

Intermodal Logistics Park North Ltd

INTERMODAL LOGISTICS PARK NORTH (ILPN)

Intermodal Logistics Park North (ILPN) Strategic Rail Freight Interchange (SRFI)

Project reference TR510001

Preliminary Environmental Information Report (PEIR)

Appendix 7.2: Highway Mitigation Options Report

October 2025

This document forms a part of a Preliminary Environmental Information Report (PEIR) for the Intermodal Logistics Park North (ILPN) project.

A PEIR presents environmental information to assist consultees to form an informed view of the likely significant environmental effects of a proposed development and provide feedback.

This PEIR has been prepared by the project promoter, Intermodal Logistics Park North Ltd. The Proposed Development is described in Chapter 3 of the PEIR and is the subject of a public consultation.

Details of how to respond to the public consultation are provided at the end of Chapter 1 of the PEIR and on the project website:

<https://www.tritaxbigbox.co.uk/our-spaces/intermodal-logistics-park-north/>

This feedback will be taken into account by Intermodal Logistics Park North Ltd in the preparation of its application for a Development Consent Order for the project.

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◆ Introduction

INTRODUCTION

- 1.1 Intermodal Logistics Park North Ltd. (the Applicant) is promoting proposals for a new Strategic Rail Freight Interchange (SRFI) and associated development on land to the east of Newton-le-Willows, in the jurisdictions of St. Helens Borough Council, Wigan Council and Warrington Borough Council. An SRFI is a large multi-purpose freight interchange and distribution centre linked into both the strategic rail and trunk road systems.
- 1.2 This report forms part of the Preliminary Environmental Information Report (PEIR) for the Proposed Development and provides an overview of the potential highways infrastructure mitigation options that have been identified as possible mitigation works.
- 1.3 To identify potential locations where highway improvements may be necessary, a preliminary assessment of traffic routing to, and from, the Proposed Development has been undertaken, this assessment has sought to understand the likely traffic routes. Subsequent reviews of network conditions have been carried out in consultation with relevant highway authorities (St Helens Borough Council, Warrington Borough Council, Wigan Council, Transport for Greater Manchester and National Highways), drawing on their local knowledge and expertise.
- 1.4 As a result of this preliminary assessment, fifteen remote options have been identified as potentially requiring mitigation measures to address the anticipated impacts of the Proposed Development. These options consist of 14 remote junctions and a 15th option of the potential Lane Head South Relief Road. These options are listed below and illustrated in **Figure 7.2** of the PEIR:
 - Option 1 – M6 Junction 21A
 - Option 2 – M62 Junction 9
 - Option 3 – Winwick Park Roundabout
 - Option 4 – M6 Junction 22 Southbound Merge
 - Option 5 – Lowton Junction
 - Option 6 – Church Street / Mill Lane Signalised T-Junction
 - Option 7 – Ashton Road / High Street Mini Roundabout
 - Option 8 – M6 Junction 22 Haydock Island Roundabout
 - Option 9 – Golborne Island Roundabout
 - Option 10 – East Lancashire Road (A580) / Church Lane Signalised Intersection

- Option 11 – East Lancashire Road (A580) / Newton Lane Signalised Intersection
- Option 12 – East Lancashire Road (A580) / A579 Atherleigh Way Signalised Intersection
- Option 13 – East Lancashire Road (A580) / Piele Road Left In, Left Out (LILO) Junction
- Option 14 – East Lancashire Road (A580) / Stanley Bank Way Signalised Crossroads
- Option 15 – Lane Head South Relief Road

1.5 These 15 potential mitigation options have been identified at a preliminary stage of the transport modelling, and they represent a precautionary consideration of mitigation based upon available knowledge at this stage. They are referred to as “Options” because assessment work is ongoing. These options are not presented as final proposed mitigation at this stage. Conclusions on whether mitigation work at any of the options will be drawn following the outcomes of the detailed traffic modelling work that is underway. The list of options will then be subject to a further review and refinement and is likely to be reduced.

1.6 Following review and refinement of the traffic modelling and the design of the highway mitigation options, those measures that are proposed to be taken forward and implemented via the DCO Application will be assessed as part of the Environmental Statement. At that stage detailed assessments will be undertaken, including quantification of embodied carbon. A further targeted consultation will be undertaken in 2026 to seek feedback on the transport impacts of the Proposed Development, the mitigation package that is then proposed, and any material change in the assessments provided in this report, including air quality and noise effects from traffic and transport.

STRUCTURE OF THE REPORT

1.7 The aim of this report is to outline the various mitigation measures being explored and is structured to consider each of the identified mitigation options in turn. For each option, the following approach is taken:

- a description of the location is provided, with each option accompanied by an annotated plan;
- a description of the potential works is provided;
- a summary of the likely environmental impacts of the option is provided; and
- proposed next steps, should the option be taken forward to be included as part of the DCO application, are explained.

1.8 The likely effects have been assigned a RAG rating to reflect the likelihood of a potentially significant adverse effect (red – high likelihood of a potentially significant effect, amber – medium likelihood & green – low likelihood (not coloured where the effect is likely to be beneficial)) should it occur, prior to mitigation, to assist the reader in understanding the outcome of the preliminary assessment. At this stage, where there is uncertainty, a

precautionary approach has been adopted. As options and mitigation packages are refined, this uncertainty will be resolved.

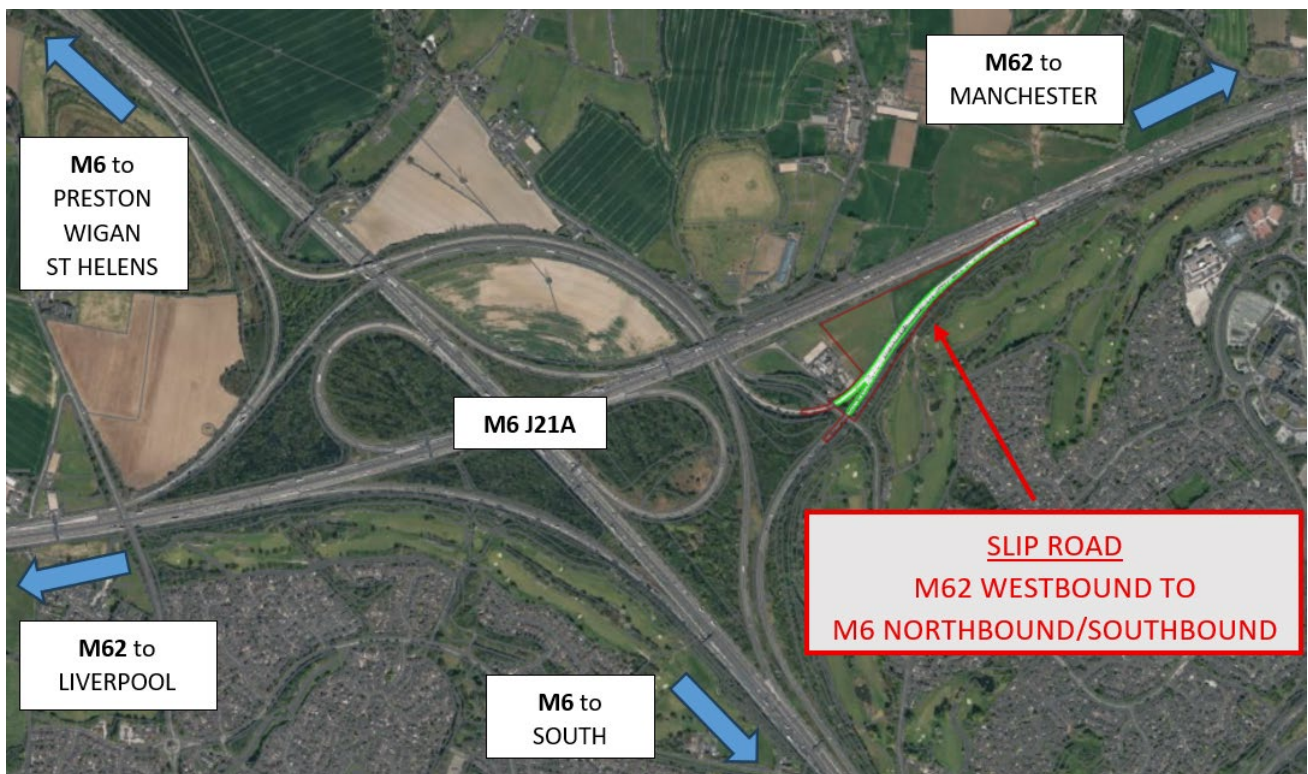
TRANSPORT ASSESSMENT TO DATE

- 1.9 As set out above, a preliminary assessment was undertaken to identify a list of junctions potentially affected by the Proposed Development. This initial selection was informed by a strategic review of the surrounding highway network and consideration of existing traffic conditions.
- 1.10 Following the generation of initial trip forecasts for the Proposed Development, a high-level routing analysis was conducted. This exercise aimed to understand the likely distribution of development-related traffic and to identify areas of the network that may be subject to increased demand or operational pressure.
- 1.11 The findings of this analysis were presented and discussed during meetings of the Transport Working Group (TWG). The members of the TWG and the topics discussed are detailed in Section 7.52 of Chapter 7 of the PEIR. These sessions provided an opportunity to incorporate local knowledge and experience into the assessment, helping to validate the routing assumptions and identify junctions with known capacity constraints or safety concerns.
- 1.12 Based on feedback received during the TWG discussions, a refined list of junctions was confirmed and is shown on Figure 7.2. These junctions were subsequently revisited with the TWG to gather further comments and ensure alignment with local priorities. Following this collaborative process, 15 preliminary mitigation schemes were developed. These schemes have been included in the PEIR to facilitate formal consultation with the relevant highway authorities and obtain feedback on the proposed potential interventions.

◆ Option 1: M6 Junction 21A

LOCATION

- 1.13 The potential junction improvement is located at the M6 Junction 21A on the interchange link connecting the M62 Westbound to the M6 North and Southbound.
- 1.14 The M6 Junction 21A is part of the National Highways network, situated within the boundary of Warrington Borough Council. As these works are on the strategic road network the highway authority is National Highways.

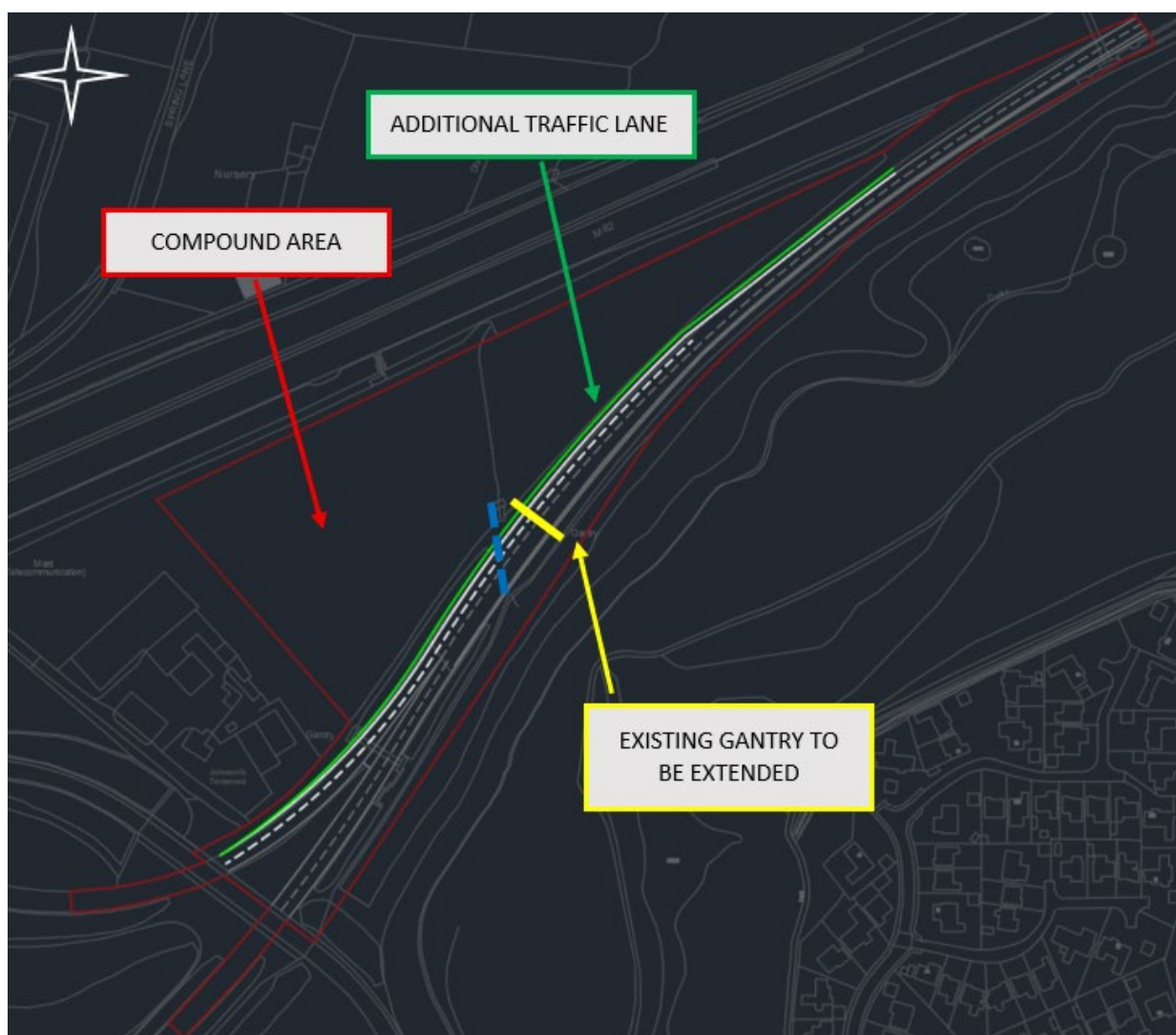
Figure 1.1 M6 Junction 21A Location Plan**POTENTIAL WORKS**

- 1.15 The proposed work comprises 400m of carriageway widening to accommodate an additional traffic lane along the existing interchange link.
- 1.16 It is anticipated that the highway works would include:
- carriageway widening: one additional 3.65m traffic lane and 0.7m hardstrip, including pavement widening, road marking re-arrangement and new drainage connections;
 - existing vehicle restraint barrier to be replaced and installed along the proposed

pavement edge;

- existing lighting columns to be offset from the proposed carriageway widening;
- existing gantry to be replaced to accommodate the additional traffic lane;
- existing box culvert underneath the carriageway to be extended north to accommodate the additional traffic lane; and
- associated works to drainage, signing, road markings, and technology.

Figure 1.2 M6 J21A Interchange link Improvement



1.17 No changes to orders (speed limits or traffic regulation) are envisaged.

ENVIRONMENTAL ASSESSMENT

1.18 The table below outlines the initial assessment of the likely environmental effects associated

with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.1 Option 1: M6 Junction 21A environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-Economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • Negligible impacts are anticipated in relation to land use and access, primarily with some impacts linked to the potential loss of agricultural land north of the slip road which are not likely to be significant. • No operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, nor will they impact user accessibility or housing demand.	• Construction employment impact to be reviewed at the Environmental Statement (ES) stage to confirm non-materiality. • Non-materiality and impact of the loss of agricultural land to be assessed at the ES stage.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the option is expected to enhance junction capacity, thereby reducing driver delay and improving overall network efficiency. • Severance, delay and amenity for non-motorised users, and fear and	• Should this option be taken forward, the potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the DCO Application Submission.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	intimidation are not anticipated to be affected by this option, as the junction does not currently accommodate facilities for pedestrians or cyclists.	
Air Quality LOW	- During the construction phase of the works, there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors within 250m of the works boundary. However, these can be mitigated through industry standard measures, as outlined in Institute of Air Quality Management (IAQM) guidance, to be included in the outline Construction Environmental Management Plan (oCEMP). - During the operational phase, the widening of the carriageway may bring road vehicle exhaust emissions closer to nearby sensitive receptors, in particular Tenement Farm.	- The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential impacts and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. - The potential effects during the operational phase will be assessed through air quality modelling of the new road alignment at the ES stage and will consider potential changes in pollutant concentrations at nearby receptors.
Noise and Vibration LOW	During the construction stage, the works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, primarily at the adjacent Tenement Farm, particularly if the works need to take place at night, which can be a requirement of the	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and operational stages will be considered in detail as required at the ES stage. Where

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	relevant highway authority when working on existing roads. The widening of the carriageway will mean that vehicles travel in an area slightly further to the north, bringing them closer to the Tenement Farm premises. However, when considered in the context of the relatively minor change to the existing slip road, as well the noise from the nearby M62, it is unlikely that the improvement would result in any material change in road traffic noise levels at any sensitive receptors.	relevant mitigation measures are required at the construction stage, these will be incorporated into the oCEMP.
Landscape and visual impact LOW	- The works will result in the potential loss of existing vegetation beside the exit slip from the M62 during the construction phase. - The potential visual effects from the option will be contained to the adjacent 'Tenement Farm' during construction and operation. It is considered that there will be negligible effects on passing car users during construction and operation. - The option will result in limited landscape and visual effects, subject to production of an Illustrative Landscape Plan showing replanting to mitigate losses, following completion of construction.	- Should the option be included in the DCO application, a site survey will be undertaken and an Illustrative Landscape Plan prepared. - It is considered that the effects in relation to this option will be negligible at both the construction and operational phase, this will be reported with the outcomes of the assessment in Chapter 10 of the ES.
Arboriculture	The works will result in the loss of a number of small individual trees on	Losses would need to be compensated for and additional biodiversity created to

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
LOW	the slip road embankment.	meet the 10% target.
Agricultural land LOW	A small slither of farmland will be lost as a result of the widening. Provisional MAFF agricultural land classification indicates the land to be Grade 2, Best and Most Versatile, agricultural land. The loss of the small area of land alone is unlikely to be significant.	No further work is required.
Ecology LOW	- The works will result in the loss of a number of small individual trees on the slip road embankment, some scrub on the embankment, and a section of drain associated with culvert extension. Some agricultural land will be lost permanently due to the extension of the highway, and some would be lost temporarily to be used as a compound. The habitats lost do not represent any unique or valuable habitat and are lacking in connectivity. - There is suitable habitat to support nesting birds and works have the potential to impact upon nesting birds during vegetation clearance. - The habitats are generally of low suitability to support foraging bats and the proximity of the M62 motorway is considered likely to be a significant deterrent to bats in the area due to noise and existing lighting. The existing tree planting (particularly to the south-east) has some potential to support commuting bats but again this is expected to be limited by the disturbance from the existing motorway and slip road which have existing	- Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% Biodiversity Net Gain (BNG) for the Proposed Development overall. The works area will require a walkover assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO application. Losses would need to be compensated for and additional biodiversity created to meet the 10% target. - The loss of the drain will result in the loss of watercourse units within the BNG statutory metric. It is unlikely that

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	lighting. • The tree planting areas have not been accessed for survey, but publicly available streetview imagery shows the habitat to be mainly shrubs and trees to be mostly young specimens considered unlikely to support features that might support bat roosts. The proximity of the road and existing lighting also limits the potential for bat roosts. • There is suitable habitat to support European hedgehogs and works have the potential to impact upon hedgehogs during vegetation clearance • The drain has the potential to support water voles and should they be present works have the potential to impact this species. • Given the location, surrounding land-use, and nature of habitats no other ecological constraints are considered likely to be present.	additional units can be created within the scheme and off-site compensation will need to be sought. • Potential for impacts to bats (commuting/foraging) is expected to be limited and temporary in nature. Provisions to reduce disturbance will be provided in the oCEMP. • Further assessment of mature/established trees is recommended prior to clearance to determine presence/likely absence of bat roost features. • Vegetation clearance will be undertaken outside of the nesting bird season (March-August inclusive). Where this is not possible an ecologist will undertake a pre-clearance nesting bird check. Provisions to protect nesting birds during construction will be provided in the oCEMP.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
		- Provisions to protect hedgehogs during construction will be provided in the oCEMP. - The walkover survey will include a check of the drain for the presence of water voles. Should water voles be present the ecologist will provide additional advice on further survey and mitigation (including licencing if required).
Cultural heritage LOW	There are unlikely to be any significant effects on the value (significance) on built heritage assets arising from these works. There is only one designated heritage asset within 500m of the slip road, Springfield Farmhouse (Grade II) which sits c.400m away to the north of the M62. Due to the minor nature of the works and existing tree screening at the northern edge of the M62, it is likely any works would not be perceptible from this asset and, regardless, would not materially change the established presence of the motorway in the wider surroundings once complete.	None
Archaeology LOW	Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on	Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Localised MEDIUM (undeveloped area north and west of the extant road and junction)	archaeological assets, if present. • The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets. • Temporary working compounds, ground compaction for access roads, storage of materials and ecological mitigation areas might have potential to result in a significant effect on any known and unknown archaeological assets in the form of compaction and/or displacement, if present. • For this option, the presence of the existing road may indicate that only isolated pockets of surviving archaeological deposits are expected to be present within the selected area. It is likely that any archaeological remains within the footprint or in close proximity to the existing road have been partially or totally truncated by the construction works of the motorways and junction • No additional effects are expected during the operation or maintenance phases of the Proposed Development.	archaeological deposits. • The Archaeological Desk-Based Assessment will inform of any requirement for further non-intrusive and/or intrusive survey. • Any further work, if required, would likely be contained to the currently undeveloped areas/ areas of high potential (if present) identified at Desk-Based Assessment stage, outside of the extant road and junctions.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Surface water and flood risk LOW	- The proposed works will introduce new impermeable surfaces to the works area that will increase surface water runoff. The available capacity in the existing highway drainage should be reviewed to confirm if there is capacity for the additional flows. If there is insufficient capacity, potential upgrade works or an independent surface water drainage strategy should be explored. Appropriate surface water management will ensure that flood risk to third parties is not increased by the works. - With appropriate drainage design the impact is likely to be negligible.	- Review the available capacity of the existing highway drainage. All works to have detailed review within the drainage strategy design. - Review flood risk implications of culvert extension. - Flood risk and drainage to be included in the ES.
Geology, soils and contaminated land LOW	- The works will require the widening of the embankment to accommodate the additional lane. Based on BGS mapping, ground conditions are anticipated to comprise Devensian Diamicton Till over Wilmslow Sandstone. The Till is a Secondary undifferentiated Aquifer and the Sandstone is a Principal Aquifer and the location is within Zone 3 Total Catchment Source Protection Zone indicating a high level of controlled waters sensitivity. However, no significant contamination sources are known to exist. - Negligible impact is expected on Ground Conditions given the above. The location is not likely to be affected by significant contamination.	Ground investigation and geotechnical design to be completed in accordance with CD 622 (National Highways. Managing Geotechnical Risk, Standard CD 622 Design Manual for Roads and Bridges) in conjunction with National Highways, to manage the geotechnical risk on the scheme.

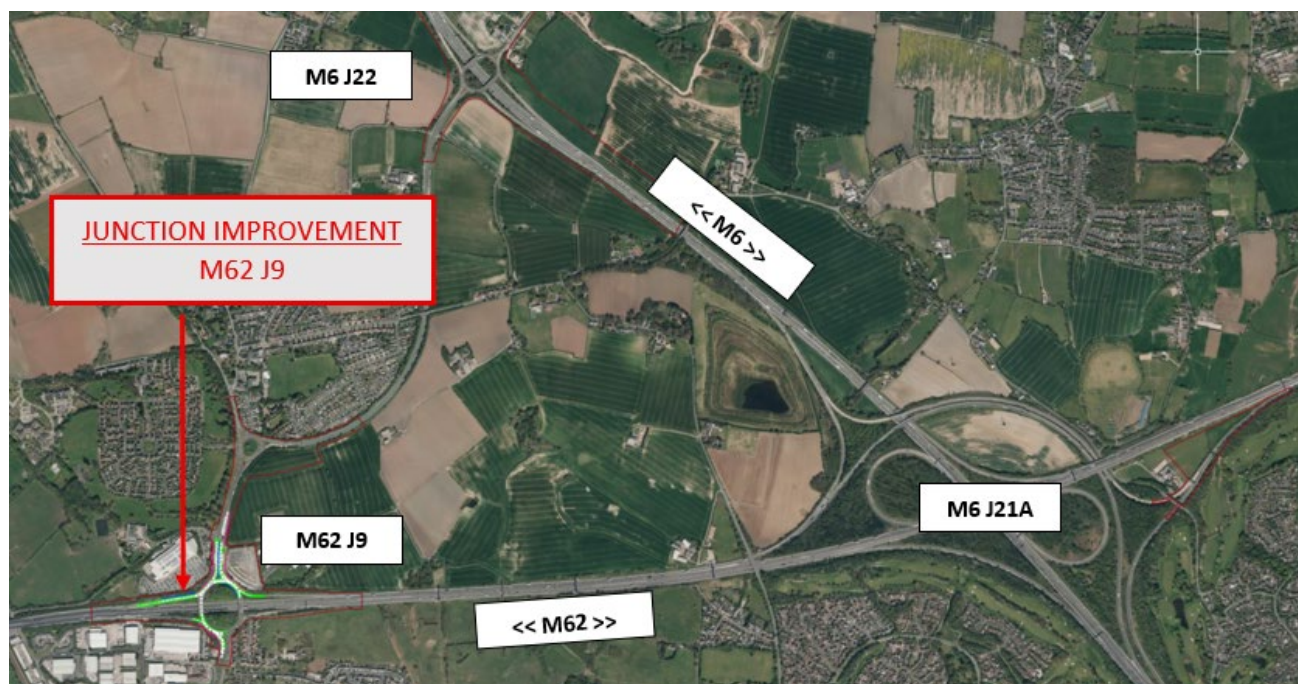
Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Materials and waste LOW	• These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. • Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	• Material use and waste generation during construction to be reviewed at the ES stage to confirm non-materiality.
Energy and climate change LOW	• These works would contribute to the ‘embodied carbon’ construction-stage impact of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • These works are unlikely to make a material contribution to the operational impact of the Proposed Development via change in traffic flows or change in electricity consumption, because traffic generation by the Proposed Development is part of the EIA and new street lighting or other equipment using electricity is not proposed.	• Embodied carbon implications to be assessed at the ES stage. • Other impacts to be reviewed at the ES stage to confirm non-materiality, including any changes in non-development traffic flows.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	- These works are unlikely to make a material contribution to the land-use change impact of the Proposed Development given the scale and nature of habitat lost. - These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the Proposed Development.	
Population and human health LOW	The Compound Area temporary land take is limited to the Tenement Farm parcel of agricultural land linked to the livery yard / stables and provides horse grazing area and riding space. While not a population level effect, this could remove its long-term viability. There does not appear to be any wider public amenity or recreation use linked to this parcel. - The widening will result in a change in air noise and emission concentration and dispersion. Air and noise will assess accordingly to air quality objectives protective of health. Given the absence of receptors, further quantitative exposure response health assessment is not deemed necessary. - Access and accessibility, community severance and risk of road traffic movements are limited, where the only crossing to this area is Mill House Lane running above the junction, and will not be affected.	- Should the option be progressed, there will be a need to engage with Tenement Farm on the duration of compound area take, and provide appropriate mitigation to relocate stables and reinstate. - Investigate any wider community use of the space. - Health assessment to review air and noise modelling outputs to confirm the rationale for no further health assessment needed.

◆ Option 2: M62 Junction 9

LOCATION

- 1.19 The potential junction improvement is located on the M62 Junction 9. This junction features an elevated roundabout over the M62, connecting Winwick Road (A49) to the south and Newton Road (A49) to the north.
- 1.20 The M62 Junction 9 is within the boundaries of Warrington Borough Council but as the works are on the strategic road network the highway authority is National Highways.

Figure 1.3 M62 Junction 9 Location Plan**POTENTIAL WORKS**

- 1.21 It is anticipated that the roundabout upgrades would include:
- Additional circulatory lane at the northern, southern and western arms.
 - Additional entry lane on the northern arm.
 - Additional entry lane on the southern arm.
 - Additional exit lane onto eastern arm (M62 eastbound entry slip road).

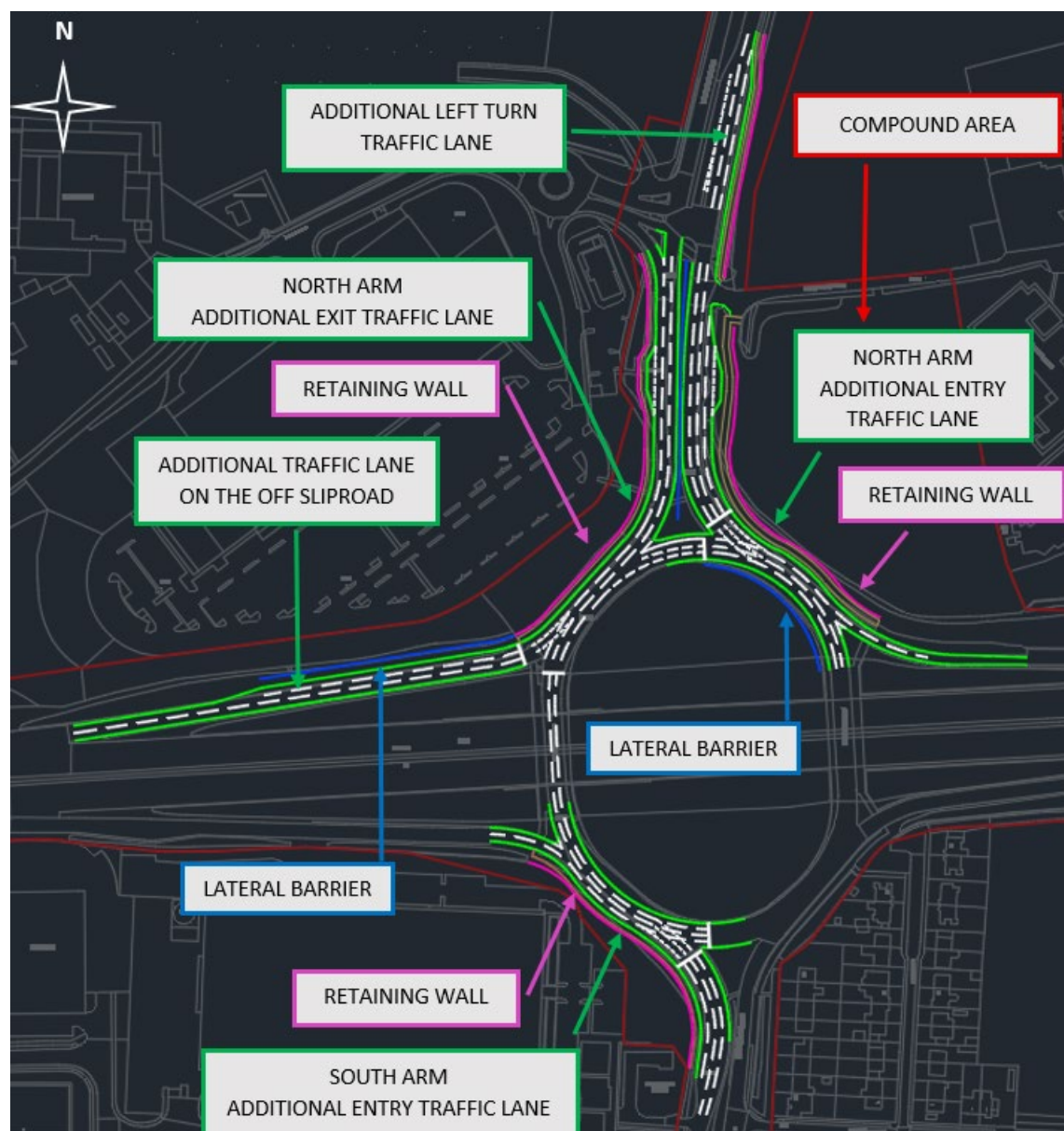
- Additional slip road lane on western arm (M62 eastbound exit slip road).

1.22 The highway works across the junction would include:

- pavement widening, footway realignment along the proposed edges, road marking re-arrangement and new drainage connections;
- existing vehicle restraint barrier to be replaced and installed along the proposed pavement edge;
- existing lighting columns to be offset from the proposed carriageway widening;
- existing Traffic Signals to be relocated in accordance with the proposed carriageway widening; and
- associated works to drainage, signing, road markings, and technology.

1.23 Retaining walls have been identified in the south, north, and west quadrants to support the embankment's widening and prevent its overlap with adjacent private lands.

Figure 1.4 M62 J9 Junction Improvement



1.24 No changes to orders (speed limits or traffic regulation) are envisaged.

ENVIRONMENTAL ASSESSMENT

1.25 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.2 Option 2: M62 Junction 9 environmental assessment summary

Discipline	Likely Environmental Impacts	Next Steps
Socio-economics LOW	- These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. - The proposed retaining walls are likely to mitigate any impact associated with land use and access, such as an impact on community use of the car boot sale site northwest of the junction. - No operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact user accessibility or housing demand.	Construction employment impact to be reviewed at the ES stage to confirm non-materiality.
Transport LOW	- Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. - Upon completion, the proposed improvement scheme is expected to enhance junction capacity, thereby reducing driver delay and improving overall network efficiency. - Non-motorised user delay and amenity due to the proposed increased footway widening and new crossing facilities are likely	The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the EIA Submission.

Discipline	Likely Environmental Impacts	Next Steps
	to improve in the operational phase.	
Air Quality LOW	- During the construction phase of the works there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors. However, these can be mitigated through industry standard measures, as outlined in Institute of Air Quality Management (IAQM) guidance, to be included in the oCEMP. - During the operational phase, the roundabout upgrades may bring road vehicle exhaust emissions closer to nearby sensitive receptors, including residential properties off Newton Road and Elm Road to the south-east of the works.	- The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential impacts and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. - The potential effects during the operational phase will be assessed through air quality modelling of the new road alignment at the ES stage and will consider potential changes in pollutant concentrations at nearby receptors.
Noise and Vibration LOW	During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, primarily on Elm Road and Newton Road to the south-east of the roundabout, particularly if the works need to take place at night, which can be a requirement of the relevant highway authority when working	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and operational stages will be considered in detail as required at the ES stage.

Discipline	Likely Environmental Impacts	Next Steps
	on existing roads. The additional lanes will mean that vehicles travel in slightly different areas when compared to the existing layout. However, when considered in the context of the relatively minor change to the existing Junction 9 roundabout, as well as the noise from the nearby A49 and M62, it is unlikely that the improvements would result in any material change in road traffic noise levels at any sensitive receptors.	
Landscape and visual impact LOW	- The works will result in the potential loss of existing vegetation beside the south-west and north-east quadrants of the roundabout. - The potential visual effects arising from the option during construction and operation will be contained to properties on Newton Road, albeit effects would be limited. It is considered that there will be negligible effects on passing car users. - The option would result in limited landscape and visual effects, subject to production of an Illustrative Landscape Plan showing replanting to mitigate losses, following completion of construction.	- Should the option be included in the DCO application, a site survey will be undertaken and an Illustrative Landscape Plan prepared. - It is considered that the effects in relation to this option will be limited at both the construction and operational phase, this will be reported with the outcomes of the assessment in Chapter 10 of the ES.
Arboriculture	Habitats to be lost include small areas of young woodland.	Loss of young woodland will be accounted for in the Biodiversity Impact Assessment with a target of

Discipline	Likely Environmental Impacts	Next Steps
LOW		10% BNG for the Proposed Development overall.
Agricultural land LOW	The improvements do not affect agricultural land.	None
Ecology LOW	- Habitats to be lost include small areas of grassland (verges), woodland (on motorway embankment), bramble scrub on the verges, and young woodland. These habitats have limited ecological value but do have some connectivity to the Arbury Court Hospital complex to the north, habitat losses are unlikely to sever connectivity. - A review of historical aerial imagery identified that the area of the proposed compound (north-east of the roundabout) has been predominately bare ground/hardstanding, used for car parking, car boot sales, and storage since at least 2005 and has limited ecological value. - The area has limited opportunities for bats and is considered to be highly disturbed by the existing motorway and roads from noise and existing lighting. - There is suitable habitat to support nesting birds and works have the potential to impact upon nesting birds during vegetation	- Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall. The works area will require a walkover assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO order limits. Losses would need to be compensated for and additional biodiversity created to meet the 10% target. - Vegetation clearance will be undertaken outside of the nesting bird season (March-August inclusive). Where this is not possible an ecologist will undertake a pre-clearance nesting

Discipline	Likely Environmental Impacts	Next Steps
	clearance. - There is suitable habitat to support European hedgehogs and works have the potential to impact upon hedgehogs during vegetation clearance - Given the location, surrounding land-use, and nature of habitats no other ecological constraints are considered likely to be present.	bird check. Provisions to protect nesting birds during construction will be provided in the oCEMP. - Impacts to bats are considered to be limited due to unsuitable habitats and existing lighting. Any impacts would be temporary and will be further reduced by provisions within the oCEMP. - Provisions to protect hedgehogs during construction will be provided in the oCEMP. - Where possible habitats will be retained (e.g. hedgerows on the periphery of the proposed compound). The oCEMP will prescribe appropriate Biodiversity Protection Zones (BPZs) to protect habitats from construction impacts.
Cultural heritage LOW	There are unlikely to be any significant effects on the value (significance) on built heritage assets arising from these works. There would be only two designated heritage assets within 500m of these works, including Milestone, Winwick Road (Grade II) and Premises of Gordon Sheds (Grade II) and neither of these assets	None

Discipline	Likely Environmental Impacts	Next Steps
	would be directly affected or have works in close proximity. Due to the minor nature of the works, it is unlikely that these works would materially change the established presence of the M6 and A49 in the wider surroundings once complete.	
Archaeology LOW Localised MEDIUM (undeveloped area northwest of the junction)	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets. - Temporary working compounds, ground compaction for access roads, storage of materials and ecological mitigation areas might have potential to result in a significant effect on any known and unknown archaeological assets in the form of compaction and/or displacement, if present. - For this option, the presence of the existing road may indicate that only isolated pockets of surviving archaeological deposits are expected to be present within the selected area. It is likely that any archaeological remains within the footprint or in proximity to	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - The Archaeological Desk-Based Assessment will inform on any requirement for further non-intrusive and/or intrusive survey. - Any further work, if required, would likely be contained to the currently undeveloped areas/areas of high potential (if present) identified at Desk-Based Assessment stage, outside of the extant road and junction.

Discipline	Likely Environmental Impacts	Next Steps
	the existing road have been partially or totally truncated by the construction works of the motorways and junction No additional effects are expected during the operation or maintenance phases of the Proposed Development.	
Surface water and flood risk LOW	- The works area is entirely located within Flood Zone 1, which is defined as land having a low probability of flooding from rivers and the sea. There are no further mapped watercourses within proximity to the works. Therefore, the proposed works could proceed without being affected or detrimentally affecting third party flood risk from this source. - EA RoFSW mapping indicates that there is a large area of low-high probability surface water flooding along the length of the M62, alongside smaller flow paths of low-high probability across the northern and southern arms of the existing roundabout, and along some of the lanes. Therefore, many of the proposed works are within areas at low to high probability of surface water flooding; however, the flooding is shown to largely originate within the highway. These areas will need to be reviewed in more detail within the ES and technical appendices to assess receptors, potential impacts and identify appropriate mitigation measures, if required. - A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data,	- Flood risk and drainage implications to be assessed in the ES. - Review the available capacity of the existing highway drainage. All works to have detailed review within drainage strategy design

Discipline	Likely Environmental Impacts	Next Steps
	these sources are not considered to pose a significant flood risk to the works area. - The proposed works will introduce new impermeable surfaces to the works area that will increase surface water runoff. The available capacity in the existing highway drainage should be reviewed to confirm if there is capacity for the additional flows. If there is insufficient capacity potential upgrade works, or an independent surface water drainage strategy should be explored. Appropriate surface water management will ensure that flood risk to third parties is not increased by the works. - With appropriate drainage design the impact is likely to be negligible.	
Geology, soils and contaminated land LOW	- The works may require earthworks to extend the platform embankment to accommodate the additional lanes. BGS mapping indicates that ground conditions are anticipated to comprise Shirdley Hill Sand over Chester Formation Sandstone. The Shirdley Hill Sands is a Secondary B Aquifer and the Sandstone is a Principal Aquifer and the location is within Zone 3 Total Catchment Source Protection Zone indicating a high level of controlled waters sensitivity. However, no significant contamination sources are known to exist. - Negligible impact is expected on Ground Conditions given the	Ground investigation and geotechnical design to be completed in accordance with CD 622 (National Highways. Managing Geotechnical Risk, Standard CD 622 Design Manual for Roads and Bridges) in conjunction with National Highways and the relevant local highway authority, to manage the geotechnical risk on the scheme.

Discipline	Likely Environmental Impacts	Next Steps
	above. The location is not likely to be affected by significant contamination.	
Materials and waste LOW	- These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. - Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	Material use and waste generation during construction to be reviewed at the ES stage to confirm non-materiality.
Energy and climate change LOW	- These works would contribute to the 'embodied carbon' construction-stage impact of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. - These works are unlikely to make a material contribution to the operational impact of the Proposed Development via change in traffic flows or change in electricity consumption, because traffic generation by the Proposed Development is part of the EIA and new street lighting or other equipment using electricity is not	- Embodied carbon to be assessed at the ES stage - Other impacts to be reviewed at the ES stage to confirm non-materiality, including any changes in non-development traffic flows

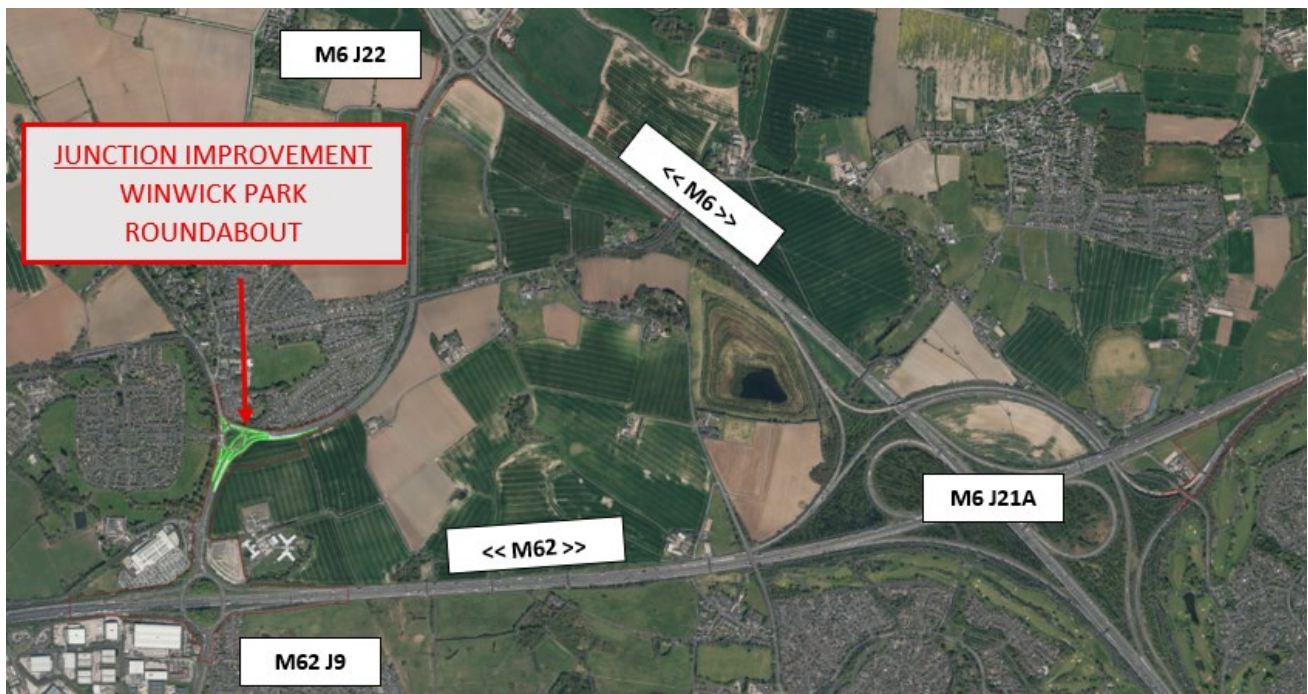
Discipline	Likely Environmental Impacts	Next Steps
	proposed. - These works are unlikely to make a material contribution to the landuse change impact of the Proposed Development given the scale and nature of habitat lost. - These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	
Population and human health LOW	- There is potential for road realignment to improve existing access and accessibility issues. - Once operational, there will be a change in air quality and noise concentration / exposure. Given the proximity to the residential area and hospital on the south, it is recommended to provide additional health assessment for changes in exposure to air/noise (and associated mitigation) as well as clarity on access and accessibility.	Health assessment to explore changes in air, noise access and accessibility for the residential property to the south of the junction.

◆ Option 3: Winwick Park Roundabout

LOCATION

- 1.26 The potential junction improvement is located on the Winwick Park Roundabout between M62 junction 9 and M6 Junction 22 along Newton Road (south) and Winwick Road (north).
- 1.27 The Winwick Park Roundabout is within the boundaries of Warrington Borough Council.

Figure 1.5 Winwick Park Roundabout Location Plan

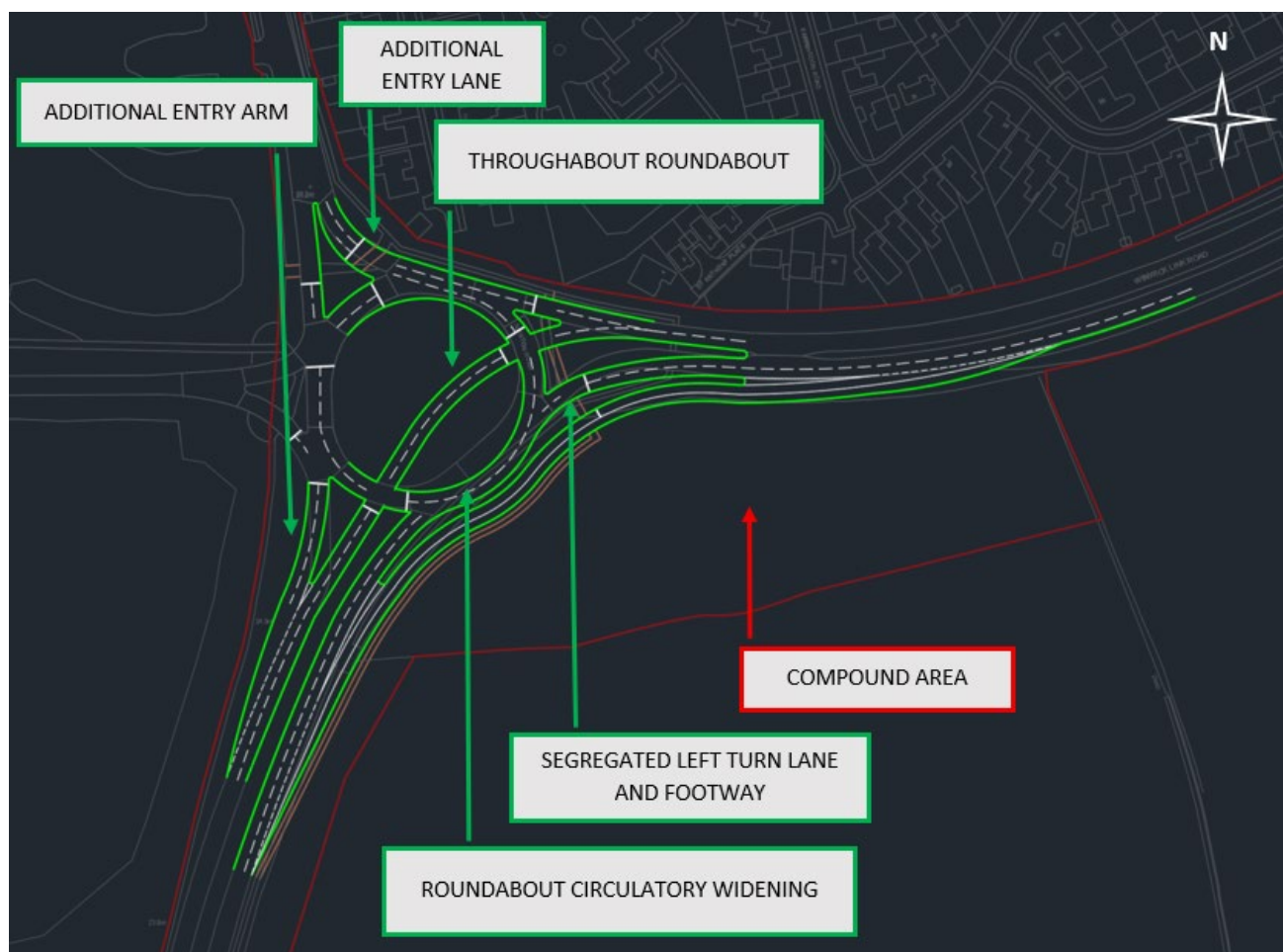


POTENTIAL WORKS

- 1.28 It is anticipated that the proposed work would comprise a roundabout upgraded to a 'throughabout' roundabout with a segregated left turn lane from Winwick Link Road to Newton Road (A49) South.
- 1.29 Additional Entry Lane would also be provided on Newton Road (A49) North Entry Arm.
- 1.30 The existing roundabout circulatory would be widened to accommodate the throughabout link road and the additional entry lanes.
- 1.31 The highway works of the junction would include:

- pavement widening, footway realignment along the proposed edges, road marking re-arrangement and new drainage connections;
- new built link road across the roundabout;
- new built southeast roundabout circulatory;
- new built segregated turn left lane;
- existing vehicle restraint barrier to be replaced and installed along the proposed pavement edge;
- existing lighting columns to be offset from the proposed carriageway widening;
- existing traffic signals to be relocated in accordance with the proposed carriageway widening; and
- associated works to drainage, signing, road markings, and technology.

Figure 1.6 Winwick Park Roundabout Junction Improvement



1.32 No changes to speed limits are envisaged but traffic regulation may be required to enforce

the mandatory movements through the junction. A clearway may also be beneficial.

ENVIRONMENTAL ASSESSMENT

- 1.33 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.3 Option 3: Winwick Park Roundabout environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • Negligible impacts are anticipated related to land use and accessibility, primarily with some likely non-significant impact linked to the potential loss of agricultural land south of the segregated left turn lane. The new footway may improve access to community assets. • No operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact user accessibility or housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality. • Non-materiality and impact of the loss of agricultural land to be assessed at the ES stage.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the option is expected to enhance junction capacity,	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the ES

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
	thereby reducing driver delay and improving overall network efficiency. • In terms of non-motorised user delay and amenity due to the proposed increased footway widening and new crossing facilities, this is likely to improve in the operational phase.	Stage.
Air quality LOW	• During the construction phase of the works there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors. However, these can be mitigated through industry standard measures, as outlined in Institute of Air Quality Management (IAQM) guidance, to be included in the oCEMP. • During the operational phase the new road alignment may bring road vehicle exhaust emissions closer to nearby sensitive receptors, particularly those to the north along Rectory Close and St Anthony Place.	• The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential impacts and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. • The potential effects during the operational phase will be assessed through air quality modelling of the new road alignment at the ES stage and will consider potential changes in pollutant concentrations at nearby receptors.
Noise and vibration	• During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at	• The potential effects of both noise and vibration at the relevant sensitive

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
LOW	nearby sensitive receptors, primarily on Rectory Close and St Anthony Place to the north of the roundabout, particularly if the works need to take place at night, which can be a requirement of the relevant highway authority when working on existing roads. The various additional lanes, circulatory widening and 'throughabout' lane will mean that vehicles are distributed in a different pattern when compared to the existing layout. However, when considered in the context of the existing roundabout layout, as well as the noise from the connecting A49 and Winwick Link Road, it unlikely that the improvements would result in any material change in road traffic noise levels at any sensitive receptors.	receptors during the construction and operational stages will be considered in detail as required at the ES stage.
Landscape and visual impact LOW	- The works will result in the potential loss of existing vegetation to the north of Winwick Link Road, beside properties on Rectory Close and St Anthony Place. - The potential visual effects rising from the option will be contained to the adjacent residential properties during construction and operation. It is considered that there will be negligible effects on passing car users during construction and operation. - The option would result in limited landscape and visual effects, subject to production of a Landscape Plan showing replanting to mitigate losses,	- Should the option be included in the DCO application, a site survey will be undertaken and an Illustrative Landscape Plan prepared. - It is considered that the effects in relation to this option will be limited at both the construction and operational phase, this will be reported with the outcomes of the assessment in Chapter 10 of the ES.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
	following completion of construction.	
Arboriculture LOW	Habitats lost include small and some medium sized individual trees.	Loss of trees will be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall.
Agricultural land LOW	A small slither of farmland will be lost as a result of the widening. Provisional MAFF agricultural land classification indicate the land may be Best and Most Versatile agricultural land. The loss of the small area of land alone is unlikely to be significant.	No further work is required given the small area of agricultural land lost.
Ecology LOW	- Habitats to be lost include small and some medium sized individual trees, modified grassland (road verges), agricultural cultivated land, and some temporary loss of agricultural cultivated land (compound). These habitats have limited ecological value and connectivity. - There is suitable habitat to support nesting birds and works have the potential to impact upon nesting birds during vegetation clearance. - Given the location, surrounding land-use, and nature of habitats no other ecological constraints are considered likely to be present.	Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall. The works area will require a walkover assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO order limits. Losses would need to be compensated for and additional

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
		biodiversity created to meet the 10% target. - Vegetation clearance will be undertaken outside of the nesting bird season (March-August inclusive). Where this is not possible an ecologist will undertake a pre-clearance nesting bird check. Provisions to protect nesting birds during construction will be provided in the oCEMP - Where possible habitats will be retained (e.g. hedgerows on the periphery of the proposed compound). The oCEMP will prescribe appropriate Biodiversity Protection Zones (BPZs) to protect habitats from construction impacts.
Cultural heritage LOW	There are unlikely to be any significant effects on the value (significance) on built heritage assets arising from these works. Whilst there would be several designated heritage assets within 500m of these works, including the southern tip of the Battle of Winwick Registered Battlefield, the Travellers Rest Stone (Grade II) and the Church of St Oswald (Grade I),	None

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
	among others, none of these assets would be directly affected or have works in close proximity. Due to the minor nature of the works, it is unlikely that these works would materially change the established presence of the roundabout in the wider surroundings once complete.	
Archaeology LOW Localised MEDIUM (undeveloped area southeast of the extant road and junction)	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets. - Temporary working compounds, ground compaction for access roads, storage of materials and ecological mitigation areas might have potential to result in a significant effect on any known and unknown archaeological assets in the form of compaction and/or displacement , if present. - For this option, the presence of the existing road may indicate that only isolated pockets of surviving archaeological deposits are expected to be present within the selected area. It is likely that any archaeological remains within the footprint or in proximity to the existing road have	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - The Archaeological Desk-Based Assessment will inform on any requirement for further non-intrusive and/or intrusive survey. - Any further work, if required, would likely be contained to the currently undeveloped areas/ areas of high potential (if present) identified at Desk-Based Assessment stage, outside of the extant road and junction.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
	been partially or totally truncated by the construction works of the motorways and junction No additional effects are expected during the operation or maintenance phases of the Proposed Development.	
Surface water and flood risk LOW	- The works area is entirely located within Flood Zone 1, which is defined as land having a low probability of flooding from rivers and the sea. There are no further mapped watercourses within proximity to the works. Therefore, the proposed works could proceed without being affected or detrimentally affecting third party flood risk from this source. - EA RoFSW mapping indicates that some of the proposed works are within areas at low to high probability of surface water flooding. These areas will need to be reviewed in more detail within the ES and technical appendices to assess receptors, potential impacts and identify appropriate mitigation measures, if required. - A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data, these sources are not considered to pose a significant flood risk to the works area.	- Flood risk and drainage to be included in the ES. - Review the available capacity of the existing highway drainage. All works to have detailed review within a technical document.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
	- The proposed works will introduce new impermeable surfaces to the works area that will increase surface water runoff. The available capacity in the existing highway drainage should be reviewed to confirm if there is capacity for the additional flows. If there is insufficient capacity potential upgrade works, or an independent surface water drainage strategy should be explored. Appropriate surface water management will ensure that flood risk to third parties is not increased by the works. - With appropriate drainage design the impact is likely to be negligible.	
Geology, soils and contaminated land LOW	- The works may require earthworks to extend the platform embankment to accommodate the additional lanes. BGS mapping indicates that ground conditions are anticipated to comprise Devsion Till or Shirdley Hill Sand over Chester Formation Sandstone. The Shirdley Hill Sands is a Secondary B Aquifer and the Sandstone is a Principal Aquifer and the location is within Zone 3 Total Catchment Source Protection Zone indicating a high level of controlled waters sensitivity. However, no significant contamination sources are known to exist. - Negligible impact is expected on Ground Conditions given the above. The location is not likely to be affected by significant contamination.	Ground investigation and geotechnical design to be completed in accordance with CD 622 (National Highways. Managing Geotechnical Risk, Standard CD 622 Design Manual for Roads and Bridges) in conjunction with the relevant local highway authority, to manage the geotechnical risk on the scheme.
Materials and waste	These works would contribute to the use of construction materials and	Material use and waste generation during

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
LOW	the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	construction to be reviewed at the ES stage to confirm non-materiality.
Energy and climate change LOW	- These works would contribute to the ‘embodied carbon’ construction-stage impact of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. - These works are unlikely to make a material contribution to the operational impact of the Proposed Development via change in traffic flows or change in electricity consumption, because traffic generation by the Proposed Development is part of the EIA and new street lighting or other equipment using electricity is not proposed. - These works are unlikely to make a material contribution to the landuse change impact of the Proposed Development given the scale and nature	- Embodied carbon to be assessed at the ES stage - Other impacts to be reviewed at the ES stage to confirm non-materiality, including any changes in non-development traffic flows

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
	of habitat lost. These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	
Population and human health LOW	- Compound area is agricultural, with no loss of community amenity or facility. - There is a pathway along the south east stretch of the A49, crossing and continuing north, ending abruptly to the east, with no crossing lights. There is the potential to improve safety and remove community barriers with the improvements. - Once operational, there will be a change in air quality and noise concentration / exposure. Given the proximity to the residential area, it is recommended to provide some additional health assessment for changes in exposure to air/noise (and associated mitigation).	Consider changes in air quality and noise at residential areas around the junction within the population and health assessment.

◆ Option 4: M6 Junction 22 Southbound Merge

LOCATION

- 1.34 The potential junction improvement is located on the M6 Junction 22 southbound merge slip road.
- 1.35 The M6 Junction 22 is within the boundaries of Warrington Borough Council. As these works are on the strategic road network the highway authority is National Highways.

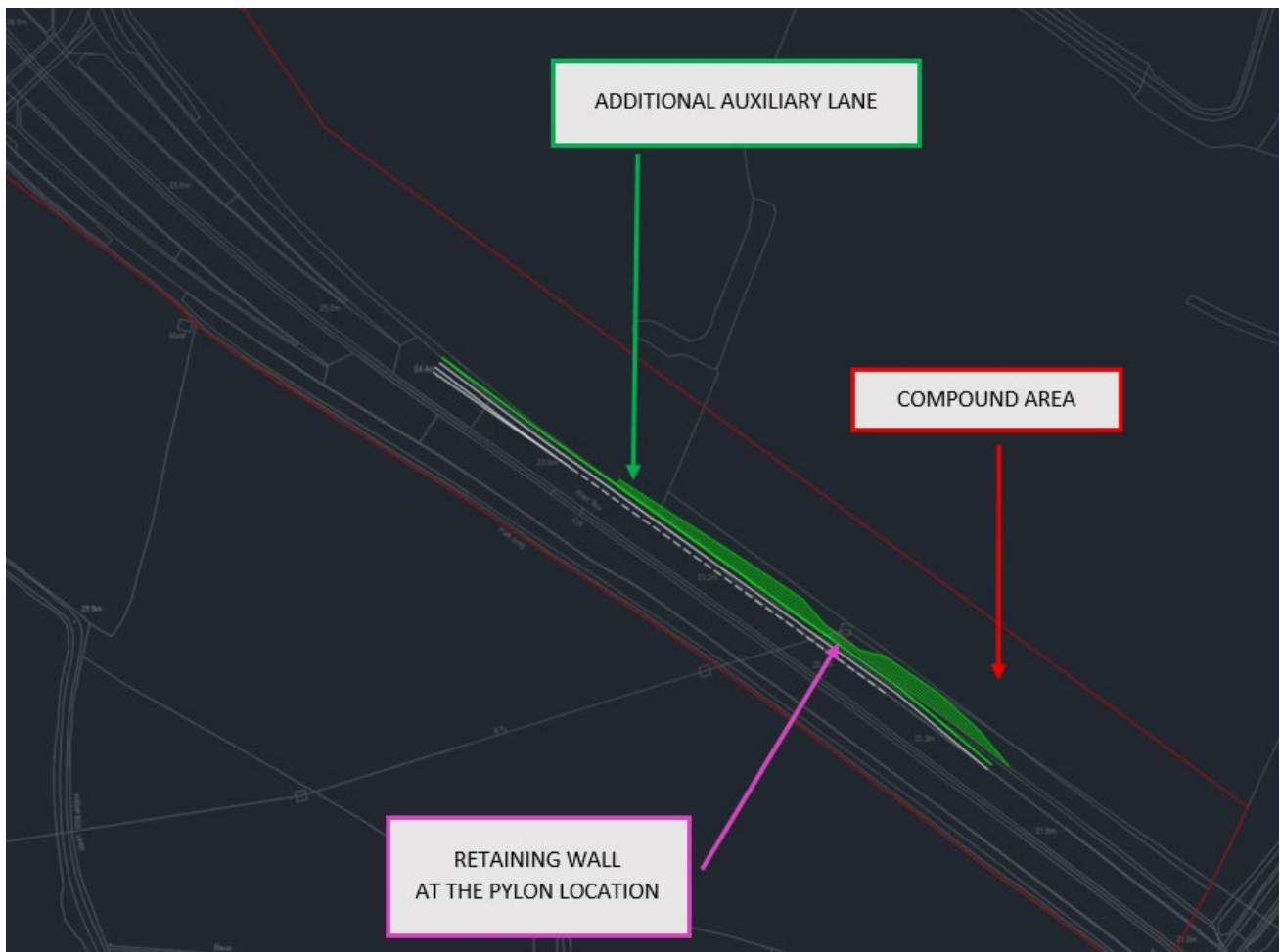
Figure 1.7 M6 J22 Location Plan



POTENTIAL WORKS

- 1.36 The current junction features a direct taper onto the motorway for merging southbound traffic. The potential improvement would include an auxiliary lane to replace the direct taper, extending the merge section by providing an additional 230 metre long lane parallel to the motorway traffic lanes.
- 1.37 The highway works of the junction would include:
- pavement widening, road marking re-arrangement and new drainage connections;
 - existing lighting columns to be offset from the proposed carriageway widening;
 - earthworks and retaining wall at the existing pylon location; and
 - associated works to drainage, signing, road markings, and technology.

Figure 1.8 M6 Junction 22 Improvement works



- 1.38 No changes to orders (speed limits or traffic regulation) are envisaged.

ENVIRONMENTAL ASSESSMENT

- 1.39 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.4 Option 4: M6 Junction 22 environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • Negligible impacts are anticipated related to land use and accessibility, primarily with some likely non-significant impact linked to the potential loss of agricultural land northeast of the additional auxiliary lane. • No operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact user accessibility or housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality. • Non-materiality and impact of the loss of agricultural land to be assessed at the ES stage.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the proposed improvement scheme is expected to enhance junction capacity, thereby reducing driver delay and improving overall network efficiency.	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the ES Stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	Severance, delay and amenity for non-motorised users, and fear and intimidation are not anticipated to be affected by this scheme, as the junction does not currently accommodate facilities for pedestrians or cyclists.	
Air quality LOW	It is unlikely that any sensitive receptors would be affected during the construction and operational phases.	No further steps required.
Noise and vibration LOW	- During the construction stage, the associated works may result in some temporary adverse noise effects at nearby sensitive receptors to the north-west on Winwick Lane, particularly if the works need to take place at night, which can be a requirement of the relevant highway authority when working on existing roads, although the relatively high distance to the receptors is noted. - In terms of changes in road traffic noise once completed, the new auxiliary lane will mean that vehicles travel in an area slightly further to the north. However, when considered in the context of the relatively minor change to existing slip road layout, as well as the noise from the nearby M6 and the distance to the nearest receptors, it unlikely that the improvement would result in any material change in road traffic noise	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and operational stages will be considered in detail as required at the ES stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	levels.	
Landscape and visual impact LOW	No notable landscape and visual effects predicted at all stages.	An Illustrative Landscape Plan will be prepared to illustrate re-seeding of embankment following completion of construction.
Arboriculture LOW	Habitats to be lost include a small number of small individual trees/shrubs (hawthorn).	Loss of trees will be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall.
Agricultural land LOW	A small slither of farmland will be lost as a result of the widening. Provisional MAFF agricultural land classification indicate the land may be Best and Most Versatile agricultural land. The loss of the small area of land alone is unlikely to be significant.	No further work is required given the small area of agricultural land lost.
Ecology LOW	Habitats to be lost include a small number of small individual trees/shrubs (hawthorn), limited bramble scrub, modified grassland with ruderal vegetation (road verge) and some agricultural cultivated land, with some temporary loss of agricultural cultivated land to the compound. These habitats have limited ecological value and no	Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall. The works area will require a walkover

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	significant connectivity. There is suitable habitat to support nesting birds and works have the potential to impact upon nesting birds during vegetation clearance.	assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO order limits. Losses would need to be compensated for and additional biodiversity created to meet the 10% overall target. Vegetation clearance will be undertaken outside of the nesting bird season (March-August inclusive). Where this is not possible an ecologist will undertake a pre-clearance nesting bird check. Provisions to protect nesting birds during construction will be provided in the oCEMP. Where possible habitats will be retained (e.g. hedgerows on the periphery of the proposed compound). The oCEMP will prescribe appropriate Biodiversity Protection Zones (BPZs) to protect habitats from construction impacts.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Cultural heritage LOW	There are unlikely to be any significant effects on the value (significance) on heritage assets arising from these works. There would be one designated heritage asset within 500m of these works, the Bowl Barrow West of Highfield Lane Scheduled Monument, over 400m away to the south of the M6. Due to the minor nature of the works and existing tree screening between the asset and the M6, it is unlikely that these works would materially change the established presence of the M6 in the wider surroundings once complete.	None

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Archaeology LOW Localised MEDIUM (undeveloped area south of the extant road and junction)	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets. - Temporary working compounds, ground compaction for access roads, storage of materials and ecological mitigation areas might have potential to result in a significant effect on any known and unknown archaeological assets in the form of compaction and/or displacement, if present - For this option, the presence of the existing road may indicate that only isolated pockets of surviving archaeological deposits are expected to be present within the selected area. It is likely that any archaeological remains within the footprint or in proximity to the existing road have been partially or totally truncated by the construction works of the motorways and junction - No additional effects are expected during the operation or maintenance	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - The Archaeological Desk-Based Assessment will inform on any requirement for further non-intrusive and/or intrusive survey. - Any further work, if required, would likely be contained to the currently undeveloped areas/ areas of high potential (if present) identified at Desk-Based Assessment stage, outside of the extant road and junction.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	phases of the Proposed Development.	

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Surface water and flood risk LOW	• The proposed works are located within Flood Zone 1, which is defined as land having a low probability of flooding from rivers and the sea. There are no further mapped watercourses within proximity to the works. Therefore, the proposed works could proceed without being affected or detrimentally affecting third party flood risk from this source. • EA RoFSW mapping indicates that that the stretch of the M6 the works lie in is at a low to high probability of surface water flooding. These areas will need to be reviewed in more detail within the ES and technical appendices to assess receptors, potential impacts and identify appropriate mitigation measures, if required. • A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data, these sources are not considered to pose a significant flood risk to the works area. • The proposed works will introduce new impermeable surfaces to the works area that will increase surface water runoff. The available capacity in the existing highway drainage should be reviewed to confirm if there is capacity for the additional flows. If there is insufficient capacity potential upgrade works, or an independent	• Flood risk and drainage to be included in the ES. • Review the available capacity of the existing highway drainage. All works to have detailed review within a technical document.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	surface water drainage strategy should be explored. Appropriate surface water management will ensure that flood risk to third parties is not increased by the works. With appropriate drainage design the impact is likely to be negligible.	
Geology, soils and contaminated land LOW	- The works will require earthworks to extend the platform embankment and a retaining wall to accommodate the additional lane. BGS mapping indicates that the ground conditions are anticipated to comprise Devensian Till to the north and Glaciofluvial Sand and Gravel to the south over Chester Formation Sandstone. The Glaciofluvial Sand and Gravel is a Secondary undifferentiated Aquifer and the Sandstone is a Principal Aquifer and the location is within Zone 3 Total Catchment Source Protection Zone. - Negligible impact is expected on Ground Conditions. The location is not likely to be affected by significant contamination.	Ground investigation and geotechnical design to be completed in accordance with CD 622 (National Highways. Managing Geotechnical Risk, Standard CD 622 Design Manual for Roads and Bridges) in conjunction with National Highways, to manage the geotechnical risk on the scheme.
Materials and waste LOW	These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact	Material use and waste generation during construction to be reviewed at the ES stage to confirm non-materiality.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	of the Proposed Development. Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	
Energy and climate change LOW	- These works would contribute to the ‘embodied carbon’ construction-stage impact of the Proposed Development. Given the scale of these works, their impact is likely to be a minimal component of the overall construction-stage impact of the Proposed Development and is unlikely to be material to the total. - These works are unlikely to make a material contribution to the operational impact of the Proposed Development via change in traffic flows or change in electricity consumption, because traffic generation by the Proposed Development is part of the EIA and new street lighting or other equipment using electricity is not proposed. - These works are unlikely to make a material contribution to the landuse change impact of the Proposed Development given the scale and nature of habitat lost. - These works are unlikely to introduce new or greater climate risks than	- Materiality of embodied carbon to be reviewed at the ES stage and assessed further if required - Other impacts to be reviewed at the ES stage to confirm non-materiality, including any changes in non-development traffic flows

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	assessed in the PEIR chapter for the main works.	
Population and human health LOW	These works do not present any likely significant health impact, where there is the absence of any residential receptor, the compound is on the adjacent agricultural land, and there is no obvious access or accessibility or community barrier from the proposed works.	No further health assessment required.

◆ Option 5: Lowton Junction

LOCATION

- 1.40 Lowton T-Junction is located at the junction between Parkside Road, Newton Road and Southworth Road. The Lowton Junction is within the boundaries of St Helens Borough Council.

Figure 1.9 Lowton Junction Location Plan



POTENTIAL WORKS

- 1.41 Although this junction was identified in consultation with the TWG, it has recently been upgraded, and no significant additional highway works are currently proposed. However, consideration has been given to the potential to extend the right turn lane (by amending the roadmarking hatching) from the A572 eastbound onto the A573 Parkside Road.

ENVIRONMENTAL ASSESSMENT

- 1.42 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.5 Option 5: Lowton Junction environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-economics LOW	Minimal works are proposed so there would be no impact.	None
Transport LOW	As minimal works are proposed, there would be no environmental impacts expected.	None
Air quality LOW	It is unlikely that any receptors would be affected as minimal works are proposed.	Unlikely to require assessment unless measures are needed as air quality mitigation.
Noise and vibration LOW	Minimal works are proposed so there would be no impact.	None
Landscape and visual impact LOW	Minimal works are proposed so there would be no impact.	None

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Arboriculture LOW	Minimal works are proposed so there would be no impact.	None
Agricultural land LOW	Minimal works are proposed so there would be no impact.	None
Ecology LOW	Minimal works are proposed no impacts are expected	No further assessment required.
Cultural heritage LOW	Minimal works are proposed so there would be no impact.	None
Archaeology LOW	Minimal works are proposed so there would be no impact.	None

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Surface water and flood risk LOW	Minimal works are proposed so there would be no impact.	None
Geology, soils and contaminated land LOW	Minimal works proposed.	No further assessment required
Materials and waste LOW	Minimal works are proposed so there would be no impact.	None
Energy and climate change LOW	Minimal works are proposed so there would be no impact.	None
Population and human health	Minimal works proposed, consideration may be required in relation to air and noise once operational.	No further health assessment required.

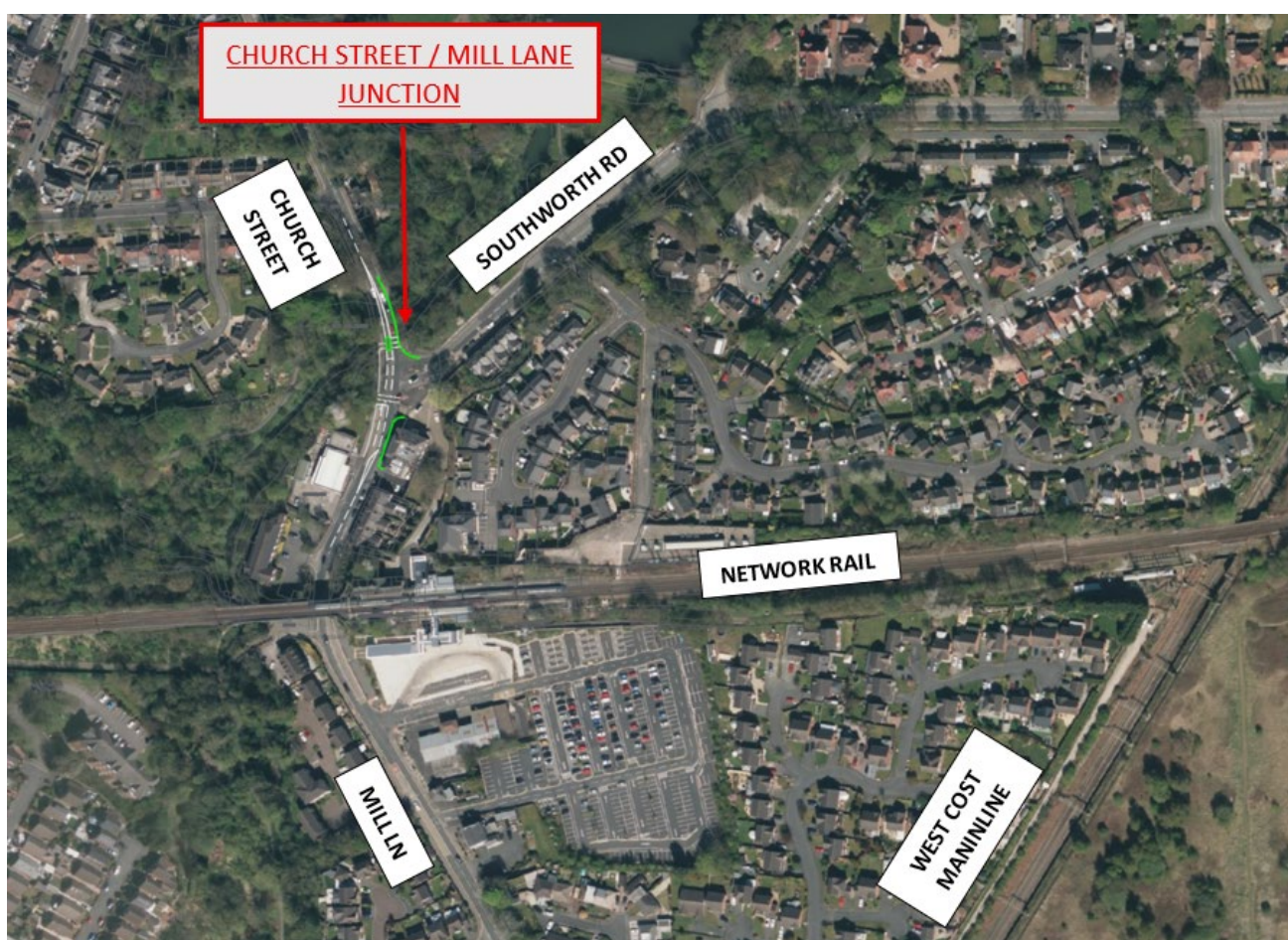
Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
LOW		

◆ Option 6: Church Street / Mill Lane Signalised T-Junction

LOCATION

- 1.43 The potential junction improvement is located along Southworth Road at the junction with Mill Lane and Church Street.
- 1.44 The Church Street and Mill Lane Junction is within the boundaries of St Helens Borough Council.

Figure 1.10 Church Street / Mill Lane Junction Location Plan



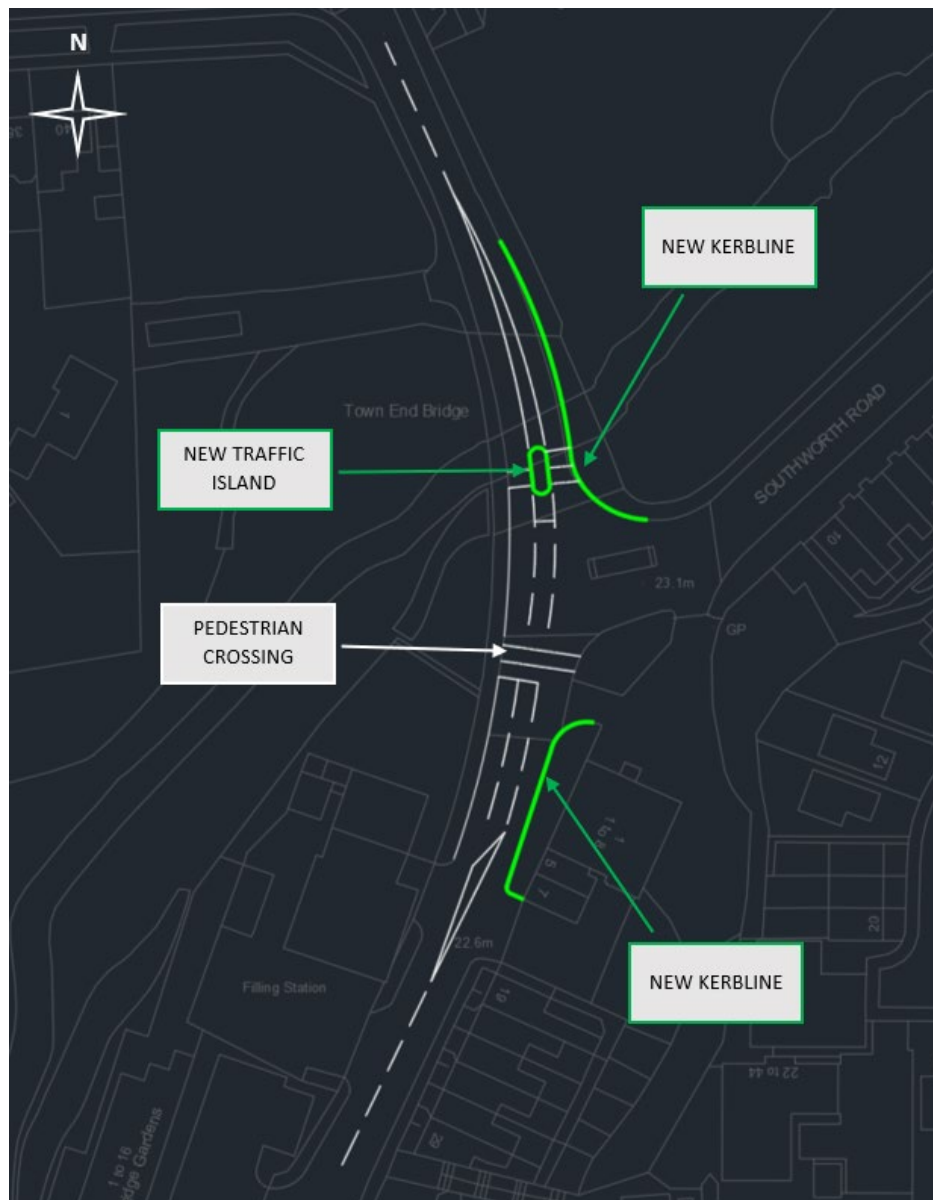
POTENTIAL WORKS

1.45 It is anticipated that the proposed works would comprise improvements to existing signalised junction to include carriageway widening and pedestrian crossings on Mill Lane (North).

1.46 The highway works of the junction would include:

- pavement widening and road marking re-arrangement;
- additional traffic signals at the proposed pedestrian crossing location and on the proposed traffic island;
- associated works to signing, road markings, and technology.

Figure 1.11 Church Street / Mill Lane Junction Improvement



1.47 No changes to orders (speed limits or traffic regulation) are envisaged.

ENVIRONMENTAL ASSESSMENT

1.48 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.6 Option 6: Church Street / Mill Lane signal junction environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • No operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact user accessibility or housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the proposed improvement scheme is expected to have limited impact on driver delay as the current layout for drivers is being maintained. • In terms of non-motorised user delay and amenity, this is likely to improve in the operational phase due to the proposed increased footway widening and new crossing facilities.	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the ES Stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Air quality LOW	- During the construction phase of the works there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors. However, these can be mitigated through industry standard measures, as outlined in Institute of Air Quality Management (IAQM) guidance, to be included in the oCEMP. - It is unlikely that sensitive receptors will be affected during the operational phase as a result of the works.	- The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential effects and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. - No further steps required for the operational phase.
Noise and vibration LOW	- During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, primarily on Mill Road (South) and Southworth Road, particularly if the works need to take place at night, which can be a requirement of the relevant highway authority when working on existing roads. - In terms of changes in road traffic noise once completed, the re-arrangement of the road markings due to the pavement marking will mean that vehicles travel along a slightly different line when compared with the existing layout. However, due to the relatively minor change in distance between the traffic and the nearby buildings, it unlikely that the	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and operational stages will be considered in detail as required at the ES stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	improvement would result in any material change in road traffic noise levels at any sensitive receptors.	
Landscape and visual impact LOW	- The proposed works do not result in the loss of vegetation and there will only be temporary visibility of construction activity from adjacent residential receptors and passing car users. - Overall negligible landscape and visual effects.	No further steps.
Arboriculture LOW	Large sycamore <i>Acer pseudoplatanus</i> trees are located adjacent to the junction.	Provisions to protect trees during construction will be provided in the oCEMP (if required).
Agricultural land LOW	The widening does not affect agricultural land.	None.
Ecology LOW	Large sycamore <i>Acer pseudoplatanus</i> trees are located adjacent to the junction with ivy covering their trunks in some cases. These trees are on land outside the junction/draft order limits but may have bat roost potential. Works at night and should the health of the trees be affected by proposals this could impact upon bat roosts (if present).	Confirm trees will be retained and not impacted with input from an arboriculturist. Provisions to protect trees during construction will be provided in the oCEMP (if required).

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
		Should any bat roost be identified measures to reduce disturbance during night-time working will be provided in the oCEMP (if required). Any impact would be temporary in nature and the area is already subject to significant disturbance from streetlighting and road use.
Cultural heritage LOW	- These works would be located within the High Street and Willow Park Conservation Area. It is proposed that improvements be made to the Church Street/Mill Lane signal junction to include carriageway widening and pedestrian crossings on Mill Lane (north). The Conservation Area has the potential to experience minor, targeted effects resulting from the construction phase of this work. - The widening of this road will maintain the current road layout and circulation of movement throughout the Conservation Area. The proposed change is anticipated to maintain the character and appearance of the Conservation Area and the setting of nearby heritage assets due the minor alterations in the context of established modern highway infrastructure within a much wider Conservation Area. Nevertheless, care would be taken to understand and mitigate any potential effects arising from change associated with works to the Church	Further assessment of this option, to be taken forward, to be provided in the Cultural Heritage ES Chapter and Heritage Statement.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	Street/Mill Lane signal junction. There would be no significant effects arising to built heritage assets.	
Archaeology LOW	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets. - For this option, given the presence of the existing road and the limited amount of below-ground work expected to be undertaken outside of the current road boundaries, the potential for archaeological deposits to be affected is considered to be low. - No additional effects are expected during the operation or maintenance phases of the proposed works.	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - No further work is expected to be required for this option.
Surface water and flood risk MEDIUM (until detailed)	The proposed works are indicated to be partially within Flood Zone 2 and 3, associated with the Newton Brook, which is land defined as having a medium to high probability of flooding from rivers and the sea. The	Flood risk and drainage to be assessed as part of the ES and mitigation identified as necessary.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
assessment)	proposed works, including the new kerbside and new traffic island, are directly located within Flood Zone 3. • The works area is also entirely located within a 'wet day' reservoir failure extent, and the proposed works are also within a 'dry day' extent. However, based on the safety legislation in place and the maintenance and repair responsibilities of responsible authority, the actual probability of a significant failure is considered to be low. Therefore, the risk of flooding from this source is also considered to be low. • Whilst the fluvial flood risk at the works area is shown to be medium to high, it is understood that the Flood Zones are conveyed under an existing bridge. Therefore, the fluvial floodplain and flood risk to third parties are not expected to be significantly affected by the proposed works. • EA RoFSW mapping indicates that the proposed works are within areas at very low probability of surface water flooding. Furthermore, the proposed works will not introduce new impermeable surfaces which would increase surface water runoff as the works area is already comprised entirely of hardstanding. Appropriate surface water management will ensure that flood risk to third parties is not increased by the works.	

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Geology, soils and contaminated land LOW	• Works not likely to have any effects on or from ground conditions or contamination.	• No further assessment required
Materials and waste LOW	• These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. • Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	• Material use and waste generation during construction to be reviewed at the ES stage to confirm non-materiality.
Energy and climate change LOW	• Given the scale of these works, their impact would make a <i>de minimis</i> contribution to the overall construction-stage impact of the Proposed Development that would not be material to the total. • These works would not make a material contribution to the operational impact of the Proposed Development via change in traffic flows or change	• Impacts to be reviewed at the ES stage to confirm non-materiality.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	in electricity consumption due to their nature and scale. • These works would not make a material contribution to the landuse change impact of the Proposed Development due to the previously developed nature of the landuse. • These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	
Population and human health LOW	• The proposed works improve road / pedestrian safety features on the existing road network, and address risk of community severance from increased flow rates. • Once operational, changes in air quality and noise are anticipated to remain within air quality objectives protective of health. Given the permanent nature and presence of residential receptors, it is recommended to provide a health assessment section to reinforce air quality and noise, and put potential change in air/noise emissions into context.	• Health Assessment to review air quality and noise outputs, to set potential health risk and concerns into context.

◆ Option 7: Ashton Road / High Street Mini Roundabout

LOCATION

- 1.49 Ashton Junction is located northeast of Newton-Le-Willows, at the junction between Ashton Road, High Street, and Crown Lane East.
- 1.50 The Ashton Road Junction is within the boundaries of St Helens Borough Council.

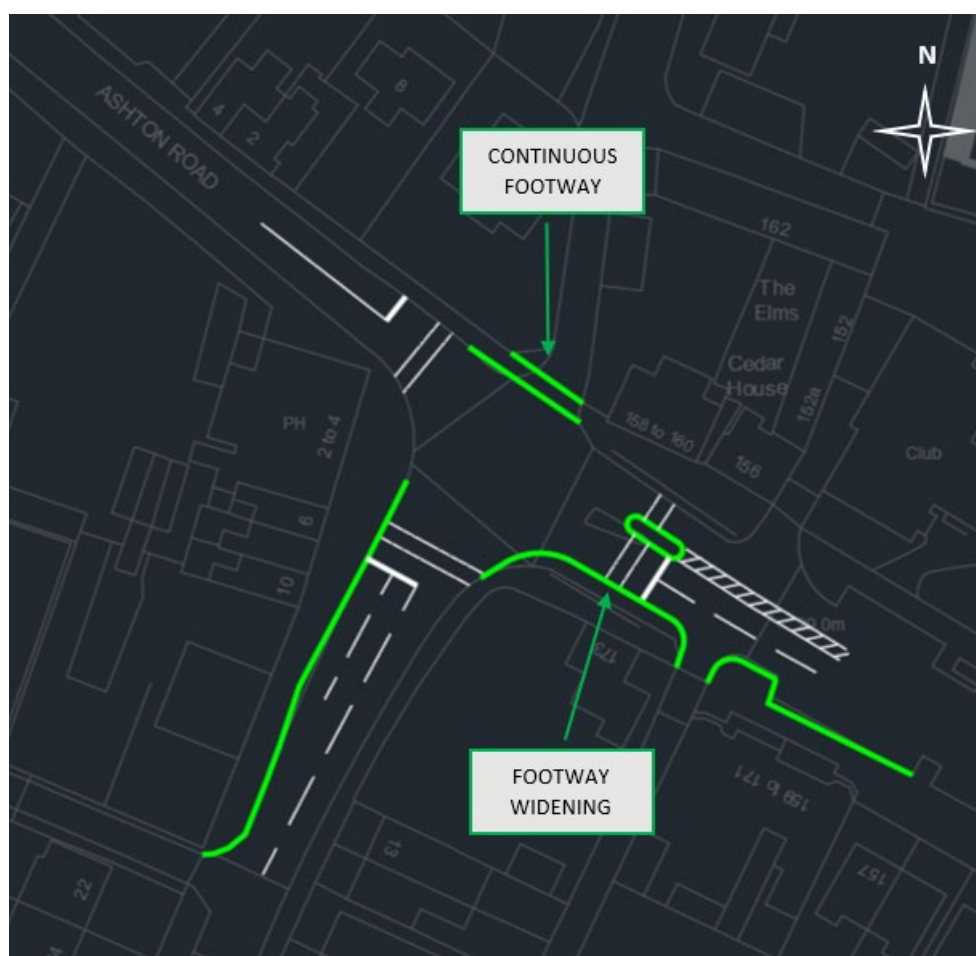
Figure 1.12 Ashton Rd Junction Location Plan



POTENTIAL WORKS

- 1.51 It is anticipated that the proposed work would comprise converting the existing mini-roundabout to a signalised junction.
- 1.52 New kerb lines are proposed along High Street and on Ashton Road to widen the existing footpath and create a continuous footpath.
- 1.53 Traffic signals and road marking arrangements would be required to convert the mini-roundabout into a signalised junction.

Figure 1.13 Ashton Rd Junction Improvement



- 1.54 No changes to orders (speed limits or traffic regulation) are envisaged.

ENVIRONMENTAL ASSESSMENT

- 1.55 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.7 Option 7: Ashton Road environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • Improvements to the existing footpath would likely have a negligible impact on access at the operational stage. • No further operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the proposed improvement scheme is expected to enhance junction capacity, thereby reducing driver delay and improving overall network efficiency. Furthermore, the change from a mini roundabout to a signalised junction is likely to improve driver safety at	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the ES Stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	the junction. In terms of non-motorised user delay and amenity, this is likely to improve in the operational phase due to the proposed increased footway widening and new controlled crossing facilities.	
Air quality MEDIUM	- During the construction phase of the works there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors. However, these can be mitigated through industry standard measures to be included in the oCEMP. - During the operational phase the new road alignment may change the location of road vehicle exhaust emissions in relation to nearby sensitive receptors, particularly those on Ashon Road, High Street and Crown Lane.	- The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential impacts and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. - The potential effects during the operational phase will be assessed through air quality modelling of the new road alignment at the ES stage and will consider potential changes in pollutant concentrations at nearby receptors.
Noise and vibration	During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, primarily on Crow Lane East and High Street,	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
LOW	particularly if the works need to take place at night, which can be a requirement of the relevant highway authority when working on existing roads. In terms of changes in road traffic noise once completed, the footway widening will mean that vehicles travel along a slightly different line when compared with the existing layout. However, due to the relatively minor change in distance between the traffic and the nearby buildings, it is unlikely that the improvement would result in any material change in road traffic noise levels at any sensitive receptors.	operational stages will be considered in detail as required at the ES stage.
Landscape and visual impact LOW	- No loss of vegetation and only temporary visibility of construction activity from adjacent residential receptors and passing car users. - Overall negligible landscape and visual effects.	No further steps.
Arboriculture LOW	No loss of vegetation.	Provisions to protect hedgerow during construction will be provided in the oCEMP (if required).
Agricultural land	The widening does not affect agricultural land.	None.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
LOW		
Ecology LOW	- A residential garden with an ornamental hedge is located to the south of the junction. Works have the potential to impact the root protection zone and health of the adjacent hedgerow. - No loss of habitat is anticipated but impact to the adjacent hedgerow could result in loss of part of the hedgerow.	Confirm hedgerow will be retained and not impacted with input from an arboriculturist. Provisions to protect hedgerow during construction will be provided in the oCEMP (if required).
Cultural heritage LOW	- These works would be located within the High Street and Willow Park Conservation Area. This option proposes to convert the existing mini roundabout on Ashton Road, located within the High Street and Willow Park Conservation Area, into a signalised junction. The Conservation Area has the potential to experience minor, targeted effects resulting from changes resulting from the construction phase of this work. - This change would maintain the current road layout and circulation of movement throughout the Conservation Area. The proposed change is anticipated to maintain the character and appearance of the Conservation Area and the setting of nearby heritage assets due the minor alterations in the context of established modern highway infrastructure within the town centre of a much wider Conservation Area. It is not anticipated to involve alteration to any existing views within the conservation area, nor will it affect an ability to appreciate the role of	Further assessment of this option, to be taken forward, to be provided in the Cultural Heritage ES Chapter and Heritage Statement.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	historic buildings in defining and expressing the area's layout, character and appearance. Nevertheless, care would be taken to understand and mitigate any potential effects arising from change associated with works to the junction. There would be no significant effects arising to built heritage assets.	
Archaeology LOW	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets. - For this option, given the presence of the existing road and the limited amount of below-ground work expected to be undertaken outside of the current road boundaries, the potential for archaeological deposits to be affected is considered to be low. - No additional effects are expected during the operation or maintenance phases of the proposed works.	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - No further work is expected to be required for this option.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Surface water and flood risk LOW	• The proposed works are located entirely within Flood Zone 1, which is defined as land having a low probability of flooding from rivers and the sea. There are no further mapped watercourses within proximity to the works. Therefore, the proposed works could proceed without being affected or detrimentally affecting third party flood risk from this source. • EA RoFSW mapping indicates that the proposed works are within areas at low to high probability of surface water flooding. These areas will need to be reviewed in more detail within the ES and technical appendices to assess receptors, potential impacts and identify appropriate mitigation measures, if required. • A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data, these sources are not considered to pose a significant flood risk to the works area. • The proposed works will not introduce new impermeable surfaces which would increase surface water runoff as the area is already entirely hardstanding. Appropriate surface water management will ensure that flood risk to third parties is not increased by the works. • With appropriate drainage design the impact is likely to be negligible.	• Flood risk and drainage to be assessed as part of the ES.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Geology, soils and contaminated land LOW	• Works not likely to have any effects on or from ground conditions or contamination.	• No further assessment required.
Materials and waste LOW	• These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. • Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	• Material use and waste generation during construction to be reviewed at the ES stage to confirm non-materiality.
Energy and climate change LOW	• Given the scale of these works, their impact would make a <i>de minimis</i> contribution to the overall construction-stage impact of the Proposed Development that would not be material to the total. • These works would not make a material contribution to the operational impact of the Proposed Development via change in traffic flows or change	• Impacts to be reviewed at the ES stage to confirm non-materiality.

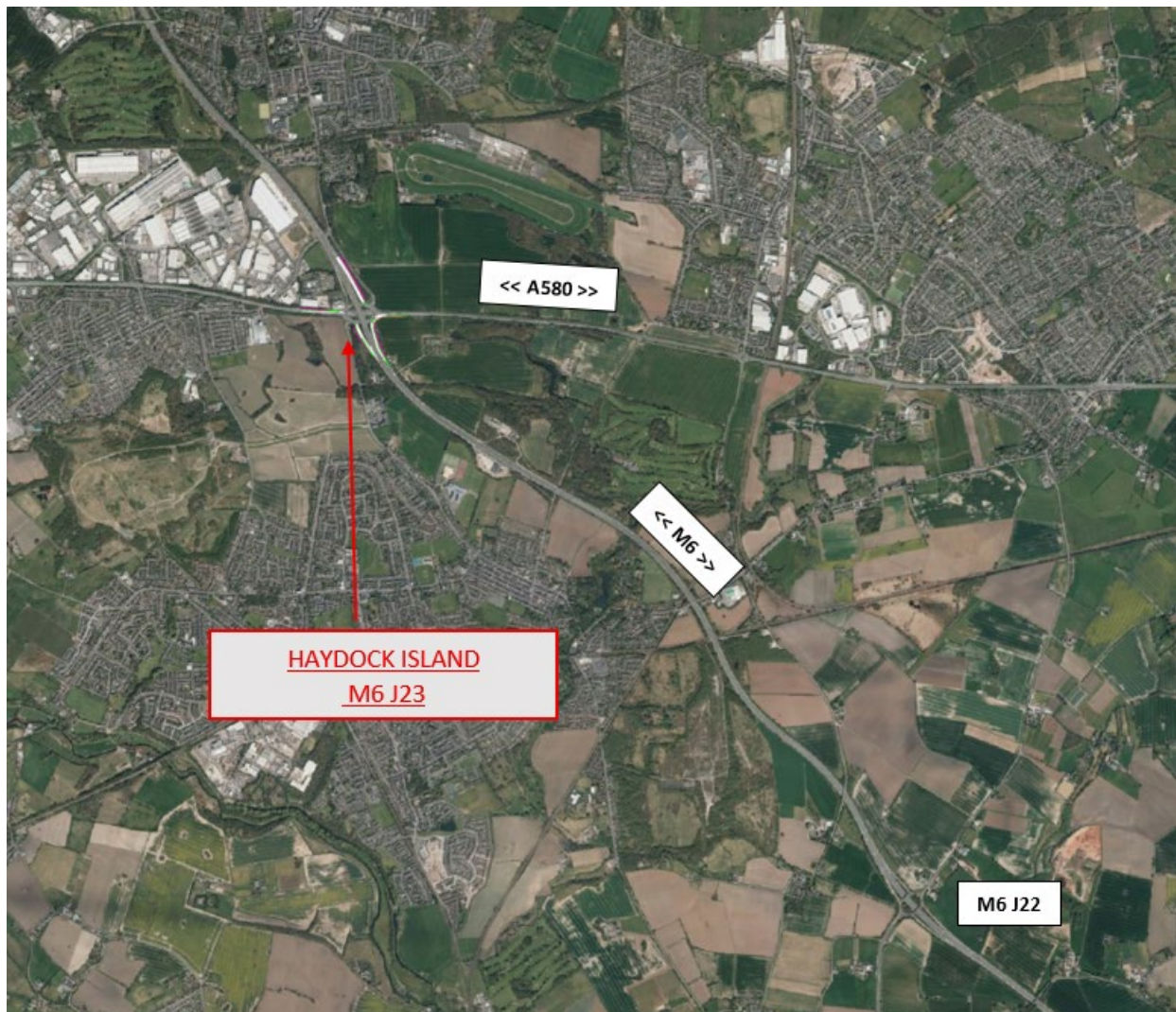
Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	in electricity consumption due to their nature and scale. • These works would not make a material contribution to the landuse change impact of the Proposed Development due to the previously developed nature of the landuse. • These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	
Population and human health LOW	• The proposed works improve road / pedestrian safety features on the existing road network, and address risk of community severance from increased flow rates. • Once operational, changes in air quality and noise are anticipated to remain within air quality objectives protective of health. Given the permanent nature and presence of residential receptors, it is recommended to provide a health assessment section to reinforce air quality and noise, and put potential change in air/noise emissions into context.	• If the option is taken forward as part of the DCO application, the health assessment for the ES will review Air and Noise, in order to provide a proportionate health assessment where appropriate. This will assist in setting the potential risk into context.

◆ Option 8: M6 Junction 23 Haydock Island Roundabout

LOCATION

- 1.56 The potential junction improvement is located on the M6 Junction 23, Haydock Island Junction, at the intersection with the A580.
- 1.57 Haydock Island junction is within the boundaries of St Helens Borough Council but as the works are on the strategic road network the highway authority is National Highways.

Figure 1.14 Haydock Island Location Plan



POTENTIAL WORKS

1.58 The proposed roundabout upgrades would include:

- segregated left-turning lane on East Lancashire Road (A580 Eastbound to M6 Southbound);
- carriageway widening on M6 Southbound exit slip road to provide two lanes up to back of the nose;
- carriageway widening on M6 Northbound exit slip road to provide 3 lanes;
- additional 100m of queue capacity for left turn lane on East Lancashire Road (West);
- carriageway widening to accommodate an additional lane for extended left turn queue capacity on the M6 Southbound exit slip road; and
- Lodge Lane dedicated left turn to be widened to increase flare length.

1.59 The highway works at the junction would include:

- pavement widening, footway realignment along the proposed edges, road marking re-arrangement and new drainage connections;
- new built traffic lanes on the slip roads;
- new built segregated left turn lane;
- existing vehicle restraint barrier to be replaced and installed along the proposed pavement edge;
- existing lighting columns to be offset from the proposed carriageway widening;
- existing traffic signals to be relocated in accordance with the proposed carriageway widening;
- associated works to drainage, signing, road markings, and technology; and
- potential temporary construction compound.

1.60 The Applicant understands from St Helens Borough Council records that some of these works may encroach upon common land, but further detail is needed in relation to the extent of that common land at this stage. Subject to further assessment as to the need for these works to be implemented to mitigate effects of traffic generated by the Proposed Development, a more detailed assessment to mitigate effects on common land will be undertaken and consideration will be given to the need for replacement common land if necessary.

Figure 1.15 Haydock Island Junction Improvement

- 1.61 A speed limit and clearway are likely to be required for the segregated left turn lane (or the lane may need to be subject to motorway regulations).

ENVIRONMENTAL ASSESSMENT

- 1.62 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.8 Option 8: Haydock Island environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • No operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact user accessibility or housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the proposed improvement scheme is expected to enhance junction capacity, thereby reducing driver delay and improving overall network efficiency. • In terms of non-motorised user delay and amenity , this is likely to improve in the operational phase due to the proposed increased footway widening.	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the ES Stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Air quality LOW	- During the construction phase of the works there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors. However, these can be mitigated through industry standard measures, as outlined in Institute of Air Quality Management (IAQM) guidance, to be included in the oCEMP. - It is unlikely that sensitive receptors will be affected during the operational phase as a result of the work.	- The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential effects and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. - No further steps required for the operational phase.
Noise and vibration MEDIUM (due to potential night-time construction works)	During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, particularly if the works need to take place at night, which can be a requirement of the relevant highway authority when working on existing roads. There is a possibility that these may be considered significant at the closest receptor at Haydock Park Farm Cottages, although this property is isolated and it would depend on the specific methodology and the duration of the relevant works. The next closest receptors, including 200 Ashton Road to the east and the closest properties on Penny Lane to the west, would experience far lower levels.	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and operational stages will be considered in detail as required at the ES stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	In terms of changes in road traffic noise once completed, the carriageway widenings, additional queue capacity and turning lane will mean that vehicles travel along slightly different lines when compared with the existing layout. However, when considered in the context of the relatively minor changes to the existing layout, as well as the noise from the nearby A580 and M6, it is unlikely that the improvement would result in any material change in road traffic noise levels.	
Landscape and visual impact LOW	- The works will result in the potential loss of existing vegetation. - The potential visual effects arising from the option will be contained to negligible effects on passing car users. - The option would result in limited landscape and visual effects, subject to production of an Illustrative Landscape Plan showing replanting to mitigate losses, following completion of construction.	- Should the option be included in the DCO application, a site survey will be undertaken and an Illustrative Landscape Plan prepared. - It is considered that the effects in relation to this option will be negligible at both the construction and operational phase, this will be reported with the outcomes of the assessment in Chapter 10 of the ES.
Arboriculture LOW	The works will result in the loss of a number of small individual trees on the slip road embankment.	Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
		Proposed Development overall.
Agricultural land LOW	The widening work is not expected to impact agricultural land.	None.
Ecology LOW	- The works will result in the loss of a number of small individual trees on the slip road embankment, and some scrub, grassland verges, and woodland on the embankments and verges. The habitats lost do not represent any unique or ecologically valuable habitat and are lacking in connectivity. - There is suitable habitat to support nesting birds and works have the potential to impact upon nesting birds during vegetation clearance. - An area of Japanese knotweed (<i>Reynoutria japonica</i> / <i>Fallopia japonica</i>) was observed on the northern verge of the A580 to the south-west of the Shell service station. Japanese knotweed is an INNS listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).	- Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall. The works area will require a walkover assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO order limits. Losses would need to be compensated for and additional biodiversity created to meet the 10% target. - Vegetation clearance will be undertaken outside of the nesting bird season (March-August inclusive). Where this is not possible an ecologist will undertake a

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
		pre-clearance nesting bird check. Provisions to protect nesting birds during construction will be provided in the oCEMP If brought into order limits measures to prevent the spread of INNS would be required. Appropriate management and treatment measures would be provided in the oCEMP or a standalone INNS management plan.
Cultural heritage NONE	There are no designated heritage assets within 500m of these works. As such, due to the minor nature of the works and the existing road infrastructure, there are unlikely to be any effects on the value (significance) on heritage assets arising from these works.	None
Archaeology LOW	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - The Archaeological Desk-Based

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets. • The below ground works required to extend the platform embankment, and a retaining wall might have an effect on archaeological deposits. • For this option, the presence of the existing road may indicate that only isolated pockets of surviving archaeological deposits are expected to be present within the selected area. It is likely that any archaeological remains within the footprint or in proximity to the existing have been partially or totally truncated by the construction works of the motorways and junction • No additional effects are expected during the operation or maintenance phases of the Proposed Development.	Assessment will inform on any requirement for further non-intrusive and/or intrusive survey. • Any further work, if required, should be contained to the currently undeveloped areas/ areas of high potential (if present) identified at Desk-Based Assessment stage, outside of the extant road and junction.
Surface water and flood risk LOW	• The works are located entirely within Flood Zone 1, which is defined as land having a low probability of flooding from rivers and the sea. There are no further mapped watercourses within proximity to the works. Therefore, the proposed works could proceed without being affected or detrimentally affecting third party flood risk from this source.	• Flood risk and drainage to be included in the ES. • Review the available capacity of the existing highway drainage. All works to have detailed review within a technical

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	- EA RoFSW mapping indicates that the majority of the works area is at very low probability of surface water flooding. However, some small areas of the proposed works are within areas at medium-high probability of surface water flooding, including the additional slip road traffic lane on the western roundabout arm, and the additional segregated left turn lane on the eastern roundabout arm. These areas generally present shallow depths with probable flooding not exceeding 0.3m. These areas will need to be reviewed in more detail within the ES and technical appendices to assess receptors, potential impacts and identify appropriate mitigation measures, if required. - A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data, these sources are not considered to pose a significant flood risk to the works area. - The proposed works will introduce new impermeable surfaces to the works area that will increase surface water runoff. The available capacity in the existing highway drainage should be reviewed to confirm if there is capacity for the additional flows. If there is insufficient capacity potential upgrade works, or an independent surface water drainage strategy should be explored. Appropriate surface water management will ensure that flood risk to third parties is not increased by the works.	document.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	With appropriate drainage design the impact is likely to be negligible.	
Geology, soils and contaminated land LOW	The works will require earthworks to extend the platform embankment and retaining walls to accommodate the additional lane. BGS mapping indicates that the ground conditions are anticipated to comprise Devensian Till over Chester Formation Sandstone. The Till is a Secondary undifferentiated Aquifer and the Sandstone is a Principal Aquifer and the location is within Zone 3 Total Catchment Source Protection Zone indicating a high level of controlled waters sensitivity. However, no significant contamination sources are known to exist. Negligible impact is expected on Ground Conditions. The location is not likely to be affected by significant contamination.	Ground investigation and geotechnical design to be completed in accordance with CD 622 (National Highways. Managing Geotechnical Risk, Standard CD 622 Design Manual for Roads and Bridges) in conjunction with National Highways and the relevant local highway authority, to manage the geotechnical risk on the scheme.
Materials and waste LOW	- These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. - Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material	Material use and waste generation during construction to be reviewed at the ES stage to confirm non-materiality.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	use and waste generation is expected and no operational impact is anticipated.	
Energy and climate change LOW	• These works would contribute to the ‘embodied carbon’ construction-stage impact of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • These works are unlikely to make a material contribution to the operational impact of the Proposed Development via change in traffic flows or change in electricity consumption, because traffic generation by the Proposed Development is part of the EIA and new street lighting or other equipment using electricity is not proposed. • These works are unlikely to make a material contribution to the landuse change impact of the Proposed Development given the scale and nature of habitat lost. • These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	• Embodied carbon to be assessed at the ES stage. • Other impacts to be reviewed at the ES stage to confirm non-materiality, including any changes in non-development traffic flows.
Population and human	• No residential receptor (closest is Haydock Park Farm Cottages) and no clear community use. Access and accessibility will not be impacted	• No further health assessment required.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
health LOW	(including to the rehabilitation centre with its own underpass), minor changes in air quality or noise in the absence of any receptor means no credible health risk.	

◆ Option 9: Golborne Island Roundabout

LOCATION

- 1.63 The potential junction improvement is located at the Golborne Island roundabout on the A588 south of Golborne and Lowton towns.
- 1.64 The Golborne Island is within the boundaries of Wigan Council.

Figure 1.16 Golborne Island Location Plan

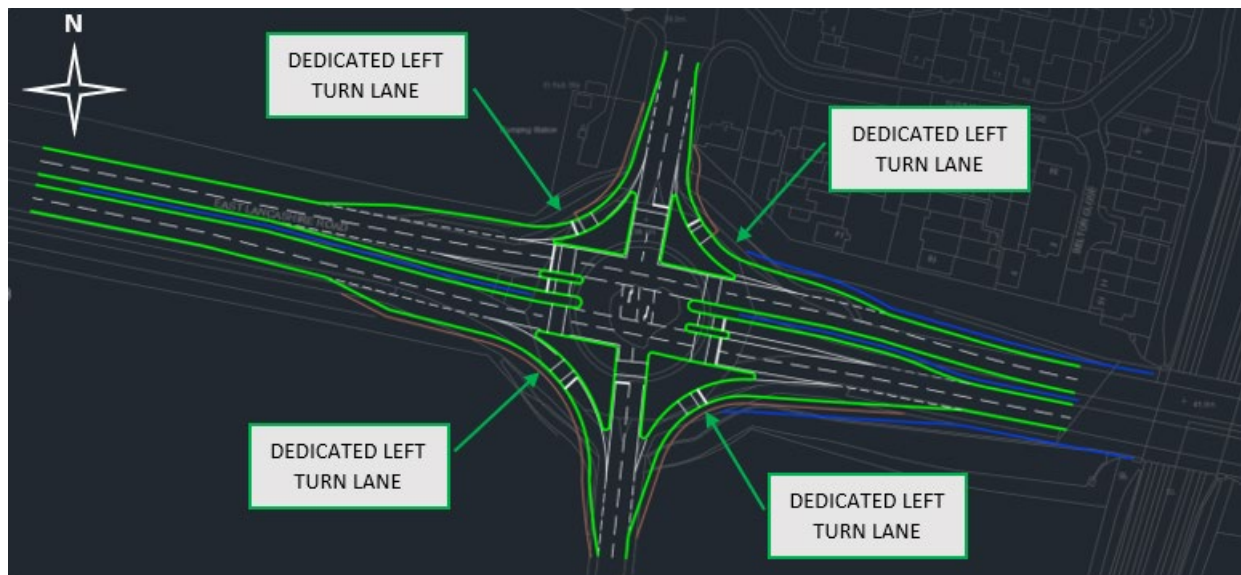


POTENTIAL WORKS

- 1.65 It is anticipated that the proposed work would comprise an existing roundabout junction to be converted into a signalised junction.

- 1.66 Additional dedicated left turn lanes would be provided at each quadrant of the junction.
- 1.67 On the East Lancashire Road (A580) additional dedicated right turn lanes would be provided at the signal control.
- 1.68 The highway works at the junction would include:
- pavement widening, footway realignment along the proposed edges, road marking re-arrangement and new drainage connections;
 - new dedicated right turn lanes;
 - new central reserve to accommodate additional turning lanes;
 - existing vehicle restraint barriers to be replaced and installed along the proposed pavement edge;
 - existing lighting columns to be offset from the proposed carriageway widening;
 - new traffic signals to be installed in accordance with the proposed junction layout at each arm; and
 - associated works to drainage, signing, road markings, and technology.

Figure 1.17 Golborne Island Junction Improvement



- 1.69 No changes to orders (speed limits or traffic regulation) are envisaged.

ENVIRONMENTAL ASSESSMENT

- 1.70 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the

option be taken forward and included as part of the DCO application.

Table 1.9 Option 9: Goldborne Island environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • The realignment of cycle and footpath will maintain access. • No further operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the proposed improvement scheme is expected to enhance junction capacity, thereby reducing driver delay and improving overall network efficiency. Furthermore, the change from a roundabout to a signalised junction is likely to improve driver safety at the junction. • In terms of non-motorised user delay and amenity due to the proposed	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the ES Stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	controlled crossing facilities, this is likely to improve in the operational phase.	
Air quality LOW	- During the construction phase of the works there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors. However, these can be mitigated through industry standard measures, as outlined in Institute of Air Quality Management (IAQM) guidance, to be included in the oCEMP. - It is unlikely that sensitive receptors will be affected during the operational phase as a result of the works.	- The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential effects and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. - No further steps required for the operational phase.
Noise and vibration MEDIUM (due to potential night-time construction works)	During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, particularly if the works need to take place at night, which can be a requirement of the relevant highway authority when working on existing roads. These could be considered significant at the closest receptors at Summercroft Close and Park Road, although this would depend on the specific methodology and the duration of the relevant works.	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and operational stages will be considered in detail as required at the ES stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	In terms of changes in road traffic noise once completed, the conversion of the junction and new turning lanes will mean that vehicles travel along slightly different lines when compared with the existing layout. However, when considered in the context of the existing roundabout layout, as well as the noise from the connecting A573 and A580, it is unlikely that the improvements would result in any material change in road traffic noise levels at any sensitive receptors.	
Landscape and visual impact LOW	- The works will result in the potential loss of existing vegetation adjacent to the roundabout. - The potential visual effects arising from the option will be contained to the adjacent residential properties on Summercroft Close. It is considered that there will be negligible effects on passing car users. - The option would result in likely limited landscape and visual effects, subject to production of a Landscape Plan showing replanting to mitigate losses, following completion of construction.	- Should the option be included in the DCO application, a site survey will be undertaken and an Illustrative Landscape Plan prepared. - Reference to the likely negligible effects in Chapter 10.
Arboriculture LOW	The works will result in the loss of a small area of ornamental shrub with individual small trees on the roundabout. Additionally, some small areas of modified grassland, woodland, scrub, and individual trees on the road	Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	verges may be lost to the proposals.	Proposed Development overall.
Agricultural land LOW	A small slither of farmland will be lost as a result of the widening. Provisional MAFF agricultural land classification indicate the land may be Best and Most Versatile agricultural land. The loss of the small area of land alone is unlikely to be significant.	No further work is required given the small area of agricultural land lost.
Ecology LOW	- The works will result in the loss of a small area of ornamental shrub with individual small trees and small area of modified grassland on the roundabout. Additionally, some small areas of modified grassland, woodland, scrub, and individual trees on the road verges may be lost to the proposals. The habitats lost are not unique or have high ecological distinctiveness, though the scrub/grassland to the south-east and south-west of the roundabout provides some ecological connectivity in an east/west orientation connecting to an area of woodland and Millingford Brook to the east. - There is suitable habitat to support nesting birds and works have the potential to impact upon nesting birds during vegetation clearance	- Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall. The works area will require a walkover assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO order limits. Losses would need to be compensated for, and additional biodiversity created to meet the 10% overall target. - Vegetation clearance will be undertaken outside of the nesting bird season (March-August inclusive). Where this is

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
		not possible an ecologist will undertake a pre-clearance nesting bird check. Provisions to protect nesting birds during construction will be provided in the oCEMP
Cultural heritage LOW	There are unlikely to be any significant effects on the value (significance) on heritage assets arising from these works. There would be two designated heritage assets within 500m of these works, Town Farmhouse (Grade II) and Lawson's Farmhouse (Grade II) to the north of the junction. Due to the minor nature of the works and existing screening by trees and built development between the asset and the junction, it is unlikely that these works would materially change the established presence of road infrastructure in the wider surroundings once complete.	None
Archaeology LOW	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - The Archaeological Desk-Based Assessment will inform on any

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	vary from displacement to a partial or full removal of any buried heritage assets. • The below ground works required to extend the platform embankment, and a retaining wall might have an effect on archaeological deposits. • For this option, given the presence of the existing road and the limited amount of below-groundwork expected to be undertaken outside of the current road boundaries, the potential for archaeological deposits to be affected is considered to be low. It is likely that any archaeological remains within the footprint or in proximity to the existing road have been partially or totally truncated by the construction works of the motorways and junction. • No additional effects are expected during the operation or maintenance phases of the Proposed Development.	requirement for further non-intrusive and/or intrusive survey. • Any further work, if required, would likely be contained to the currently undeveloped areas/ areas of high potential (if present) identified at Desk-Based Assessment stage, outside of the extant road and junction.
Surface water and flood risk LOW	• The works area is entirely located within Flood Zone 1, which is defined as land having a low probability of flooding from rivers and the sea. There are no further mapped watercourse within close proximity to the works. Therefore, the proposed works could proceed without being affected or detrimentally affecting third party flood risk from this source.	• Flood risk and drainage to be included in the ES. • Review the available capacity of the existing highway drainage. All works to have detailed review within drainage

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	- EA RoFSW mapping indicates that some small areas of the proposed works are within areas at low-high probability of surface water flooding, particularly along the existing northern and western roundabout arm. There is also an area of low-probability pooling at the southern roundabout arm exit. These areas generally present shallow depths with probable flooding not exceeding 0.3m. These areas will need to be reviewed in more detail within the ES to assess potential impacts and identify appropriate mitigation measures, if required. - A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data, these sources are not considered to pose a significant flood risk to the option. - The proposed works will introduce new impermeable surfaces to the works area that will increase surface water runoff. The available capacity in the existing highway drainage should be reviewed to confirm if there is capacity for the additional flows. If there is insufficient capacity potential upgrade works, or an independent surface water drainage strategy should be explored. Appropriate surface water management will ensure that flood risk to third parties is not increased by the works. - With appropriate drainage design the impact is likely to be negligible.	strategy design.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Geology, soils and contaminated land LOW	• Works not likely to have any effects on or from ground conditions or contamination.	• No further assessment required.
Materials and waste LOW	• These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. • Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	• Material use and waste generation during construction to be reviewed at the ES stage to confirm non-materiality.
Energy and climate change LOW	• Given the scale of these works, their impact would make a <i>de minimis</i> contribution to the overall construction-stage impact of the Proposed Development that would not be material to the total. • These works would not make a material contribution to the operational	• Impacts to be reviewed at the ES stage to confirm non-materiality.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	impact of the Proposed Development via change in traffic flows or change in electricity consumption due to their nature and scale. • These works would not make a material contribution to the landuse change impact of the Proposed Development due to the previously developed nature of the landuse. • These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	
Population and human health LOW	• The realignment of cycle and footpath will maintain access and accessibility, with improved safety via light crossings. • Changes in air noise concentration exposure unclear at this point. Likely to remain within objective thresholds protective of health, and not anticipated to be of a level change to quantify any change in health risk.	• Health assessment to review air quality and noise modelling and mitigation, and provide a proportionate assessment where appropriate.

◆ Option 10: East Lancashire Road (A580) / Church Lane Signalised Intersection

LOCATION

- 1.71 The potential junction improvement is located along the East Lancashire Road (A580) at the intersection with Church Lane, south of Lowton town.
- 1.72 The East Lancashire Road Junction is within the boundaries of Wigan Council.

Figure 1.18 East Lancashire Rd Location Plan



POTENTIAL WORKS

- 1.73 It is anticipated that the proposed work on East Lancashire Road would comprise the following upgrades:
- carriageway widening on East Lancashire Road (East and West in approach to the junction) to provide extended left turn lanes;

- 4-metre-wide left turn only lane from East Lancashire Road (east) to Church Lane (south); and
- carriageway widening on Church Lane (north) to provide an additional left turn lane.

1.74 At the junction, the existing traffic islands would be extended to accommodate left turning lanes and new pedestrian crossings.

1.75 The highway works at the junction would include:

- pavement widening, footway realignment along the proposed edges, road marking re-arrangement and new drainage connections;
- new dedicated left turn lanes;
- new extended traffic islands;
- existing lighting columns to be offset from the proposed carriageway widening;
- new traffic signals to be installed in accordance with the proposed junction layout at each arm; and
- associated works to drainage, signing, road markings, and technology.

Table 1.1 East Lancashire Rd Junction Improvement



1.76 No changes to orders (speed limits or traffic regulation) are envisaged.

ENVIRONMENTAL ASSESSMENT

1.77 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.10 Option 10: East Lancashire Road environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • No operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact user accessibility or housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the proposed improvement scheme is expected to enhance junction capacity, thereby reducing driver delay and improving overall network efficiency. • In terms of non-motorised user delay and amenity due to the proposed increased footway widening and new crossing facilities, this is likely to improve in the operational phase.	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the ES Stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
Air quality LOW	- During the construction phase of the works there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors. However, these can be mitigated through industry standard measures to be included in the oCEMP. - During the operational phase the new road alignment may change the location of road vehicle exhaust emissions in relation to nearby sensitive receptors, particularly those on Church Lane.	- The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential impacts and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. - The potential effects during the operational phase will be assessed through air quality modelling of the new road alignment at the ES stage and will consider potential changes in pollutant concentrations at nearby receptors.
Noise and vibration MEDIUM (due to potential night-time construction works)	During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, particularly if the works need to take place at night, which can be a requirement of the relevant highway authority when working on existing roads. These could be considered significant at the closest receptors at Church Lane and Meadow Cross Gardens, although this would depend on the specific methodology and the	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and operational stages will be considered in detail as required at the ES stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
	duration of the relevant works. In terms of changes in road traffic noise once completed, the carriageway widenings and turning lanes will mean that vehicles travel along slightly different lines when compared with the existing layout. However, when considered in the context of the relatively minor changes to the existing layout, as well as the noise from the nearby A580, it is unlikely that the improvement would result in any material change in road traffic noise levels.	
Landscape and visual impact LOW	- The works will result in the potential loss of existing vegetation adjacent to the road. - The potential visual effects arising from the option will be contained to the adjacent residential properties on Newton Road, Church Lane and the East Lancashire Road during construction and operation. It is considered that there will be negligible effects on passing car users. - The option would result in likely limited landscape and visual effects, subject to production of a landscape plan showing replanting to mitigate losses, following completion of construction.	- Should the option be included in the DCO application, a site survey will be undertaken and an Illustrative Landscape Plan prepared. - It is considered that the effects in relation to this option will be limited at both the construction and operational phase, this will be reported with the outcomes of the assessment in Chapter 10 of the ES.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
Arboriculture LOW	The works will result in the loss of a small area of modified grassland on the road verges with a small number of individual trees.	Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall.
Agricultural land LOW	The widening work is not expected to impact agricultural land.	None.
Ecology LOW	- The works will result in the loss of a small area of modified grassland on the road verges with a small number of individual trees. The habitats lost are not unique or have high ecological distinctiveness and only limited ecological connectivity. - There is suitable habitat to support nesting birds and works have the potential to impact upon nesting birds during vegetation clearance.	- Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall. The works area will require a walkover assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO order limits. Losses would need to be compensated for, and additional biodiversity created to meet the 10% target overall. - Vegetation clearance will be undertaken

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
		outside of the nesting bird season (March-August inclusive). Where this is not possible an ecologist will undertake a pre-clearance nesting bird check. Provisions to protect nesting birds during construction will be provided in the oCEMP
Cultural heritage LOW	There are no designated heritage assets within 500m of these works. As such, there are unlikely to be any effects on the value (significance) on heritage assets arising from these works.	None
Archaeology LOW	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets.	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - No further work is expected to be required for this option.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
	- For this option, the presence of the existing road may indicate that only isolated pockets of surviving archaeological deposits are expected to be present within the selected area. It is likely that any archaeological remains within the footprint or in proximity to the existing road have been partially or totally truncated by the construction works of the motorways and junction. - No additional effects are expected during the operation or maintenance phases of the Proposed Development.	
Surface water and flood risk LOW	- The works area is entirely located within Flood Zone 1, which is defined as land having a low probability of flooding from rivers and the sea. There are no further mapped watercourses within proximity to the works area. Therefore, the proposed works could proceed without being affected or detrimentally affecting third party flood risk from this source. - EA RoFSW mapping indicates that the works area is generally at very low probability of surface water flooding, aside from a small area of low-high probability pooling in the area marked 'dedicated left turn lane' and a small area of low- probability flooding to the east of this. These areas will need to be reviewed in more detail within the ES and technical appendices to assess receptors, potential impacts and identify appropriate mitigation measures, if required.	- Flood risk and drainage to be included in the ES. - The available capacity of the existing highway drainage will be reviewed. All works to have detailed review within drainage strategy design

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
	• A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data, these sources are not considered to pose a significant flood risk to the works area. • The proposed works will introduce new impermeable surfaces to the works area that will increase surface water runoff. The available capacity in the existing highway drainage should be reviewed to confirm if there is capacity for the additional flows. If there is insufficient capacity potential upgrade works, or an independent surface water drainage strategy should be explored. . Appropriate surface water management will ensure that flood risk to third parties is not increased by the works. • With appropriate drainage design the impact is likely to be negligible.	
Geology, soils and contaminated land LOW	• The works are not anticipated to require significant earthworks or retaining walls. Ground conditions are anticipated to comprise Devensian Till over Chester Formation Sandstone. The Till is a Secondary undifferentiated Aquifer and the Sandstone is a Principal Aquifer and the location is within Zone 3 Total Catchment Source Protection Zone indicating a high level of controlled waters sensitivity. However, no significant contamination sources are known to exist. Negligible impact is expected on Ground Conditions given this. The location is not likely to be	• Ground investigation and geotechnical design to be completed in accordance with CD 622 (National Highways. Managing Geotechnical Risk, Standard CD 622 Design Manual for Roads and Bridges) in conjunction with the relevant local highway authority, to manage the

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
	affected by significant contamination.	geotechnical risk on the scheme.
Materials and waste LOW	• These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. • Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	• Material use and waste generation during construction to be reviewed at the ES stage to confirm non-materiality.
Energy and climate change LOW	• These works would contribute to the ‘embodied carbon’ construction-stage impact of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • These works are unlikely to make a material contribution to the operational impact of the Proposed Development via change in traffic flows or change in electricity consumption, because traffic generation by	• Embodied carbon to be assessed at the ES stage. • Other impacts to be reviewed at the ES stage to confirm non-materiality, including any changes in non-development traffic flows.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely environmental impacts	Next steps
	the Proposed Development is part of the EIA and new street lighting or other equipment using electricity is not proposed. • These works are unlikely to make a material contribution to the landuse change impact of the Proposed Development given the scale and nature of habitat lost. • These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	
Population and human health LOW	• Changes in air and noise concentration exposure unclear at this point. Likely to remain within objective thresholds protective of health, and not anticipated to be of a level change to quantify any change in health risk.	• Health Assessment to review air quality and noise outputs to inform a proportionate health assessment, where necessary.

◆ Option 11: East Lancashire Road (A580) / Newton Lane Signalised Intersection

LOCATION

- 1.78 The potential junction improvement is located along the East Lancashire Road (A580) at the intersection with Newton Road, south of Lowton town.
- 1.79 The Newton Road Junction is within the boundaries of Wigan Council.

Figure 1.19 Newton Road Junction Location Plan



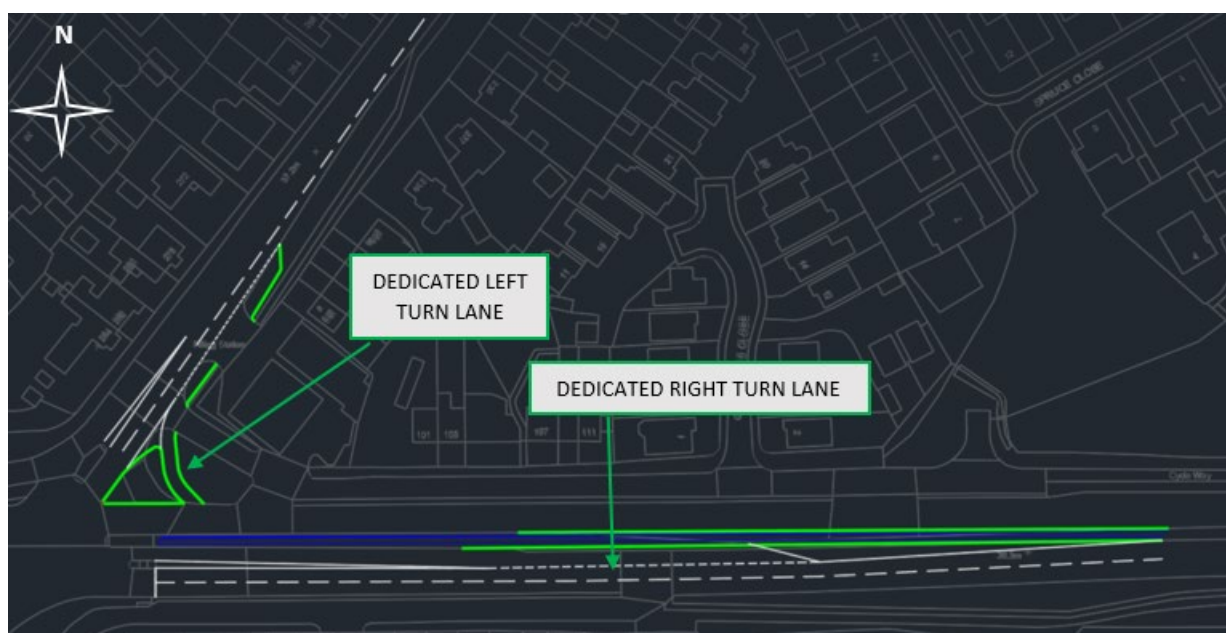
POTENTIAL WORKS

- 1.80 It is anticipated that the proposed work would comprise:
- carriageway widening on East Lancashire Road (east) to provide an extended dedicated right turn lane; and
 - carriageway widening on Newton Road (north) to provide a dedicated left turning lane.

1.81 The highway works at the junction would include:

- pavement widening, footway realignment along the proposed edges, road marking re-arrangement and new drainage connections;
- new built dedicated left turn lane;
- new built dedicated right turn lane;
- existing vehicle restraint barrier to be replaced and installed along the proposed realigned central reserve island;
- new traffic signals to be installed in accordance with the proposed junction layout at each arm; and
- associated works to drainage, signing, road markings, and technology.

Figure 1.20 Newton Rd Junction Improvement



1.82 No changes to orders (speed limits or traffic regulation) are envisaged.

ENVIRONMENTAL ASSESSMENT

1.83 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.11 Option 11: Newton Road environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • The works would not impact nearby private property or housing. • No further operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact user accessibility or housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the proposed improvement scheme is expected to enhance junction capacity, thereby reducing driver delay and improving overall network efficiency. • In terms of non-motorised user delay and amenity due to the proposed	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the ES Stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	increased footway widening and new crossing facilities, this is likely to improve in the operational phase.	
Air quality LOW	- During the construction phase of the works there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors. However, these can be mitigated through industry standard measures to be included in the oCEMP. - During the operational phase the new road alignment may change the location of road vehicle exhaust emissions in relation to nearby sensitive receptors, particularly those on the A580.	- The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential impacts and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. - The potential effects during the operational phase will be assessed through air quality modelling of the new road alignment at the ES stage and will consider potential changes in pollutant concentrations at nearby receptors.
Noise and vibration MEDIUM (due to potential night-time construction)	During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, particularly if the works need to take place at night, which can be a requirement of the relevant highway authority when working on existing roads. These could be considered significant at	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and operational stages will be considered in

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
works)	the closest receptors at Newton Road (North) and the A580, although this would depend on the specific methodology and the duration of the relevant works. In terms of changes in road traffic noise once completed, the carriageway widenings and turning lanes will mean that vehicles travel along slightly different lines when compared with the existing layout. However, when considered in the context of the relatively minor changes to the existing layout, as well as the noise from the nearby A580 and A572, it is unlikely that the improvement would result in any material change in road traffic noise levels.	detail as required at the ES stage.
Landscape and visual impact LOW	- The works will result in the potential loss of existing vegetation adjacent to the road. - The potential visual effects arising from the option will be contained to the adjacent residential properties on Newton Road and the East Lancashire Road during construction and operation. It is considered that there will be negligible effects on passing car users. - The option would result in likely limited landscape and visual effects, subject to production of an Illustrative Landscape Plan showing replanting to mitigate losses, following completion of construction.	- Should the option be taken forward to the DCO application, a site survey will be undertaken and an Illustrative Landscape Plan prepared. - It is considered that the effects in relation to this option will be limited at both the construction and operational phase, this will be reported with the outcomes of the assessment in Chapter 10 of the ES.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Arboriculture LOW	The works will result in the potential loss of existing vegetation adjacent to the road.	Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall.
Agricultural land LOW	The widening work is not expected to impact agricultural land.	None.
Ecology LOW	The works will result in the loss of a small area of modified grassland on the road verges. The habitats lost are not unique or have high ecological distinctiveness and only limited ecological connectivity.	Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall. The works area will require a walkover assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO order limits. Losses would need to be compensated for, and additional biodiversity created to meet the 10% overall target.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Cultural heritage LOW	There are no designated heritage assets within 500m of these works. As such, there are unlikely to be any effects on the value (significance) on heritage assets arising from these works.	None
Archaeology LOW	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets. - For this option, given the presence of the existing road, the limited amount of below-ground work expected to be undertaken outside of the current road, and the substantially developed surroundings, the potential for archaeological deposits to be effected is considered to be low. It is likely that any archaeological remains within the footprint or in proximity to the existing road have been partially or totally truncated by the construction works of the motorways. - No additional effects are expected during the operation or maintenance	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - The Archaeological Desk-Based Assessment will inform on any requirement for further non- intrusive and/or intrusive survey. - Any further work, if required, would likely be contained to the currently undeveloped areas/ areas of high potential (if present) identified at Desk-Based Assessment stage, outside of the extant road and junction.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	phases of the Proposed Development.	
Surface water and flood risk MEDIUM (subject to detailed assessment)	• There is a small area of Flood Zone 2, which is defined as land having a medium probability of flooding from rivers and the sea, along the south of the East Lancashire Road, attributed to an Unnamed Ordinary Watercourse. However, the proposed works appear to be located outside of the flood extents and therefore could proceed without being affected or detrimentally affecting third party flood risk from this source. There are no other mapped watercourse within close proximity to the proposed works. • EA RoFSW mapping indicates that the works area is generally at very low probability of surface water flooding, aside from a small area of low-probability pooling in the area marked 'dedicated left turn lane'. These areas are generally of shallow depths with probable flooding no greater than 0.3m. This area will need to be reviewed in more detail within the ES and technical appendices to assess receptors, potential impacts and identify appropriate mitigation measures, if required. • A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data, these sources are not considered to pose a significant flood risk to the works area.	• Flood risk and drainage will be assessed in the ES. • The available capacity of the existing highway drainage will be reviewed. All works to have detailed review within drainage strategy design.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	- The proposed works will introduce new impermeable surfaces to the works area that will increase surface water runoff. The available capacity in the existing highway drainage should be reviewed to confirm if there is capacity for the additional flows. If there is insufficient capacity potential upgrade works, or an independent surface water drainage strategy should be explored. . Appropriate surface water management will ensure that flood risk to third parties is not increased by the works.. - With appropriate drainage design the impact is likely to be negligible.	
Geology, soils and contaminated land LOW	The works are not anticipated to require significant earthworks or retaining walls Ground conditions are anticipated to comprise Devensian Till over Chester Formation Sandstone. The Till is a Secondary undifferentiated Aquifer and the Sandstone is a Principal Aquifer and the location is within Zone 3 Total Catchment Source Protection Zone indicating a high level of controlled waters sensitivity. However, no significant contamination sources are known to exist. Negligible impact is expected on Ground Conditions given this. The location is not likely to be affected by significant contamination.	Ground investigation and geotechnical design to be completed in accordance with CD 622 (National Highways. Managing Geotechnical Risk, Standard CD 622 Design Manual for Roads and Bridges) in conjunction the relevant local highway authority, to manage the geotechnical risk on the scheme.
Materials and waste	These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during	Material use and waste generation during construction to be reviewed at the ES

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
LOW	the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	stage to confirm non-materiality.
Energy and climate change LOW	- These works would contribute to the ‘embodied carbon’ construction-stage impact of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. - These works are unlikely to make a material contribution to the operational impact of the Proposed Development via change in traffic flows or change in electricity consumption, because traffic generation by the Proposed Development is part of the EIA and new street lighting or other equipment using electricity is not proposed. - These works are unlikely to make a material contribution to the landuse change impact of the Proposed Development given the scale and nature	- Embodied carbon to be assessed at the ES stage - Other impacts to be reviewed at the ES stage to confirm non-materiality, including any changes in non-development traffic flows

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	of habitat lost. These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	
Population and human health LOW	- The proposed works will utilise the central reservation for the dedicated right turn, and no significant take of the East Lancashire road abutting the residential properties on the left turn. There is no change in community severance. - Changes in air and noise concentration exposure unclear, but likely to remain within objective thresholds protective of health, and not anticipated to be of a level change to quantify any change in health risk.	Health Assessment to review air and noise outputs, and provide a proportionate response / assessment.

◆ Option 12: East Lancashire Road (A580) / A579 Atherleigh Way Signalised Intersection

LOCATION

- 1.84 The potential junction improvement is located along the East Lancashire Road at the intersection with Atherleigh Way (north).
- 1.85 The Atherleigh Way Junction is within the boundaries of Wigan Council.

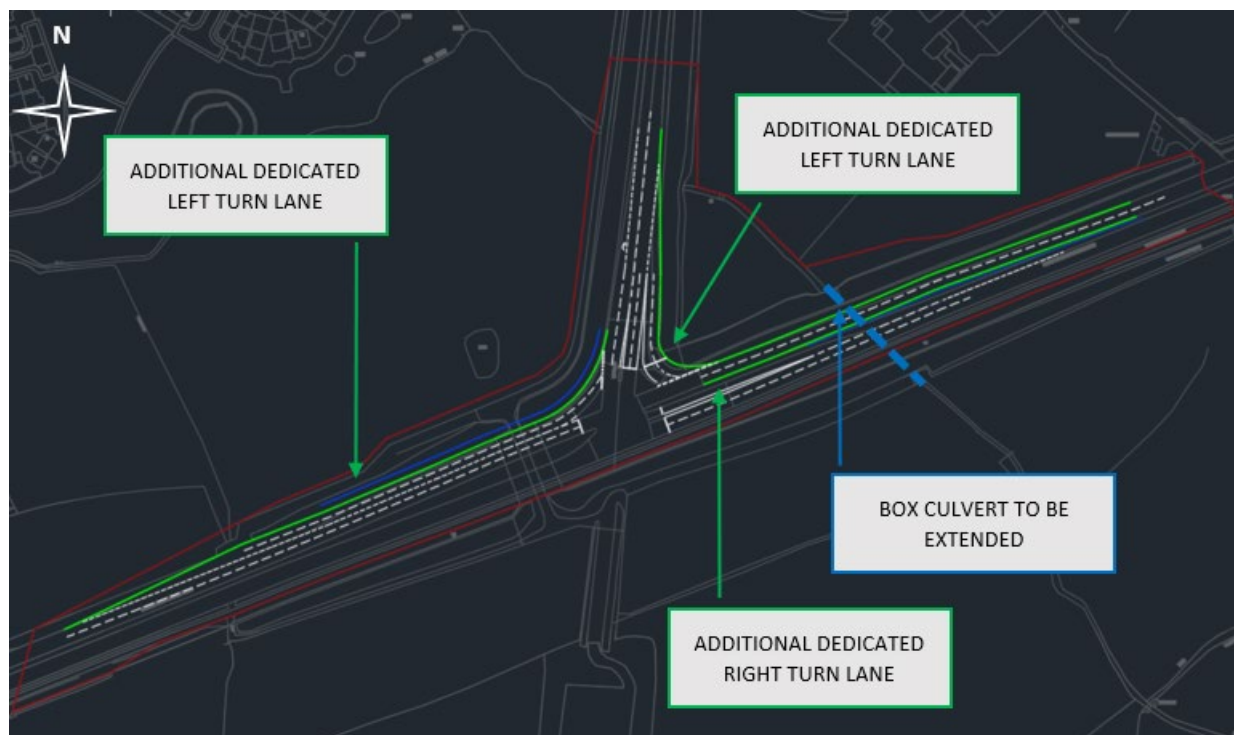
Figure 1.21 Atherleigh Way Location Plan



POTENTIAL WORKS

- 1.86 It is anticipated that the proposed work would comprise the signal junction upgrades:
- carriageway widening on East Lancashire Road (east) to provide an extended right turn lane;
 - carriageway widening on East Lancashire Road (west) to provide additional queue capacity and an additional left turning lane; and
 - carriageway widening on Atherleigh Way (north) to provide an additional left turning lane.
- 1.87 Due to carriageway widening, the existing box culvert beneath the road on the north side of East Lancashire Road is likely to need to be extended.
- 1.88 The highway works at the junction would include:
- pavement widening, footway realignment along the proposed edges, road marking re-arrangement and new drainage connections;
 - new dedicated left turn lane;
 - new dedicated right turn lane;
 - existing vehicle restraint barrier to be replaced and installed along the proposed realigned central reserve island;
 - new traffic signals to be installed in accordance with the proposed junction layout at each arm; and
 - associated works to drainage, signing, road markings, and technology.

Figure 1.22 Atherleigh Way Junction Improvement



1.89 No changes to orders (speed limits or traffic regulation) are envisaged.

ENVIRONMENTAL ASSESSMENT

1.90 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.12 Option 12: Atherleigh Way environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed. • Negligible impacts are anticipated related to land use and accessibility, primarily with some likely non-significant impact linked to the potential loss of agricultural land at Hawthorne D Farm northeast of the junction by the new left turn lane onto Atherleigh Way, and at Pocket Nook Farm northwest of the junction by the new left turn lane onto East Lancashire Road. • No further operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality. • Non-materiality and impact of the loss of agricultural land to be assessed at the ES stage.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the proposed improvement scheme is expected to	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the ES

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	enhance junction capacity, thereby reducing driver delay and improving overall network efficiency. Severance, delay and amenity for non-motorised users, and fear and intimidation are not anticipated to be affected by this scheme, as the junction does not currently accommodate facilities for pedestrians or cyclists.	Stage.
Air quality LOW	It is unlikely that any sensitive receptors would be affected during the construction and operational phases.	No further steps required.
Noise and vibration LOW	- During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, primarily Yates Farm, particularly if the works need to take place at night, which can be a requirement of the relevant highway authority when working on existing roads. - In terms of changes in road traffic noise once completed, the carriageway widenings and turning lanes will mean that vehicles travel along slightly different lines when compared with the existing layout. However, when considered in the context of the relatively minor changes to the existing layout, as well as the noise from the nearby A580 and A579, it is unlikely	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and operational stages will be considered in detail as required at the ES stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	that the improvement would result in any material change in road traffic noise levels.	
Landscape and visual impact LOW	• The works will result in the potential loss of existing vegetation adjacent to the road. • The potential visual effects arising from the option will be contained to the adjacent residential properties to the north-west in Lowton Common during construction and operation. It is considered that there will be negligible effects on passing car users. • The option would result in likely limited landscape and visual effects, subject to production of an Illustrative Landscape Plan showing replanting to mitigate losses, following completion of construction.	• Should the option be taken forward to the DCO application, a site survey will be undertaken and an Illustrative Landscape Plan prepared. • It is considered that the effects in relation to this option will be limited at both the construction and operational phase, this will be reported with the outcomes of the assessment in Chapter 10 of the ES.
Arboriculture LOW	• The works will result in the loss of a small area of modified grassland on the road verges with a number of small individual trees and shrubs	• Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall.
Agricultural land	• A small slither of farmland will be lost as a result of the widening. Provisional MAFF agricultural land classification indicate the land may be Best and Most Versatile agricultural land. The loss of the small area of	• No further work is required given the small area of agricultural land lost.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
LOW	land alone is unlikely to be significant.	
Ecology LOW	- The works will result in the loss of a small area of modified grassland on the road verges with a number of small individual trees and shrubs. The habitats lost do not represent any unique or ecologically valuable habitat and only limited ecological connectivity. - There is suitable habitat to support nesting birds and works have the potential to impact upon nesting birds during vegetation clearance. - There is suitable habitat to support European hedgehogs and works have the potential to impact upon hedgehogs during vegetation clearance.	- Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall. The works area will require a walkover assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO order limits. Losses would need to be compensated for and additional biodiversity created to meet the 10% overall target. - Vegetation clearance will be undertaken outside of the nesting bird season (March-August inclusive). Where this is not possible an ecologist will undertake a pre-clearance nesting bird check. Provisions to protect nesting birds during construction will be provided in the

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
		oCEMP Provisions to protect hedgehogs during construction will be provided in the oCEMP.
Cultural heritage LOW	There are no designated heritage assets within 500m of these works. The closest asset would be Yew Tree Farmhouse (Grade II) which would sit beyond 500m. Due to the minor nature of the works, the distance between them and existing tree screening between the asset and the A580, it is unlikely that these works would materially affect the value (significance) of this heritage asset; there would be no significant effects arising to heritage assets.	None
Archaeology LOW	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets.	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - The Archaeological Desk-Based Assessment will inform of any requirement for further non- intrusive and/or intrusive survey.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	• The below ground works required to extend the platform embankment and box culvert extension, might have an effect on archaeological deposits. • Temporary working compounds, access roads, ecological mitigation areas might have potential to result in a significant effect on archaeological deposits in the form of compaction and/or displacement. • For this option, given the presence of the existing road, only isolated pockets of surviving archaeological deposits are expected to be present within the undeveloped sections of the proposed development area. It is likely that any archaeological remains within the footprint or in proximity to the existing road have been partially or totally truncated by the construction works of the motorways and junction. • A higher potential for surviving archaeology is expected within the open area situated between the A580 and Atherleigh Way, on the northeast section of the junction. No physical works are proposed in this area. • No additional effects are expected during the operation or maintenance phases of the proposed works.	• Any further work, if required, would likely be contained to the currently undeveloped areas/ areas of high potential (if present) identified at Desk-Based Assessment stage, outside of the extant road and junction.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Surface water and flood risk MEDIUM	• There is a culverted watercourse, the Carr Brook, which runs beneath Atherleigh Way and the East Lancashire Road. Consequently, two small areas of Flood Zone 3, defined as land with a high probability of flooding from rivers and the sea, are present where the watercourse passes beneath the road. The Flood Zones are generally constrained to the culvert, except to the north of the East Lancashire Road. In this area, it is proposed to extend the existing box culvert to accommodate the carriageway widening. Works will need to be undertaken to ensure extension of the existing culvert does not detrimentally affect flows resulting in an increase in flood risk to third parties. • EA RoFSW mapping indicates that the works area is generally at very low probability of surface water flooding, aside from a low-probability surface water flow path which crosses the East Lancashire Road and intercepts the proposed additional left turn lane. This will need to be reviewed in more detail within the ES and technical appendices to assess potential receptors, impacts and identify appropriate mitigation measures, if required. • A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data, these sources are not considered to pose a significant flood risk to the works area.	• Flood risk and drainage to be assessed as part of the ES. • Review the available capacity of the existing highway drainage. All works to have detailed review within drainage strategy design.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	- The proposed works will introduce new impermeable surfaces to the works area that will increase surface water runoff. The available capacity in the existing highway drainage should be reviewed to confirm if there is capacity for the additional flows. If there is insufficient capacity potential upgrade works, or an independent surface water drainage strategy should be explored. Appropriate surface water management will ensure that flood risk to third parties is not increased by the works. - With appropriate drainage design the impact is likely to be negligible.	
Geology, soils and contaminated land LOW	The works may require earthworks to widen the existing embankment. BGS mapping indicates that the ground conditions are anticipated to comprise Alluvium over Wilmslow Formation Sandstone. The Alluvium is a Secondary undifferentiated Aquifer and the Sandstone is a Principal Aquifer and the location is within Zone 2 Outer Source Protection Zone indicating a high level of controlled waters sensitivity. However, no significant contamination sources are known to exist. Negligible impact is expected on Ground Conditions given this. The location is not likely to be affected by significant contamination.	Ground investigation and geotechnical design to be completed in accordance with CD 622 (National Highways. Managing Geotechnical Risk, Standard CD 622 Design Manual for Roads and Bridges) in conjunction the relevant local highway authority, to manage the geotechnical risk on the scheme.
Materials and waste	These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during	Material use and waste generation during construction to be reviewed at the ES

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
LOW	the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	stage to confirm non-materiality.
Energy and climate change LOW	- These works would contribute to the ‘embodied carbon’ construction-stage impact of the Proposed Development. Given the scale of these works, their impact is likely to be a minimal component of the overall construction-stage impact of the Proposed Development and is unlikely to be material to the total. - These works are unlikely to make a material contribution to the operational impact of the Proposed Development via change in traffic flows or change in electricity consumption, because traffic generation by the Proposed Development is part of the EIA and new street lighting or other equipment using electricity is not proposed. - These works are unlikely to make a material contribution to the landuse change impact of the Proposed Development given the scale and nature	- Materiality of embodied carbon to be reviewed at the ES stage and assessed further if required. - Other impacts to be reviewed at the ES stage to confirm non-materiality, including any changes in non-development traffic flows.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	of habitat lost. These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	
Population and human health LOW	No residential receptor and no clear community use impacted. No further assessment required.	No further health assessment required.

◆ Option 13: East Lancashire Road (A580) / Piele Road LILO Junction

LOCATION

- 1.91 The potential improvement is located along the East Lancashire Road (A580) at the intersection with Haydock Lane, south of Haydock Lane Industrial Estate.
- 1.92 Piele Road Junction is within the boundaries of St Helens Borough Council.

Figure 1.23 Piele Road Location Plan



POTENTIAL WORKS

- 1.93 It is anticipated that the proposed work would comprise an additional lane for straight-through movements created by widening the carriageway on the south side and narrowing the central reserve.
- 1.94 The highway works at the junction would include:
- pavement widening, road marking re-arrangement and new drainage connections;
 - new kerb lines;
 - existing vehicle restraint barrier to be replaced and installed along the proposed realigned central reserve island;

- new traffic signals to be installed in accordance with the proposed junction layout at each arm; and
- associated works to drainage, signing, road markings, and technology.

Figure 1.24 Piele Road Junction Improvement



1.95 No changes to orders (speed limits or traffic regulation) are envisaged.

ENVIRONMENTAL ASSESSMENT

1.96 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.13 Option 13: Piele Road environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • The works would not impact nearby private property, housing, community assets or businesses. • No further operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact user accessibility or housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the proposed improvement scheme is expected to enhance junction capacity, thereby reducing driver delay and improving overall network efficiency.	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the ES Stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	Severance, delay and amenity for non-motorised users, and fear and intimidation are not anticipated to be affected by this scheme, as the junction does not currently accommodate facilities for pedestrians or cyclists.	
Air quality LOW	- During the construction phase of the works there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors. However, these can be mitigated through industry standard measures to be included in the oCEMP. - During the operational phase the new road alignment may change the location of road vehicle exhaust emissions in relation to nearby sensitive receptors, particularly those along Piele Road.	- The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential impacts and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. - The potential effects during the operational phase will be assessed through air quality modelling of the new road alignment at the ES stage and will consider potential changes in pollutant concentrations at nearby receptors.
Noise and vibration	During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, primarily on Great Delph, particularly if the	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
LOW	works need to take place at night, which can be a requirement of the relevant highway authority when working on existing roads. In terms of changes in road traffic noise once completed, the carriageway widening and additional lane will mean that vehicles travel along slightly different lines when compared with the existing layout. However, when considered in the context of the relatively minor changes to the existing layout, as well as the noise from the A580, it is unlikely that the improvement would result in any material change in road traffic noise levels.	operational stages will be considered in detail as required at the ES stage.
Landscape and visual impact LOW	No impact	None proposed
Arboriculture LOW	No loss of vegetation	None
Agricultural land	The widening work is not expected to impact agricultural land.	None.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
LOW		
Ecology LOW	- The works will result in the loss of a small area of modified grassland on the road verges. Adjacent woodland planting may be impacted by works within the root protection zone of the trees and may result in loss of a small area of woodland habitat. The habitats lost do not represent any unique habitats and only limited ecological connectivity. - There is suitable habitat to support nesting birds and works have the potential to impact upon nesting birds during vegetation clearance - There is suitable habitat to support European hedgehogs and works have the potential to impact upon hedgehogs during vegetation clearance.	- Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall. The works area will require a walkover assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO order limits. Losses would need to be compensated for and additional biodiversity created to meet the 10% overall target. - The loss of drainage will result in the loss of watercourse units within the BNG statutory metric. It is unlikely that additional units can be created within the scheme and off-site compensation will need to be sought. - Vegetation clearance will be undertaken

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
		outside of the nesting bird season (March-August inclusive). Where this is not possible an ecologist will undertake a pre-clearance nesting bird check. Provisions to protect nesting birds during construction will be provided in the oCEMP. Provisions to protect hedgehogs during construction will be provided in the oCEMP.
Cultural heritage LOW	There are no designated heritage assets within 500m of these works. As such, there are unlikely to be any effects on the value (significance) on heritage assets arising from these works.	None
Archaeology LOW	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - No further work is expected to be

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets. - For this option, given the presence of the existing road, the limited amount of below-ground work expected to be undertaken outside of the current road boundaries, and the substantially developed surroundings, the potential for surviving archaeological deposits is considered to be low - No additional effects are expected during the operation or maintenance phases of the proposed works.	required for this option.
Surface water and flood risk MEDIUM	- There are areas of Flood Zone 2 and 3, defined as having a medium to high probability of flooding from rivers and the sea, on the northern side of the East Lancashire Road. However, the proposed works appear to be located outside of the 1 in 100-year defended climate change extents for the so it is expected that the works could proceed without being affected or detrimentally affecting third party flood risk from this source. - EA RoFSW mapping indicates that the works area is generally at very low probability of surface water flooding. However, the additional straight-through lane is proposed within an area at medium to high probability of surface water flooding. This area is of a low depth with a very low probability of flooding greater than 0.2m. This will need to be reviewed	- Flood risk and drainage to be assessed as part of the ES. - Review the available capacity of the existing highway drainage. All works to have detailed review within drainage strategy design.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	in more detail within the ES and technical appendices to assess potential receptors, impacts and identify appropriate mitigation measures, if required. • A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data, these sources are not considered to pose a significant flood risk to the works area. • The proposed works will introduce new impermeable surfaces to the works area that will increase surface water runoff. The available capacity in the existing highway drainage should be reviewed to confirm if there is capacity for the additional flows. If there is insufficient capacity potential upgrade works, or an independent surface water drainage strategy should be explored. Appropriate surface water management will ensure that flood risk to third parties is not increased by the works. • With appropriate drainage design the impact is likely to be negligible.	
Geology, soils and contaminated land LOW	• The works may require earthworks to widen the existing embankment BGS mapping indicates that the ground conditions are anticipated to comprise Devensian till over Pennine Middle Coal Measures . The Till is a Secondary undifferentiated Aquifer and the Coal Measures is a Secondary A Aquifer and the location is not within a Source Protection	• Ground investigation and geotechnical design to be completed in accordance with CD 622 (National Highways. Managing Geotechnical Risk, Standard CD 622 Design Manual for Roads and

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	Zone indicating a high level of controlled waters sensitivity. However, no significant contamination sources are known to exist. Negligible impact is expected on Ground Conditions given this. The location is not likely to be affected by significant contamination.	Bridges) in conjunction with the relevant local highway authority, to manage the geotechnical risk on the scheme.
Materials and waste LOW	• These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. • Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	• Material use and waste generation during construction to be reviewed at the ES stage to confirm non-materiality.
Energy and climate change LOW	• Given the scale of these works, their impact would make a <i>de minimis</i> contribution to the overall construction-stage impact of the Proposed Development that would not be material to the total. • These works would not make a material contribution to the operational	• Impacts to be reviewed at the ES stage to confirm non-materiality.

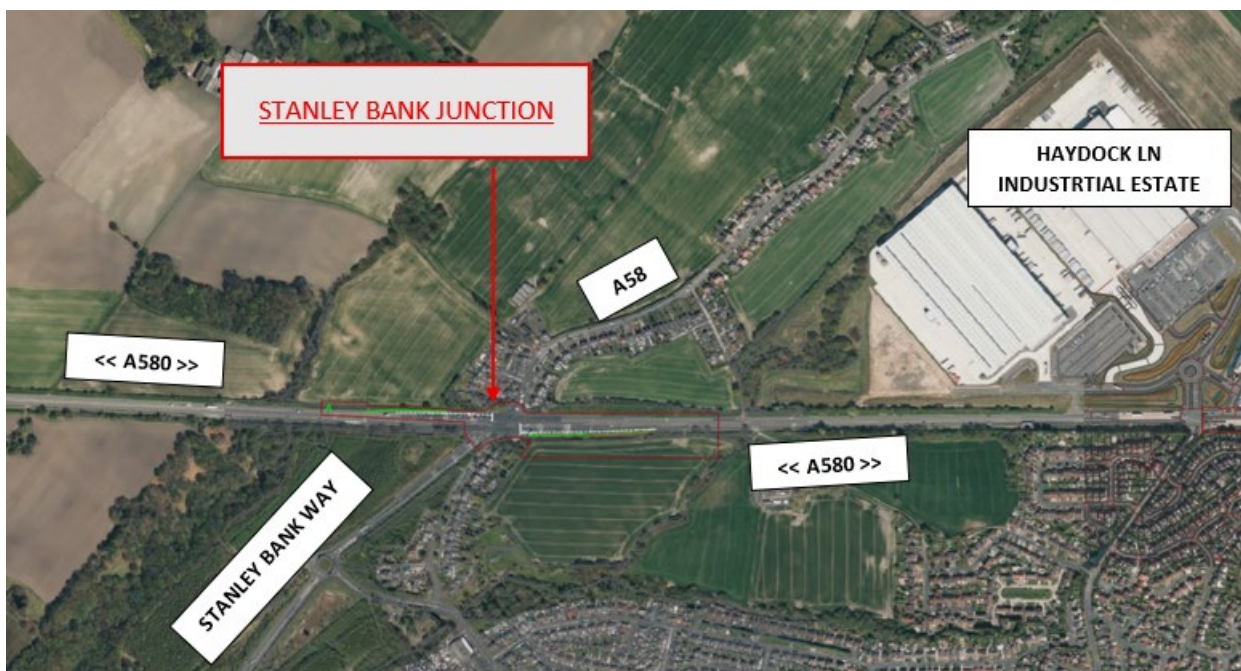
Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	impact of the Proposed Development via change in traffic flows or change in electricity consumption due to their nature and scale. • These works would not make a material contribution to the landuse change impact of the Proposed Development due to the previously developed nature of the landuse. • These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	
Population and human health LOW	• While space will be taken from the central reservation, there is still the requirement to bring the A580 closer to the Peile Park and to the rear of the residential properties on Great Delph road. Access and accessibility will be maintained, but changes in air and noise is likely, and given the permanent nature, would warrant further investigation as to health significance.	• Health Assessment to review air quality and noise outputs and proposed mitigation to rationalise any further health assessment.

◆ Option 14: East Lancashire Road (A580) / Stanley Bank Way Signalised Crossroads

LOCATION

- 1.97 The potential junction improvement is located along the East Lancashire Road (A580) at the intersection with Stanley Bank Way, north of Haydock and Blackbrook.
- 1.98 Stanley Bank Way Junction is within the boundaries of St Helens Borough Council.

Figure 1.25 Stanley Bank Way Location Plan

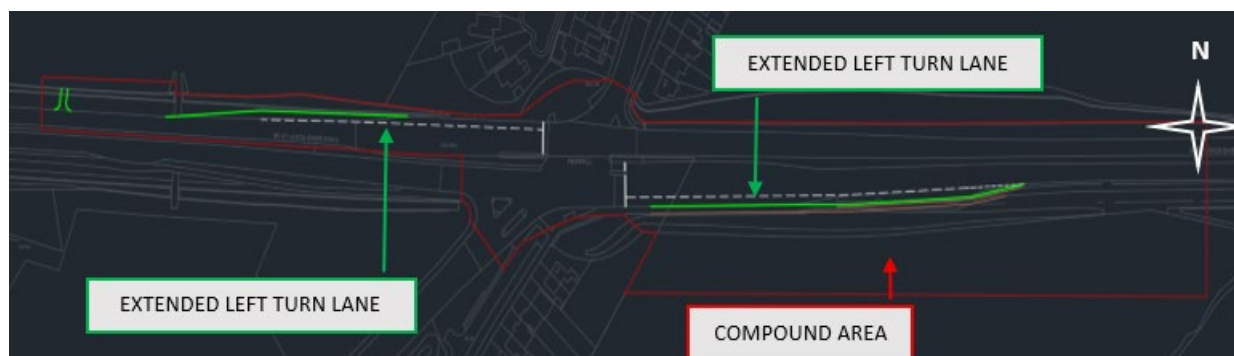


POTENTIAL WORKS

- 1.99 It is anticipated that the proposed work would comprise widening the carriageway to provide an additional dedicated left turn lane on East Lancashire Road (east).
- 1.100 The existing carriageway on East Lancashire Road (west) would be widened to provide additional queuing capacity for the left turn lane.
- 1.101 The highway works at the junction would include:

- pavement widening, road marking re-arrangement and new drainage connections;
- new kerb lines;
- existing lighting columns to be reinstalled along the new proposed kerb lines;
- new traffic signals to be installed in accordance with the proposed junction layout at each arm; and
- associated works to drainage, signing, road markings, and technology.

Figure 1.26 Stanley Bank Way Junction Improvement



1.102 No changes to orders (speed limits or traffic regulation) are envisaged.

ENVIRONMENTAL ASSESSMENT

1.103 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the option be taken forward and included as part of the DCO application.

Table 1.14 Option 14: Stanley Bank Way environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • No likely impacts on land use and accessibility are anticipated. • No further operational impact is anticipated. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality.
Transport LOW	• Temporary traffic management measures will be required during the construction phase, which may result in increased driver delay and disruption to normal traffic flow. • Upon completion, the proposed improvement scheme is expected to enhance junction capacity, thereby reducing driver delay and improving overall network efficiency. • Severance, delay and amenity for non-motorised users, and fear and intimidation are not anticipated to be affected by this scheme, as the	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport Assessment and Transport ES Chapter, which will form part of the ES Stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	junction does not currently accommodate facilities for pedestrians or cyclists.	
Air quality LOW	- During the construction phase of the works there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors. However, these can be mitigated through industry standard measures to be included in the oCEMP. - During the operational phase the new road alignment may change the location of road vehicle exhaust emissions in relation to nearby sensitive receptors, particularly those along the A58 and Stanley Bank Way.	- The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential impacts and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. - The potential effects during the operational phase will be assessed through air quality modelling of the new road alignment at the ES stage and will consider potential changes in pollutant concentrations at nearby receptors.
Noise and vibration LOW	During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, primarily on Great Delph, particularly if the works need to take place at night, which can be a requirement of the	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and operational stages will be considered in

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	relevant highway authority when working on existing roads. In terms of changes in road traffic noise once completed, the carriageway widening and additional lane will mean that vehicles travel along slightly different lines when compared with the existing layout. However, when considered in the context of the relatively minor changes to the existing layout, as well as the noise from the A580, it is unlikely that the improvement would result in any material change in road traffic noise levels.	detail as required at the ES stage.
Landscape and visual impact LOW	- The option will not result in loss of vegetation and there will only be temporary visibility of construction activity from adjacent residential receptors and passing car users. - It is considered that there will be overall negligible landscape and visual effects.	No further steps.
Arboriculture LOW	Habitats to be lost include areas of grassland and ruderal vegetation (verges embankment), some scrub (bramble and mixed on the top of embankment) and individual trees (on embankments), and young woodland planting to the north of the highway	Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Agricultural land LOW	A small slither of farmland will be lost as a result of the widening. Provisional MAFF agricultural land classification indicate the land may be Best and Most Versatile agricultural land. The small area of agricultural land lost alone is unlikely to be significant.	No further work is required given the small area of agricultural land lost.
Ecology LOW	- Habitats to be lost include areas of grassland and ruderal vegetation (verges embankment), some scrub (bramble and mixed on the top of embankment) and individual trees (on embankments), and young woodland planting to the north of the highway. The compound area would also lead to temporary loss of an area of agricultural land. The habitats present are not unique or particularly ecologically valuable in themselves but do have some connectivity to habitats to the south-west and west. - There is suitable habitat to support nesting birds and works have the potential to impact upon nesting birds during vegetation clearance. - There is suitable habitat to support European hedgehogs and works have the potential to impact upon hedgehogs during vegetation clearance.	- Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall. The works area will require a walkover assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO order limits. Losses would need to be compensated for and additional biodiversity created to meet the 10% overall target. - Vegetation clearance will be undertaken outside of the nesting bird season (March-August inclusive). Where this is not possible an ecologist will undertake a

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
		pre-clearance nesting bird check. Provisions to protect nesting birds during construction will be provided in the oCEMP • Provisions to protect hedgehogs during construction will be provided in the oCEMP • Where possible habitats will be retained (e.g. hedgerows on the periphery of the proposed compound). The oCEMP will prescribe appropriate Biodiversity Protection Zones (BPZs) to protect habitats from construction impacts.
Cultural heritage LOW	• There are unlikely to be any significant effects on the value (significance) on heritage assets arising from these works. There would be one designated heritage assets within 500m of these works, Pear Tree Farmhouse (Grade II). Due to the minor nature of the works and intervening built development between the asset and this junction, it is unlikely that these works would be appreciable in the wider surroundings of this asset once complete.	• None

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Archaeology LOW	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets. - Temporary working compounds, ground compaction for access roads, storage of materials and ecological mitigation areas might have potential to result in a significant effect on any known and unknown archaeological assets in the form of compaction and/or displacement , if present. - For this option, the presence of the existing road may indicate that only isolated pockets of surviving archaeological deposits are expected to be present within the selected area. It is likely that any archaeological remains within the footprint or in proximity to the existing road have been partially or totally truncated by the construction works of the motorways and junction.	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - The Archaeological Desk-Based Assessment will inform on any requirement for further non- intrusive and/or intrusive survey. - Any further work, if required, would likely be contained to the currently undeveloped areas/ areas of high potential (if present) identified at Desk-Based Assessment stage, outside of the extant road and junction. It is expected that such work will likely to be required within the strip of open land to the south of the highway.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	No additional effects are expected during the operation or maintenance phases of the proposed works.	
Surface water and flood risk LOW	- There works area is entirely within Flood Zone 1, defined as land having a low probability of flooding from rivers and the sea. There are no mapped watercourses within close proximity to the proposed works. Therefore, it is expected that the works could proceed without being affected or detrimentally affecting third party flood risk from this source. - EA RoFSW mapping indicates that the eastern extended left turn lane is partially within an area at low-medium probability of surface water flooding. This will need to be reviewed in more detail within the ES and technical appendices to assess potential receptors, impacts and identify appropriate mitigation measures, if required. - A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data, these sources are not considered to pose a significant flood risk to the works area. - The proposed works will introduce new impermeable surfaces to the works area that will increase surface water runoff. The available capacity in the existing highway drainage should be reviewed to confirm if there	- Flood risk and drainage will be assessed in the ES. - The available capacity of the existing highway drainage will be reviewed. All works to have detailed review within drainage strategy design

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	is capacity for the additional flows. If there is insufficient capacity potential upgrade works, or an independent surface water drainage strategy should be explored. Appropriate surface water management will ensure that flood risk to third parties is not increased by the works. • With appropriate drainage design the impact is likely to be negligible.	
Geology, soils and contaminated land LOW	• The works may require earthworks to widen the existing embankment. Ground conditions are anticipated to comprise Devensian till over Pennine Middle Coal Measures. The Till is a Secondary undifferentiated Aquifer, and the Coal Measures is a Secondary A Aquifer and the location is not within a Source Protection Zone. Negligible impact is expected on Ground Conditions. The location is not likely to be affected by significant contamination.	• Ground investigation and geotechnical design to be completed in accordance with CD 622 (National Highways. Managing Geotechnical Risk, Standard CD 622 Design Manual for Roads and Bridges) in conjunction with the relevant local highway authority, to manage the geotechnical risk on the scheme. •
Materials and waste LOW	• These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is	• Material use and waste generation during construction to be reviewed at the ES stage to confirm non-materiality.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	likely to be a limited component of the overall construction stage impact of the Proposed Development. Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	
Energy and climate change LOW	- Given the scale of these works, their impact would make a <i>de minimis</i> contribution to the overall construction-stage impact of the Proposed Development that would not be material to the total. - These works would not make a material contribution to the operational impact of the Proposed Development via change in traffic flows or change in electricity consumption due to their nature and scale. - These works would not make a material contribution to the landuse change impact of the Proposed Development due to the previously developed nature of the landuse. - These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	Impacts to be reviewed at the ES stage to confirm non-materiality

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Population and human health LOW	The proposed works bring the approach closer to residential properties on both sides of the existing junction. There is no change in access, accessibility or community severance, and potential for a minor change in air and noise emissions.	Health assessment to review air and noise outputs and mitigation.

◆ Option 15: Lane Head South Relief Road

LOCATION

- 1.104 The potential corridor of the Lane Head South Relief Road has been identified along the alignment shown in Figure 27, in the Green Belt between Winwick Lane and the East Lancashire Road (A580). It has three roundabout junctions at the intersections with Winwick Lane, Kenyon Lane and the A580. Localised realignment of Kenyon Lane is likely to be needed.
- 1.105 Its purpose would be to relieve pressure on the junctions in Lane Head whilst the benefits and effects associated with this option will be tested as part of the Transport Assessment, which is ongoing.

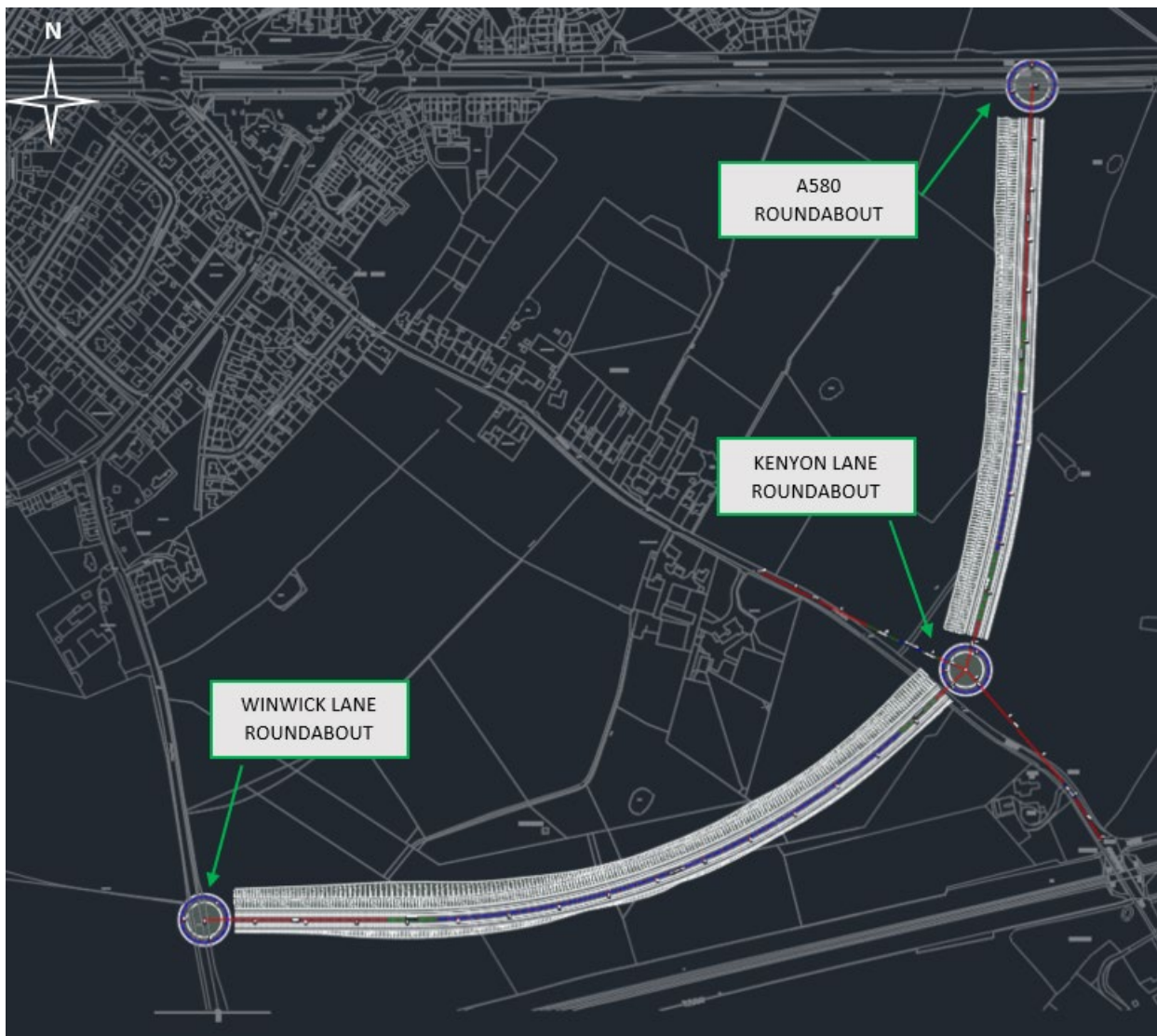
Figure 1.27 Lane Head South Relief Road Location Plan



POTENTIAL WORKS

- 1.106 It is anticipated that the proposed work would comprise a road corridor 1.4km long connecting Winwick Lane to the A580.
- 1.107 The proposed cross section would include a single traffic lane in each direction and a 3m wide shared footway on one or both sides of the carriageway.

Figure 1.28 Lane Head South Relief Road Corridor



- 1.108 New speed limit orders would be required for the relief road and the junctions.

ENVIRONMENTAL ASSESSMENT

- 1.109 The table below outlines the initial assessment of the likely environmental effects associated with the option and any next steps in environmental terms that would be required should the

option be taken forward and included as part of the DCO application.

Table 1.15 Option 15: Lane Head South Relief Road environmental assessment summary

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Socio-economics LOW	• These works would contribute to supporting employment generation during the construction stage of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development. • These works would contribute to the loss of agricultural land and may cause disruption to nearby land uses such as private properties and housing, businesses, and community assets. • No operational impact is anticipated, although it may facilitate access to the Proposed Development for employees commuting from the catchment north and north-east of the Main Site. Once complete the works will support negligible employment (likely no or negligible employment related to highway maintenance and management), will not result in improvements in skills and training, or impact housing demand.	• Construction employment impact to be reviewed at the ES stage to confirm non-materiality. • Impacts of the loss of agricultural land and disruption to land uses will be assessed at the ES stage.
Transport LOW	• Temporary traffic management measures will be required during the construction phase when connecting the new relief road to the existing highway network, which may result in increased driver delay	• The potential effects for both the construction and operational phases will be assessed through the preparation of a Transport

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	and disruption to normal traffic flow. • Upon completion, the proposed improvement scheme is expected to relieve junction capacity in Lane Head, thereby reducing driver delay and improving overall network efficiency. • In terms of non-motorised user delay and amenity due to the proposed increased footway widening and new crossing facilities, this is likely to improve in the operational phase.	Assessment and Transport ES Chapter, which will form part of the ES Stage.
Air quality MEDIUM (beneficial)	• During the construction phase of the works there is the potential for temporary fugitive dust emission impacts on nearby sensitive receptors. However, these can be mitigated through industry standard measures, as outlined in Institute of Air Quality Management (IAQM) guidance, to be included in the oCEMP. • The new relief road has the potential for air quality impacts at nearby sensitive receptors during the operational phase that may or may not be significant. These are likely to be mainly beneficial in nature, particularly at properties through Lane Head, depending on the proportion of vehicles and associated emissions that are moved away from residential properties in the area.	• The air quality effects during the construction phase will be assessed at the ES stage using the relevant guidance to determine the potential impacts and mitigation measures to be incorporated into the oCEMP to reduce dust emissions as far as practicable. • The potential effects during the operational phase will be assessed through air quality modelling of the new road alignment at the ES stage and will consider potential changes in pollutant concentrations at nearby receptors, including Lane Head.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
Noise and vibration MEDIUM (due to new operational noise source)	- During the construction stage, the associated works are likely to result in some temporary adverse noise, and potentially vibration, effects at nearby sensitive receptors, primarily on Kenyon Lane, particularly if the works need to take place at night, which can be a requirement of the relevant highway authority when working on existing roads (i.e., where the relief road interfaces with Winwick Lane, Kenyon Lane and the A580). - In terms of changes in road traffic noise once completed, the relief road will introduce a source of road traffic noise where one does not currently exist. While no sensitive properties lie directly adjacent to the new road, the increases in road traffic noise may result in some adverse, potentially significant effects, particularly on Kenyon Lane where existing road traffic noise levels are lowest. Road traffic noise from the relief road will be mitigated and minimised by methods such as the bunding, fencing, low noise surfacing and speed control as appropriate. - Furthermore, the bypass will result in a reduction of road traffic flows and associated noise on the existing roads through Lane Head,	The potential effects of both noise and vibration at the relevant sensitive receptors during the construction and operational stages will be considered in detail as required at the ES stage.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	bringing beneficial effects to receptors exposed to those roads.	
Landscape and visual impact MEDIUM	• Direct impacts resulting from the works which would give rise to landscape and visual effects could include: introduction of a new single lane carriageway and associated traffic into an area of open fields; landform changes; small loss of tree and hedge cover on field boundaries. • The potential landscape and visual effects would be contained within an approximate 1km radius, bound by the A580 to the north and the Chat Moss line to the south. • Effects will be assessed at all stages, i.e.: construction; Year 0 of operation; and Year 15 of operation. • The potential landscape character effects would be contained to the host character area: Wigan LCA 1A: East Lancashire Road Corridor Lowton Heath to Lately Common (Undulating Enclosed Farmland Type). There is potential for a significant landscape effect at a local level, within part of 1A, however this would be limited by the visual containment provided by tree cover and built form beyond approximately 1km from the proposed highway arrangement. • The potential visual effects would be contained to receptors within	• Should the option be included in the DCO application, further site surveys will be undertaken and an Illustrative Landscape Plan illustrating landscape and visual mitigation will be prepared. • Production of a landscape and visual assessment of potential effects at all stages, i.e.: construction; Year 0 of operation; and Year 15 of operation. • Production of photomontages of the proposed highway arrangement, at Year 0 (opening year) and Year 15, at which point mitigation planting would have reached a suitable level of maturity such that it would provide mitigation as designed.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	1km, primarily: residential receptors on Kenyon Lane, and at the south-eastern extent of Lane Head; road users on Kenyon Lane; and a small number of local footpaths. There is potential for a small number of significant visual effects, however, as was stated in relation to landscape effects, visual effects would be limited by the visual containment provided by tree cover and built form beyond approximately 1km from the proposed highway arrangement. • A linear belt of tree and hedgerow planting beside the road would provide visual containment by Year 15 and integrate the proposed highway arrangement into the surrounding landscape, mitigating adverse landscape and visual effects. Whilst significant landscape and visual effects are likely during construction and at Year 0 of operation, it proposed mitigation will be designed to limit significant effects at Year 15. • No public rights of way (PRoW) will be severed, but the proposed inclusion of a footway along the corridor may improve accessibility.	
Arboriculture MEDIUM	• Mature trees are scattered across the area of the proposed works, predominantly in the north-eastern area beyond Kenyon Lane. A	• Further survey work is required to establish the baseline conditions and assess the impact on

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	number of these trees may be lost should the option be progressed.	arboriculture
Agricultural land MEDIUM	Agricultural land will be lost and severed by the relief road, which could create pressure for further development south east of Lane Head and additional encroachment into agricultural land and the Green Belt. This is likely to be significant at a local and sub-regional level.	Further survey work is required to establish the baseline conditions and assess the impact on agricultural land.
Ecology MEDIUM	- Habitats to be lost include areas of hedgerow on Winwick Lane and Kenyon Lane, agricultural pasture (low distinctiveness grassland), agricultural cultivated land, small areas of scrub and woodland, individual rural trees (small and medium, possibly some large), and ponds. - Native hedgerows to be lost are Habitats of Principal Importance under the NERC Act 2006. - The area has some potential to support commuting and foraging bats. Particularly where features are present that might connect habitats such as hedgerows and provide ample invertebrate prey resource (hedgerows, ponds). There is the potential that the proposed link road would sever bat commuting routes and also lead to a reduction in	- Further ecological survey is required to establish the baseline ecological conditions, identify constraints and opportunities, and assess the impact to important ecological features in more detail. - Habitats lost will need to be accounted for in the Biodiversity Impact Assessment with a target of 10% BNG for the Proposed Development overall. The works area will require a walkover assessment to map habitats and assess habitat condition. Data will be added to the BNG metric calculation for the DCO order limits. Losses would need to be compensated for and additional biodiversity

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	foraging habitat. • Mature trees are scattered across the area of the proposed works, predominantly in the north-eastern area beyond Kenyon Lane. A number of these trees may be lost to the development. Mature trees may have the potential to support bat roosts and there is a risk of the loss of bat roosts in trees as a result of the proposals. • There are a number of ponds within the area of the proposed works and the vicinity. It is known that great crested newt (GCN) have been recorded in the wider landscape. If GCN are present in ponds to be lost there is a risk of losing GCN habitat including breeding places, core terrestrial habitat, wider terrestrial habitat and potentially places of hibernation. • Ponds and habitats may also support common and widespread amphibians including common toad <i>Bufo bufo</i> which is a Species of Principal Importance under the NERC Act 2006. • Habitats present include agricultural habitats that could support protected or notable breeding farmland birds (such as skylark <i>Alauda arvensis</i>). There is the risk of losing breeding habitat for farmland	created to meet the 10% overall target. • Where possible habitats would be sought to be retained or enhanced, where not possible habitat creation would provide compensation within the order limits of the ILPN DCO Site. Off-site compensation would only be sought if necessary to compensate for habitats not practicable to create with the DCO Site. • Further survey is required to assess the level of and nature of bat activity as well as the presence or likely absence of bat roosts. Impacts to important bat habitats may require mitigation or compensation. Impacts to bat roosts would require works under a Natural England European Protected Species Mitigation Licence as well as comprehensive mitigation and compensation. • Further survey is required for the presence or likely absence of GCN via eDNA sampling of ponds. Should GCN be present a Natural

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	birds. - Habitats present include those used by generalist nesting birds and works have the potential to impact upon nesting birds during vegetation clearance and result in loss of breeding habitats. - There is the potential for badgers to be present in this area and works during construction could lead to injury to individual badgers or the loss of badger foraging and commuting habitat or badger setts. - There is suitable habitat to support European hedgehogs and works have the potential to impact upon hedgehogs during vegetation clearance.	England District Level Licence can be applied for in order to make a payment to ensure the conservation of GCN in the wider district is maintained. - Loss of breeding farmland bird habitats would require off-site compensation through the creation of suitable breeding habitats for farmland birds in the wider district. - Loss of breeding habitat for generalist bird species will be compensated for through appropriate habitat creation and provision of artificial nest boxes where appropriate. - Should any badger setts be identified as to be impacted appropriate mitigation, and compensation if required, would be sought under a Natural England development licence. - Potential impacts to species during construction (such as hedgehogs, badgers and common toad) would be considered within a oCEMP.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
		Vegetation clearance will be undertaken outside of the nesting bird season (March-August inclusive). Where this is not possible an ecologist will undertake a pre-clearance nesting bird check. Provisions to protect nesting birds during construction will be provided in the oCEMP
Cultural heritage LOW	There are no designated heritage assets within 500m of these works. As such, there are unlikely to be any effects on the value (significance) on heritage assets arising from these works.	None
Archaeology MEDIUM to HIGH (RED)	- Any below-ground activity (including but not limited to construction activities) has the potential to result in an adverse impact on archaeological assets, if present. - The order and scale of effects will be determined by the type of intrusive work (design and construction impact) undertaken for which the details are currently not fixed. Impact arising from below-ground activities may vary from displacement to a partial or full removal of any buried heritage assets.	- Archaeological Desk-Based Assessment to be carried out to assess potential presence and significance of archaeological deposits. - The Archaeological Desk-Based Assessment will inform of any requirement for further non-intrusive and/or intrusive survey. - Due to the substantially undeveloped nature of

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	- Temporary working compounds, access roads might have potential to result in a significant effect on archaeological deposits in the form of compaction and/or displacement. - No additional effects are expected during the operation or maintenance phases of the proposed works.	the area included in this option, it is expected that geophysical survey will be required, with potential for trial trenching works if archaeological deposits are detected. Depending on the result of the evaluation, an archaeological mitigation strategy might be required prior to the commencement of development.
Surface water and flood risk MEDIUM	A very small area of Flood Zone 2 is located at the northern extent of the works area, in the location proposed for the A580 roundabout, attributed to an Unnamed Ordinary Watercourse to the west. The climate change defended extents are not mapped for this watercourse. Work will be undertaken to confirm the 1 in 100-year plus climate change floodplain associated with this watercourse. Should the 1 in 100-year plus climate change floodplain be present in this area, works which may result in a minor loss of floodplain, which has the potential to increase flood risk to adjacent land would be appropriately offset through compensatory storage, in line with local guidance	- Flood risk and drainage will be assessed within the ES. - The floodplain associated with the Unnamed Ordinary Watercourse to the west for potential impacts on A580 roundabout will be reviewed.

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
	- EA RoFSW mapping identifies multiple small areas of surface water flood risk along the proposed alignment of the link road, ranging from low to high probability. These areas will be reviewed in more detail within the ES and technical appendices to assess receptors, potential impacts and identify appropriate mitigation measures, if required - A preliminary assessment of other potential sources of flood risk, including from canals, reservoirs, and large waterbodies, has been undertaken. Based on current mapping and available data, these sources are not considered to pose a significant flood risk to the works area. - The proposed link road will introduce a substantial area of new impermeable surfacing, which will increase the volume and rate of surface water runoff which unless appropriately mitigated could lead to increased flood risk to third parties. A comprehensive surface water drainage strategy will be required to manage this runoff, with which the impact is likely to be negligible.	
Geology, soils and contaminated land	Earthworks may be required to construct the road corridor including construction of the embankment. BGS Mapping indicates that the ground conditions are anticipated to comprise Devensian Till with	Ground investigation and geotechnical design to be completed in accordance with CD 622 (National Highways. Managing Geotechnical

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LOW	Lacustrine deposits to the south overlying Wilmslow sandstone or Chester Formation. The Sandstone is a Principal Aquifer and the superficial deposits a Secondary undifferentiated Aquifer. Negligible impact is expected on Ground Conditions. The location is unlikely to be affected by significant contamination.	Risk, Standard CD 622 Design Manual for Roads and Bridges) in conjunction with the relevant local highway authority, to manage the geotechnical risk on the scheme.
Materials and waste LOW	- These works would contribute to the use of construction materials and the generation of construction, demolition and excavation wastes during the construction of the Proposed Development. However, given the scale of these works, the impact to material resources and waste generation is likely to be a limited component of the overall construction stage impact of the Proposed Development. - Only minimal maintenance and repair activities are expected to occur during the operational stage of these works, therefore limited material use and waste generation is expected and no operational impact is anticipated.	Material use and waste generation during construction to be reviewed at the ES stage to confirm non-materiality.
Energy and climate change	These works would contribute to the 'embodied carbon' construction-stage impact of the Proposed Development. Given the scale of these works, their impact is likely to be a limited component of the overall construction-stage impact of the Proposed Development but may be	- Embodied carbon to be assessed at the ES stage - Other impacts to be reviewed at the ES stage

Discipline Likelihood of a Potentially Significant Effect High, Medium or Low	Likely Environmental Impacts	Next Steps
MEDIUM	material to the total. • These works may contribute to the operational impact of the Proposed Development via change in traffic flows or change in electricity consumption, but this is unlikely to be a material component of the total operational impacts. • These works would contribute to the landuse change impact of the Proposed Development, but given the scale and the nature of the existing agricultural use, this is unlikely to be a material component of the total landuse change impacts. • These works are unlikely to introduce new or greater climate risks than assessed in the PEIR chapter for the main works.	to confirm non-materiality, including any changes in non-development traffic flows, or assessed as necessary
Population and human health LOW	• While the alignment avoids residential areas, and is intended to provide some relief of traffic through Lane Head, as a new road link, it is recommended to provide a proportionate health assessment.	• Health Assessment required.