the ability of Government to meet its carbon reduction plan targets. However, for road projects applicants should provide evidence of the carbon impact of the project and an assessment against the Government's carbon budgets.	Assessment of GHG emissions was undertaken as part of the appraisal of route alignment options using the WebTAG Environmental Assessment methodology. Chapter 15 Climate [TR010027/APP/6.1] presents an assessment of greenhouse gas emissions arising from the construction and operation of the Scheme. The assessment identifies the national level carbon budgets at different project stages. It is concluded that the GHG impact of the Scheme would not have a material impact on the Government meeting its carbon reduction targets.	
5.19	Evidence of appropriate mitigation measures (incorporating engineering plans on configuration and layout, and use of materials) in both design and construction should be presented. The Secretary of State will consider the effectiveness of such mitigation measures in order to ensure that, in relation to design and construction, the carbon footprint is not unnecessarily high. The Secretary of State's view of the adequacy of the mitigation measures relating to design and construction will be a material factor in the decision making process.	Highways England's license has a requirement for minimising GHG emissions. Chapter 15 Climate of the Environmental Statement [TR010027/APP/6.1] identifies mitigation measures to be implemented to reduce emissions across the lifecycle of the Scheme.	

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5	GENERIC IMPACTS		
5.22 - 5.23 (Biodiversity and ecological conservation)	<p>Where the project is subject to EIA the applicant should ensure that the environmental statement clearly sets out any likely significant effects on internationally, nationally and locally designated sites of ecological or geological conservation importance (including those outside England) on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity and that the statement considers the full range of potential impacts on ecosystems.</p> <p>The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.</p>	<p>Chapter 9 Biodiversity of the Environmental Statement [TR010027/APP/6.1] reports the findings of a Biodiversity assessment, and identifies the likely significant effects on designated ecological sites from local through to international importance, on species afforded protection through statute, and habitats of value and importance, details the ecological measures that have been incorporated into the Scheme; these are also depicted on the Environmental Masterplan (Figure 8.8 of the Environmental Statement Figures [TR010027/APP/6.2]).</p> <p>Chapters 3 The project and 4 Scheme history and alternatives of the Environmental Statement [TR010027/APP/6.1] summarise the alternatives considered during the design-development of the Scheme, and explain how the final design has sought to avoid sites of ecological importance and minimised land take in pursuit of the objective of nature conservation.</p> <p>Through the design-development process, measures have been identified and incorporated into the Scheme to mitigate and compensate for the loss of habitats and vegetation, some of which provide both a landscape integration and biodiversity function.</p> <p>The Outline Environmental Management Plan (OEMP) ([TR010027/APP/6.11] proposes measures to limit effects on biodiversity during construction.</p>	

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5	GENERIC IMPACTS		
5.25	<p>As a general principle, and subject to the specific policies below, development should avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives. The applicant may also wish to make use of biodiversity offsetting in devising compensation proposals to counteract any impacts on biodiversity which cannot be avoided or mitigated. Where significant harm cannot be avoided or mitigated, as a last resort, appropriate compensation measures should be sought.</p>	<p>The Scheme has sought to avoid significant harm to features of biodiversity interest, both during the consideration of alternatives, and during the Environmental Impact Assessment. The approach ensures that where significant adverse effects are anticipated these are compensated where it has not been possible to mitigate or avoid such effects.</p> <p>As stated in Chapter 9 Biodiversity of the Environmental Statement [TR010027/APP/6.1] the Scheme incorporates measures that have been embedded into the design to mitigate adverse effects on biodiversity features and compensate for the loss of habitats by the creation of new areas of habitat within the Scheme. It also includes working practices which to avoid significant harm and provide mitigation for important biodiversity features during construction and operation. These measures have been identified and developed through the EIA process, including consultation with stakeholders and statutory bodies.</p> <p>The biodiversity mitigation strategy for the Scheme has been developed in conjunction with Highways England's Biodiversity Offsetting Calculator.</p>	
5.26	<p>In taking decisions, the Secretary of State should ensure that appropriate weight is attached to designated sites of international, national and local importance, protected species, habitats and other species of principal importance for the conservation of biodiversity, and to biodiversity and geological interests within the wider environment.</p>	<p>Chapter 9 Biodiversity of the Environmental Statement [TR010027/APP/6.1] identifies the sites, habitats and species of ecological importance that would be affected by the Scheme.</p> <p>Chapter 10 Geology and soils of the Environmental Statement [TR010027/APP/6.1] identifies the geological sites and interests that would be affected by the Scheme.</p>	

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5	GENERIC IMPACTS		
5.29 (Biodiversity-SSSIs)	Where a proposed development on land within or outside a SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), development consent should not normally be granted. Where an adverse effect on the site's notified special interest features is likely, an exception should be made only where the benefits of the development at this site clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSIs. The Secretary of State should ensure that the applicant's proposals to mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest, are acceptable. Where necessary, requirements and/or planning obligations should be used to ensure these proposals are delivered.	Paragraphs 5.3.17 to 5.3.27 address the impact of the Scheme on Bickenhill Meadows SSSI.	
5.32 (Biodiversity - Irreplaceable habitats including ancient woodland and veteran trees)	Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the national need for and benefits of the development, in that location, clearly outweigh the loss. Aged or veteran trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Where such trees would be affected by development	Paragraphs 5.3.33 to 5.3.39 of this Planning Statement address the impact of the Scheme on the Aspbury's Copse ancient woodland. Construction activities would be undertaken in line with best practice approaches and techniques to ensure the works do not encroach into the root protection areas or affect the canopies of tree specimens identified for retention. These measures are detailed in the Register of Environmental Actions and Commitments of the Environmental Statement Appendices [TR010027/APP/6.3].	

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5	GENERIC IMPACTS		
	proposals, the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons for this.		
5.35 (Biodiversity - Protection of other habitats and species)	Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales and therefore requiring conservation action. The Secretary of State should ensure that applicants have taken measures to ensure these species and habitats are protected from the adverse effects of development. Where appropriate, requirements or planning obligations may be used in order to deliver this protection. The Secretary of State should refuse consent where harm to the habitats or species and their habitats would result, unless the benefits of the development (including need) clearly outweigh that harm.	Chapter 9 Biodiversity of the Environmental Statement [TR010027/APP/6.1] considers ecological features; identifies those that are of principal importance and assesses the residual effect appropriately. Biodiversity has been assessed in accordance with relevant sections of the Design Manual for Roads and Bridges (DMRB - as updated by Interim Advice Note 130/10). Information was obtained from previous studies, biological records, consultation with relevant organisations and field surveys completed in 2017 and 2018.	
5.36 (Biodiversity – Mitigation)	<p>Applicants should include appropriate mitigation measures as an integral part of their proposed development, including identifying where and how that:</p> <ul style="list-style-type: none"> • during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works; • during construction and operation, best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised (including as a consequence of transport access arrangements); • habitats will, where practicable, be restored after construction works have finished; • developments will be designed and landscaped to provide green corridors and minimise habitat 	<p>The Environmental Statement Appendices [TR010027/APP/6.3] contain a Register of Environmental Actions and Commitments (REAC). This details the environmental mitigation measures that would be implemented both during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements satisfying this requirement.</p> <p>A range of landscaping, ecological and drainage measures have been embedded into the design of the Scheme to mitigate and compensate for the loss of habitats and features of biodiversity value and importance, as defined within Chapters 6 to 15 of the Environmental Statement [TR010027/APP/6.1] and illustrated on the Environmental Masterplan.</p>	

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5	GENERIC IMPACTS		
	<p>fragmentation where reasonable;</p> <ul style="list-style-type: none"> opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals, for example through techniques such as the 'greening' of existing network crossing points, the use of green bridges and the habitat improvement of the network verge. 		
5.42 (Waste management)	<p>The applicant should set out the arrangements that are proposed for managing any waste produced. The arrangements described should include information on the proposed waste recovery and disposal system for all waste generated by the development. The applicant should seek to minimise the volume of waste produced and the volume of waste sent for disposal unless it can be demonstrated that the alternative is the best overall environmental outcome.</p>	<p>Measures for managing waste and materials are proposed and information on the implementation, measuring and monitoring of these measures is detailed within Chapter 3 The project and Chapter 11 Material assets and waste of the Environmental Statement [TR010027/APP/6.1], and in the Outline Environmental Management Plan [TR010027/APP/6.11] which contains a framework Site Waste Management Plan.</p> <p>The quantity of waste arisings has been minimised where possible through design, with opportunities to re-use material resources sought where practicable. Where re-use and prevention has not been possible, arisings would be managed in line with the waste hierarchy.</p>	
5.55 - 5.58 (Civil and military aviation and defence interests)	<p>Where the proposed development may have an effect on civil or military aviation and/or other defence assets, an assessment of potential effects should be carried out.</p> <p>The applicant should consult the MoD, CAA, National Air Traffic Services (NATS) and any aerodrome – licensed or otherwise – likely to be affected by the proposed development in preparing an assessment of the proposal on aviation or other defence interests.</p> <p>Any assessment on aviation or other defence</p>	<p>The MoD, CAA, NATs and Birmingham Airport were consulted on the Scheme at both the Statutory Consultation in February 2018 and at the further consultation in September 2018. These consultees are listed in Annex H of the Consultation Report Annexes [TR010027/APP/5.2].</p> <p>The MOD replied to the Further Consultation (email received on 7 September 2018) stating that they had no safeguarding objection to this proposal.</p>	

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5	GENERIC IMPACTS		
	<p>interests should include potential impacts during construction and operation of the project upon the operation of CNS infrastructure, flight patterns (both civil and military), other defence assets and aerodrome operational procedures.</p> <p>If any relevant changes are made to proposals for an NSIP during the pre-application period or before the end of the examination of an application, it is the responsibility of the applicant to ensure that the relevant aviation and defence consultees are informed as soon as reasonably possible.</p>	<p>NATS responded to the Further Consultation (email received on 12 September 2018) Additional where they confirmed that <i>'the proposed development has been examined from a technical safeguarding aspect and does not conflict with our safeguarding criteria. Accordingly, NATS (En Route) Public Limited Company ("NERL") has no safeguarding objection to the proposal.'</i></p> <p>An auto-acknowledgement email from the CAA was received from the CAA on 3 September 2018 to the further consultation but no formal response was received.</p> <p>Highways England has had various meetings with Birmingham Airport during the development of the Scheme and Birmingham Airport has raised no objection to the proposals. Table 5 in Section 2.5 of the Consultation Report [TR010027/APP/5.1] summarises the meetings held with the Airport to date. The main output from this discussion is that Highways England has agreed that it will prepare, in consultation with Birmingham Airport, a Bird Strike Management Plan to ensure construction activities or physical features of the Scheme do not result in the likelihood of bird strikes increasing within the safeguarding area.</p>	
5.62	<p>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:</p> <ul style="list-style-type: none"> • a development would prevent a licensed aerodrome from maintaining its licence; • the benefits of the proposed development are outweighed by the harm to aerodromes serving 	<p>Consultation has been undertaken with Birmingham Airport to ensure aspects of the Scheme's design do not directly conflict with their established flight safeguarding zone. This has resulted in modifications to the vertical alignment of elements of the Scheme, the careful siting and specification of landscaping, and the adoption of underground water storage measures to avoid encroachment into the zone, and to reduce the potential for bird strikes.</p>	

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5	GENERIC IMPACTS		
	<p>business, training or emergency service needs; or</p> <ul style="list-style-type: none"> the development would significantly impede or compromise the safe and effective use of defence assets or significantly limit military training. 	<p>Birmingham Airport has raised no objection to the proposals. Table 5 in Section 2.5 of the Consultation Report [TR010027/APP/5.1] summarises the meetings held with the Airport to date. The main output from this discussion is that Highways England has agreed that it will prepare, in consultation with Birmingham Airport, a Bird Strike Management Plan to ensure construction activities or physical features of the Scheme do not result in the likelihood of bird strikes increasing within the safeguarding area.</p>	
5.71- 5.74 (Coastal change)	<p>Applications for development in a Coastal Change Management Area (CCMA) should make it clear why there is a need for it to be located in a CCMA. For developments in a CCMA, applicants should undertake an assessment of the vulnerability of the proposed development to coastal change, taking account of climate change, during the project's operational life.</p> <p>For any projects involving dredging or disposal into the sea, the applicant should consult the Marine Management Organisation (MMO), and where appropriate, for cross-boundary impacts, Natural Resource Wales and Scottish Natural Heritage, at an early stage. The applicant should also consult the MMO on projects which could impact on coastal change, since the MMO may also be involved in considering other projects which may have related coastal impacts.</p> <p>The applicant should examine the broader context of coastal protection around the proposed project, and the influence in both directions, i.e. coast on project, and project on coast.</p>	<p>This policy requirement is not applicable as the Scheme would not be located in a coastal area.</p>	

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5	GENERIC IMPACTS		
	<p>The applicant should be particularly careful to identify any effects of physical changes on the integrity and special features of Marine Conservation Zones, candidate marine Special Areas of Conservation (SACs), coastal SACs and candidate coastal SACs, coastal Special Protection Areas (SPAs) and potential coastal SPAs, Ramsar sites, Sites of Community Importance (SCIs) and potential SCIs and sites of Special Scientific Interest. For any projects affecting the above marine protected areas, the applicant should consult Natural England and where appropriate, for cross-boundary impacts, Natural Resource Wales and Scottish Natural Heritage, at an early stage.</p>		
5.75	<p>When assessing applications in a CCMA, the Secretary of State should not grant development consent unless it is demonstrated that the development:</p> <ul style="list-style-type: none"> • will be safe over its planned lifetime and will not have an unacceptable impact on coastal change; • will not compromise the character of the coast covered by designations; • provides wider sustainability benefits; and • does not hinder the creation and maintenance of a continuous signed and managed route around the coast. 	This policy requirement is not applicable as the Scheme would not be located in a coastal area.	
5.79	<p>Applicants should propose appropriate mitigation measures to address adverse physical changes to the coast in consultation with the MMO, the Environment Agency, Natural England, Natural Resource Wales, Scottish Natural Heritage, Local Planning Authorities, other statutory consultees, Coastal Partnerships and other coastal groups, as it considers appropriate. The Secretary of State should</p>	This policy requirement is not applicable as the Scheme would not be located in a coastal area.	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
5	GENERIC IMPACTS		
	<p>consider whether the mitigation requirements put forward by an applicant are acceptable and will be delivered and whether requirements should be attached to any grant of development consent in order to secure their delivery.</p>		
<p>5.84 - 5.86 (Dust, odour, artificial light, smoke, steam)</p>	<p>Where the development is subject to an Environmental Impact Assessment, the applicant should assess any likely significant effects on amenity from emissions of odour, dust, steam, smoke and artificial light and describe these in the Environmental Statement.</p> <p>In particular, the assessment provided by the applicant should describe:</p> <ul style="list-style-type: none"> • the type and quantity of emissions; • aspects of the development which may give rise to emissions during construction, operation and decommissioning; • premises or locations that may be affected by the emissions; • effects of the emission on identified premises or locations; and • measures to be employed in preventing or mitigating the emissions. <p>The applicant is advised to consult the relevant local planning authority and, where appropriate, the Environment Agency about the scope and methodology of the assessment.</p>	<p>Construction effects associated with odour, dust and smoke, including the predicted type, quantity and receptor locations of emissions are considered within Chapter 6 Air quality Environmental Statement [TR010027/APP/6.1].</p> <p>The OEMP [TR010027/APP/6.11] outlines the reasonable steps taken via mitigation measures which include those for dust suppression, control and use of equipment/plant and construction traffic management. With the implementation of mitigation measures, no significant effects are likely.</p>	

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5	GENERIC IMPACTS		
5.89	The Secretary of State should ensure the applicant has provided sufficient information to show that any necessary mitigation will be put into place. In particular, the Secretary of State should consider whether to require the applicant to abide by a scheme of management and mitigation concerning emissions of odour, dust, steam, smoke, artificial light from the development to reduce any loss to amenity which might arise during the construction and operation of the development. A construction management plan may help codify mitigation.	The Register of Environmental Actions and Commitments of the Environmental Statement Appendices [TR010027/APP/6.3] and the OEMP [TR010027/APP/6.11] details the mitigation measures that would be implemented during the construction of the Scheme, including those identified to control and reduce such emissions.	
5.91 (Flood risk)	The National Planning Policy Framework (paragraphs 100 to 104) makes clear that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk. But where development is necessary, it should be made safe without increasing flood risk elsewhere. The guidance supporting the National Planning Policy Framework explains that essential transport infrastructure (including mass evacuation routes), which has to cross the area at risk, is permissible in areas of high flood risk, subject to the requirements of the Exception Test.	The majority of the Scheme falls within Flood Risk Zone 1, with a section of the Scheme north of Junction 6 falling within Flood Risk Zones 2 and 3. The Scheme therefore includes a detailed Flood Risk Assessment (FRA) Report [TR010027/APP/6.10]. This demonstrates that the Scheme incorporates appropriate drainage systems and would not increase the risk of flooding within or surrounding the Scheme. It is demonstrated that under both the Scheme will not have a detrimental impact on flooding, to the satisfaction of the Exception Test.	

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5	GENERIC IMPACTS		
5.92 - 5.93	<p>Applications for projects in the following locations should be accompanied by a flood risk assessment (FRA):</p> <ul style="list-style-type: none"> Flood Zones 2 and 3, medium and high probability of river and sea flooding; Flood Zone 1 (low probability of river and sea flooding) for projects of 1 hectare or greater, projects which may be subject to other sources of flooding (local watercourses, surface water, groundwater or reservoirs), or where the Environment Agency has notified the local planning authority that there are critical drainage problems. This should identify and assess the risks of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account. 	<p>The Flood Risk Assessment [TR010027/APP/6.10] assesses the risk of all forms of flooding to and from the Scheme. The approach presented in the Flood Risk Assessment is based on the Source-Pathway-Receptor model. As part of following this model the causes or 'sources' of flooding to and from the Scheme are considered based on a review of local conditions and consideration of the effects of climate change using Environment Agency guidance. The nature and likely extent of flooding arising from any one source has also been considered, e.g. whether such flooding is likely to be localised or widespread.</p> <p>Chapter 3 The project and Chapter 14 Road drainage and the water environment of the Environmental Statement [TR010027/APP/6.1], and the Flood Risk Assessment explain the climate change factors and allowances that have been applied in the design of the Scheme.</p>	
5.94	<p>In preparing an FRA the applicant should:</p> <ul style="list-style-type: none"> consider the risk of all forms of flooding arising from the project (including in adjacent parts of the United Kingdom), in addition to the risk of flooding to the project, and demonstrate how these risks will be managed and, where relevant, mitigated, so that the development remains safe throughout its lifetime; take the impacts of climate change into account, clearly stating the development lifetime over which the assessment has been made; 	<p>The Flood Risk Assessment [TR010027/APP/6.10] meets the requirements which are set by the NPSNN including information to apply the Sequential and Exception tests, and demonstrates that the development remains safe from flooding through its lifetime (taking climate change into account). In addition, with the mitigation which is proposed, the residual risk which the temporary and permanent features of the Scheme would generate for other receptors is low.</p> <p>The Register of Environmental Actions and Commitments</p>	

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5	GENERIC IMPACTS		
	<ul style="list-style-type: none"> consider the vulnerability of those using the infrastructure including arrangements for safe access and exit; include the assessment of the remaining (known as 'residual') risk after risk reduction measures have been taken into account and demonstrate that this is acceptable for the particular project; consider if there is a need to remain operational during a worst case flood event over the development's lifetime; provide the evidence for the Secretary of State to apply the Sequential Test and Exception Test, as appropriate. 	<p>of the Environmental Statement Appendices [TR010027/APP/6.3] and the OEMP [TR010027/APP/6.11] presents the measures that would be employed during construction to avoid and mitigate effects on water resources, and to prevent localised flooding during the works.</p>	
5.96	<p>Applicants for projects which may be affected by, or may add to, flood risk are advised to seek sufficiently early pre-application discussions with the Environment Agency, and, where relevant, other flood risk management bodies such as lead local flood authorities, Internal Drainage Boards, sewerage undertakers, highways authorities and reservoir owners and operators. Such discussions can be used to identify the likelihood and possible extent and nature of the flood risk, to help scope the FRA, and identify the information that will be required by the Secretary of State to reach a decision on the application once it has been submitted and examined. If the Environment Agency has concerns about the proposal on flood risk grounds, the applicant is encouraged to discuss these concerns with the Environment Agency and look to agree ways in which the proposal might be amended, or additional information provided, which would satisfy the Environment Agency's concerns,</p>	<p>Consultation with the relevant statutory bodies and undertakers has been carried out as part of baseline data collection during the EIA process. Chapter 14 Road drainage and the water environment of the Environmental Statement [TR010027/APP/6.1] and the Flood Risk Assessment [TR010027/APP/6.10] confirm the engagement undertaken in respect of flood matters.</p>	

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5	GENERIC IMPACTS		
	preferably before the application for development consent is submitted.		
5.97	For local flood risk (surface water, groundwater and ordinary watercourse flooding), local flood risk management strategies and surface water management plans provide useful sources of information for consideration in Flood Risk Assessments. Surface water flood issues need to be understood and then account of these issues can be taken, for example flow routes should be clearly identified and managed.	<p>The Flood Risk Assessment [TR010027/APP/6.10] has considered the risk from all sources of flooding to and from the Scheme, and the design-development process has sought to avoid zones known to be susceptible to, or at risk from, flood events where practicable.</p> <p>Chapter 10 and 14 of the Environmental Statement [TR010027/APP/6.1] collates the existing hydrological and hydrogeological baseline to allow for the understanding and interpretation of water environment to allow for the applicable assessments to be undertaken.</p> <p>The Register of Environmental Actions and Commitments of the Environmental Statement Appendices [TR010027/APP/6.3] and the OEMP [TR010027/APP/6.11] presents the measures that would be employed during construction to avoid and mitigate effects on water resources, and to prevent localised flooding during the works.</p>	

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5	GENERIC IMPACTS		
5.100	<p>For construction work which has drainage implications, approval for the project's drainage system will form part of any development consent issued by the Secretary of State. The Secretary of State will therefore need to be satisfied that the proposed drainage system complies with any National Standards published by Ministers under Paragraph 5(1) of Schedule 3 to the Flood and Water Management Act 2010.93 In addition, the development consent order, or any associated planning obligations, will need to make provision for the adoption and maintenance of any Sustainable Drainage Systems (SuDS), including any necessary access rights to property. The Secretary of State, should be satisfied that the most appropriate body is being given the responsibility for maintaining any SuDS, taking into account the nature and security of the infrastructure on the proposed site. The responsible body could include, for example, the applicant, the landowner, the relevant local authority, or another body such as the Internal Drainage Board.</p>	<p>The Drainage Strategy in the Environmental Statement Appendices [TR010027/APP/6.3] notes that the drainage has been designed according to national SuDS best practice.</p> <p>These include the principles of DEFRA (2015) Sustainable Drainage Systems, Non-statutory technical standards for SuDS and the Design Manual for Roads and Bridges.</p> <p>Highways England will be responsible for the maintenance and inspection of all drainage infrastructure, except where such infrastructure will be adopted by, and become the responsibility of the local highway authority (SMBC).The Draft DCO [TR010027/APP/3.1] includes in the Requirements (Schedule 2, Part1) draft requirements which relate to surface water drainage.</p>	
5.112 - 5.115 (Flood risk - mitigation)	<p>Site layout and surface water drainage systems should cope with events that exceed the design capacity of the system, so that excess water can be safely stored on or conveyed from the site without adverse impacts.</p> <p>The surface water drainage arrangements for any project should be such that the volumes and peak flow rates of surface water leaving the site are no greater than the rates prior to the proposed project, unless specific off-site arrangements are made and result in the same net effect.</p>	<p>Chapter 14 Road drainage and the water environment of the environmental statement [TR010027/APP/6.1] indicates that drainage solutions that would be implemented for the Scheme taking into consideration Birmingham Airports safeguarding constraints.</p> <p>The drainage systems for Scheme are designed to minimise the risk of it flooding elsewhere by incorporating current design standards and future climate change allowances.</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
5	GENERIC IMPACTS		
	<p>It may be necessary to provide surface water storage and infiltration to limit and reduce both the peak rate of discharge from the site and the total volume discharged from the site. There may be circumstances where it is appropriate for infiltration attenuation storage to be provided outside the project site, if necessary through the use of a planning obligation.</p> <p>The sequential approach should be applied to the layout and design of the project. Vulnerable uses should be located on parts of the site at lower probability and residual risk of flooding. Applicants should seek opportunities to use open space for multiple purposes such as amenity, wildlife habitat and flood storage uses. Opportunities can be taken to lower flood risk by improving flow routes, flood storage capacity and using SuDS.</p>	<p>Features include:</p> <ul style="list-style-type: none"> • Reedbeds • Swales • Underground detention tanks <p>The Drainage Strategy in the Environmental Statement Appendices [TR010027/APP/6.3] notes that the drainage has been designed according to national SuDS best practice.</p> <p>These include the principles of DEFRA (2015) Sustainable Drainage Systems, Non-statutory technical standards for SuDS and the Design Manual for Roads and Bridges.</p>	
5.117 - 5.118 (Land instability)	<p>Where necessary, land stability should be considered in respect of new development, as set out in the National Planning Policy Framework and supporting planning guidance. Specifically, proposals should be appropriate for the location, including preventing unacceptable risks from land instability. If land stability could be an issue, applicants should seek appropriate technical and environmental expert advice to assess the likely consequences of proposed developments on sites where subsidence, landslides and ground compression is known or suspected. Applicants should liaise with the Coal Authority if necessary.</p> <p>A preliminary assessment of ground instability</p>	<p>To inform the Environmental Statement [TR010027/APP/6.1] and design-development of the Scheme, the ground investigation survey work identified a number of ground stability hazards relating to: shrinking or swelling clay (up to low potential); landslide (up to moderate potential); ground dissolution (no potential); compressible ground (up to moderate potential); collapsible ground (up to very low potential); and running sand (up to low potential).</p> <p>A Preliminary Sources Study Report commissioned by Highways England included a review of mining instability, concluding that no significant mining operations have taken place in the area and that the strata underlying the Scheme are not coal bearing.</p>	

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	<p>should be carried out at the earliest possible stage before a detailed application for development consent is prepared. Applicants should ensure that any necessary investigations are undertaken to ascertain that their sites are and will remain stable or can be made so as part of the development. The site needs to be assessed in context of surrounding areas where subsidence, landslides and land compression could threaten the development during its anticipated life or damage neighbouring land or property. This could be in the form of a land stability or slope stability risk assessment report.</p>	<p>Chapter 10 Geology and soils of the Environmental Statement [TR010027/APP/6.1] has evaluated this information, and the assessment has concluded that construction operations could result in an effect on ground stability of negligible significance.</p> <p>Geotechnical investigations have also been undertaken in 2018 to fully establish current ground conditions.</p> <p>The construction, operation and maintenance of the Scheme would be undertaken in a manner that ensures any unacceptable risks related to unstable natural or - man-made slopes, or related to ground compression, can be mitigated. Embankment and cutting side slopes included in the design of the Scheme have been designed in a manner that achieves long term stability.</p>	
<p>5.126 - 5.127 (The historic environment)</p>	<p>Where the development is subject to EIA the applicant should undertake an assessment of any likely significant heritage impacts of the proposed project as part of the Environmental Impact Assessment and describe these in the environmental statement.</p> <p>The applicant should describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the asset's importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant Historic Environment Record should have been consulted and the heritage assets assessed using appropriate</p>	<p>Chapter 7 Cultural heritage of the Environmental Statement [TR010027/APP/6.1] defines the approach to assigning significance, and assessing effects is proportionate to the highly sensitive location in which the Scheme is located. Then describes the approach taken to assessing effects on heritage within the EIA. The ES chapter is the primary document which reports the Scheme impacts and effects upon heritage assets.</p> <p>Data on each identified asset has been obtained through a combination of desk-based and field-based survey techniques, including scrutiny of the Historic Environment Record and other records. Information on the data sources used and investigative fieldwork undertaken is presented in the chapter.</p>	

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	expertise. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, the applicant should include an appropriate desk-based assessment and, where necessary, a field evaluation.	Supporting archaeology method statement for the construction phase of the Scheme are presented within the Consents and Agreements Position Statement [TR010027/APP/3.3]	
5.131	When considering the impact of a proposed development on the significance of a designated heritage asset, the Secretary of State should give great weight to the asset's conservation. The more important the asset, the greater the weight should be. Once lost, heritage assets cannot be replaced and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Given that heritage assets are irreplaceable, harm or loss affecting any designated heritage asset should require clear and convincing justification. Substantial harm to or loss of a grade II Listed Building or a grade II Registered Park or Garden should be exceptional. Substantial harm to or loss of designated assets of the highest significance, including World Heritage Sites, Scheduled Monuments, grade I and II* Listed Buildings, Registered Battlefields, and grade I and II* Registered Parks and Gardens should be wholly exceptional.	<p>Chapter 7 Cultural heritage of the Environmental Statement [TR010027/APP/6.1] presents the methodologies applied in the assessment to identify assets that would be affected by construction, operation and maintenance of the Scheme, including statements regarding their importance/significance.</p> <p>The assessment has concluded that there would be no substantial harm to any Listed Buildings, Registered Parks and Gardens, World Heritage Sites, Scheduled Monuments or Registered Battlefields as a consequence of the Scheme.</p> <p>The proposed scheme will not result in substantial harm to Bickenhill Village Conservation Area or give rise to significant effects on listed buildings. Refer to paragraphs 5.3.42 – 5.3.49 of this Planning Statement.</p>	

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5	GENERIC IMPACTS		
5.133	<p>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 consent unless it can be demonstrated that the substantial harm or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm, or alternatively that all of the following apply:</p> <ul style="list-style-type: none"> • the nature of the heritage asset prevents all reasonable uses of the site; and • no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and • conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible; and • the harm or loss is outweighed by the benefit of bringing the site back into use. 	<p>The proposed scheme will not result in substantial harm to Bickenhill Village Conservation Area or give rise to significant effects on listed buildings. Refer to paragraphs 5.3.42 – 5.3.49 of this Planning Statement.</p>	
5.144 - 5.146 (Landscape and visual impacts)	<p>Where the development is subject to EIA the applicant should undertake an assessment of any likely significant landscape and visual impacts in the environmental impact assessment and describe these in the environmental assessment. A number of guides have been produced to assist in addressing landscape issues. The landscape and visual assessment should include reference to any landscape character assessment and associated studies, as a means of assessing landscape impacts relevant to the proposed project. The applicant's assessment should also take account of any relevant policies based on these assessments in local development documents in England.</p>	<p>The EIA has considered the potential for significant effects to arise from construction, operation and maintenance of the Scheme on landscape character and visual amenity, as reported in Chapter 8 Landscape of the Environmental Statement [TR010027/APP/6.1]. This includes specific reference to existing areas of landscape character (and the key features and components that contribute to character), visually sensitive locations and receptors, and published studies and policies relating to the protection and conservation of the landscape.</p> <p>The assessment has considered how construction activity, the introduction of new built form, traffic movements, lighting and maintenance works could alter</p>	

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	<p>The applicant's assessment should include any significant effects during construction of the project and/or the significant effects of the completed development and its operation on landscape components and landscape character (including historic landscape characterisation).</p> <p>The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include any noise and light pollution effects, including on local amenity, tranquillity and nature conservation.</p>	<p>the perception of landscape character and change the balance of components in existing views.</p> <p>A series of photomontages have been prepared as part of the assessment, which illustrate how the Scheme once operational would appear in views from a series of representative locations, accounting for seasonal variation in vegetation foliage and the establishment of planting measures over time (as shown on the Environmental Masterplan Figure 8.8. of the Environmental Statement Figures TR010027/APP/6.2).</p> <p>Landscaping proposals to integrate the Scheme into the existing landscape pattern and screen visually prominent components in available views have been developed in an integrated manner to ensure opportunities are secured to also mitigate other effects on biodiversity and the setting of historic landscapes and assets. These relationships are described further in Chapter 7 Cultural Heritage and Chapter 9 Biodiversity of the Environmental Statement [TR010027/APP/6.1].</p>	
5.147- 5.148	<p>Any statutory undertaker commissioning or undertaking works in relation to, or so as to affect land in a National Park or Areas of Outstanding Natural Beauty, would need to comply with the respective duties in section 11A of the National Parks and Access to Countryside Act 1949 and section 85 of the Countryside and Rights of Way Act 2000.</p> <p>For significant road widening or the building of new roads in National Parks and the Broads applicants also need to fulfil the requirements set out in DEFRA's English national parks and the broads: UK</p>	<p>This policy requirement is not applicable as the Scheme would not be located in an Area of Outstanding Natural Beauty or a National Park</p>	

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	<p>government vision and circular 2010 or successor documents. These requirements should also be complied with for significant road widening or the building of new roads in Areas of Outstanding Natural Beauty.</p>		
5.150 - 5.151	<p>Great weight should be given to conserving landscape and scenic beauty in nationally designated areas. National Parks, the Broads and Areas of Outstanding Natural Beauty have the highest status of protection in relation to landscape and scenic beauty. Each of these designated areas has specific statutory purposes which help ensure their continued protection and which the Secretary of State has a statutory duty to have regard to in decisions.</p> <p>The Secretary of State should refuse development consent in these areas except in exceptional circumstances and where it can be demonstrated that it is in the public interest. Consideration of such applications should include an assessment of:</p> <ul style="list-style-type: none"> • the need for the development, including in terms of any national considerations, and the impact of consenting, or not consenting it, upon the local economy; • the cost of, and scope for, developing elsewhere, outside the designated area, or meeting the need for it in some other way; and • any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated. 	<p>This policy requirement is not applicable as the Scheme would not be located in an Area of Outstanding Natural Beauty or a National Park</p>	

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5	GENERIC IMPACTS		
	<p>There is a strong presumption against any significant road widening or the building of new roads and strategic rail freight interchanges in a National Park, the Broads and Areas of Outstanding Natural Beauty, unless it can be shown there are compelling reasons for the new or enhanced capacity and with any benefits outweighing the costs very significantly. Planning of the Strategic Road Network should encourage routes that avoid National Parks, the Broads and Areas of Outstanding Natural Beauty.</p>		
5.153	<p>Where consent is given in these areas, the Secretary of State should be satisfied that the applicant has ensured that the project will be carried out to high environmental standards and where possible includes measures to enhance other aspects of the environment. Where necessary, the Secretary of State should consider the imposition of appropriate requirements to ensure these standards are delivered.</p>	<p>This policy requirement is not applicable as the Scheme would not be located in an Area of Outstanding Natural Beauty or a National Park</p>	
5.154 - 5.155	<p>The duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The aim should be to avoid compromising the purposes of designation and such projects should be designed sensitively given the various siting, operational, and other relevant constraints. This should include projects in England which may have impacts on designated areas in Wales or on National Scenic Areas in Scotland.</p> <p>The fact that a proposed project will be visible from within a designated area should not in itself be a</p>	<p>This policy requirement is not applicable as the Scheme would not be located in an Area of Outstanding Natural Beauty or a National Park</p>	

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5	GENERIC IMPACTS		
5.165 - 5.167 (Land use including open space, green infrastructure and Green Belt)	<p>reason for refusing consent.</p> <p>The applicant should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate.</p> <p>Existing open space, sports and recreational buildings and land should not be developed unless the land is surplus to requirements or the loss would be replaced by equivalent or better provision in terms of quantity and quality in a suitable location. Applicants considering proposals which would involve developing such land should have regard to any local authority's assessment of need for such types of land and buildings.</p> <p>During any pre-application discussions with the applicant, the local planning authority should identify any concerns it has about the impacts of the application on land-use, having regard to the development plan and relevant applications, and including, where relevant, whether it agrees with any independent assessment that the land is surplus to requirements. These are also matters that local authorities may wish to include in their Local Impact Report which can be submitted after an application for development consent has been accepted.</p>	<p>Chapter 13 Population and health [TR010027/APP/6.1] identifies the existing land use patterns associated with the Scheme and how these would be altered temporarily and permanently as a consequence of its progression. The effects on occupiers of private buildings, commercial businesses, agricultural enterprises and community facilities are also identified.</p> <p>Consultation has been undertaken with SMBC as part of the EIA process to identify any development plans, programmes or applications that could come forward and be affected by the introduction of the Scheme.</p> <p>As the majority of land required to construct and operate the Scheme is currently in agricultural use, a detailed survey has been undertaken to establish the current grade of agricultural soils and the future viability of agricultural businesses that would be affected.</p> <p>A yet to be agreed area of adjacent land to the sports fields associated with the WGAA which would be lost to the Scheme would provide an equivalent provision for the users of the WGAA facility.</p>	

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5.168	<p>Applicants should take into account the economic and other benefits of the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification). Where significant development of agricultural land is demonstrated to be necessary, applicants should seek to use areas of poorer quality land in preference to that of a higher quality. Applicants should also identify any effects, and seek to minimise impacts, on soil quality, taking into account any mitigation measures proposed. Where possible, developments should be on previously developed (brownfield) sites provided that it is not of high environmental value. For developments on previously developed land, applicants should ensure that they have considered the risk posed by land contamination and how it is proposed to address this.</p>	<p>Chapter 10 Geology and soils of the Environmental Statement [TR010027/APP/6.1] presents the outcomes of a detailed survey and assessment of all agricultural land that would be temporarily or permanent affected by the Scheme. This has considered the extent of loss or disturbance of Agricultural Land.</p> <p>As no practical alternative exists to taking land to construct and operate the Scheme, Chapter 3 The project of the Environmental Statement [TR010027/APP/6.1] describes how the extent of agricultural land to be permanently taken has been minimised through the design-development process. Mitigation measures have focused on avoiding land take within higher grade areas, returning earthwork slopes back to agricultural use (where feasible and agreed with landowners).</p> <p>The Register of Environmental Actions and Commitments found in Appendix 3.1 of the Environmental Statement Appendices [TR010027/APP/6.3] details how the careful stripping, storage, handling and reuse of topsoils during construction would be undertaken to protect their grading and qualities.</p>	
5.169	<p>Applicants should safeguard any mineral resources on the proposed site as far as possible.</p>	<p>Chapter 10 Geology and soils of the Environmental Statement [TR010027/APP/6.1] considers the potential effects of the Scheme on mineral resources and extraction sites. The design-development process has sought to direct the Scheme away from sensitive geological receptor sites such as historical landfills.</p>	

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		The assessment has identified that the Scheme could result in the sterilisation of potential minerals resources during the construction and operational phases, although the effects of this would not be significant. Standard construction techniques and measures would be applied during construction to mitigate any effects.	
5.170 - 5.171	<p>The general policies controlling development in the countryside apply with equal force in Green Belts but there is, in addition, a general presumption against inappropriate development within them. Such development should not be approved except in very special circumstances. Applicants should therefore determine whether their proposal, or any part of it, is within an established Green Belt and, if so, whether their proposal may be considered inappropriate development within the meaning of Green Belt policy. Metropolitan Open Land, and land designated as Local Green Space in a local or neighbourhood plan, are subject to the same policies of protection as Green Belt, and inappropriate development should not be approved except in very special circumstances.</p> <p>Linear infrastructure linking an area near a Green Belt with other locations will often have to pass through Green Belt land. The identification of a policy need for linear infrastructure will take account of the fact that there will be an impact on the Green Belt and as far as possible, of the need to contribute to the achievement of the objectives for the use of land in Green Belts.</p>	Paragraphs 5.3.56 to 5.3.61 of this Planning Statement set out how very special circumstances exist that would outweigh any harm to the Green Belt caused by the Scheme.	

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5	GENERIC IMPACTS		
5.174	The Secretary of State should not grant consent for development on existing open space, sports and recreational buildings and land, including playing fields, unless an assessment has been undertaken either by the local authority or independently, which has shown the open space or the buildings and land to be surplus to requirements, or the Secretary of State determines 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.	Paragraphs 5.3.62 to paragraph 5.3.67 of the Planning Statement sets assesses the Scheme's Impact on the WGAA against paragraph 5.174 of the NPSNN. This section concludes that, as the Scheme would mitigate its impact on the Club by replacing all directly affected facilities through reconfiguration, it complies with the tests in paragraph 5.174.	
5.177	In considering the impact on maintaining coastal recreation sites and features, the Secretary of State should expect applicants to have taken advantage of opportunities to maintain and enhance access to the coast. In doing so the Secretary of State should consider the implications for development of the creation of a continuous signed and managed route around the coast, as proposed in the Marine and Coastal Access Act 2009.	Not relevant – project is not in a coastal location	
5.180	Where green infrastructure is affected, applicants should aim to ensure the functionality and connectivity of the green infrastructure network is maintained and any necessary works are undertaken, where possible, to mitigate any adverse impact and, where appropriate, to improve that network and other areas of open space, including appropriate access to new coastal access routes, National Trails and other public rights of way.	No areas of public open space or other known green infrastructure assets are affected by the Scheme. A Non-Motorised User (NMU) study has been undertaken to establish the type of journeys undertaken by pedestrians, cyclists and equestrians. This has involved surveying and questioning users about their journey origins and destinations from a number of representative locations on the road and public rights of way networks.	

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5	GENERIC IMPACTS		
		A number of existing routes would be severed or closed as a result of the Scheme. Provisions have been incorporated into the design of the Scheme to restore connections through the introduction of diversions, new routes and the enhancement of existing routes. This will ensure access to countryside and nearby green infrastructure assets are maintained.	
5.182	Where a proposed development has an impact on a Mineral Safeguarding Area (MSA), the Secretary of State should ensure that the applicant has put forward appropriate mitigation measures to safeguard mineral resources.	<p>Chapter 10 Geology and soils of the Environmental Statement [TR010027/APP/6.1] considers the potential effects of the Scheme on mineral resources and extraction sites. The design-development process has sought to direct the Scheme away from sensitive geological receptor sites such as historical landfills.</p> <p>The assessment has identified that the Scheme could result in the sterilisation of potential minerals resources during the construction and operational phases, although the effects of this would not be significant. Standard construction techniques and measures would be applied during construction to mitigate any effects.</p>	
5.184	Public rights of way, National Trails, and other rights of access to land (e.g. open access land) are important recreational facilities for walkers, cyclists and equestrians. Applicants are expected to take appropriate mitigation measures to address adverse effects on coastal access, National Trails, other public rights of way and open access land and, where appropriate, to consider what opportunities there may be to improve access. In considering revisions to an existing right of way consideration needs to be given to the use, character, attractiveness and convenience of the right of way. The Secretary of State should consider whether the	<p>Chapter 13 Population and health of the Environmental Statement [TR010027/APP/6.1] presents the outcomes of an assessment of the effects the Scheme would have on existing public rights of way, cycleways and recreational trails. This has considered journey patterns, lengths and amenity.</p> <p>The Environmental Masterplan (Figure 8.8 in the Environmental Statement Figures [TR010027/APP/6.2]) illustrates the mitigation solutions incorporated into the design of the Scheme to ensure the continued connectivity of routes, route enhancements and diversions. This also illustrates the contribution that</p>	

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	mitigation measures put forward by an applicant are acceptable and whether requirements in respect of these measures might be attached to any grant of development consent.	<p>landscaping would also have on the overall amenity, pleasantness and attractiveness of journeys made.</p> <p>The Register of Environmental Actions and Commitments found in Appendix 3.1 of the Environmental Statement Appendices [TR010027/APP/6.3] detail the mitigation measures that would be implemented during construction of the Scheme to protect non-motorised users from activities and operations, and to minimise disruption to established routes and journey patterns.</p>	
5.189 (Noise and vibration)	<p>Where a development is subject to EIA and significant noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment, which should form part of the environment statement:</p> <ul style="list-style-type: none"> • a description of the noise sources including likely usage in terms of number of movements, fleet mix and diurnal pattern. For any associated fixed structures, such as ventilation fans for tunnels, information about the noise sources including the identification of any distinctive tonal, impulsive or low frequency characteristics of the noise. • identification of noise sensitive premises and noise sensitive areas that may be affected. • the characteristics of the existing noise environment. • a prediction on how the noise environment will change with the proposed development: <ul style="list-style-type: none"> • in the shorter term such as during the construction period; • in the longer term during the operating life of the 	<p>Chapter 12 Noise and vibration of the Environmental Statement [TR010027/APP/6.1] identifies the potential effects of the Scheme on noise and vibration. The assessment has been undertaken in accordance with relevant standards and guidelines, the objective being to identify the change in levels that would be experienced by people and ecological receptors that are sensitive to construction and operation sourced noise from the Scheme.</p> <p>Baseline monitoring has been undertaken to establish the existing noise climate in the area surrounding the Scheme, and computer modelling has been used to identify both the short and long term changes in noise at defined periods.</p> <p>Consideration has been given in the assessment to the contribution that other planned developments could have on traffic-related noise, through the process of traffic modelling. The extents of the assessment study area have been defined in accordance with relevant guidance.</p> <p>The assessment has concluded that during construction</p>	

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5	GENERIC IMPACTS		
	<ul style="list-style-type: none"> • infrastructure; • at particular times of the day, evening and night as appropriate. • an assessment of the effect of predicted changes in the noise environment on any noise sensitive premises and noise sensitive areas. • measures to be employed in mitigating the effects of noise. Applicants should consider using best available techniques to reduce noise impacts. • the nature and extent of the noise assessment should be proportionate to the likely noise impact. 	<p>there is the potential for changes in noise levels at identified receptors considered significant, additional mitigation measures are proposed to reduce these effects as far as practicable and possible.</p> <p>Once operational the Scheme would not result in changes in noise levels at identified receptors considered significant.</p>	
5.190	The potential noise impact elsewhere that is directly associated with the development, such as changes in road and rail traffic movements elsewhere on the national networks, should be considered as appropriate.	<p>Potential noise effects on ecological receptors have been reported in Chapter 9 Biodiversity of the Environmental Statement [TR010027/APP/6.1].</p> <p>Chapter 12 Noise and vibration of the Environmental Statement [TR010027/APP/6.1] considers the effects on noise elsewhere on the national network.</p>	
5.191	Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards and other guidance. The prediction of road traffic noise should be based on the method described in Calculation of Road Traffic Noise. For the prediction, assessment and management of construction noise, reference should be made to any relevant British Standards and other guidance which also give examples of mitigation strategies.		

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5	GENERIC IMPACTS		
5.192	<p>The applicant should consult Natural England with regard to assessment of noise on designated nature conservation sites, protected landscapes, protected species or other wildlife. The results of any noise surveys and predictions may inform the ecological assessment. The seasonality of potentially affected species in nearby sites may also need to be taken into account.</p>	<p>Chapter 9 Biodiversity of the Environmental Statement [TR010027/APP/6.1] details the consultation undertaken with statutory and non-statutory nature conservation organisations, in particular Natural England, in respect of potential effects on designated sites, landscapes and protected species.</p> <p>The scope of the biodiversity assessment in relation to noise effects on these interests has been established through a process of formal scoping with the Planning Inspectorate, the opinion of which has been informed by consultation feedback from Natural England and others.</p> <p>Details of the modelling and assessment of noise effects is presented in Chapter 12 Noise and vibration of the Environmental Statement [TR010027/APP/6.1].</p>	
5.195	<p>The Secretary of State should not grant development consent unless satisfied that the proposals will meet, the following aims, within the context of Government policy on sustainable development:</p> <ul style="list-style-type: none"> • avoid significant adverse impacts on health and quality of life from 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 • contribute to improvements to health and quality of life through the effective management and control of noise, where possible. 	<p>Chapter 12 Noise and vibration of the Environmental Statement [TR010027/APP/6.1] presents the likely significant effects on noise sensitive receptors arising from construction and operation of the Scheme. The assessment concludes that no long term significant adverse noise effects would be generated as a result of the Scheme.</p> <p>The design of the Scheme has been developed in a manner that offers a high degree of containment of operational traffic-sourced noise emissions, through the use of earthworks cuttings.</p> <p>Measures to be applied during construction of the Scheme to prevent, control and mitigate temporary noise effects are presented in the Register of Environmental Actions and Commitments (Appendix 3.1 of the</p>	

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		<p>Environmental Statement Appendices [TR010027/APP/6.3]).</p> <p>The cumulative noise effects of the Scheme and other development considered appropriate for inclusion has been presented within Chapter 16 Assessment of cumulative effects of the Environmental Statement [TR010027/APP/6.1].</p>	
5.199	<p>For most national network projects, the relevant Noise Insulation Regulations will apply. These place a duty on and provide powers to the relevant authority to offer noise mitigation through improved sound insulation to dwellings, with associated ventilation to deal with both construction and operational noise. An indication of the likely eligibility for such compensation should be included in the assessment. In extreme cases, the applicant may consider it appropriate to provide noise mitigation through the compulsory acquisition of affected properties in order to gain consent for what might otherwise be unacceptable development. Where mitigation is proposed to be dealt with through compulsory acquisition, such properties would have to be included within the development consent order land in relation to which compulsory acquisition powers are being sought.</p>	<p>Chapter 12 Noise and vibration of the Environmental Statement [TR010027/APP/6.1] presents the predicted short and long term changes in noise at sensitive receptors, and indicate those properties that are likely to result in a change to noise levels.</p> <p>The information presented within Chapter 12 Noise and vibration of the Environmental Statement [TR010027/APP/6.1] will support an assessment of eligibility for noise insulation.</p> <p>A Noise Insulation Regulations assessment will be completed after DCO decision when the detailed scheme design is finalised and in accordance with the timescales set out in the Regulations.</p>	

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5	GENERIC IMPACTS		
5.200	Applicants should consider opportunities to address the noise issues associated with the Important Areas as identified through the noise action planning process.	<p>Chapter 12 Noise and vibration of the Environmental Statement [TR010027/APP/6.1] considers noise issues associated with Noise Important Areas, located within 1 km of the Scheme.</p> <p>The Scheme would have no significant impact on noise as is demonstrated in Chapter 12 Noise and vibration of the Environmental Statement [TR010027/APP/6.1].</p>	
5.203 - 5.205 (Impacts on transport networks)	<p>Applicants should have regard to the policies set out in local plans, for example, policies on demand management being undertaken at the local level.</p> <p>Applicants should consult the relevant highway authority, and local planning authority, as appropriate, on the assessment of transport impacts.</p> <p>Applicants should consider reasonable opportunities to support other transport modes in developing infrastructure. As part of this, consistent with paragraph 3.19-3.22 above, the applicant should provide evidence that as part of the project they have used reasonable endeavours to address any existing severance issues that act as a barrier to non-motorised users.</p>	<p>Appendix 2 of this Planning Statement includes a table of local planning policies that are relevant to the Scheme. Relevant local policies are detailed within the Solihull Local Plan (2013) and the Draft Solihull Local Plan Review (November 2016), the latter of which is due to replace the former in summer 2019. Both local plans support the principle of the Scheme through the vision and objectives for the area. The Scheme also aligns and conforms to a number of local transport policy documents at a strategic level, as the Scheme would improve connectivity, reduce traffic congestion, enable local projects and improve the public transport network through more reliable journey times. A more detailed analysis of local policies is found within the Planning Statement.</p> <p>The assessment of the impact of the Scheme has been conducted and the results presented in the traffic assessment report [TR010027/APP/7.2]. Through this process the local planning authority were consulted, as detailed in the assessment. The relevant highways authority for the Scheme is also Highways England.</p> <p>The design of the Scheme has been developed to support alternative transport modes through (improving journey times and increased safety on the road network).</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
5	GENERIC IMPACTS		
		Existing and resulting severance issues for non-motorised transport users have been addressed through (mitigating the impacts by providing safer and more appropriate connections for the non-motorised users within the scheme area.	
5.206	For road and rail developments, if a development is subject to EIA and is likely to have significant environmental impacts arising from impacts on transport networks, the applicant's environmental statement should describe those impacts and mitigating commitments. In all other cases the applicant's assessment should include a proportionate assessment of the transport impacts on other networks as part of the application.	<p>The Scheme is supported by a Statutory EIA which details impacts and mitigation. The results of the EIA are reported in the Environmental Statement [TR010027/APP/6.1].</p> <p>In addition, the Scheme is supported by a Transport Assessment Report [TR010027/APP/7.2] which considers the transport impacts of the Scheme on other networks, including rail and freight.</p>	
5.208	Where appropriate, the applicant should prepare a travel plan including management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport and sustainable modes where relevant, to reduce the need for any parking associated with the proposal and to mitigate transport impacts.	The applicant has not prepared a Travel Plan in support of the DCO application. This may be prepared by the Principal Contractor at a later stage.	
5.209	For schemes impacting on the Strategic Road Network, applicants should have regard to DfT Circular 02/2013 The Strategic Road Network and the delivery of sustainable development (or prevailing policy) which sets out the way in which the highway authority for the Strategic Road Network, will engage with communities and the development industry to deliver sustainable development and, thus, economic growth, whilst safeguarding the primary function and purpose of the Strategic Road Network.	Highways England is the authority responsible for the Strategic Road Network and has had regard to this advice.	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
5	GENERIC IMPACTS		
5.210	If new transport infrastructure is proposed, applicants should discuss with network providers the possibility of co-funding by Government for any third-party benefits. Guidance has been issued in England which explains the circumstances where this may be possible. The Government cannot guarantee in advance that funding will be available for any given uncommitted scheme at any specified time, and cannot provide financial support to a scheme that solely mitigates the impacts of a specific development. Any decisions on co-funded transport infrastructure will need to be taken in the context of the Government's wider policy of transport improvements.	Not applicable	
5.216	Where development would worsen accessibility such impacts should be mitigated so far as reasonably possible. There is a very strong expectation that impacts on accessibility for non-motorised users should be mitigated.	<p>Chapter 13 Population and health of the Environmental Statement [TR010027/APP/6.1] reports the outcomes of an assessment to identify the likely significant effects on pedestrians, cyclists and equestrians (non-motorised users) who travel on parts of the road and public rights of way networks that would be altered as a consequence of the Scheme.</p> <p>The requirements of non-motorised users have been identified and appropriate provisions have been incorporated into the design of the Scheme to: enhance accessibility through the provision of new and altered cycleways and footways; reduce traffic-related severance by providing bridge crossings; and maintain connectivity by modifying and diverting existing routes.</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
5	GENERIC IMPACTS		
		<p>Within the Scheme, such provisions would include; a new access road and footpath parallel to the mainline link road, footpath diversions, an NMU overbridge over the A45 at Church Lane and improved cyclepaths on the A45 to Junction 6.</p> <p>Accordingly accessibility is not considered to be worsened by the Scheme.</p>	
5.220 (Water quality and resources)	... Where applicable, an application for a development consent order has to contain a plan with accompanying information identifying water bodies in a River Basin Management Plan.	Figure 14.1 in the Environmental Statement Figures [TR010027/APP/6.2] illustrates all waterbodies within the study area adopted in the Road Drainage and the Water Environment assessment.	
5.221	Applicants should make early contact with the relevant regulators, including the Environment Agency, for abstraction licensing and with water supply companies likely to supply the water. Where a development is subject to EIA and the development is likely to have significant adverse effects on the water environment, the applicant should ascertain the existing status of, and carry out an assessment of the impacts of the proposed project on water quality, water resources and physical characteristics as part of the environmental statement.	Chapter 14 Road drainage and the water environment of the Environmental Statement [TR010027/APP/6.1] details the consultation undertaken with relevant regulators and statutory undertakers, and presents the information and records obtained from these organisations used to inform the assessment.	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
5	GENERIC IMPACTS		
5.222	<p>For those projects that are improvements to the existing infrastructure, such as road widening, opportunities should be taken, where feasible, to improve upon the quality of existing discharges where these are identified and shown to contribute towards Water Framework Directive commitments.</p>	<p>The design-development of the Scheme has sought to incorporate improvements to existing drainage infrastructure, where feasible and appropriate.</p> <p>Chapter 3 The project of the Environmental Statement [TR010027/APP/6.1] details the proposed modifications and improvements to the existing drainage network, including how road runoff (surface water) would be captured, treated and discharged.</p> <p>Chapter 14 Road drainage and the water environment of the Environmental Statement [TR010027/APP/6.1] identifies which watercourses and waterbodies are classified under the Water Framework Directive.</p>	
5.223	<p>Any environmental statement should describe:</p> <ul style="list-style-type: none"> • the existing quality of waters affected by the proposed project; • existing water resources affected by the proposed project and the impacts of the proposed project on water resources; • existing physical characteristics of the water environment (including quantity and dynamics of flow) affected by the proposed project, and any impact of physical modifications to these characteristics; • any impacts of the proposed project on water bodies or protected areas under the Water Framework Directive and source protection zones (SPZs) around potable groundwater abstractions; and • any cumulative effects. 	<p>Chapter 14 Road drainage and the water environment of the Environmental Statement [TR010027/APP/6.1] presents the findings of an assessment into the quality and characteristics of existing watercourses and waterbodies (both surface and groundwater) associated with the Scheme, and the effects that would occur on these features as a result of its construction, operation and maintenance. Information is also presented with regard to any Source Protection Zones and Water Framework Directive waterbodies affected by the Scheme, and the hydrodynamics and morphology of watercourses.</p> <p>Cumulative effects on identified waterbodies are presented in Chapter 16 Assessment of cumulative effects of the Environmental Statement [TR010027/APP/6.1].</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
5	GENERIC IMPACTS		
5.226	<p>The Secretary of State should be satisfied that a proposal has had regard to the River Basin Management Plans and the requirements of the Water Framework Directive (including Article 4.7) and its daughter directives, including those on priority substances and groundwater. The specific objectives for particular river basins are set out in River Basin Management Plans. In terms of Water Framework Directive compliance, the overall aim of projects should be no deterioration of ecological status in watercourses, ensuring that Article 4.7 of the Water Framework Directive Regulations does not need to be applied.</p>	<p>Chapter 14 Road drainage and the water environment of the Environmental Statement [TR010027/APP/6.1] presents details of the watercourses and waterbodies that would be affected by the Scheme, and identifies those designated under the Water Framework Directive.</p> <p>A separate Water Framework Directive assessment has been undertaken as part of the EIA of the Scheme, the findings of which are presented in Appendix 14.3 of the Environmental Statement Appendices [TR010027/APP/6.3].</p> <p>With the implementation of the appropriate mitigation the Preliminary WFD assessment indicates that, based on the current understanding of the Scheme, no significant adverse impacts to WFD relevant water bodies would occur. Therefore the Scheme is compliant with the WFD objectives for the Blythe – source to Cuttle Brook, Blythe – Temple Balsall Brook to Patrick Bridge, Blythe – Patrick Bridge to River Tame, Hatchford-Kingshurst Brook and the Tame Anker and Mease Secondary Combined (groundwater) water bodies.</p>	
5.227	<p>The Examining Authority and the Secretary of State should consider proposals put forward by the applicant to mitigate adverse effects on the water environment and whether appropriate requirements should be attached to any development consent and/or planning obligations. If the Environment Agency continues to have concerns and objects to the grant of development consent on the grounds of impacts on water quality/resources, the Secretary of State can grant consent, but will need to be satisfied</p>	<p>Mitigation measures are presented in the Register of Environmental Actions and Commitments (Appendix 3.1 of the Environmental Statement Appendices [TR010027/APP/6.3]).</p> <p>No objection to the Scheme has been raised by the Environment Agency.</p>	

NNNPS Paragraph Number	Requirement of the National Networks National Policy Statement (NNNPS)	Compliance with the NNNPS	[Updates post-application, as required]
5	GENERIC IMPACTS		
	before deciding whether or not to do so that all reasonable steps have been taken by the applicant and the Environment Agency to try to resolve the concerns, and that the Environment Agency is satisfied with the outcome.		
5.229	The Secretary of State should consider whether the mitigation measures put forward by the applicant which are needed for operation and construction (and which are over and above any which may form part of the project application) are acceptable. A construction management plan may help codify mitigation.	<p>Mitigation measures are presented in the Register of Environmental Actions and Commitments (Appendix 3.1 of the Environmental Statement Appendices [TR010027/APP/6.3]).</p> <p>The OEMP [TR010027/APP/6.11] details the environmental mitigation measures proposed to be implemented during construction, why they are required, who is responsible for delivering them and detailing ongoing reporting criteria.</p>	

Appendix 2 – Local Policy Table

Solihull District Solihull Local Plan 2013: Shaping a Sustainable 2013

1. Solihull's Local Plan was adopted in 2013 covering the period 2011 to 2028. It sets out the borough's vision for how and where Solihull will develop in the future. The Local Plan is the starting point for planning local planning decisions and formally replaces the saved policies of the Solihull Unitary Development Plan. Whilst the policies within the NSPNN prevail over those within the local plan, the local perspectives offered through local authorities are important when considering NSIPs such as the Scheme.
2. The Local Plan identifies and allocates land, based on proposed use as well as areas where current land uses should be safeguarded from inappropriate development. The northern portion of the Order Limits is located adjacent to several site allocations including:
 - Mineral Safeguarding Area/Area of Search: located immediately northeast of Junction 6 (identified as an area for sand and gravel resources). A portion of this area obtained consent in October 2016 (application reference: PL/2015/52804/MWMAJ) to allow the extraction and processing of sand and gravel, including the construction of supporting infrastructure. Works are not believed to have begun to enact the consent on this site;
 - Birmingham Airport: identified as a key asset;
 - NEC: identified as a key asset;
 - Proposed Employment Site 29 Land North of Clock Interchange, Bickenhill: allocated for class B1 Business uses, this site is an existing employment site (and was at the time when the Local Plan adopted) and has been allocated due to the consideration that it contained additional space which could be developed for further employment uses; and,
 - Proposed Employment Site 30 Birmingham Airport Runway Extension: this has now been delivered.
3. The remainder of the Order Limits is contained entirely within Green Belt land (Policy P17 'Countryside and Green Belt').
4. The following table outlines the key policies from the Local Plan and the relevance of these policies to the Scheme.

THE VISION – Section 4	
Paragraph 4.1.9	This section is dedicated to the vision for the overall Borough, and also for several key areas including the ‘M42 Economic Gateway’. The future vision emphasises, <i>“the potential and ambitions for the M42 Economic Gateway as a catalyst for a globally competitive knowledge based economy and driver for sustainable economic growth and employment will have been realised, without compromising the quality of its attractive countryside setting. The investment in infrastructure critical to the delivery of the plan will have been provided to underpin sustainable development within the corridor. Birmingham Business Park will have diversified its employment offer and have stronger links to the North Solihull Regeneration Area and Blythe Valley Park will have become a mixed and sustainable community with exemplar development and supporting facilities”</i> .
Paragraph 4.2.6	Recognises the, <i>“significant potential for growth based on the key economic assets within the M42 Economic Gateway”</i> .
THE SPATIAL STRATEGY – Section 5	
Policy 5.4	<p>The Strategy sets out an <i>“approach to delivering sustainable growth and outlines the broad strategic direction that will be followed for managing change and development whilst ensuring the essential character and distinctiveness of the Borough is maintained. The Strategy seeks to address the key challenges facing Solihull and ensures that future development meets the needs of its residents and businesses and visitors and is consistent with the vision for the Borough and locally distinctive areas, the strategic objectives and the policies to deliver the strategy.”</i></p> <p>The policy goes onto highlight that in order to realise the M42 Economic Gateway’s potential for job and wealth creation, any infrastructure or environmental concerns will need to be addressed.</p>
Paragraph 5.4.1	This paragraph highlights the major contributors towards economic growth and job creation in the local area. <i>“Birmingham Airport, the NEC, Jaguar Land Rover, Birmingham and Blythe Valley Business Parks and Solihull Town Centre offer significant potential for economic growth and job creation. Their plans and aspirations and any associated infrastructure needs have</i>

	<i>helped to frame this strategy and the more detailed policy development which will follow to facilitate their growth, whilst ensuring that any environmental concerns are avoided, minimised or mitigated, with appropriate compensation if necessary."</i>
Paragraph 5.4.3	<i>This prioritises, "employment and housing opportunities in or near to the North Solihull Regeneration Area, facilitating accessibility to the Airport, NEC and Birmingham Business Park from North Solihull, enabling the expansion of businesses and new start-ups, and providing a more balanced mix of housing to meet growth aspirations and the Borough's local needs".</i>
Paragraph 5.4.7	<i>This seeks to exploit, "the role of transport in promoting and managing growth, whilst ensuring opportunities to access key destinations by a choice of transport modes, and that new development does not exacerbate congestion".</i>
Paragraph 5.4.8	<i>States that, "major transport initiatives, such as expansion of Birmingham Airport will play a key role in future growth in the Borough, and will be supported providing the transport and environmental impacts are acceptable. Ensuring that major employment sites and local services and facilities can be readily accessed from existing and new housing areas, by a choice of transport modes, will contribute to the success of businesses, whilst managing demands for travel and influencing travel behaviour will help to manage and reduce congestion and greenhouse gas emissions. The line of the proposed High Speed 2 rail link is shown on the spatial strategy diagram for illustrative purposes only; it will be safeguarded where necessary through national legislation. Any implications for the Green Belt would be considered through the preparation of an Area Action Plan".</i>
SUSTAINABLE ECONOMIC GROWTH – Section 7	
Paragraph 7.1.1	<i>This section outlines the purpose of the planning system and highlights the requirement to ensure that "sufficient land of the right type and in the right places is available to allow growth and innovation and by identifying and coordinating development requirements, including the provision of infrastructure".</i>
Paragraph 7.1.2	<i>This paragraph states that, "Solihull has the most productive economy in the Midlands. It is an international gateway, as the location for Birmingham Airport and the adjacent NEC, and</i>

	<i>has other regionally important assets: Jaguar Land Rover, Birmingham and Blythe Valley Business Parks and Solihull Town Centre. The presence of these key assets combined with Solihull's central location on the national motorway and rail networks and the quality of its environment, have been key to its success in attracting investment, particularly in high value-added sectors that include automotive manufacturing, ICT, business and professional services, creative industries and construction".</i>
Paragraph 7.1.3	<i>It is noted here that, "these key assets are estimated to contribute around 100,000 jobs and £5 billion to the regional economy. This could be increased significantly via a managed plan for growth in the 'M42 Economic Gateway' area where they are located (between junctions 4 and 6 of the M42), which also encompasses the proposed High Speed 2 railway station".</i>
Policy P1	<i>This policy identifies, "Solihull's key economic assets and growth drivers to be located near the M42 in the area between junctions 4 to 6 that forms the M42 Economic Gateway. This area supports more than 100,000 jobs and has strong potential for further sustainable growth that can create employment and contribute to regeneration".</i>
Policy P8	Policy P8 requires all development proposals to show due regard to transport efficiency and highway safety.
IMPROVING ACCESSIBILITY AND ENCOURAGING SUSTAINABLE TRAVEL – Section 9	
Paragraph 9.3.15	<i>This paragraph states, "three longstanding bypass improvement lines, at Knowle, Hockley Heath and Balsall Common, were retained in the Council's Unitary Development Plan 2006 pending further analysis of the M42 Active Traffic Management (ATM) Scheme and an understanding of progression of potential widening of M42. The Council has reviewed, in liaison with the Highways Agency and Warwickshire County Council, the need to retain the three improvement lines within this Local Plan."</i>
Paragraph 9.3.16	<i>The focus here is on Active Traffic Management (ATM) of the M42. It goes on to state that the use of ATM in the Borough "has proven highly successful in reducing congestion and delay to motorists whilst increasing journey time reliability; and, whilst land remains safeguarded,</i>

	<i>potential proposals to widen the M42 have progressed no further since the publishing of the UDP."</i>
Paragraph 9.3.20	The Local Plan does not propose any alteration to the land safeguarded to cater for potential widening of the M42 within Solihull.

LANDSCAPE AND BIODIVERSITY (ANCIENT WOODLAND)

The NPSNN specifies that consideration of landscape issues must include consideration of relevant local planning policies in the assessment of any Scheme. This section has therefore been included to that end.

**Policy P10 –
 Natural
 Environment**

This policy contains SMBC policy on landscape and biodiversity conservation, and includes ancient woodland and its protection. In relation to landscape considerations, the Local Plan states that:

“The Council will seek to protect, enhance and restore the diverse landscape features of the Borough and to create new woodlands and other characteristic habitats, so as to halt and where possible reverse the degrading of the Arden landscape and promote local distinctiveness... Developers will be expected to incorporate measures to protect, enhance and restore the landscape, unless it is demonstrated that it is not feasible, disproportionate or unnecessary.” (p.105).

No specific local landscape designations have been identified within the Local Plan with regard to the Scheme and the Order Limits, however, the extract above does demonstrate that high value has been placed on the ‘Arden landscape’, which the Local Plan describes as an area of, “wood pasture and ancient farm lands” (p.11).

The landscape and visual impacts of the Scheme, both during construction and operation, have been assessed for compliance with the NPSNN (see Section 5.3), and the detailed analysis is provided in ES Chapter 8: Landscape. This assessment included consideration of Local Character Areas, including ‘LCA 1 Arden Farmland’ which as discussed above is referenced under Policy P10 for its local importance. The assessment undertaken as part of the EIA in regard to this concluded that this LCA comprises a good quality rural landscape which continues to resist, but remains vulnerable to, the pressures of urban fringe development. This LCA in particular is considered to be moderate value with a moderate susceptibility. Sensitivity towards change is assessed as being moderate.

As previously discussed, it is not a statutory requirement that the Scheme is assessed against local policy. If the Scheme was required to be assessed against local policy, however, it is considered that no significant conflicts would arise with regard to Policy P10 and its provisions regarding the protection of landscape features within the SMBC area. While the ES recognises that the Scheme will alter the perception and physical character of LCA, no additional mitigation measures have been identified to further reduce the magnitude of adverse impacts on landscape character and visual amenity, over and above those already embedded into the design of the Scheme and/or those which would be implemented as standard, as presented in the Register of Environmental Actions and Commitments within Volume 3, Appendix 3.1.

Policy P10 also has provision to, *“conserve, enhance and restore biodiversity and geodiversity, to create new native woodlands and other habitats and to protect, restore and enhance ancient woodland”* (p.105). The policy also seeks the use of buffer zones between proposed development and ancient woodland, with access provided to these designated sites for people of all abilities.

The policy acknowledges that where development is likely to impact negatively on the natural environment, developers, *“must demonstrate that all possible alternatives that would result in less harm have been considered. Where development is permitted, appropriate mitigation of the impacts and compensation where relevant will be required to deliver a net gain in biodiversity, habitat creation,*

	<p><i>landscape character and local distinctiveness.” (p. 106).</i></p> <p>While it is accepted that the Scheme will result in the loss of ancient woodland, it is considered that the numerous socio-economic and environmental benefits associated with the delivery of the Scheme will outweigh this loss and were the Scheme to be assessed against local policy..</p>
GREEN BELT	
<p>The Scheme is contained within the Meriden Gap, an area of land protected by SMBC green belt designation. The Local Plan specifies that SMBC will only, “...allow strategic adjustments to the green belt only where these would not encourage selective out-migration of people from urban areas or be contrary to regeneration objectives” (p. 7).</p>	
Policy P17 – Countryside and Green Belt	<p>This states, “<i>The Council will not permit inappropriate development in the Green Belt, except in very special circumstances.</i>” (p. 130). The Local Plan, however, largely defers to national policy, NPPF, when considering the circumstances where development may be allowed within the Green Belt.</p>
PEOPLE AND COMMUNITIES – SPORTS FACILITIES AND RECREATION	
Policy P20 – Provision for Open Space, Children’s Play, Sport, Recreation and Leisure	<p>Policy P20 aims to protect against the loss of existing recreation spaces and facilities, and specifies that developments which result in such losses will only be permitted where the, “need or benefits of the development clearly outweigh the loss. In such circumstances, the Council will require appropriate compensatory measures for the loss” (p.140). As aforementioned, this Policy is particularly pertinent with the WGAA.</p>

Draft Solihull Local Plan Review (November 2016)

5. The Draft Solihull Local Plan Review (November 2016) (‘Draft Local Plan’) was produced in November 2016 and is due to be adopted in summer 2019 when it will replace the existing 2013 Local Plan. It is therefore considered to be a material consideration in the assessment of the Scheme.
6. The Draft Local Plan identifies and allocates land based on proposed use as well as areas where current land uses should be safeguarded from inappropriate development. As discussed previously in relation to the 2013 Local Plan, the northern portion of the Order Limits is located adjacent to several site allocations contained within the adopted plan, the majority of these have gone unchanged in the Draft Local Plan with the only exceptions being:

7. The 'Mineral Safeguarding Area/Area of Search' located immediately north east of Junction 6 (identified as an area for sand and gravel resources), has now also been allocated as 'Mixed Use Site 19 HS2 Interchange Site Solihull'. The Draft Local Plan states that this site will be removed from the Green Belt to facilitate the use of the site in its contribution towards the aims of the UK Central (UKC) (formally known as M42 Economic Gateway) Hub Growth Area; and
8. The only other relevant allocation change is the inclusion of an area adjacent to the Scheme boundary allocated under 'Gypsy & Traveller Safeguarded Sites'. The site is located immediately to the west of the B4438 at Bickenhill.
9. The overall policy direction has not fundamentally changed between the adopted and proposed plans and the policy themes remain the same however the spatial strategy of the Draft Local Plan is now able to fully recognise the implementation of the HS2 proposals and their key role in the growth of the Borough. Comparatively, the adopted 2013 Local Plan was produced prior to the project receiving Royal Assent and therefore did not address the full extent to which the benefits of HS2 could be maximised. Paragraph 90 of the Draft Local Plan recognises that this represents a unique opportunity, "*with the interchange being located at the heart of the Boroughs key economic assets and transport infrastructure*". This along with a revised approach to housing in the area have underpinned the production of the plan, which recognises that the spatial strategy for Solihull Borough must accommodate development particularly through significant releases of land from the Green Belt in order to deliver the level of growth envisioned.
10. The Draft Local Plan continues its support for the principle of the Scheme in line with the vision and overall objectives of the Solihull Local Plan (2013). The Draft Local Plan continues to state the importance of UK Central (UKC) (formally known as M42 Economic Gateway), and emphasises the nationally significant scale of the proposals.
11. The vision outlined in the Draft Local Plan for the UKC area is largely the same as that for the M42 Economic Gateway discussed in *The Vision – Section 4* found in this Appendix. The key difference however is the statement that: "*The High Speed 2 rail link and supporting infrastructure will have been delivered, facilitating major economic and housing growth across the UK Central Hub Area*". As within the adopted Local Plan, the Draft Local Plan vision further stresses that: "Investment in physical and green/blue infrastructure critical to the delivery of the plan will have been provided to underpin sustainable development within the area".
12. Policy P1 'UK Central Hub Area', which links to the nationally important area indicated on the spatial strategy diagram and includes the M42 Junction 6, outlines the key objectives development proposals within the area must meet. The Scheme is not directly referred to, however the following Policy P1 objective is of relevance as it states development proposals must "*ensure that connectivity within and beyond the site creates an integrated approach to movement throughout the Hub area*". Through this objective, Policy P1 aligns with the key objectives of the Scheme.

13. This alignment is furthered within the 'Improving Accessibility and Encouraging Sustainable Travel' theme, with paragraph 238 stating that, *"a key component to making UK Central a reality will be a balanced approach to transport - one that recognises the need to cater for cars and places appropriately as well as increasing emphasis on alternative transport modes"*.

Summary

14. The Scheme is primarily required to be assessed for compliance against the NPS. Were it to be examined against the SMBC local policy framework discussed in the previous sections, however, it is considered that the Scheme would not result in significant departures or conflicts with policy. Each specialist environmental chapter within the Environmental Statement [TR010027/APP/6.1]. It also sets out the planning policies which are relevant to the assessment of each environmental topic. The optioneering process and development of the Scheme design has sought to minimise environmental impacts, with environmental mitigation measures provided where appropriate.
15. The Scheme would support the delivery of the SMBC vision for the future of the area, and is referenced in this capacity. The Scheme would assist in overcoming the central transport and infrastructure challenges facing the borough, and in doing so, would contribute significantly to ensuring SMBC growth and economic development aspirations were achieved. The economic, safety, and operational benefits associated with the Scheme, as well as its central role in unlocking key sites for future development and in relieving capacity from ongoing and planned growth as specified within the SMBC policy framework, will ensure that its delivery would conform to local aspirations.

Local Transport and Infrastructure Policy and Strategy

16. Local authority transport plans set out the transport strategies and schemes prioritised for funding. The plans make reference to and consider the SRN due to its impact on local transport strategies.
17. The adopted transport policies and objectives relevant to the scheme are set out in the following documents:
- West Midlands Local Transport Plan (2011-2026);
 - Solihull Connected: Transport Strategy (2016);
 - Solihull Connected: Transport Strategy Delivery Plan 2016 – 2036;
 - Movement for Growth: The West Midlands Strategic Transport Plan;
 - Movement for Growth: 2026 Delivery Plan for Transport; and
 - HS2 Growth Strategy Connectivity Programme (2015).

18. The SMBC is the local authority area which the Scheme falls within. This is one of the seven constituent local authorities which lead the West Midlands Combined Authority (WMCA), which has a number of devolved powers from the Government. In order to better coordinate investment in the region's transport infrastructure, Transport for West Midlands (TfWM) was set up as the transport arm of the WMCA.

West Midlands Local Transport Plan (2011-2026)

19. The West Midlands Local Transport Plan was published in 2011 and aims to identify and tackle problems and opportunities with travel in the region. Objectives and policies are set out as a result.

20. The document details five objectives relating to:

- Private sector led growth and economic regeneration (housing, population growth, employment, low carbon technologies);
- Tackling climate change;
- Improving health, security and safety for those travelling;
- Addressing equal opportunity and social inclusion; and
- Enhancing quality of life and the environment.

21. Linked to these objectives are 10 long-term themes which underpin the policies within the transport plan and which in turn are designed to deliver these themes:

- Regeneration, thriving centres, corridors and gateways;
- Making best use of the highway network;
- Modal transfer and the creation of sustainable travel patterns;
- Transport asset management and maintenance;
- A rail and rapid transit network 'backbone for development';
- Improved local accessibility and connectivity;
- Sustainable and efficient freight transport;
- Effective and reliable transport integration;
- Improved safety and security; and
- Improved environment and reduced carbon through green technologies.

22. Although these themes cover the entire Metropolitan Area comprising the Metropolitan Districts of Birmingham, Coventry, Dudley, Sandwell, Solihull, Walsall and Wolverhampton, this section will only focus on the policies relevant to Solihull. The plan states that, "*major national and regional assets are located in the north of the Borough, close to the M42, including the National Exhibition Centre, recently expanded LG Arena, Birmingham Airport and Birmingham International Railway Station*" and, "*the sub-area is ringed by a motorway box, comprising the M5, M6 and M42, all of which are subject to congestion, particularly at junctions*".

23. The first theme, ‘regeneration, thriving centres, corridors and gateways’, highlights BHX and the NEC as, “key national and regional assets”, which are essential elements for economic growth and regeneration. The plan, “*therefore seeks to ensure that an appropriate regional, Metropolitan and local transport infrastructure is provided which supports both of these assets, including the longer-term development of HS2*”. In addition, this theme also focusses on the, “*development of transport infrastructure that supports access to BHX and the NEC and improves connectivity as part of the regeneration of North Solihull/ East Birmingham*”.
24. When discussing the, “*sub-regional balances of long term themes*” in Section 8 of the transport plan, the need to address, “*congestion on the motorway network and the consequent impact on the Primary Route Network, including dealing with the effects of congestion on the M42, particularly at junctions serving BHX and the NEC*” and to deal, “*with the effects of congestion on the M42, particularly at the junctions serving BHX and the NEC*” is key.
25. In Section 9, ‘Policies’, the plan identifies the need for development and redevelopment proposals to, “*make the best use of existing transport infrastructure and services, improve connectivity and provide high levels of accessibility*”. The plan also identifies the need to provide, “*high quality surface access*” for both BHX and the NEC. In addition, under “*Asset Management and Maintenance*” policies, the plan states that “*the highway network, including footways, will be improved*”.

Solihull Connected: Transport Strategy (2016)

26. This transport strategy sets out the vision for delivering transport infrastructure and initiatives in the future. It also details how growth in travel demand the network will be accommodated and how Solihull’s character will be maintained.
27. The strategy is linked to the West Midlands Strategic Transport Plan ‘Movement for Growth’ (see below) and recognises that, “*there is a risk that without a properly planned transport system growth could cause ever-increasing congestion on our roads; stifling our economy, worsening our quality of life and hampering our transition to a sustainable low-carbon economy*”.
28. The following objectives are set out in this transport strategy:
- Ensure that major transport investment enables and manages growth to achieve the Council priorities for homes and jobs;
 - Support and enable the integrated delivery of sustainable and efficient forms of transport like mass-transit, cycling and walking;
 - Contribute to the council priorities to support people’s everyday lives and improve health and wellbeing through the promotion of smarter choices programmes linked to major and local infrastructure investment;

- Identify a prioritised short, medium and long term delivery plan to achieve the overarching vision and objectives whilst recognising the specific needs of the different parts of the Borough;
- Ensure that the objectives of Solihull Connected are embedded in Local Plan and Health and Wellbeing policies to support walking, cycling and public transport use.

29. The Scheme is identified within the transport strategy when discussing the needs of the borough. This is due to it providing an improvement to access to Birmingham, Coventry and the innovation hub close to BMX, the NEC and Birmingham's HS2 station. The strategy identifies that this area will have the most significant predicted growth in travel demand for the region. It also states, however, that, "*there is limited opportunity to build significant capacity into our road network*".

30. In its conclusions, the strategy states that the area needs, "*improvements to highways infrastructure (both strategic and local) to accommodate access by car*".

Solihull Connected: Transport Strategy Delivery Plan 2016 - 2036

31. This delivery plan was developed following the publication of the 2016 Transport Strategy to define, "*specific transport policies and routes to investment*."

32. The Scheme is noted within the delivery plan as one of two national projects, alongside Birmingham's HS2 Interchange Station.

33. 'Priority Area 3' in the delivery plan is the UKC Hub. In this, a main access point is junction 6 of the M42, and it also includes businesses such as BHX and Jaguar Land Rover. Growth proposals are planned for this area, however it is recognised that the Scheme is, "essential to enabling access to the UKC Hub and promoting growth in the location."

34. 'Priority Area 4' encompasses a number of schemes, including the 'HS2 Interchange Station site primary infrastructure'. This adopts a collaborative approach to the enabling works being undertaken to optimise the potential for growth in the area due to the HS2 station, which includes the Scheme.

35. Appendix A of the delivery plan sets out the 'Solihull and partner transport programme (scheme schedule)' which includes the Scheme in the projects listed. Within this, it is recognised that the scheme complies with Objectives 1 to 4 of the Transport Strategy.

Movement for Growth: The West Midlands Strategic Transport Plan

36. This strategic transport plan focusses on, "*making better use of our existing capacity, through measures such as junction improvements, alongside large-scale investment in sustainable transport capacity and supporting operational and smaller scale measures*". It sets out the vision, priorities, approach and commitment to, "*building a world class, sustainable, infrastructure system*".

37. In Section 3, 'Our Vision', the plan states that it aims to, *"enable businesses to connect to supply chains, key markets and strategic gateways, including BHX, through improved strategic connections by road and rail" and to, "maintain and develop our transport infrastructure and services to ensure they are efficient, resilient, safe and easily accessible for all"*.
38. Referenced within this strategic transport plan is the 'Midlands Connect'. This is an initiative that includes 6 "intensive growth corridors" and 4 "major hubs of economic activity across the wider Midlands... Evidence from 'Midlands Connect' shows that improved highway reliability and regular average speeds, and higher line speeds on inter-regional rail and highway links across the Midlands provide an economic benefit to the wider Midlands of up to £800m per annum by 2036 with 143,000 additional jobs when a ten per cent reduction in general travel costs are achieved".
39. Paragraph 4.27 states that, *"highly relevant to Midlands Connect is the Government's Road Investment Strategy (RIS) which contains 13 schemes in the West Midlands Region for Highways England to commence in the period 2015/16 to 2020/21"*. These schemes within the RIS include the M42 Junction 6 Improvement Scheme.
40. Policy 1 of Appendix 1, 'Policies to meet Objectives', identifies the need, *"to accommodate increased travel demand by existing transport capacity and new sustainable transport capacity"*.
41. Policy 4 Appendix 1, 'Policies to meet Objectives', states that development should aim to, *"improve connections to new economic development locations to help them flourish, primarily through sustainable transport connections"*.

Movement for Growth: 2026 Delivery Plan for Transport

42. This delivery plan sets out the 20 year vision for the transport system needed to achieve the long term objectives set out within the West Midlands Strategic Transport Plan.
43. The plan, *"provides a clear view of what transport initiatives and schemes the WMCA will deliver by 2026 in line with Movement for Growth... The plan currently contains details of nearly 200 schemes and initiatives representing some £8bn worth of infrastructure and technology investment in our transport system that are required to make our vision a reality"*.
44. The Scheme is identified in Section 2 when discussing the first delivery phase of the strategic transport plan. It is classified as a 'Key Transport Priorities for the National and Regional Tier' and under 'Improved Connections to, and within, the UK Central Hub Area'.

HS2 Growth Strategy Connectivity Programme (2015)

45. This connectivity programme was published to, “ensure the benefits from HS2 are spread as far as possible across the region, enabling existing businesses to expand and providing opportunities for new businesses”.
46. Page 5 references the Scheme, when it states, “Road connectivity is another element of well-connected and integrated HS2 UKC Interchange. The Growth Strategy aims to avoid the generation of significant traffic impacts on local highways and the national motorway network (M42, M6, A45). Investment by Highways England will identify and deliver improvements to M42 Junction 6”.

Summary

47. The local transport policy highlights the importance of improved connections by road and rail, as well as dealing with congestion on the existing road network in order to ensure economic improvement.
48. The Scheme aligns and conforms with local transport policy at a strategic level as it would:
- Improve connectivity within the borough and to areas in the wider region, helping to unlock local and national growth potential and encouraging investment and regeneration;
 - Help to reduce traffic congestion by providing a strategic corridor for long distance and through-traffic, making journeys easier and less stressful which in turn would help to improve health and well-being;
 - Help to enable a number of other identified, local projects which rely on improvements to junction 6 of the M42 in order to be constructed and successful; and
 - Enable an improved public transport network by improving journey time reliability.

Appendix 3 – Transport and Infrastructure Policy and Strategy Appraisal

Introduction

1. This appendix provides an assessment of the M42 Junction 6 Improvement scheme's (the Scheme's) conformity to transport and infrastructure policies and strategies. It initially considers relevant national publications, before assessing whether the Scheme complies with local documents.

National transport and infrastructure policy and strategy

2. The Government has set out a number of transport and infrastructure policies and strategies which detail their approach to making the transport network more efficient and effective, whilst improving safety, security and reducing greenhouse gas emissions. These highlight the importance of the strategic road network and the Government's commitment to its improvement.
3. These include the following, which are considered in more detail below:
 - RIS 2015/16 – 2019/20 Road Period
 - National Infrastructure Delivery Plan 2016 - 2021
 - Investing in Britain's Future (June 2013)
 - Action for Roads: A network for the 21st Century (July 2013)
 - DfT single departmental plan (December 2017)
 - Highways England Delivery Plan 2017 to 2018
 - Transport Investment Strategy: Moving Britain Ahead (2017)

Road Investment Strategy: for the 2015/16 – 2019/20 Road Period

4. The RIS was first published in December 2014 and was last updated in November 2016.
5. The aim of the RIS is to address the critical need for consistent upgrades and improvements to the SRN through long term strategic planning and funding. This is to ensure it can, "deliver the performance needed to support the nation throughout the 21st century"⁴.
6. As part of the 'strategic vision' within the RIS, the Government's expectations of Highways England are:

"...to make the network safer and improve user satisfaction, while smoothing traffic flow and encouraging economic growth. We want to see [the Applicant] delivering better environmental outcomes and helping cyclists, walkers, and other vulnerable users of the network at the same as time as achieving real efficiency and keeping the network in good condition"⁵.

⁴ Page 7 of the RIS

⁵ Page 9 of the RIS

7. The strategic goals of the NPSNN; (see Section 5.3 of this document) linked to capacity, connectivity, journey quality, reliability, safety, community linkages and environmental goals, are referenced within the RIS. It is recognised that whilst the SRN is vital to businesses, as well as local and national economies generally, existing capacity problems are leading to increased congestion, which has become a major issue. This is due to congestion having a significant effect on reliability, impacting logistics and everyday life.
8. It is acknowledged that whilst the SRN links people, places and different transport modes, busy roads can generate noise, sever access in towns and villages, and impede cyclists and walkers. To help combat this, the RIS states the intention that, moving forward, the SRN should be designed and constructed to the highest environmental standards, with low noise road surfacing to be used where possible.
9. A total of £15.2 billion is committed by the Government to the enhancement and long-term maintenance of the network between 2015/16 and 2020/21, including 127 major enhancements.
10. Investment in the M42 Junction 6 Improvement scheme will allow *“better movement of traffic on and off the A45, supporting access to [Birmingham Airport; BHX] and preparing capacity for the new HS2 [High Speed 2] station”*⁶. As a result, the Government has committed the full anticipated funding for the Scheme, provided the necessary statutory approvals are granted and it continues to demonstrate value for public money.
11. The Scheme is identified in the list of key investments as it aligns with the 4 goals of the Government’s strategy, as it would:
 - Provide additional road capacity and improved connectivity to communities and to important regional assets. This includes Birmingham International Airport, the NEC and, in the future, Birmingham’s Interchange Station for HS2;
 - Improve journey quality, reliability and safety by tackling congestion;
 - Improve the connection between local communities through its design, which has taken into account community severance and other modes of travel;
 - Assist in reducing carbon emissions by tackling levels of congestion.
12. The RIS is committed to addressing noise levels in order to counter environmental problems. Noise is one of the two KPIs. This has been achieved through the implementation of low noise road surfaces to help reduce the noise made by vehicles.

National Infrastructure Delivery Plan 2016 - 2021

13. The National Infrastructure Delivery Plan 2016 – 2021 (NIDP), published by HM Treasury in May 2016, outlines details of investment into more than 600 infrastructure projects which will support other developments relating to housing, regeneration, schools, hospitals and prisons.

⁶ Page 40 of the RIS

14. The plan is clear about the link between a fit-for-purpose infrastructure network, social sustainability and a thriving economy; and therefore the need for investment in infrastructure.

15. The Executive Summary of the NIDP states that:

“Infrastructure is the foundation upon which our economy is built. The government remains determined to deliver better infrastructure in the UK to grow the economy and improve opportunities for people across the country”.

16. **Table 7.0.1** identifies key points from the NIDP relevant to the Scheme, extracting text from the document.

Table 7.0.1 Key relevant points of the NIDP

Paragraphs	Key relevant points
1.20	“...economic infrastructure networks are vital to improving quality of life but also integral to the creation of new places to live and work alongside plans for major housing and regeneration schemes and social infrastructure.”
3.1	“Roads are fundamental to modern society. They keep people connected, making it possible to travel for work and leisure. The road network brings communities closer together, providing users with freedom and flexibility that is unrivalled by any other mode of transport. That is why roads are the backbone of the transport system used for 90% of passenger journeys and almost 70% of freight – almost all journeys start or end on a road.”
3.3	“A reliable and high-performing road network helps improve productivity, but over decades, the quality of the network has declined and congestion, noise and poor air quality have become problems at certain hotspots. Poor or missing links mean cities which are close together do less business with one another.”
3.4	An objective of the NIDP in relation to road infrastructure is therefore to build “a better network with smarter roads that use technology and modern road building techniques. In this way it can ensure the country has a road network that drives, instead of constrains, growth”.
3.7	The Government established Highways England in 2015 giving them the power to operate, maintain and improve England’s motorways and major A-roads. This was part of demonstrating the Government’s aim and commitment to “delivering a step-change in investment in the SRN, and to introducing significant additional road capacity.”
3.8	“Highways England’s focus will be to enhance, renew and transform the network.”

17. The Scheme is a key project of the NIDP in a list of priorities to 2020-21, which relate to the road and rail measures required to ensure airports are better integrated to the wider transport network. This is because junction 6 of the M42 supports access to Birmingham International Airport, as well as HS2.

18. The Scheme is additionally linked in the NIDP to regional infrastructure. This relates to an area identified as the 'Midlands Engine', which is considered the UK's engine for growth due to the average number of businesses created every day in the region (52), the contribution to the national economy (£210 billion gross value added) and the East Midlands having the strongest productivity growth of any other region between 2010 and 2014.

19. The Scheme therefore aligns with the NIDP in regards to the importance this strategic document gives to infrastructure for UK economic growth, as well as it being a specific surface access improvement priority in the period to 2020-21.

Investing in Britain's Future (June 2013)

20. Investing in Britain's Future (IBF), published by HM Treasury in June 2013, sets out the Government's intention to build a strong UK economy by delivering infrastructure to rebalance the economy, enhance productivity and support job creation.

21. IBF states the Government's commitment to a threefold increase of investment in major road schemes by 2021 compared with when the strategy was published, as well as investment in other infrastructure schemes, including HS2. These infrastructure projects are prioritised largely through changes to economic policies.

22. Whilst the Scheme is not identified in this earlier strategic document, the importance of the road network as being fundamental to the UK economy is outlined. Through IBF, £28 billion is proposed for enhancements and maintenance to the road network, including extra motorway lanes, tackling congestion, identifying and funding solutions to notorious 'hot spots' and transforming the Highways Agency to the publicly-owned Highways England.

23. As junction 6 of the M42 has been identified as; suffering from severe congestion, not having the capacity to hold the predicted rise in traffic volume beyond 2019 and being the main road access point to a number of major development projects (including HS2); it aligns with the ambitions of the Government's strategy set out in IBF.

Action for Roads: A network for the 21st Century (July 2013)

24. Action for Roads was published in July 2013 by the DfT and builds on IBF, published a month earlier. It sets out the Government's vision of the future road network, which involves taking action with regards to:

- Investing in the network to transform and upgrade existing roads;
- Altering local investment funding for local authorities to be able to commit to spending on urgent transport needs;
- Reforming the way investment in the SRN is planned (setting up the RIS);
- Modernising the running of the SRN to improve spending; and
- Improving road user experience.

25. The report begins by outlining the growing challenge for the UK in regards to the existing road network. The Executive Summary opens with, *“the road network is vital to our nation and a crucial part of the national transport system. It provides real and direct economic benefits: to business, to workers, to consumers. Better connections support individual towns and cities and strengthen the country as a whole. Failures of the road network increase costs, stifle employment opportunities, and make it harder to do business in the UK.”*

26. In paragraph 1.5, the report explains that the road network is the *“life-blood of the economy”* because:

- Roads provide critical connections. They link major economic centres, and connect our major ports and airports. Many people use them to get to railway stations and to connect to other modes of transport. Four of the new stations planned under High Speed 2 will link to the motorway network;
- Roads support job creation and unlock new development. They provide access to labour markets and unlock new opportunities for factories and businesses. More than 1 million jobs are associated with road transport. Factories and other businesses regularly consider access to good roads and other transport connections in making decisions about where to locate;
- Roads help the UK compete internationally. They make the UK a good place to do business, encouraging trade and attracting investment; and
- Roads support business travel. A large number of people drive for business. The most visible of these are lorry drivers, who need reliable roads to make their deliveries. But it also includes millions of other people in every part of the economy, from telecoms engineers fixing our broadband to farmers taking goods to market.

27. The Scheme supports the underpinning principles of this strategy document. The proximity of the Scheme location (to Birmingham HS2 Interchange Station), is a key factor in the need for the Scheme. More generally, its purpose to reduce congestion, improve reliability and safety, and enhance the economy observes the key motives for Action for Roads.

DfT single departmental plan (December 2017)

28. This single department plan sets out the DfT’s objectives, and how it is intended that these will be achieved.

29. There are five objectives:

- a) Boost economic growth and opportunity;
- b) Build a One Nation Britain;
- c) Improve journeys;
- d) Deliver safe, secure and sustainable transport; and
- e) Promote a culture of efficiency in everything we do.

30. Methods to achieve the objectives include embedding the Transport Investment Strategy into decision-making across the department and delivering the commitments in the RIS regarding investment in the SRN (both of which are linked to objective 1).

31. As a project committed to the RIS, delivery of the Scheme would help to achieve the first objective in boosting economic growth and opportunity. In addition, however, through improving the connection to HS2, the Scheme would help to improve connectivity with other areas of the UK (objective 2); the Scheme would also help to improve the user experience of the SRN through better reliability and speedier journey times (objective 3); and the Scheme would reduce congestion, which would both increase safety through reducing the likelihood of rear shunts occurring, and reduce greenhouse gas emissions (objective 4).

Highways England Delivery Plan 2017 to 2018

32. Highways England was given the power to operate, maintain and improve England's motorways and major A-roads by the Government in 2015. This Delivery Plan sets out Highways England's plans for 2017-18 to meet their '3 imperatives' of increasing road safety, improving customer service and delivering the RIS.

33. Highways England has a number of objectives in order to operate maintain and modernise the SRN in the interests of the users. Relevant objectives include:

- Support economic growth;
- Establish a safe and serviceable network;
- Provide a more free-flowing network;
- Improve the environment; and
- Create an accessible and integrated network.

34. The updated schedule of all schemes from 2015 to 2020 includes the M42 Junction 6 improvement, which are confirmed as being committed to being started in 2019-20. The Scheme is, therefore, supported through this Delivery Plan.

Transport Investment Strategy: Moving Britain Ahead (2017)

35. This investment strategy from the DfT sets out the main objectives when making investment decisions, which are to:

- Create a more reliable, less congested, and better connected transport network that works for the users who rely on it;
- Build a stronger, more balanced economy by enhancing productivity and responding to local growth priorities;
- Enhance our global competitiveness by making Britain a more attractive place to trade and invest; and
- Support the creation of new housing... transport infrastructure is one of the keys to unlocking development.

36. In order to meet these objectives, a number of investments are recognised. This includes upgrading the existing network to ease congestion, making journeys more reliable and providing the possibility of new trips that were previously impractical. Environmental sustainability is an important factor that is becoming increasingly prevalent in schemes which manage congestion, so that it is not simply about miles of new tarmac, but also efficient layouts, and a smartly managed network. The RIS is noted as creating a high rate of return through smart motorways, junction improvements, widening and bypasses, with every £1 spent leading to an average £4.5 return.
37. The Government also states the intention that, “to maximise the value of spending, we will be rigorous in ensuring that each project is supported by a clear and robust case for action, which contributes directly to one or more of our objectives”. This is to ensure taxpayers’ money is spent wisely and includes policies such as getting the most out of existing assets.
38. The Scheme has secured the necessary funding, being found to comply with the objectives stated in the Transport Investment Strategy and provide value for money. As a project which will improve the existing road network and junction 6, creating an improved link to the gateways of Birmingham International Airport and HS2, it aligns with this Government strategy.

Summary

39. The aims of the Scheme are directly in line with national policy and strategy relating to transport and infrastructure. These documents support the need for the Scheme, providing evidence of the challenges faced by years of under-investment in the SRN and the strategy now in place to address these consistently. The current levels of congestion at junction 6 of the M42 alongside future predictions for congestion are set to reach capacity in 2019. With this in mind, as well as the significant future development of an area which is already described as the ‘Midlands Engine’ due to the region’s regional and national economic capabilities, the Scheme meets the overarching objectives referenced by this policy and strategy.

Appendix 4 – Junction 5A Technical Note/Design Rationale

TECHNICAL NOTE

Project:	M42 Junction 6 Improvement				
Title:	M42 Junction 5A Location Assessment				
Doc ID:	HE551485-ACM-HML-Z1_JN_J5_ZZ-TN-CH-0002				
Date:	October 2018	Version:	P01	Status:	S2

Revision	Date	Prepared by	Reviewed by	Approved by
P01 S1	October 2018	M. Edroos	J. Farooq	I. Bamforth
P01 S2	October 2018	M. Edroos	J. Farooq	I. Bamforth

1 Introduction

- 1.1 As part of the M42 Junction 6 Improvement Scheme a new junction, Junction 5A, is to be constructed on the M42 motorway **south** of Junction 6. This technical note discusses the assessment undertaken to confirm the location of proposed Junction 5A is in the optimum position balancing, design, environmental and buildability constraints.
- 1.2 The existing Junction 6 on the M42 motorway is currently operating near capacity and experiences significant congestion and journey reliability issues. M42 Junction 6 lies at the heart of an area of dynamic growth and is surrounded by a unique mix of key strategic economic assets for both the local and wider community. It is located north of Solihull and provides the main access to an expanding Birmingham Airport, Jaguar Land Rover, Birmingham International Railway Station, the National Exhibition Centre (NEC) and Birmingham Business Park.
- 1.3 Junction 6 will also be used by additional traffic generated by the proposed High Speed Two (HS2), Birmingham Interchange Station and the proposed UK Central (UKC) development to the immediate north-east of the junction being promoted by Solihull Metropolitan Borough Council (SMBC).
- 1.4 Current levels of congestion would constrain the future planned developments. Under its current condition, it is unlikely to accommodate any additional traffic generated through the forecasted growth and planned developments in the region without incurring delays and significant congestion.
- 1.5 The Scheme is currently progressing through Stage 3 of Highways England's (HE) Project Control Framework (PCF) and the preliminary design is being produced in preparation for the Development Consent Order (DCO) application.

2 Scheme Background

Options Development and Selection Process

- 2.1 Prior to PCF Stage 3, the Scheme had been subject to a phased development process including the development of concept options, initial options and options assessment. A total of 40 options were developed by Highways England, which included seeking the views of stakeholders including Solihull MBC as local highway authority.
- 2.2 The development and assessment of these options is described in the PCF Stage 2 Technical Appraisal Report. The conclusion of the assessment process was the identification of 3 options to present to non-statutory consultation which took place between December 2016 and January 2017.
- 2.3 A further detailed assessment of the three non-statutory consultation options and a summary of the consultation process is contained in the PCF Stage 2 Scheme Assessment Report. The preferred route is shown on **Figure 1** below.
- 2.4 Following non-statutory consultation Highways England announced the Preferred Route for the M42 Junction 6 Improvement Scheme in August 2017. The preferred route announcement defines a corridor for the scheme and provides protection against future developments. The preferred route corridor there limits the scope for changes to the scheme location.

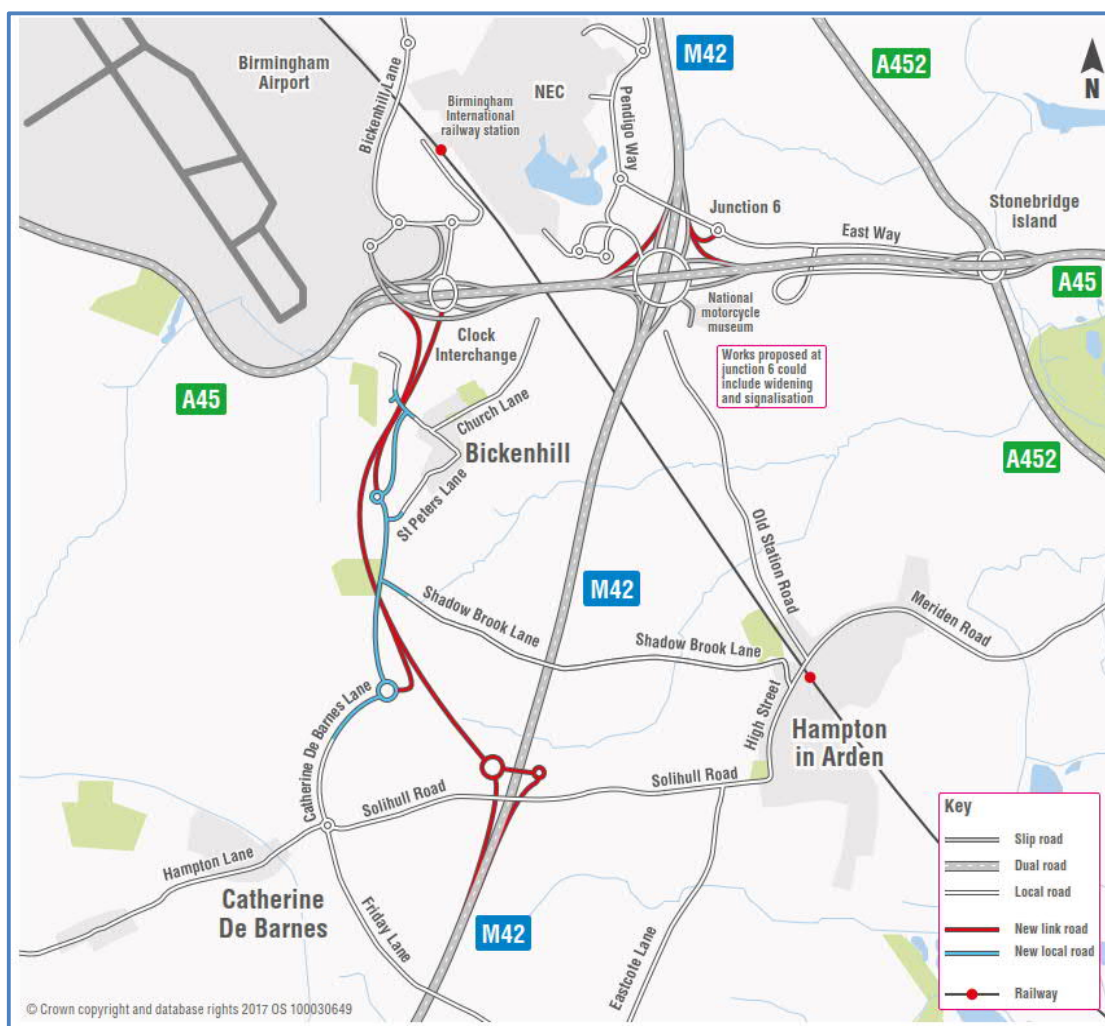


Figure 1 Highways England Preferred Route published August 2017

Constraints

2.5 The assessment of the options leading up to the preferred route announcement identified a number of key constraints that influence the location of Junction 5A including:

- i. Ancient woodland at Aspbury’s Copse, located south of the existing Solihull road and adjacent to the northbound and southbound carriageways of the M42 motorway,
- ii. Green Belt, south of Bickenhill Village,
- iii. A potential Motorway Service Area (MSA), which is proposed to be south-west of the existing Solihull Road overbridge crossing the M42 motorway and west of the ancient woodland adjacent to the northbound carriageway of the M42 motorway (see Appendix B of this technical note for further details of its location).

-
- iv. In order to accommodate headroom clearances to the proposed Junction 5A south facing slip roads, Solihull Road overbridge would require demolition and reconstruction.
 - v. Proximity to Junction 5 and 6 and the consequential reduction in safe weaving distances between successive merge and diverge slip roads would require departures from Highways England design standards,
 - vi. Existing 132kV overhead powerlines which cross above the existing Solihull Road in a direction from south-west to north-east before running approximately 125m away from and parallel to, the M42 motorway at approximately 275m north of the current Junction 5A overbridge.
- 2.6 An Outline application for a MSA was submitted to Solihull Metropolitan Borough Council on 30th June 2015 (reference: PL/2015/51409/PPOL). The works include construction of a new service station, a new grade separated Junction on the M42 motorway with north and south facing slips and an access road from the proposed junction to the MSA including an underpass beneath Solihull Road, demolition of the existing Solihull Road bridge across the M42 and its replacement with a new bridge and associated works. Highways England submitted a holding objection to the proposal because of the potential impact that the MSA would have on one of the three options presented at non-statutory consultation and impact on the M42 Smart Motorway operational regime. Following the announcement of the preferred route the holding objection was withdrawn. Highways England stated that the preferred route would not preclude the delivery of the MSA and that should the MSA receive planning consent the two schemes would be managed to ensure both could be delivered.
- 2.7 The key stakeholders that represent an interest the location of the Junction 5A include:
- Natural England and other environmental bodies – has an interest due to impact of the new Junction 5A on the adjacent ancient woodland area of Aspbury's Copse.
 - Road users and road workers – These stakeholders would have an interest in key safety related decisions. Including the effect of reduced weaving length on the M42 between the Junctions 5 and 5A and between Junctions 5A and 6.
 - Solihull MBC as local highway authority
 - Impacted landowners and commercial organisations with land interests.

3 PCF Stage 3 Assessment

- 3.1 As part of the PCF stage 3 preliminary design the AECOM design team has undertaken a review of the preferred route as a whole and the Junction 5A in particular.
- 3.2 The objective of the Junction 5A review as to location of proposed Junction 5A is in the optimum position and minimises the schemes impact on Aspbury's Copse ancient woodland, while taking regard of appropriate design standards and operational safety of road users and road works.

- 3.3 The review confirmed the main constraints identified in Section 2 and in addition identified that the approach and takeoff surfaces from Birmingham Airport could also place restrictions on the form of the junction, particularly during construction.
- 3.4 The paragraphs below describe the assessment of four options for the junction that have been evaluated:
- Option A Baseline Assessment with Junction 5A as Preferred Route Announcement
 - Option B Junction 5A as Preferred Route but with reduction in stopping sight distance (SSD) (295m to 215m) on northbound diverge slip road.
 - Option C Junction 5A relocated north by 50m with compliant 295m SSD on northbound diverge slip road.
 - Option D Junction 5A relocated north by 50m but with reduction in stopping sight distance (SSD) (295m to 215m) on northbound diverge slip road.

General Considerations

- 3.5 **Weaving Distance:** The current distance between Junctions 5 and 6 is approximately 4km. The minimum weaving length between a successive merges and diverges is 2km on the motorway network (DMRB, TD22/06 – Layout of Grade Separated Junctions, section 4.35).
- 3.6 The location of the junction in the preferred route announcement is broadly midway between Junctions 5 and 6, with slightly greater weaving distance between junctions 5 and 5A to move the junction roundabouts to the north of the existing Solihull Road.
- 3.7 **Geometric Alignment of the Mainline Line:** Moving Junction 5A beyond 50m north of its current location would have a knock on effect on the geometric alignment of the new mainline link road resulting in:
- i. Potentially greater social and environmental impact on the residents of the village of Bickenhill and its immediate surroundings.
 - ii. Increased scheme footprint (reduced horizontal radius requiring greater widening for visibility-note the mainline link road horizontal curvature is already one step below desirable minimum radius (TD9/93)) would increase landtake within an area of Green Belt.
 - iii. Being moved closer towards the Bickenhill Meadows SSSI south east unit located south-east of Bickenhill Village; potentially incurring a greater impact on the SSSI and the catchment area which drains surface water towards it.
 - iv. The potential diversion of the south-west to north-east alignment of the existing 132kV overhead power line. Moving the roundabout further north would mean the western roundabout of Junction 5A would have to be raised on an embankment to maintain sufficient headroom clearance over the motorway for the Junction overbridge. The new mainline link road would initially connect to this roundabout on a raised embankment, however a safe and gradual lowering

of the link road will not be sufficient to cross beneath the overhead powerline without resulting in this incurring significant diversion costs to the Scheme.

- 3.8 **Junction Capacity:** The traffic assessments have confirmed that the proposed dumb-bell junction arrangement would have sufficient capacity to accommodate the forecasted traffic growth through the design life of the Scheme.
- 3.9 In addition to complying with design standards, the following parameters and constraints also influence the location and design of the new Junction 5A.
- 3.10 **Ancient Woodland:** Junction 5A cannot be moved any further south from its current location as this would place the roundabouts closer to, and require significantly more land take within Aspbury's Copse, resulting in a greater impact on the ancient woodland.
- 3.11 **Birmingham Airport Safeguarding Zone:** Birmingham Airport is located to the east of Clock Interchange, and a large swathe of land between the M42 motorway and the airport lies beneath the take-off and landing safeguarding zones. The safeguarding zone is a horizontal and vertical three dimensional surface which constrains infrastructure in order to protect aircraft.
- 3.12 Birmingham Airport has informed Highways England that any design solutions should take into consideration the requirements for safeguarding the flight path surface through the project life cycle and during the operations phase.
- 3.13 **Land and Property Owners:** Any adjustments to the geometry on the new dual carriageway link roads would also require assessing the impact of the overall road footprint on adjacent land and properties.
- 3.14 **Proposed Motorway Service Area:** A planning application has been submitted to Solihull Metropolitan Borough Council (SMBC) (June 2015) to construct a Motorway Service Area (MSA) south west of Solihull Road and is currently pending determination. This planning application included a junction in broadly the same location to that which is proposed within the scheme. The MSA application includes north facing slip roads which do not form part of the proposed Scheme.
- 3.15 The MSA north facing slip roads join the M42 immediately south of Shadowbrook Lane overbridge. Moving the junction further to the north could require the demolition and reconstruction of Shadowbrook Lane overbridge as its current span would not be sufficient to accommodate the cross section of the north facing slip roads. Reconstruction of Shadowbrook Lane overbridge would add additional cost the MSA scheme and may require revisions to the planning application and environmental assessment.
- 3.16 Additionally, the provision of north facing slip roads would introduce an additional operational weaving constraint between Junction 5A and Junction 6. The MSA developer has had approval in principle from Highways England for a departure from

standards to reduce in weaving length from 2km to approximately 1.1km as shown in **Figure 2** below. The developer would also convert the current smart motorway dynamic hard shoulder running operational regime to all lanes running in order to minimise the weaving impacts. There is no guarantee that the developer would be able to secure further reductions in weaving through the departure process and therefore be unable to implement their proposal.

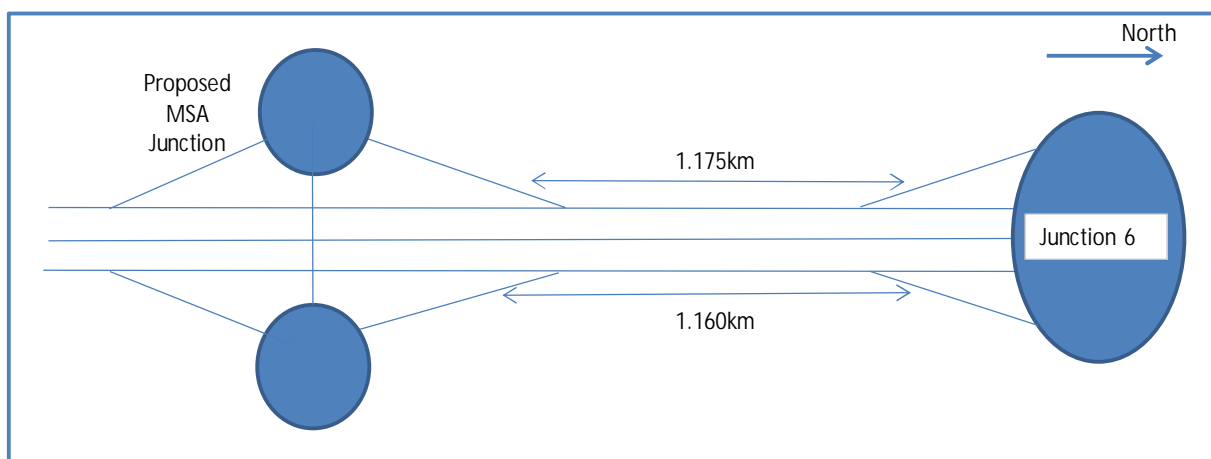


Figure 2 – Proposed MSA Junction and Weaving Lengths on M42 Motorway (Derived from Stage 2 technical Note based on MSA Planning Application Documents)

- 3.17 The application for planning consent for the MSA was submitted to Solihull Metropolitan Borough Council in June 2015. This precedes the M42 Junction 6 Improvement Scheme non-statutory consultation which began in December 2016. It is therefore an objective to ensure that, where practicable, the design of Junction 5A would not preclude the MSA scheme from being delivered if authorised, following the implementation of the Scheme.

Option A; Full Geometric Standard Compliant Junction design near the Proposed MSA Development

- 3.18 A fully compliant design would incorporate a standard 295m stopping sight distance up to the back of the nosing (SSD) on both the slip roads. This would increase the footprint of the slip roads with widened verges for visibility requiring the length of the re-profiled Solihull Road overbridge to be extended from 112m to a span of 135m across the slip roads. Consequently additional land take would be required. The 295m SSD is represented by the outer blue dashed line in **Figure 3.1** below, which indicates the larger footprint for the layout of the M42 northbound diverge slip road for junction 5A.
- 3.19 The implementation of a fully compliant design would have significant environmental impact on the area of ancient woodland. To achieve 295m SSD from the back of the nosing, the effect on the woodland area would be in region of 5330m² (3988 m² to the west and 1342m² to the east).

3.20 The weaving length falls below the minimum weaving length requirement by approximately 100m. It is unlikely that a reduction in weaving length by 100m would result in any operational safety issues particularly as the section of motorway operates under dynamic hard shoulder running (DHSR) and the sub-standard weaving length is still sufficient to include all directional signs and signals infrastructure on the approach to the new Junction 5A slip road.

3.21 The increased land-take, longer span of the Solihull Road overbridge and widened verges would contribute to higher environmental impact and costs for the overall Scheme.

Option B; Same as Option A but with Sub-Standard SSD on Northbound Diverge to J5A Roundabout

3.22 A sub-standard SSD of 215m from the back of the nosing onto the slip road is provided for the M42 northbound diverge slip instead of the standard compliant 295m SSD; see inner blue dashed line in figure 2 below. The narrower verge widths as a consequence of the reduction in SSD results in a more compact footprint, consequently reducing the length of the Solihull Road overbridge crossing the M42 motorway.

3.23 The compact footprint of the Junction would reduce the impact on the adjacent Aspbury's Copse ancient woodland to 1946m², a 51% reduction in the land take for the northbound diverge slip road from that required for Option A. In addition, there would be less construction works so less material would be required to complete the works with a benefit of a reduction in haulage.

3.24 Similarly to option A, the weaving length falls beneath the minimum weaving length requirement by approximately 100m. It is unlikely that a reduction in weaving length by 100m would incur any operational safety issues particularly as the section of motorway operates under DHSR and the sub-standard weaving length is still sufficient to include all directional signs and signals infrastructure on approach to the new Junction 5A slip road.

3.25 The reduced road footprint and shorter span of the Solihull Road overbridge would minimise the impact on the environment and result in a saving of approximately £700,000 in structure construction cost, as compared to option A.

3.26 A departure from standard would be required to implement the sub-standard SSD on the M42 northbound diverge slip road which has already been approved.

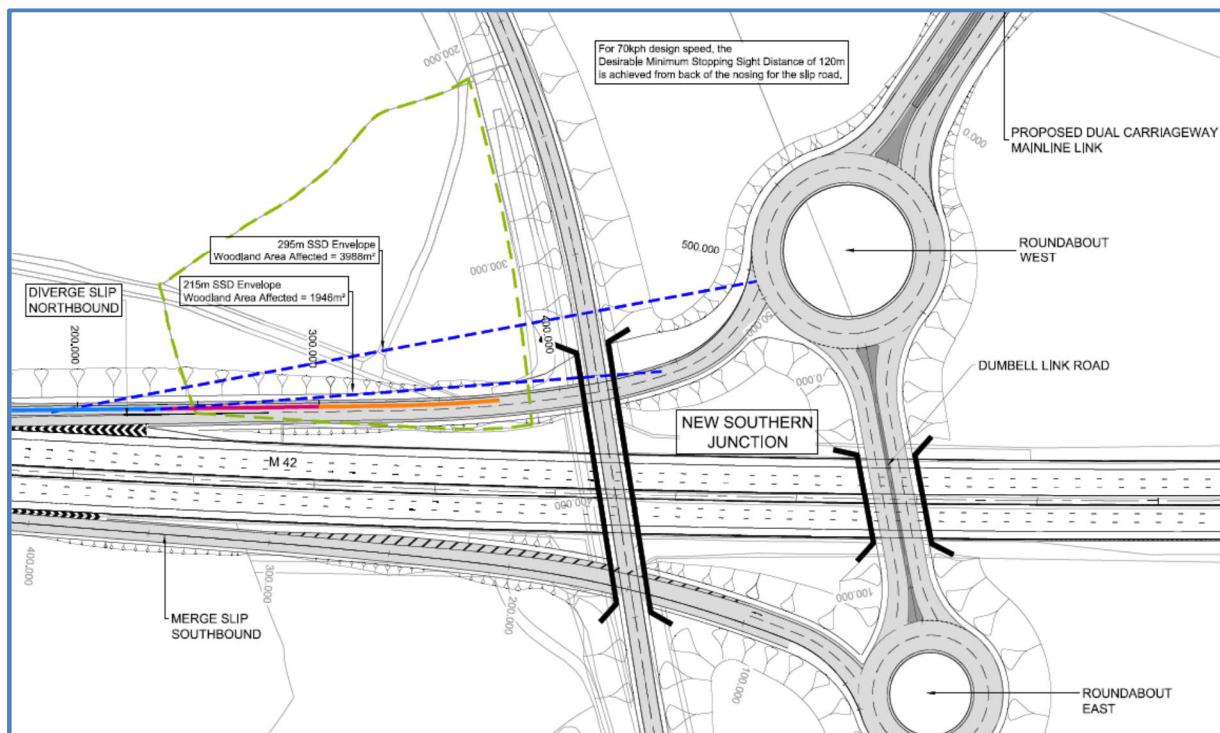


Figure 3.1 – Junction 5A Current Location Option with 295m SSD and 215m SSD

Option C; Same as Option A but with the Junction Moved North by 50m

- 3.27 A fully compliant design would incorporate a standard 295m SSD on both the slip roads. This would result in slightly lower footprint as compared to Option A. The reduction in the footprint would be observed due to reduced levels of the re-profiled Solihull Road overbridge as it can cross the slip roads over the M42 at a lower level. The reduced footprint would require less land take compared to Option A. The 295m SSD is represented by the outer blue dashed line in **Figure 3.2** below, which indicates the larger footprint for the layout of the junction compared to a 215m SSD which is represented on the inner line.
- 3.28 Moving the junction 50m north would reduce the impact on the adjacent Asbury's Copse ancient woodland. Approximately 3652m² (2335m² to the west and 1317m² to the east) of ancient woodland would be affected by this junction arrangement. Whilst this option is an improvement to option A but it still has a greater impact on the ancient woodland than option B.
- 3.29 There is a slight improvement to the weaving length as the junction has shifted further north by 50m. However, the weaving length falls beneath the minimum weaving length requirement by approximately 50m. It is unlikely that a reduction in weaving length by 50m would incur any operational safety issues particularly as the section of motorway operates under DHSR and the sub-standard weaving length is still sufficient to include all directional signs and signals infrastructure on approach to the new Junction 5A slip road.

3.30 The reduced road footprint and lowered height of the Solihull Road overbridge would result in lower costs as compared to Option A due to the reduction in land take.

Option D; Same as Option C but with Sub-Standard SSD on Northbound Diverge to J5A Roundabout

3.31 A sub-standard SSD of 215m is provided from the back of the nosing onto the slip road for the M42 northbound diverge slip instead of the standard compliant 295m SSD; see inner blue dashed line in **Figure 3.2** below. This would result in a more compact footprint similar to option B, consequently this would lead to a reduction in the length of the Solihull Road overbridge crossing the M42 motorway.

3.32 By moving the junction 50m north and providing a sub-standard SSD on the northbound diverge, this would further reduce the impact on the adjacent Aspbury's Copse ancient woodland as compared to option C. Approximately 3089 m² (1772m² to the west and 1317m² to the east) of ancient woodland would be affected by this junction arrangement. This is a 55% reduction of ancient woodland that is impacted compared to option A.

3.33 Similar to Option C, there is a slight improvement to the weaving length as the junction has shifted further north by 50m. However, the weaving length falls beneath the minimum weaving length requirement by approximately 50m. It is unlikely that a reduction in weaving length by 100m would incur any operational safety issues particularly as the section of motorway operates under DHSR and the sub-standard weaving length is still sufficient to include all signals and directional signs infrastructure on approach to the new Junction 5A slip road.

3.34 The reduced road footprint and shorter span of and height of the Solihull Road overbridge would result in lower costs as compared to Option A.

3.35 A departure from standard would be required to implement the sub-standard SSD on the slip road.

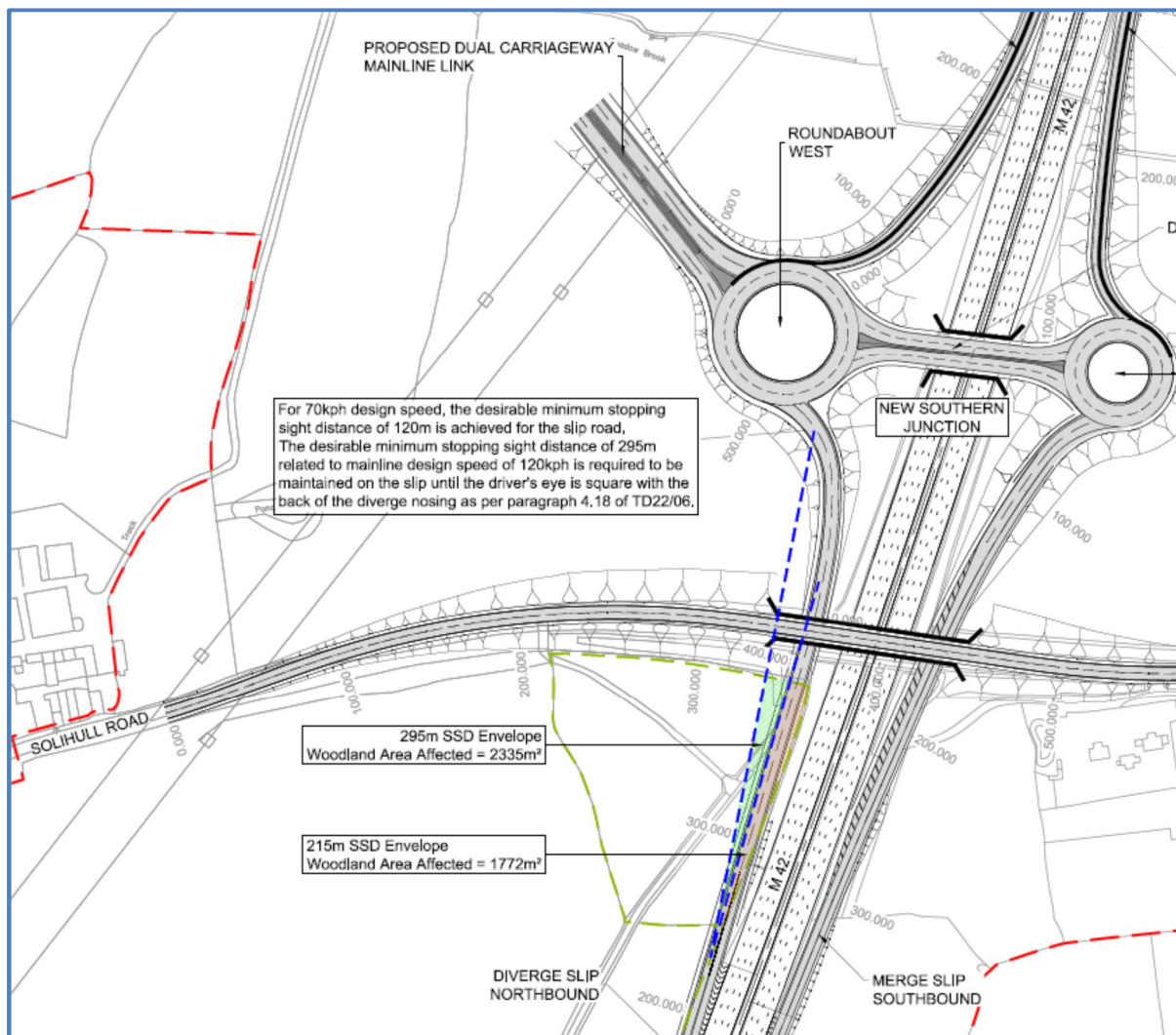


Figure 3.2 – Junction 5A Moved 50m North with 295m SSD and 215m SSD

4 Options Evaluation and Selection

- 4.1 Following an evaluation of each option, the key parameter influencing the junction location is the environmental impact on the adjacent Asbury's Copse.
- 4.2 **Table 1** below summarises the options and its implications on ancient woodland. The quoted areas are based on a comparable estimate of the engineering footprint of each option.

Option	Environmental
Option A	A fully compliant design would impact an area of 5330m ² of the ancient woodland with 3988m ² to the west and 1342m ² to the east being impacted.
Option B	An approved departure for 215m SSD shall reduce the impact on the ancient woodland to the west to 1946m ² . This constitutes a 51% reduction in impact on the western parcel of ancient woodland as compared to Option A. The impact on the eastern parcel would remain 1342m ² .
Option C	By moving the junction 50m north, a fully compliant design would result in 3652m ² of ancient woodland being affected. With 2335 m ² to the west and 1317 m ² to the east being impacted. This constitutes a 8% reduction in impact on the western parcel of ancient woodland as compared to Option A.
Option D	By moving the junction 50m to the north and gaining a departure for 215m SSD, the Option D shall reduce the impact on the ancient woodland to the west to 1772m ² . This constitutes a 55% reduction in impact on the western parcel of ancient woodland as compared to Option A. The impact on the eastern parcel would remain 1317m ² .

Table 1 – Summary of design options for Junction 5A

- 4.3 In addition to the above assessment, a design rationale has been produced which provides assessment of the above options considering different criteria. A scoring system has been used to evaluate the preferred option. A copy of the Design Rationale is attached in **Appendix A**.
- 4.4 The final assessment phase requires evaluating the options from a planning perspective. This parameter is deemed quite important as a planning application for the MSA development is submitted to SMBC and awaiting decision.

5 Influence of Legal Requirements on Junction Design Selection

- 5.1 A concern for pursuing options C and D was that these options would preclude the future development of the MSA from constructing any north facing slip roads, should such a MSA scheme be deemed acceptable in principle. To eliminate this risk, Option B was selected as the preferred solution on the basis that it had the least environmental impact compared to Option A. Option B would affect an additional 174m² of ancient woodland as compared to Option D.
- 5.2 Whilst the MSA planning application is currently pending with SMBC for decision, there is a risk that if MSA application gets approval before the start of the M42 Junction 6 Improvement scheme, significant design changes would be required for the Junction 5A of the M42 scheme to make it consistent with MSA proposals. This possibility

raises a risk that any option other than option B would require rework and a re-evaluation of the MSA planning documents.

6 Modification Works Required for MSA Connection to Junction 5A

- 6.1 Should the planned MSA be authorised after the M42 Junction 6 Improvement Scheme is operational, the western roundabout at Junction 5A and approach and departure arms would require geometric modifications, this would include the following works:
- The junction would be altered from a dumb-bell arrangement to a 'Dog Bone' layout. This would mean extending the central reserve island on the link road between the two roundabouts to connect with the roundabout island, subsequently severing the gyratory at each roundabout.
 - A segregated left-turn lane would be required from the M42 northbound diverge slip road into the MSA.
 - The M42 northbound diverge slip road would be widened to 3 lanes from 2 lanes 80m before the give way line.
 - The western side of the roundabout would be widened to 3 lanes from 2 lanes to accommodate the 3 lanes traffic movements from the south at the M42 diverge slip road travelling north at the main line.
 - The New Link Road would be widened at exit from the roundabout to three lanes before merging into two lanes downstream of the junction
- 6.2 An indicative layout of the proposed Junction 5A with the MSA in operation is provided in **Figure 4** below.
- 6.3 The proposed modifications have been assessed and validated through traffic assessments.
- 6.4 Whilst these modification works would be required and undertaken by the MSA, it does confirm that the current M42 Junction 6 Improvement Scheme does not preclude the planned MSA development.

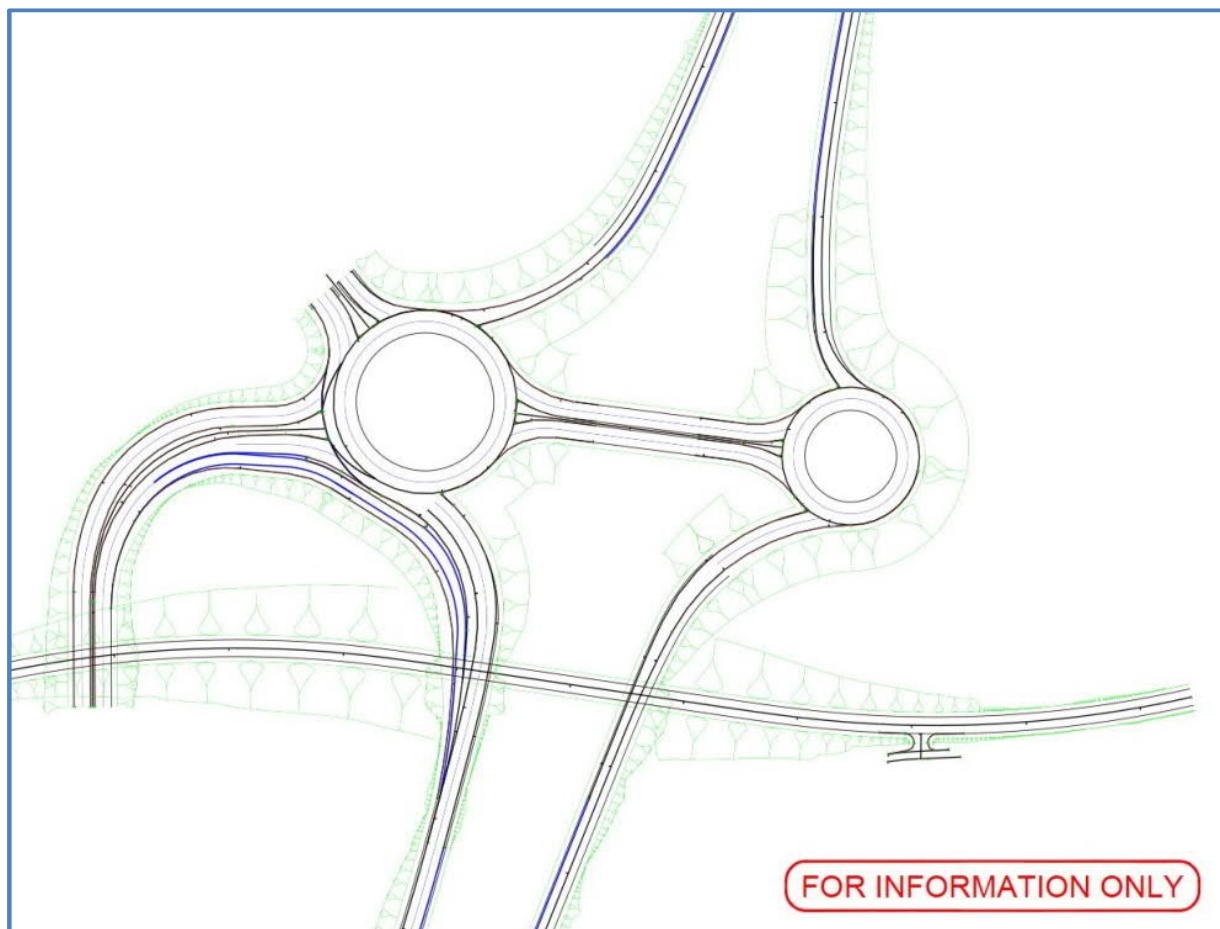


Figure 4 – Junction 5A with MSA in Operation (Indicative Layout)

7 Conclusion and Recommendation

- 7.1 A number of options have been evaluated for the new Junction 5A on the M42 prior to issuing a DCO to the Planning Inspectorate.
- 7.2 The primary option is the provision of a new dumb-bell junction on the M42 between Junctions 5 and 6.
- 7.3 The dumb-bell options were refined to produce 4 separate options based on environmental impact, cost and road user and road worker operations. An assessment of these 4 options concluded a preference for a dumb-bell junction to be kept at its current location and gaining a departure from standard for the reduced SSD of 215m. (Option B). Shifting the Junction 5A north by 50m with a similar departure as Option B provides a minimal benefit in terms of environmental impact on the ancient woodland (only 174 m²) but raises concerns that the Option D would expose Highways England to potential challenge for precluding the MSA development.
- 7.4 This technical note has demonstrated that Junction 5A has been located in the optimum engineering location subsequent to minimising the impact on the key design parameters. Furthermore, the reduced SSD on the northbound diverge slip road further mitigates the impact on the adjacent ancient woodland.

-
- 7.5 The proposed option selected is Option B, this option will be prepared as part of the DCO application.

Appendix A DESIGN RATIONALE

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement			
PROJECT No	HE551485	RATIONALE No	/	
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED		
MAIN DESIGN TEAM	Highways	SUPPORT TEAM 1	Environment	SUPPORT TEAM 2 Structures
LOCATION	The proposed Junction 5A is located north of existing Solihull Road Overbridge and south of Shadowbrook Lane Overbridge. Proposed junction is situated in close proximity to Asbury's Copse and a Proposed Motorway Service Area (MSA).		MAIN DISCIPLINE	
	The proposed junction will become Junction 5A of the M42 Strategic Road Network.		Highways	
DESCRIPTION	<p>This design rationale has been prepared to evaluate a range of options with regards to the position and alignment of the Junction 5A. To provide a robust design at DCO Application, AECOM must as far as reasonably practicable minimise the impact of the Junction 5A on Asbury's Copse, which is a designated Scheduled Ancient Woodland. These options also need to consider the wider legal impacts with regards to the proposed Motorway Service Area (MSA) at this junction for which the planning application has been submitted to Solihull Metropolitan Borough Council for consideration. The M42 J6 improvement works must not be seen to preclude this design as it would most likely result in an objection being lodged by the MSA developer at DCO application. Both of these factors need to be considered in parallel with operational, safety and maintenance aspects as defined by DMRB Design Standards. The following options have been assessed:</p> <p>Option A - The proposed Junction maintains its current position with the desirable minimum 295m SSD.</p> <p>Option B - The proposed Junction maintains its current position with a departure for reduced SSD from back of the nosing of one step below desirable of 215m.</p> <p>Option C - The proposed Junction is moved 50m north and maintains the desirable minimum 295m SSD.</p> <p>Option D - The proposed Junction is moved 50m north with a departure with a departure for reduced SSD from back of the nosing of one step below desirable of 215m.</p>			
REFERENCES		APPENDICES		
OPTION SELECTED	Option B - The proposed Junction 5A is kept at its current location with a departure for reduced SSD from back of the nosing of one step below desirable of 215m.		AECOM APPROVER'S COMMENTS	
SUMMARY OF REASONS	Option B provides the best balance between mitigating the Schemes impact on ancient woodland while complying with current design standards. Significantly this option would not preclude the MSA application from coming forward nor would it require that application to revised or require further reduction in design standards.			
APPROVALS	ROLE	SIGNED	DATE	REQUIREMENT
	AECOM PROJECT MANAGER	Ian Bamforth	10/07/2018	review and approve
	MAIN DESIGN TEAM LEADER	Javaid Farooq	10/07/2018	review and approve
	PRINCIPAL DESIGNER	N/A		review and agree
	CLIENT REPRESENTATIVE	Chris Harris	10/07/2018	review and agree
	CONTRACTOR REPRESENTATIVE	N/A		review and agree
	MAINTAINER REPRESENTATIVE	N/A		review and agree

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement			
PROJECT No	HE551485	RATIONALE No	/	
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED		
OPTION	A	SCORE	B	SCORE
Description	The proposed Junction 5A is maintained at its current position with a the desirable minimum stopping sight distance of 295m in accordance with TD22/06 & TD9/93. This design does not preclude the MSA proposals.	6	The proposed Junction 5A is maintained at its current position with a departure submitted to provide a one step below desirable SSD of 215m. This departure will provide a one step relaxation in the stopping sight distance in accordance with TD22/06 & TD9/93. This design does not preclude the MSA Proposals.	6
Safety Assessment (detail on following Designer's Risk Assessment)		6		6
Design Effects	Option A would constitute a fully compliant design for Junction 5A. Weaving departure on mainline would be required but this departure has already been approved by Highways England.	5	Option B would require a departure from Standard for reduced SSD from the back of the nosing along the diverge slip to 215m. This departure has already been approved by Highways England. Weaving departure on mainline would still be required but this departure has also been approved by Highways England.	5
Proposed Construction Methodology and Effects	No impact to the proposed construction methodology. Construction works would need to minimise so far as reasonably practicable any temporary land take into the Scheduled Ancient Woodland.	6	No impact to the proposed construction methodology. Construction works would need to minimise so far as reasonably practicable any temporary land take into the Scheduled Ancient Woodland.	6
Operational Effects	Fully compliant junction design, no significant operational impacts.	6	A reduction in stopping sight distance provides a marginal increase in the risk of vehicle collisions. This risk has been assessed in the GD04 risk assessment produced as part of the departure application.	5
Maintenance Effects	Fully compliant junction design, no significant maintenance impacts.	6	No significant maintenance impacts introduced by the departure to 215m SSD. Verge width reduction shall minimise maintenance activities.	5

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement			
PROJECT No	HE551485	RATIONALE No	/	
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED		
OPTION	A	SCORE	B	SCORE
Environmental Effects	A fully compliant design will result in 5330m ² of Scheduled Ancient Woodland being affected. With 3988m ² to the west and 1342m ² to the east being impacted. Replanting of any impacted woodland will be provided at a ratio of 3:1 (minimum) to compensate the environmental impact however the replanted woodland will not have Scheduled Ancient Woodland designation.	2	An approved departure for 215m SSD shall reduce the impact on the Scheduled Ancient Woodland to the west to 1946m ² . This constitutes a 51% reduction to the impact of Scheduled Ancient Woodland from Option A. Replanting of any impacted woodland will be provided at a ratio of 3:1 (minimum) to compensate the environmental impact however the replanted woodland will not have Scheduled Ancient Woodland designation	4
Customer Effects	N/A	6	N/A	6
Legal Effects	This design will be difficult to justify during DCO application as the design has not mitigated the impact to the environment so far as reasonably practicable in accordance with the NNNPS. This design does not preclude the MSA which has submitted a planning application to SMBC.	2	A 51% reduction in the impact to the Scheduled Ancient Woodland adjacent to the Junction 5A will provide justifiable evidence of mitigation during the DCO process. However Option B does not constitute the maximum that can be achieved versus Option D. This design does not preclude the MSA which has submitted a planning application to SMBC.	5
Quality Effects	N/A	6	N/A	6
Cost Effects	Additional land take and replanting required to offset the impact to the Scheduled Ancient Woodland. Moreover, the span of the proposed Solihull Road overbridge is increased by approximately 25m. The cost of the project will be increased by approximately £600,000 due to increased length of the Solihull Overbridge, widened verge, impact on the ancient woodland and additional landtake.	4	Reduction in land take and replanting required due to reduction in verge extents provided by the departure. Moreover, the span of the proposed Solihull Road overbridge is reduced by approximately 25m. The cost of the project will be reduced by approximately £600,000 due to reduced Solihull Overbridge length, reduced verge width, impact on the ancient woodland and less landtake requirement.	7
Programme Effects	No change to programme.	6	Reduction in bridge span provides an opportunity to reduce construction time.	7

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement			
PROJECT No	HE551485	RATIONALE No	/	
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED		
OPTION	A	SCORE	B	SCORE
Commercial Effects	N/A	6	N/A	6
Risk Effects	<p>Fully compliant design but there is a significant risk to the project that the environmental impacts would result in the DCO application being rejected.</p> <p>This design does not preclude the MSA and therefore does not impact any departures that have been agreed in principle with regards to weaving lengths in accordance with TD22/06 Clause 4.35.</p>	2	<p>Design introduces a Departure from Standard, however this option provides more confidence that the scheme will be accepted during the DCO process due to the mitigation of the environmental impact.</p> <p>This design does not preclude the MSA and therefore does not impact any departures that have been agreed in principle with regards to weaving lengths in accordance with TD22/06 Clause 4.35.</p>	5
Total Scores		69		79
Commentary				

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED	

DESIGNERS RISK ASSESSMENT			OPTION	A
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK RATING
TRAFFIC (include GD04 Risk Assessment results where prepared)	Works adjacent to live traffic.	Vehicle impact on people or materials.	Approved Contractor to be provided under Lot 3B Framework, Contractor to work in accordance with Highways England and own safe work policies. Work behind vehicle safety barriers.	Medium
UTILITIES (include GD04 Risk Assessment results where prepared)	Presence of underground utilities adjacent to M42 carriageway affected by Slip Road construction	Electrocution VMS systems disabled	Services to be identified and located prior to undertaking works. All diversion/protection works to be agreed with affected Statutory Undertakers	Low
WORKING AT HEIGHT OR ON SLOPES (include GD04 Risk Assessment results where prepared)	Lifting Operations associated with Solihull Bridge	Being struck by falling objects	The principal contractor to prepare and work to a safe construction methodology.	Low
EXCAVATIONS (include GD04 Risk Assessment results where prepared)	Instability/collapse of excavation	People or plant falling into excavation	Works to adhere to practices outlined in method statements and adhere to the mitigation measures identified in task specific risk assessments.	Low

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED	

DESIGNERS RISK ASSESSMENT		OPTION	A	
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK RATING
TEMPORARY WORKS (include GD04 Risk Assessment results where prepared)				
CONFINED SPACES (include GD04 Risk Assessment results where prepared)	N/A			
WATER (include GD04 Risk Assessment results where prepared)				
MATERIALS (include GD04 Risk Assessment results where prepared)				

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED	

DESIGNERS RISK ASSESSMENT			OPTION	A
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK RATING
DEMOLITION (include GD04 Risk Assessment results where prepared)	Demolition of existing Solihull Road Overbridge	Dust, noise, vibration, and impacts to operation of M42.	Safe demolition strategy to be agreed and approved by all parties prior to demolition works to be commenced.	Low
MAINTENANCE (include GD04 Risk Assessment results where prepared)	Bridge Inspection	Working at height and adjacent to live traffic	Safe work plan to be agreed for all maintenance activities association with inspections for Solihull Road Overbridge and Junction 5A overbridge. Use night time closures of M42 as part of a combined inspection programme for other structures and assets.	Low
	Drainage Inspection	Adjacent to live traffic	Safe work plan to be agreed for all drainage inspection activities.	Low
OPERATION (include GD04 Risk Assessment results where prepared)				
OVERALL RATING				Low

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED	

DESIGNERS RISK ASSESSMENT			OPTION	B
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK RATING
TRAFFIC (include GD04 Risk Assessment results where prepared)	Works adjacent to live traffic.	Vehicle impact on people or materials.	Approved Contractor to be provided under Lot 3B Framework, Contractor to work in accordance with Highways England and own safe work policies. Work behind vehicle safety barriers.	Medium
UTILITIES (include GD04 Risk Assessment results where prepared)	Presence of underground utilities adjacent to M42 carriageway affected by Slip Road construction	Electrocution VMS systems disabled	Services to be identified and located prior to undertaking works. All diversion/protection works to be agreed with affected Statutory Undertakers	Low
WORKING AT HEIGHT OR ON SLOPES (include GD04 Risk Assessment results where prepared)	Lifting Operations associated with Solihull Bridge	Being struck by falling objects	The principal contractor to prepare and work to a safe construction methodology.	Low
EXCAVATIONS (include GD04 Risk Assessment results where prepared)	Instability/collapse of excavation	People or plant falling into excavation	Works to adhere to practices outlined in method statements and adhere to the mitigation measures identified in task specific risk assessments.	Low
DESIGNERS RISK ASSESSMENT			OPTION	B
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK RATING

DESIGN RATIONALE

PROJECT		M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/	
SUBJECT		New Southern Junction (Junction 5A) Assessment		
		APPROVAL DATE REQUIRED		
TEMPORARY WORKS (include GD04 Risk Assessment results where prepared)				
CONFINED SPACES (include GD04 Risk Assessment results where prepared)				
WATER (include GD04 Risk Assessment results where prepared)				
MATERIALS (include GD04 Risk Assessment results where prepared)				

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED	

DESIGNERS RISK ASSESSMENT			OPTION	B
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK RATING
DEMOLITION (include GD04 Risk Assessment results where prepared)	Demolition of existing Solihull Road Overbridge	Dust, noise, vibration, and impacts to operation of M42.	Safe demolition strategy to be agreed and approved by all parties prior to demolition works to be commenced.	Low
MAINTENANCE (include GD04 Risk Assessment results where prepared)	Bridge Inspection	Working at height and adjacent to live traffic	Safe work plan to be agreed for all maintenance activities association with inspections for Solihull Road Overbridge and Junction 5A overbridge. Use night time closures of M42 as part of a combined inspection programme for other structures and assets.	Low
	Drainage Inspection	Adjacent to live traffic	Safe work plan to be agreed for all drainage inspection activities.	Low
OPERATION (include GD04 Risk Assessment results where prepared)				
OVERALL RATING				Low

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement			
PROJECT No	HE551485	RATIONALE No	/	
SUBJECT	New Southern Junction (Junction 5A) Assessment		APPROVAL DATE REQUIRED	
MAIN DESIGN TEAM	Highways	SUPPORT TEAM 1	Environment	SUPPORT TEAM 2 Structures
LOCATION	The proposed Junction 5A is located north of existing Solihull Road Overbridge and south of Shadowbrook Lane Overbridge. Proposed junction is situated in close proximity to Asbury's Copse and a Proposed Motorway Service Area (MSA).		MAIN DISCIPLINE	
	The proposed junction will become Junction 5A of the M42 Strategic Road Network.		Highways	
DESCRIPTION	<p>This design rationale has been prepared to evaluate a range of options with regards to the position and alignment of the Junction 5A. To provide a robust design at DCO Application, AECOM must as far as reasonably practicable minimise the impact of the Junction 5A on Aspbury's Copse, which is a designated Scheduled Ancient Woodland. These options also need to consider the wider legal impacts with regards to the proposed Motorway Service Area (MSA) at this junction for which the planning application has been submitted to Solihull Metropolitan Borough Council for consideration. The M42 J6 improvement works must not be seen to preclude this design as it would most likely result in an objection being lodged by the MSA developer at DCO application. Both of these factors need to be considered in parallel with operational, safety and maintenance aspects as defined by DMRB Design Standards. The following options have been assessed:</p> <p>Option A - The proposed Junction maintains its current position with the desirable minimum 295m SSD.</p> <p>Option B - The proposed Junction maintains its current position with a departure for reduced SSD from back of the nosing of one step below desirable of 215m.</p> <p>Option C - The proposed Junction is moved 50m north and maintains the desirable minimum 295m SSD.</p> <p>Option D - The proposed Junction is moved 50m north with a departure with a departure for reduced SSD from back of the nosing of one step below desirable of 215m.</p>			
REFERENCES		APPENDICES		
OPTION SELECTED	Option B - The proposed Junction 5A is kept at its current location with a departure for reduced SSD from back of the nosing of one step below desirable of 215m.		AECOM APPROVER'S COMMENTS	
SUMMARY OF REASONS				
APPROVALS	ROLE	SIGNED	DATE	REQUIREMENT
	AECOM PROJECT MANAGER	Ian Bamforth		review and approve
	MAIN DESIGN TEAM LEADER	Javaid Farooq		review and approve
	PRINCIPAL DESIGNER	Paul Conley		prepare
	CLIENT REPRESENTATIVE	Chris Harris		review and agree
	CONTRACTOR REPRESENTATIVE	N/A		review and agree
MAINTAINER REPRESENTATIVE	N/A		review and agree	

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement			
PROJECT No	HE551485	RATIONALE No	/	
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED		
OPTION	C	SCORE	D	SCORE
Description	Junction 5A position is moved 50m north with SSD of 295m in accordance with TD9/93. This option has the potential to impact the proposals for the MSA.	6	Junction 5A position to be moved 50m north with a departure submitted to provide a SSD of 215m in accordance with TD9/93. This departure will provide a one step relaxation in the Stopping Sight Distance. This option has the potential to impact the proposals for the MSA.	6
Safety Assessment (detail on following Designer's Risk Assessment)		6		6
Design Effects	Option C would constitute a fully compliant design. Moving the dumb-bell roundabouts 50m northwards reduces the resumption area of the ancient woodlands without the need for a Departure from Standards for stopping sight distance. It also allows Solihull Road levels to be reduced making access to the properties located east of the Solihull Road overbridge more convenient and direct. A consequence of moving the junction by 50m northwards is that existing Shadowbrook lane overbridge needs to be demolished to provide standard compliant future northern slip roads. Weaving departure on mainline would still be required.	5	Option D would require a one step reduction in Stopping Sight Distance to 215m which would require a departure to be submitted to Highways England with an accompanying GD04 Risk Assessment. Moving the dumb-bell roundabouts 50m northwards further reduces the resumption area of the ancient woodlands but requires a departure from Standard. This option allows Solihull Road levels to be reduced making access to the properties located east of the Solihull Road overbridge more convenient and direct. A consequence of moving the junction by 50m northwards is that existing Shadowbrook lane overbridge needs to be demolished to provide standard compliant future northern slip roads. Weaving departure on mainline would still be required but this	5
Proposed Construction Methodology and Effects	No change to proposed construction methodology. Construction works would need to minimise so far as reasonably practicable any temporary land take into the Scheduled Ancient Woodland.	6	No change to proposed construction methodology. Construction works would need to minimise so far as reasonably practicable any temporary land take into the Scheduled Ancient Woodland.	6
Operational Effects	Fully compliant junction design, no operational impacts.	6	A reduction in stopping sight distance provides a marginal increase in the risk of vehicle collisions. This risk will be assessed in the GD04 risk assessment produced as part of the departure application.	5
Maintenance Effects	Fully compliant junction design, no significant maintenance impacts.	6	No significant maintenance impacts introduced by the departure to 215m SSD. Verge width reduction shall minimise maintenance activities.	5

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement			
PROJECT No	HE551485	RATIONALE No	/	
SUBJECT	New Southern Junction (Junction 5A) Assessment		APPROVAL DATE REQUIRED	
OPTION	C	SCORE	D	
Environmental Effects	<p>By moving the junction 50m north, a fully compliant design will result in 3652m² of Scheduled Ancient Woodland being affected. With 2335m² to the west and 1317m² to the east being impacted. This constitutes a 41% reduction to the impact of Scheduled Ancient Woodland from Option A.</p> <p>Replanting of any impacted woodland will be provided at a ratio of 3:1 (minimum) to compensate the environmental impact however the replanted woodland will not have Scheduled Ancient Woodland designation</p> <p>Provides the opportunity to reduce the visual impact of Solihull Overbridge on affected residents.</p>	3	<p>By moving the junction 50m to the north and gaining a departure for 215m SSD. Option D shall reduce the impact on the Scheduled Ancient Woodland to the west to 1772m². This constitutes a 55% reduction to the impact of Scheduled Ancient Woodland from Option A. The impact on the eastern parcel would be 1317m² as with Option C.</p> <p>Replanting of any impacted woodland will be provided at a ratio of 3:1 (minimum) to compensate the environmental impact however the replanted woodland will not have Scheduled Ancient Woodland designation</p> <p>Provides the opportunity to reduce the visual impact of Solihull Overbridge on affected residents.</p>	4
Customer Effects	<p>By moving the junction 50m north, the proposed Solihull Road Overbridge can be lowered and subsequently benefit adjacent residents.</p>	7	<p>By moving the junction 50m north, the proposed Solihull Road Overbridge can be lowered and subsequently benefit adjacent residents.</p>	7
Legal Effects	<p>By moving the junction 50m north, Option C provides a beneficial reduction in the environmental impact to the scheduled ancient woodland. However the magnitude of the impact is less than option B and D.</p> <p>A consequence of moving the junction by 50m northwards would mean that there would be insufficient space to provide compliant north facing slip roads at a later date without the removal and replacement of Shadowbrook Lane Overbridge. This would mean that future development of the MSA which would propose to include north facing slips would not be possible therefore expose Highways England to unacceptable level of legal risk for precluding the development. This will most likely result in an objection being raised by the MSA developer.</p>	2	<p>By moving the junction 50m north and gaining approval for a departure in the SSD to 215m, Option D provides the most beneficial reduction in the environmental impact to the scheduled ancient woodland.</p> <p>A consequence of moving the junction by 50m northwards would mean that there would be insufficient space to provide compliant north facing slip roads at a later date without the removal and replacement of Shadowbrook Lane Overbridge. This would mean that future development of the MSA which would propose to include north facing slips would not be possible therefore expose Highways England to unacceptable level of legal risk for precluding the development. This will most likely result in an objection being raised by the MSA developer.</p>	2
Quality Effects	N/A	6	N/A	6
Cost Effects	<p>In moving the junction north by 50m, there will be reduction in the cost of the project in the region of £700,000 due to reduction in the length and height of the Solihull Road Overbridge.</p> <p>There will be alterations to the land take that will need to be considered for this option.</p>	7	<p>In moving the junction north by 50m, there will be reduction in the cost of the project in the region of £700,000 due to reduction in the length and height of the Solihull Road Overbridge.</p> <p>there will be alterations to the land take that will need to be considered for this option.</p>	7

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement			
PROJECT No	HE551485	RATIONALE No	/	
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED		
OPTION	C	SCORE	D	SCORE
Programme Effects	Reduction in bridge span provides an opportunity to reduce construction time.	7	Reduction in bridge span provides an opportunity to reduce construction time.	7
Commercial Effects	N/A	6	N/A	6
Risk Effects	<p>Moving the junction 50m north will impact the current Departures from Standards agreed by MSA developer with Highways England and will necessitate new departures to be submitted by the MSA developer which puts their planning application at risk. The MSA developer will likely object to the proposals during the DCO process.</p> <p>There is a risk that Option C is not deemed sufficient during the DCO process for not mitigating the environmental impacts as far as reasonably practicable.</p>	2	<p>Moving the junction 50m north will impact the current Departures from Standards agreed by MSA developer with Highways England and will necessitate new departures to be submitted by the MSA developer which puts their planning application at risk. The MSA developer will likely object to the proposals during the DCO process.</p> <p>This option constitutes the maximum that can be undertaken to mitigate impacts to the scheduled ancient woodland.</p>	3
Total Scores		75		75
Commentary				

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED	

DESIGNERS RISK ASSESSMENT			OPTION	C
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK RATING
TRAFFIC (include GD04 Risk Assessment results where prepared)	Works adjacent to live traffic.	Vehicle impact on people or materials.	Approved Contractor to be provided under Lot 3B Framework, Contractor to work in accordance with Highways England and own safe work policies. Work behind vehicle safety barriers.	Medium
UTILITIES (include GD04 Risk Assessment results where prepared)	Presence of underground utilities adjacent to m42 carriageway affected by Slip Road construction	Electrocution VMS systems disabled	Services to be identified and located prior to undertaking works. All diversion/protection works to be agreed with affected Statutory Undertakers	Low
WORKING AT HEIGHT OR ON SLOPES (include GD04 Risk Assessment results where prepared)	Lifting Operations associated with Solihull Bridge	Being struck by falling objects	AECOM and Skanska to work to agree a safe construction methodology.	Low
EXCAVATIONS (include GD04 Risk Assessment results where prepared)	Instability/collapse of excavation	People or plant falling into excavation	Works to adhere to practices outlined in method statements and adhere to the mitigation measures identified in task specific risk assessments.	Low

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED	

DESIGNERS RISK ASSESSMENT			OPTION	C
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK
TEMPORARY WORKS (include GD04 Risk Assessment results where prepared)				
CONFINED SPACES (include GD04 Risk Assessment results where prepared)				
WATER (include GD04 Risk Assessment results where prepared)				
MATERIALS (include GD04 Risk Assessment results where prepared)				

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED	

DESIGNERS RISK ASSESSMENT			OPTION	C
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK RATING
DEMOLITION (include GD04 Risk Assessment results where prepared)	Demolition of existing Solihull Road Overbridge	Dust, noise, vibration, and impacts to operation of M42.	Safe demolition strategy to be agreed and approved by all parties prior to demolition works to be commenced.	Low
MAINTENANCE (include GD04 Risk Assessment results where prepared)	Bridge Inspection	Working at height and adjacent to live traffic	Safe work plan to be agreed for all maintenance activities association with inspections for Solihull Road Overbridge and Junction 5A overbridge. Use night time closures of M42 as part of a combined inspection programme for other structures and assets.	Low
	Drainage Inspection	Adjacent to live traffic	Safe work plan to be agreed for all drainage inspection activities.	Low
OPERATION (include GD04 Risk Assessment results where prepared)				
OVERALL RATING				Low

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED	

DESIGNERS RISK ASSESSMENT			OPTION	D
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK RATING
TRAFFIC (include GD04 Risk Assessment results where prepared)	Works adjacent to live traffic.	Vehicle impact on people or materials.	Approved Contractor to be provided under Lot 3B Framework, Contractor to work in accordance with Highways England and own safe work policies. Work behind vehicle safety barriers.	Medium
UTILITIES (include GD04 Risk Assessment results where prepared)	Presence of underground utilities adjacent to m42 carriageway affected by Slip Road construction	Electrocution VMS systems disabled	Services to be identified and located prior to undertaking works. All diversion/protection works to be agreed with affected Statutory Undertakers	Low
WORKING AT HEIGHT OR ON SLOPES (include GD04 Risk Assessment results where prepared)	Lifting Operations associated with Solihull Bridge	Being struck by falling objects	AECOM and Skanska to work to agree a safe construction methodology.	Low
EXCAVATIONS (include GD04 Risk Assessment results where prepared)	Instability/collapse of excavation	People or plant falling into excavation	Works to adhere to practices outlined in method statements and adhere to the mitigation measures identified in task specific risk assessments.	Low
DESIGNERS RISK ASSESSMENT			OPTION	D
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK RATING

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED	

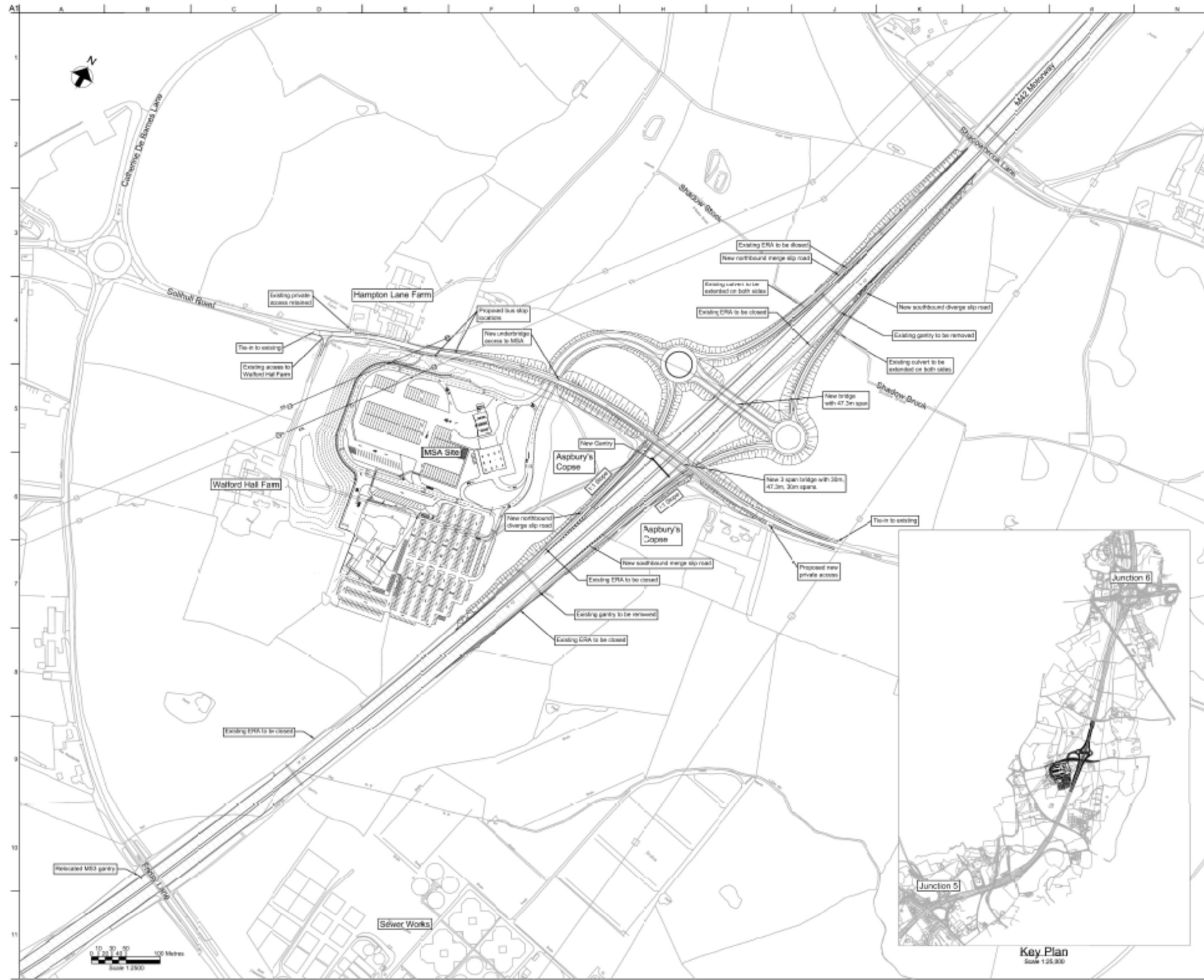
TEMPORARY WORKS (include GD04 Risk Assessment results where prepared)				
CONFINED SPACES (include GD04 Risk Assessment results where prepared)				
WATER (include GD04 Risk Assessment results where prepared)				
MATERIALS (include GD04 Risk Assessment results where prepared)				

DESIGN RATIONALE

PROJECT	M42 Junction 6 Improvement		
PROJECT No	HE551485	RATIONALE No	/
SUBJECT	New Southern Junction (Junction 5A) Assessment	APPROVAL DATE REQUIRED	

DESIGNERS RISK ASSESSMENT			OPTION	D
HAZARD GROUP	HAZARD	RISK	ELIMINATE, REDUCE, ISOLATE, CONTROL MITIGATIONS	POST-MITIGATION RISK RATING
DEMOLITION (include GD04 Risk Assessment results where prepared)	Demolition of existing Solihull Road Overbridge	Dust, noise, vibration, and impacts to operation of M42.	Safe demolition strategy to be agreed and approved by all parties prior to demolition works to be commenced.	Low
MAINTENANCE (include GD04 Risk Assessment results where prepared)	Bridge Inspection	Working at height and adjacent to live traffic	Safe work plan to be agreed for all maintenance activities association with inspections for Solihull Road Overbridge and Junction 5A overbridge. Use night time closures of M42 as part of a combined inspection programme for other structures and assets.	Low
	Drainage Inspection	Adjacent to live traffic	Safe work plan to be agreed for all drainage inspection activities.	Low
OPERATION (include GD04 Risk Assessment results where prepared)				
OVERALL RATING				Low

Appendix B **PROPOSED ACCESS PLAN FOR MSA
SUBMITTED AS PART OF PLANNING
APPLICATION**



- Notes**
- All slopes are drawn at 1:2 H and 1:3 V unless indicated on the drawing.
 - Where CRAs to be retained for merge with maintenance access.
 - Parking space provision:
 Cars: 870 (plus 38 disabled spaces)
 HGV's: 91
 Caravans: 20
 Buses: 18
 Motorcycles: 26
 Abnormal Load: 1
 - All proposed bridges have allowances for a future M42 widening to a 4M cross section as current in TD2106 Highways Cross Sections.
 - M42 to be upgraded to All Lane Running configuration.

Rev	Date	By	Check	App'd
P05.1	04/06/2015	JHW	TEC	TEC

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Project Title
M42 Solihull MSA

Drawing Title
Proposed Parking and Access Plan

Scale of Drawing: 1:2500
 Title: Civil Engineer - Highways
 Discipline: SD - Initial non-constructive
 Drawing No: 223839-00
 File: P05.1
 Date: 223839-ARP-ZZ-ZZ-DR-CH-00101



Appendix 5 – Glossary Table

Term	Abbreviation or Acronym	Definition
Amenity		The benefits of enjoyment and well-being which are gained from a resource in line with its intended function. Amenity may be affected by a combination of factors such as: sound, noise and vibration; dust/air quality; traffic/congestion; and visual impacts.
Ancient woodland		Land that has been continually wooded since at least the year 1600AD.
Annual Average Daily Traffic	AADT	The total volume of vehicle traffic on a road flowing past a certain point over a year, divided by 365 days.
Annual Average Weekday Traffic	AAWT	The average 24-hour traffic volume occurring on weekdays throughout a full year.
APFP Regulations		The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009.
A-Road		A type of road prefixed with the letter 'A'. These are the busiest and most direct main roads, apart from motorways, and can be of different standard.
Biodiversity		The variety of life in the world or in a particular habitat or ecosystem.
Borehole		A hole bored into the ground, usually as part of investigations, typically to test the depth and quality of soil, rock and groundwater. A borehole can also be used to dewater the ground.
British Standard	BS	Standard produced by the British Standards Institution.
British Standards Institution		A group which produces British Standards across industry sectors and which is formally designated as the National Standards Body for the UK.
Buffer		Specified area or distance surrounding a site or feature of interest.
Built heritage		A structure or building of historic value. These structures are visible above ground level.
Bund		An embankment which acts as a visual or noise screen, or acts as a barrier to control the spillage of fluids.
Buried archaeology (or buried heritage)		An archaeological asset beneath ground level, which may include earthworks.
Bypass		The diversion of a major road to carry traffic around a built up area, constructed to improve the journey of through traffic and/or improve the environmental conditions along the original route.

Term	Abbreviation or Acronym	Definition
Canals and Rivers Trust	CRT	Organisation responsible for canals, rivers, docks and reservoirs in England and Wales.
Carbon footprint		The total greenhouse gas emissions associated with a particular policy or development.
Carriageway		The width of a highway that can be used by motorised vehicles and non-motorised users, formed by a number of lanes.
Catchment		A drainage/basin area within which precipitation drains into a river system and eventually into the sea.
Clay		An inorganic component of soil derived from the weathering of rock and comprising particles less than 0.002mm in equivalent diameter.
Climate		The climate can be described simply as the 'average weather', typically looked at over a period of 30 years. It can include temperature, rainfall, snow cover, or any other weather characteristic.
Climate change		This refers to a change in the state of the climate, which can be identified by changes in average climate characteristics which persist for an extended period, typically decades or longer.
Committed development		A development that has full or outline planning permission, or is allocated in an adopted development plan.
Compensation (environmental)		Mitigation measures applied where nothing can be done to reduce an environmental impact or effect. An example is habitat and species relocation.
Compulsory acquisition		The acquisition of land (or rights over land) without the owner's consent, but in return for compensation.
Congestion		A situation where the volume of traffic is too great for the road, causing vehicles to slow down or stop, often caused by bottlenecks, traffic incidents and junction design.
Connectivity		A measure of the availability of the habitats needed for a particular species to move through a given area.
Conservation area		An area designated under section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990 as being of special architectural or historic interest and with a character or appearance which is desirable to preserve or enhance.
Construction compound		Construction compounds will generally act as the points of entry to the worksites from the public highway. They may also be used for major stockpiling of materials such as top soil, and to facilitate transfer of materials to and from the site.
Contractor		A general term used to describe an individual or company appointed by a developer to construct or manage a project at a certain price or rate.

Term	Abbreviation or Acronym	Definition
Culvert		A tunnel (pipe or box shaped) that carries a stream or open drain under a road or railway.
Cumulative effect (or impact)		A cumulative impact (or effect) may arise as the result of: the combined impact of a number of different environmental topic-specific impacts from a single environmental impact assessment project on a single receptor/resource; and the combined impact of a number of different projects within the vicinity (in combination with the environmental impact assessment project) on a single receptor/resource.
Cutting (road)		Excavation of earth material to lower the ground level on which a road would be positioned, in order to help to reduce noise and/or visual impact.
Cycle lane		A lane reserved exclusively for the use of bicycles.
Decision-maker		The Secretary of State (in England).
Delay		For pedestrians, this is the increase in the 'person-minutes' of the journey times of pedestrians and other non-motorised travellers. For traffic, this is the increase in journey times for drivers and passengers.
Department for Transport	DfT	The national government body responsible for transport in Britain, and therefore in overall control of the road network. It is mainly responsible for policy decisions, and its responsibilities are carried out by a range of agencies and local authorities.
Department for Transport's Transport Analysis Framework	TAG	Highways England's framework for options appraisal.
Design Manual for Roads and Bridges	DMRB	A set of documents that provide a comprehensive manual system which accommodates all current standards, advice notes and other published documents relating to the design, assessment and operation of trunk roads (including motorways).
Design-development		The process in which technical specialists (engineers and environmentalists) refine the design for the various elements of a development project.
Detailed assessment		Method applied to gain an in-depth appreciation of the beneficial and adverse consequences of the project and to inform project decisions. Detailed Assessments are likely to require detailed field surveys and/or quantified modelling techniques.
Determination		The formal judgement as to whether a project requires statutory Environmental Impact Assessment or not.
Development Consent Order	DCO	The consent for a Nationally Significant Infrastructure Project required under the Planning Act 2008.

Term	Abbreviation or Acronym	Definition
Development plan		Documentation which seeks to guide development and planning in a local authority area for a set period of time.
Do Minimum		The conditions that would persist in the absence of the implementation of a construction or improvement project, but given that maintenance on the road network is ongoing.
Do Nothing		The conditions that would persist in the absence of the implementation of a construction or improvement project.
Do Something		The conditions that would occur as a consequence the implementation of a construction or improvement project.
Dumb-bell		A type of grade-separated junction which takes the form of a roundabout either side of a major road, linked by a bridge.
Earthworks		The removal or placement of soils and rocks such as in cuttings, embankments and environmental mitigation, including the in-situ improvement of soils/rocks to achieve the desired properties.
Ecosystem		Biological community of interacting organisms (e.g. plants and animals) and their environment.
Effect		Term used to express the consequence of an impact (expressed as the 'significance of effect'), which is determined by correlating the magnitude of the impact (or change) to the importance, value or sensitivity of the receptor or resource, in accordance with defined significance criteria.
Embankment		Artificially raised ground, commonly made of earth material, such as stone, on which the carriageway is laid.
Enhancement		A measure that is over and above what is required to mitigate the adverse effects of a project.
Environment Agency	EA	Government agency established to protect and improve the environment and contribute to sustainable development in England. Responsibilities include: water quality and resources, flooding and coastal risk management and contaminated land.
Environmental assessment		A method and process by which information about environmental effects is collected, assessed and used to inform decision-making.
Environmental Health Officer	EHO	A local authority officer with responsibilities for protecting public health through the administration and enforcement of environmental health legislation.
Environmental Impact Assessment	EIA	The statutory process through which the likely significant effects of a development project on the environment are identified and assessed.
Environmental Masterplan		Plan which illustrates the mitigation measures integrated into the design of the Scheme.

Term	Abbreviation or Acronym	Definition
Environmental Statement	ES	A document which reports the EIA process, produced in accordance with the EIA Directive as transposed into UK law by the EIA Regulations.
European Protected Species	EPS	Species of plants and animals (not birds) which are protected by European law.
European site		The generic term used to describe the following designated sites: <ul style="list-style-type: none"> • Special Areas of Conservation (SACs) and Special Protection Areas (SPAs); • Sites that are in the process of designation as SACs and SPAs -these are known as proposed SACs (pSACs), candidate SACs (cSACs), potential SPAs (pSPAs) and Sites of Community Importance (SCIs), depending on the type of designation and point of progression through the designation process; and • Ramsar Sites.
European Union	EU	An economic and political union of 28 countries which operates an internal (or single) market which allows the free movement of goods, capital, services and people between member states.
Evaluation		The determination of the significance of effects. Evaluation involves making judgements as to the value of the receptor/resource that is being affected and the consequences of the effect on the receptor/resource based on the magnitude of the impact.
Examining Authority	ExA	A panel of inspectors appointed by the Secretary of State who are responsible for examining Development Consent Order applications for nationally significant infrastructure projects.
Excavated material		Largely natural soil and rock material that is removed from the ground during construction.
Farm Viability Assessment		An assessment which establishes the current operational and economic conditions of agricultural businesses and how a development project could affect their future viability.
Fill		Material used to artificially raise the existing ground levels.
Find spot		A term used to describe the location at which an archaeological find was discovered.
Flood Risk Assessment	FRA	The process of assessing potential flood risk to a site and identifying whether there are any flooding or surface water management issues that may warrant further consideration or may affect the feasibility of a development.
Flood Zone 1		Flood Zone 1: land outside the floodplain. There is little or no risk of flooding in this zone;
Flood Zone 2		Flood Zone 2: the area of the floodplain where there is a low to medium flood risk; and

Term	Abbreviation or Acronym	Definition
Flood Zone 3		Flood Zone 3: the area of the floodplain where there is a high risk of flooding.
Floodplain		Land adjacent to a watercourse over which water flows or would flow in times of flood, but for defences in place.
Fluvial		A term that relates to rivers and streams and the processes that occur within them.
Ford		A shallow water crossing.
Formation (geological)		A group of related rock strata with some common properties.
Fragmentation (ecological)		The breaking up of a habitat, ecosystem or land use types into smaller parcels.
Free-flow link		A section of road on a junction that links two roads and enables traffic to move without stopping.
Future baseline		The situation and conditions that would prevail should a proposed development not proceed. Predicted impacts are compared against this theoretical scenario.
Gantry		A bridge-like overhead structure with a platform supporting equipment such as a crane, signals, or cameras.
Regionally Important Geological Sites	RIGS	Locally designated sites of importance for geodiversity.
Geomorphology		The study of landforms and the processes which create them.
Geophysical survey		A process involving ground-based physical sensing techniques to determine the presence or absence of anomalies likely to be caused by archaeological features, structures or deposits.
Glacial deposit		Natural materials laid down during the ice ages (Quaternary period).
Grade-separated		A type of junction where the major route (or routes) through the junction do not stop and do not cross any other road on the level. Movements to other roads are made using sliproads and bridges.
Great Crested Newt	GCN	
Green Belt		A designation for land around certain cities and large built-up areas, which aims to keep this land permanently open or largely undeveloped.
Greenhouse gases	GHG	Atmospheric gases such as carbon dioxide, methane, chlorofluorocarbons, nitrous oxide, ozone, and water vapour that absorb and emit infrared radiation emitted by the Earth's surface, the atmosphere and clouds.
Ground investigation		An intrusive investigation undertaken to collect information relating to the ground conditions, normally for geotechnical or land contamination purposes.

Term	Abbreviation or Acronym	Definition
Ground-borne vibration		Vibration generated by an event such as the pass-by vehicles in a tunnel, propagated through the ground or structure (i.e. not the air) into a receiving building.
Groundwater		All water which is below the surface of the ground and within the permanently saturated zone.
Groundwater source protection zone		Areas defined by the Environment Agency which show the risk from contamination/pollution to groundwater that is extracted for drinking water.
Gyratory		A generalised term used to describe a large roundabout.
Habitat		The natural home or environment of an animal, plant, or other organism.
Habitat of principal importance	HPI	Habitats in England identified as requiring action in the UK Biodiversity Action Plan and which are regarded as having biodiversity conservation priorities.
Handover Environmental Management Plan	HEMP	A package of information that is handed over to those responsible for the future management and operation of the highway.
Hard shoulder		An auxiliary lane on the left of the carriageway which is set aside for stopped vehicles and emergency services, to ensure the main running lanes remain free from obstruction.
Hardcore		Material used for infill e.g. broken bricks, stone or concrete which are hard, inert and don't readily deteriorate or absorb water. Often used to raise land levels and serve as a solid base for building.
Haul road		A temporary road provided within a contractor's site area to allow for the movement of construction material, construction machinery and/or construction labour around the site.
Heavy Goods Vehicle	HGV	A commercial carrier vehicle with a gross vehicle weight of more than 3.5 tonnes.
Hectare	ha	A metric unit of measurement, equal to 2.471 acres or 10,000 square metres.
Heritage asset		A building, monument, site, place, area or landscape of historic value.
High Speed Two	HS2	A planned high-speed railway which will link London to Birmingham, the East Midland, Leeds and Manchester.
Highways Agency Drainage Data Management System	HADDMS	Management system used to store technical information about the location and condition of drainage infrastructure on the network.
Highways Agency Water Risk Assessment Tool	HAWRAT	A spreadsheet based application used to determine whether highway runoff is likely to have an ecological impact on surface watercourses.

Term	Abbreviation or Acronym	Definition
Highways England	HE	The Government agency responsible for the operation, maintenance and improvement of England's trunk roads and motorways.
Highways England Early Assessment Sifting Tool	HE EAST	
Historic England		Executive non-departmental public body created under section 32 of the National Heritage Act 1983 to: <ul style="list-style-type: none"> a) secure the preservation of ancient monuments and historic buildings situated in England; b) promote the preservation and enhancement of the character and appearance of conservation areas situated in England; and c) promote the public's enjoyment of, and advance their knowledge of, ancient monuments and historic buildings situated in England and their preservation.
Historic England Good Practice Advice	GPA	Historic England guidance which assists in establishing the significance of heritage assets and their setting.
Historic Environmental Record	HER	A record of all known archaeological finds and features and historic buildings and historic /landscape features, relating to all periods from the earliest human activity to the present day; maintained by each County and Unitary Authority in the United Kingdom.
Hoarding		A temporary fence erected around a construction site in order to visually screen and/or contain activities.
Hydrogeology		The nature, distribution and movement of groundwater in soils and rocks, including in aquifers.
Impact		Change that is caused by an action; for example, land clearing (action) during construction which results in habitat loss (impact).
Important hedgerow		A hedgerow that is at least 30 years old and which meets certain criteria relating to its particular archaeological, historical, wildlife and landscape value.
In-situ preservation (cultural heritage)		Preserving archaeological remains in their original position.
Institute of Air Quality Management	IAQM	The professional body for air quality practitioners.
Interchange		A term used to describe a grade separated junction that provides free flow from one mainline to another.
Invasive species		Non-native UK plants that are invasive, for example Japanese Knotweed.
Island		A raised area designed to deflect or divide traffic, or to make it easier for pedestrians to cross the road.

Term	Abbreviation or Acronym	Definition
Jaguar Land Rover	JLR	A car manufacturer based in Birmingham.
Junction		A place where two roads meet, regardless of design or layout.
Kilometre	km	A unit of measurement.
Land use		What land is used for, based on broad categories of functional land cover, such as urban and industrial use and the different types of agriculture and forestry.
Landform		The shape and form of the land surface which has resulted from combinations of geology, geomorphology, slope, elevation and physical processes.
Landscape character area	LCA	Areas of landscape that have a broadly consistent pattern of topography, land use and vegetation cover.
Landtake		The extent of land required temporarily or permanently to construct and operate a development project.
Lane		A section of carriageway marked out for the use of traffic, and typically intended for use in one direction.
Lay-by		A small paved area at the side of the road which allows vehicles to pull off the lane and park.
Laydown area		An area used for the temporary storage of construction equipment and supplies.
Lead Local Flood Authority	LLFA	Authority responsible for developing, maintaining and applying a strategy for local flood risk management in their areas and for maintaining a register of flood risk assets.
Light goods vehicle		A motor vehicle used to carry goods with a total mass of up to 3.5 tonnes.
Limits of deviation	LoD	The limits of deviation (LoD) represent the maximum extent within which the main works for the Scheme, as defined within Schedule 1 of the draft DCO, would be constructed
Link		A section of road between two junctions.
Listed building		A building of special architectural or historic interest. Listed buildings are graded I, II* or II, with Grade I being the highest. Listing includes the interior as well as the exterior of the building.
Local Geological Site	LGS	Non-statutory geological sites considered worthy of protection for their earth science or landscape importance. Formerly known as Regionally Important Geological Sites.
Local Nature Reserves	LNR	Local Nature Reserves (LNRs) are a statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949 by principal local authorities.
Local planning authority		The local authority or council that is empowered by law to exercise planning functions.

Term	Abbreviation or Acronym	Definition
Local Wildlife Site	LWS	Non-statutory sites of nature conservation value that have been designated 'locally'. These sites are referred to differently between counties with common terms including site of importance for nature conservation, county wildlife site, site of biological importance, site of local importance and sites of metropolitan importance.
Lowest Observable Adverse Effect Level	LOAEL	The lowest concentration or amount of a substance found by experiment or observation that causes an adverse alteration of morphology, function, capacity, growth, development, or lifespan of a target organism distinguished from normal organisms of the same species under defined conditions of exposure.
Low-noise surfacing		See Thin Surface Course.
Made ground		Land where natural and undisturbed soils have largely been replaced by man-made or artificial materials. It may be composed of a variety of materials including imported natural soils and rocks with or without residues of industrial processes (such as ash) or demolition material (such as crushed brick or concrete).
Magnitude		The size of something.
Main River		A river maintained directly by the Environment Agency. They are generally larger arterial watercourses.
Mainline		The carriageway carrying the main flow of traffic, generally traffic passing straight through a junction or interchange.
Materials Management Plan	MMP	A mechanism by which those who are developing a site can comply with Environment Agency regulations for excavated ground materials.
Materials Recovery Facility	MRF	A specialised plant that receives separates and prepares recyclable materials for marketing to end-user manufacturers.
Merge		The point where two different traffic flows come together and continue as one.
Metre	m	A unit of measurement.
Mineral safeguarding areas		Areas defined by mineral planning authorities with known mineral resources that are of identified economic or conservation value.
Mitigation		Measures intended to avoid, reduce and, where possible, remedy significant adverse environmental effects.
Modelling		The process of estimating changes within an area of interest under a specific set of conditions.

Term	Abbreviation or Acronym	Definition
Monitoring		A continuing assessment of the performance of the project, including mitigation measures. This determines if effects occur as predicted or if operations remain within acceptable limits, and if mitigation measures are as effective as predicted.
Motorway		A special type of road reserved for motorised traffic only, the numbers of which are prefixed with the letter 'M'.
Motorway Service Area	MSA	Motorway facilities where drivers can stop to use welfare facilities, refuel the vehicles, rest, eat and drink.
Movements (traffic)		A movement is one of the turns or changes in direction that a junction allows.
Multi-Agency Geographic Information Service	MAGIC	A website which provides geographic information about the natural environment.
National Character Area		Areas of England defined by their unique combination of landscape, biodiversity, geodiversity, history and cultural and economic activity.
National Cycle Network		A national cycling route network of the United Kingdom, which was established to encourage cycling throughout Britain, as well as for the purposes of bicycle touring.
National Exhibition Centre	NEC	An exhibition centre located in Solihull, near Junction 6 of the M42 motorway adjacent to Birmingham Airport and Birmingham International Railway Station.
National Heritage List for England	NHLE	A database of designated heritage assets.
National Incident Reporting System	NIRS	
National Motorcycle Museum	NMM	Recognised as the finest and largest British motorcycle museum in the world, located in Birmingham.
National Planning Policy Framework	NPPF	A planning framework which sets out the Government's planning policies for England and how these are expected to be applied.
National Planning Practice Guidance	NPPG	
National Policy Statement for England	NPSE	Statements prepared and designated by the Secretary of State under the Planning Act 2008, which establish national policy for Nationally Significant Infrastructure Projects, including energy, transport and water, waste water and waste and against which applications for Development Consent Orders are assessed.
National Policy Statement for National Networks	NPSNN	A statement setting out the need for, and Government's policies to deliver, the development of nationally significant infrastructure projects on the national road and rail networks in England.

Term	Abbreviation or Acronym	Definition
National speed limit		The default speed limit which applies to roads without any posted limit, this being 60mph on single carriageway roads and 70mph on dual carriageways and motorways.
National Vegetation Classification	NVC	A comprehensive classification and description of the plant communities of Britain, administered by the Joint Nature Conservation Committee.
Nationally Significant Infrastructure Project	NSIP	A type of project listed in the Planning Act 2008, which must be consented by a Development Consent Order.
Natura 2000		A network of core breeding and resting sites for rare and threatened species, and some rare natural habitat types which are protected in their own right.
Natural England		Executive non-departmental public body constituted under the Natural Environment and Rural Communities Act 2006 (section 2(1)) to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development.
Nitrate vulnerable zone		Areas covering 62% of England designated as a result of the EU's Nitrates Directive in order to reduce the level of nitrates in surface and groundwater. Farmers with land in nitrate vulnerable zones have to follow mandatory rules to tackle nitrate loss from agriculture.
Nitrogen dioxide	NO ₂	A gas produced when fuels are burned and is often present in motor vehicle and boiler exhaust fumes. It is an irritant to the respiratory system.
Nitrogen oxides	NO _x	A group of chemical compounds consisting only of nitrogen and oxygen which may be interconverted in the atmosphere. The principal oxides of nitrogen are nitric oxide and nitrogen dioxide.
No Observed Effect Level	NOEL	The no-observed-adverse-effect level (NOAEL) denotes the level of exposure of an organism, found by experiment or observation, at which there is no biologically or statistically significant increase in the frequency or severity of any adverse effects (e.g. alteration of morphology, functional capacity, growth, development or life span) in the exposed population when compared to its appropriate control.
Noise barrier		A solid construction that reduces unwanted sound. It may take many forms including: engineering cutting; retaining wall; noise fence barrier; landscape earthworks; a 'low level' barrier on a viaduct; a parapet barrier on a viaduct; or any combination of these measures. Also called an attenuation barrier.

Term	Abbreviation or Acronym	Definition
Noise Important Area	NIA	Areas identified with respect to noise from major roads and from roads within agglomerations where 'the 1% of the population that are affected by the highest noise levels from major roads' are located according to the results of the strategic noise mapping.
Noise Insulation Regulations	NIR	Noise Insulation Regulations 1975 made under Part II of the Land Compensation Act 1973.
Noise Sensitive Receptor	NSR	These comprise mainly residential buildings, but also include educational buildings, hospitals and places of worship.
Non-hazardous waste		Any waste not defined as 'hazardous' under Directive 91/689/EEC. Examples include soils from ground/site clearance and demolition wastes.
Non-motorised users	NMU	A collective term used to describe pedestrians, cyclists and equestrians (horse riders).
Non-Technical Summary	NTS	Information for the non-specialist reader to enable them to understand the main predicted environmental effects of the proposal without reference to the main Environmental Statement.
Operational		The functioning of a project on completion of construction.
Ordinary Watercourse		Ordinary watercourses include every river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows and which does not form part of a main river.
Ordnance Survey	OS	The national mapping agency for the UK.
Construction Environmental Management Plan	CEMP	A document which sets out the matters that the contractor will need to include in their Construction Environmental Management Plan. This document is prepared in accordance with the Outline Environmental Management Plan.
Outline Environmental Management Plan	OEMP	A framework document which sets out the matters that the contractor will need to include in their Environmental Management Plan.
Overbridge		A bridge crossing over a transport corridor (e.g. a highway).
Particulate matter	PM ₁₀ or PM _{2.5}	Discrete particles in ambient air, with diameters ranging between nanometres (billionths of a metre) to micrometres (millionths of a metre).
Planning Act 2008	PA 2008	An Act of Parliament in the UK intended to speed up the process of approving major new infrastructure projects.
Planning Inspectorate		An executive agency with responsibilities for planning appeals, national infrastructure planning applications, local plan examinations and other planning-related casework in England and Wales.

Term	Abbreviation or Acronym	Definition
Planning Statement		A document prepared by applicants which provides background and technical information on a development project, the purpose being to inform determination of a planning application by demonstrating its compliance with relevant planning policy.
Pollution Climate Mapping	PCM	A collection of models designed to fulfil part of the UK's EU Directive (2008/50/EC) requirements to report on the concentrations of particular pollutants in the atmosphere.
Pollution prevention guidance		A series of guidance notes produced by the Environment Agency to advise industry and the public on legal responsibilities and good environmental practice.
Potential Local Wildlife Site	pLWS	An area being considered against defined nature conservation value criteria. This criteria takes into account the most important, distinctive and threatened species and habitats. If considered suitable pLWS are confirmed as LWS. See Local Wildlife Site.
Preferred option		The chosen design option that most successfully achieves the project objectives and becomes subject to further design and assessment.
Preferred Route Announcement	PRA	An announcement made by Highways England following the selection of a preferred option or solution for a given road project.
Preliminary Environmental Information	PEI	The information referred to in Part 1 of Schedule 4 of the EIA Regulations that has been reasonably compiled by the applicant, and is reasonably required to assess the environmental effects of a development project.
Preliminary Environmental Information Report		A report that compiles and presents the Preliminary Environmental Information gathered for a development project.
Private Means of Access	PMA	
Private Water Supply	PWS	A private water supply which is not provided by a water company.
Project Control Framework	PCF	A joint Department for Transport and Highways England approach to developing, delivering and managing major road projects.
The Scheme		The M42 Junction 6 Improvement scheme.
Protected species		Species of wild plants, birds and animals which are afforded protection through legislative provisions.
Public right of way	PRoW	A highway where the public has the right to walk. It can be a footpath (used for walking), a bridleway (used for walking, riding a horse and cycling), or a byway that is open to all traffic (including motor vehicles).

Term	Abbreviation or Acronym	Definition
Ramsar (site)		Wetland sites that are of international importance, as designated under Article 2(1) of the Convention on Wetlands of International Importance especially as Waterfowl Habitat. Ramsar (Iran), 2 February 1971. UN Treaty Series No. 14583.
Receptor		A defined individual environmental feature usually associated with population, fauna and flora that has potential to be affected by a project.
Register of Environmental Actions and Commitments	REAC	Register of Environmental Actions and Commitments which is based on mitigation as defined in the Environmental Statement.
Register of Historic Battlefields		Historic England's non-statutory register which identifies important English battlefields. Its purpose is to offer them protection and to encourage a greater understanding of their significance.
Register of Historic Parks and Gardens		Historic England's non-statutory register which identifies over 1,600 sites of historic interest in England assessed to be of national importance. Its purpose is to offer them protection and to encourage a greater understanding of their significance.
Remediation		The process of removing a pollution linkage (i.e. by removing one or more of the elements in a source-pathway-receptor linkage) in contaminated land in order to render an acceptable risk. Usually this involves a degree of removal of contaminants and/ or blockage of pathways.
Residual Effect		The predicted consequential change on the environment from the impacts of a development after mitigation.
Resource		A defined but generally collective environmental feature usually associated with soil, water, air, climatic factors, landscape, material assets, including the architectural and archaeological heritage that has potential to be affected by a project.
Restoration (ecological)		The re-establishment of a damaged or degraded system or habitat to a level similar to its original condition.
Riparian		Relating to or situated on the banks of a river.
Risk assessment		An assessment of the probability of a hazard occurring that could result in an impact.
River Basin Management Plan	RBMP	River basin management plans (RBMPs) set out how organisations, stakeholders and communities will work together to improve the water environment.
Road Investment Strategy	RIS	A document which sets out a long-term vision for England's motorways and major roads, outlining how smooth, smart and sustainable roads will be achieved through investment over a five year period (2015 - 2020).

Term	Abbreviation or Acronym	Definition
Rochdale Envelope		An approach to consenting and environmental impact assessment, named after a UK planning law case, which allows the promoters of development projects to broadly define their schemes within agreed parameters to retain flexibility of design.
Roundabout		A circular, one-way junction at which other roads meet and terminate.
Runoff		The flow of water over the ground surface.
Sand		Soil particles from 0.06mm-2.0mm in equivalent diameter. Fine sand particles are from 0.06mm-0.2mm; medium sand from 0.2mm-0.6mm; and coarse sand from 0.6mm-2.0mm.
Scheduled Monument	SWMP	Nationally significant heritage assets protected by the 1979 Ancient Monuments and Archaeological Areas Act.
Scoping		The process of identifying the issues to be addressed by the Environmental Impact Assessment process. It is a method of ensuring that an assessment focuses on the important issues and avoids those that are considered to be not significant.
Scoping Opinion		The written opinion of the relevant authority, following a request from the applicant for planning permission, as to the information to be provided in an Environmental Statement.
Scoping Report		A report which records the outcomes of the scoping process and is typically submitted as part of a formal request for a Scoping Opinion.
Screening		The formal process undertaken to determine whether it is necessary to carry out a statutory Environmental Impact Assessment and publish an Environmental Statement in accordance with the EIA Regulations.
Secretary of State		The cabinet minister who (among other things) acts as decision-maker on all national infrastructure applications for development consent.
Sediment		Organic and inorganic material that has precipitated from water to accumulate on the floor of a water body, watercourse or trap.
Setting (cultural heritage)		The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive, negative or neutral contribution to the significance of an asset and may affect the ability to appreciate it.
Severance (land)		The splitting of a land holding into more than one part, for example through the introduction of a new section of road.
Severance (non-motorised users)		The perceived separation of residents from facilities and services they use within their community caused by new or improved roads, or by changes in traffic flows.

Term	Abbreviation or Acronym	Definition
Sewage Treatment Works	STW	Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater.
Significance (of effect)		A measure of the importance or gravity of the environmental effect, defined by generic significance criteria or criteria specific to an environmental topic.
Significant Observed Adverse Effect Level	SOAEL	The level of noise exposure above which significant adverse effects on health and quality of life occur.
Site of Importance for Nature Conservation	SINC	Sites designated by local authorities for the purpose of conserving wildlife.
Site of Special Scientific Interest	SSSI	Area of land notified by Natural England under section 28 of the Wildlife and Countryside Act 1981 as being of special interest due to its flora, fauna or geological or physiological features.
Site Waste Management Plan		A plan that is used to outline how a construction project will avoid, minimise or mitigate effects on waste production and handling on the environment and surrounding area.
Site-won		Material derived from a construction site rather than being imported.
Slip road		A connector road within a junction between a mainline carriageway and the local highway network, or vice versa, which meets the local highway network at-grade.
Smart Motorway		A technology-driven approach to the use of motorways to increase capacity and relieve congestion, while maintaining safety.
Soil		The upper layer of the earth's crust, in which plants grow. It consists of weathered rock, organic matter, air spaces and water. Descriptions usually identify the relevant characteristics of its (usually) horizontal layers in terms of their significance for soil characteristics and crop growth, usually to a depth of 1.2m.
Soil compaction		The removal of pore spaces within soil structures and drainage channels between soil structures. This inhibits root penetration and the movement of air and water in soil.
Soil erosion		The detachment and movement of soil by the action of water and/or wind.
Soil resource		The textures, structures and volume of different qualities of topsoil and subsoil that have a potential for beneficial reuse.
Solihull Metropolitan Borough Council	SMBC	The local authority within whose jurisdiction the proposed scheme would be implemented.

Term	Abbreviation or Acronym	Definition
Sound power level		The sound power level of a source is a measurement of the total acoustic power it radiates. The sound power level is an intrinsic characteristic of a source (analogous to its volume or mass), which is not affected by the environment within which the source is located.
Sound pressure level		The parameter by which sound levels are measured in air. It is measured in decibels. The threshold of hearing has been set at 0dB, while the threshold of pain is approximately 120dB. Normal speech is approximately 60dB at a distance of 1 metre and a change of 3dB in a time varying sound signal is commonly regarded as being just detectable. A change of 10dB is subjectively twice, or half, as loud.
Source Protection Zone	SPZ	Zones defined by the Environment Agency to protect groundwater sources such as wells, boreholes and springs from potential contamination.
Span		The horizontal distance between two supports of a structure (e.g. piers of a bridge or viaduct).
Spatial scope		The geographic area over which environmental impacts and effects could occur as a result of a development project.
Special Area of Conservation	SAC	Sites designated under EU legislation for the protection of habitats and species considered to be of European interest.
Species of Principal Importance	SPI	Habitats and species of principal importance in England. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England.
Stakeholder		An organisation or individual with a particular interest in a development project.
Standard mitigation		Measures comprising standard techniques and activities which are implemented during the construction of a development project to protect the environment and/or mitigate adverse effects, for example the covering of exposed materials to reduce dust emissions.
Statutory consultee		Organisations and bodies, defined by statute, which must be consulted on relevant planning matters.
Strategic Road Network	SRN	The network of motorways and trunk roads in England.
Study area		The spatial area within which environmental effects are assessed (i.e. extending a distance from the project footprint in which significant environmental effects are anticipated to occur).

Term	Abbreviation or Acronym	Definition
Subsoil		Weathered soil layer extending between the natural topsoil and the unweathered basal layer (geological parent material) below, or similar material on which topsoil can be spread. Subsoil has lower organic matter and plant nutrient content than topsoil. In most cases topsoil requires a subsoil to perform one or a number of natural soil functions.
Surface water		Waters including rivers, lakes, loughs, reservoirs, canals, streams, ditches, coastal waters and estuaries.
Sustainable drainage systems	SuDS	Measures designed to control surface runoff close to its source, including management practices and control measures such as storage tanks, basins, swales, ponds and lakes. Sustainable drainage systems allow a gradual release of water and thereby reduce the potential for downstream flooding.
T-junction		A simple three-way junction, where one road ends on another.
Thin surface course	TWCS	Road surfacing material with high stone content that reduces noise and spray compared to traditional hot rolled asphalt.
Topsoil		Upper layer of a soil profile, usually darker in colour (because of its higher organic matter content) and more fertile than subsoil, and which is a product of natural biological and environmental processes.
Traffic	AADT	The total volume of vehicle traffic on a road flowing past a certain point over a year, divided by 365 days.
Transboundary effects		The term used to describe the significant environmental effects of a development project which extend beyond the boundary of the European Economic Area State within which it would be implemented.
Translocation		The transporting and release of species or habitats from one location to another. For example, if an area of land is required permanently for a new development, species can be moved from that site to a suitable alternative location.
Transport Analysis Guidance	TAG	Guidance produced by the Department for Transport for undertaking transportation studies, appraisals and modelling. Also referred to as WebTAG.
Tree Preservation Order	TPO	An order made by a local planning authority, under the Town and Country Planning Act 1990, in respect of trees or woodlands. The principal effect of a tree preservation order is to prohibit the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of trees without the local planning authority's consent.
Trial trenching (cultural heritage)		A method of on-site archaeological investigation where trenches are dug at intervals across a site to identify any archaeological remains.

Term	Abbreviation or Acronym	Definition
Trunk road		A road operated and maintained in England by Highways England. Part of the strategic road network including motorways
UK Central	UKC	A growth plan comprising the development of homes, commercial space and transport infrastructure in the area surrounding the proposed HS2 interchange in Solihull.
Unacceptable Adverse Effect Level	UAEL	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.
Unclassified		A road which has no number.
Underbridge (or underpass)		A bridge crossing under a transport corridor (e.g. a highway).
Unitary Development Plan		A statutory document that sets out the council's planning policies for development, conservation, regeneration and environmental improvement activity.
Upgrade		Refers to the physical improvement of a road, through widening of the carriageway or rebuilding a junction.
Utilities		The term utilities can also refer to the set of services provided by these organisations consumed by the public: Coal, electricity, natural gas, water, sewage, telephone, and transportation. Broadband internet services (both fixed-line and mobile) are increasingly being included within the definition.
Vehicle movement		A journey made by a vehicle. This can either be a one way or two way trip.
Viewpoint		A place from which something can be viewed.
Visual amenity		The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through an area.
Visual receptor		People who may have a view of a proposed development during construction or operation.
Warwickshire Biological Records Centre	WBRC	Database records for ecological species and sites in Warwickshire.
Water Framework Directive	WFD	A European Union Directive which commits member states to achieve good status of all waterbodies (both surface and groundwater), and also requires that no such waterbodies experience deterioration in status. Good status is a function of good ecological and good chemical status, defined by a number of elements.
-	WebTAG	See Transport Analysis Guidance.

Term	Abbreviation or Acronym	Definition
Worst-case assumption (or scenario)		An assumption adopted within an environmental impact assessment which identifies a scenario or parameter that would likely result in the maximum environmental effect (termed the worst-case). This is typically applied where uncertainty exists over the detail of a particular development component or approach to project delivery, for which a basis of assessment is needed.
Written Schemes of Investigation	WSI	Documents which set out the approach to undertaking archaeological monitoring of ground investigation works.