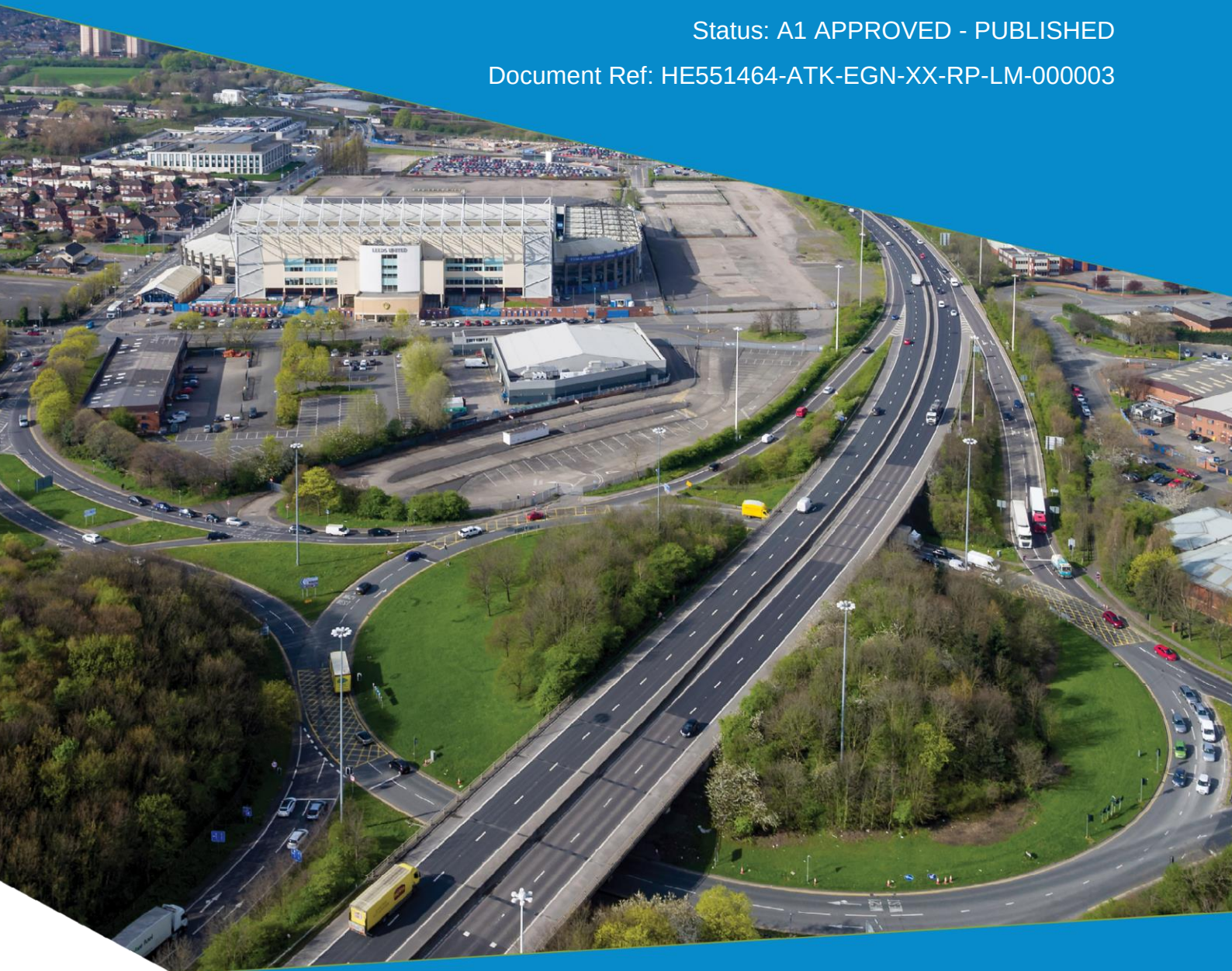


M621 Junctions 1 to 7 Preliminary Design Outline Environmental Management Plan 25/07/19

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This document has 58 pages including the cover.

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1. Introduction and project background

1.1 Purpose of the report

- 1.1.1 The purpose of an Environmental Management Plan (EMP) is to demonstrate how commitments to environmental management will be delivered throughout the lifecycle of a project. The EMP is a 'live document' relevant to the active Project Control Framework (PCF) stage and will evolve over the life of the proposed Scheme. All site works and maintenance must be undertaken in accordance with the EMP.
- 1.1.2 Initially, during the Preliminary Design (PCF Stage 3) and Statutory Procedures and Powers (PCF Stage 4) stages, the EMP is outline only. The Outline Environmental Management Plan (OEMP) is developed by the design consultant and subject to Highways England's approval. During Construction Preparation (PCF Stage 5) and Construction, Commissioning and Handover (PCF Stage 6), more information about specific construction methods will be available and the OEMP will become a Construction Environmental Management Plan (CEMP). The CEMP will detail site-specific procedures and mitigation measures to be implemented to ensure environmental impacts are avoided. Towards the end of the construction period - Construction, Commissioning and Handover (PCF Stage 6) and Closeout (PCF Stage 7) - the CEMP will become a Handover Environmental Management Plan (HEMP) which contains essential environmental information needed by the responsible party for the future maintenance and operation of the asset.
- 1.1.3 The general process for the management of environmental effects on Highways England schemes is set out in the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 2, Part 5, HD205/08 and Part 6, HD48/08 (Highways England, 2008a/b). More specific advice is provided in the Interim Advice Note (IAN) 183/14 Environmental Management Plans (IAN 183/14, Highways England, 2014). The guidance in IAN 183/14 takes into consideration Environmental Management Plans: Practitioner Best Practice Series, Volume 12 (IEMA, 2008) and BS EN ISO 14001: Environmental Management Systems (BSI, 2015).

Outline EMP

- 1.1.4 This document is the OEMP for the 'M621 Junctions 1 to 7 Improvement Scheme' (here after referred as the proposed Scheme). It is based on the Preliminary Design, Design Fix 3.2 drawings (DF3.2) (Ref: HE551464-ATK-HGN-XX-DR-CH-000100-112)
- 1.1.5 This OEMP has been prepared in accordance with the guidance in:
- DMRB Volume 11, Section 2, Manual of Contract documents for Highway Works (MCDHW)
 - Environment Management Plan Structure, version 2 June 2017
 - IAN 183/14
 - IAN 182/14 Major Scheme: Enabling Handover into Operation and Maintenance
- 1.1.6 This OEMP has been developed by Atkins to manage the environmental effects identified within the Preliminary Design Environmental Assessment Report (EAR)

(Atkins, 2019a), and to demonstrate compliance with relevant environmental legislation.

1.1.7 The OEMP:

- provides the basis for future EMP documents and acts as the main reference document for environmental issues between the design, construction, and the maintenance and operation stages of the proposed Scheme
- provides the framework for recording environmental risks, commitments and other environmental constraints and clearly identifies the structures and processes that will be used to manage and control these aspects
- records the objectives, commitments and mitigation measures to be implemented together with programme and date of achievement
- seeks to ensure compliance with relevant environmental legislation, government policy objectives and Scheme-specific environmental objectives
- provides the mechanism for monitoring, reviewing and auditing environmental performance and compliance during detailed design, construction and operation
- acts as a medium for transferring key environmental information at handover to the body responsible for operational management

1.1.8 The overall objective of the OEMP is to minimise the risk of any type of pollution incident or other form of unauthorised discharge and to avoid or minimise impact to nearby receptors.

Structure of the OEMP

1.1.9 The structure of this OEMP is summarised below:

- Chapter 1 provides an overview of the purpose of the OEMP, the proposed Scheme and its objectives
- Chapter 2 describes the roles and responsibility of the project team for environmental management
- Chapter 3 describes the record of environmental actions and commitments including the responsible person for the specific actions
- Chapter 4 provides the details of anticipated consents/permissions required to deliver the EMP
- Chapter 5 provides a confirmation regarding submission of environmental asset data and as-built drawings

1.1.10 The OEMP also takes into consideration the documents and assessments undertaken on behalf of Highways England and identifies mitigation measures and environmental issues associated with the following phases of construction of the proposed Scheme:

- Demolition
- Pre-construction (e.g. advanced work, site preparation, vegetation clearance)
- During construction (e.g. works)
- Post construction

- 1.1.11 At PCF stage 5, the current OEMP will be developed by the Principal Contractor to become a CEMP (see Section 2.1), once the design and construction methods are finalised. The CEMP will be a 'live' document and will be maintained by the Principal Contractor throughout the construction of the proposed Scheme.
- 1.1.12 This OEMP also sets out the mechanism for the provision of a HEMP when construction of the proposed Scheme is nearing completion. The CEMP will be adopted and integrated into the Principal Contractor's HEMP and Construction Phase Health and Safety Plan. Both documents will be required to be approved by Highways England.

1.2 The Project

Project name

- 1.2.1 The proposed Scheme is the M621 Junctions 1 to 7 Scheme, as was announced in 2014 within the Roads Investment Strategy (RIS) Period 1, which is for the 2015 to 2020 period.

Need of the Project

- 1.2.2 The M621 is one of the main routes from the south of Leeds into the city centre which experiences congestion, particularly during peak periods.
- 1.2.3 In 2013, Highways England undertook the Leeds Infrastructure Study which, amongst other things, considered what would be required on the Strategic Road Network (SRN) to accommodate the plans for redevelopment of Leeds city centre by Leeds City Council (LCC). LCC's plans include the closure of some city centre routes to all private vehicles, which would transfer traffic that currently travels through the city centre onto the M621. There is also an aspiration to construct 10,200 new dwellings and create 57,500 new jobs in Leeds by 2031, which would be constrained without improvement of the existing M621. In addition, there is existing congestion on the M621 which could justify the need for improvement, irrespective of LCC's proposals.
- 1.2.4 Therefore, improvement of the M621 is required to alleviate existing congestion, facilitate the short-term city centre improvements and support longer term economic growth in the area. The Department for Transport (DfT) announced the M621 Junctions 1 to 7 Scheme within the RIS 1.
- 1.2.5 Further detail on the existing conditions and related constraints of the M621 are contained within the Client Scheme Requirements.

Project location

- 1.2.6 The M621 runs through Leeds from Junction 27 of the M62 in the west, to Junction 43 of the M1 in the east, with a total length of approximately 13.5 kilometres (km). Junctions 1 to 7 are located within a 7 km length of the route, with the focus of the proposed Scheme being on the sections between Junctions 1 and 4, which are located to the south and south-east of Leeds city centre respectively.
- 1.2.7 The location plan shown in Figure 1-1 provides an overview of the full extent of the proposed Scheme.

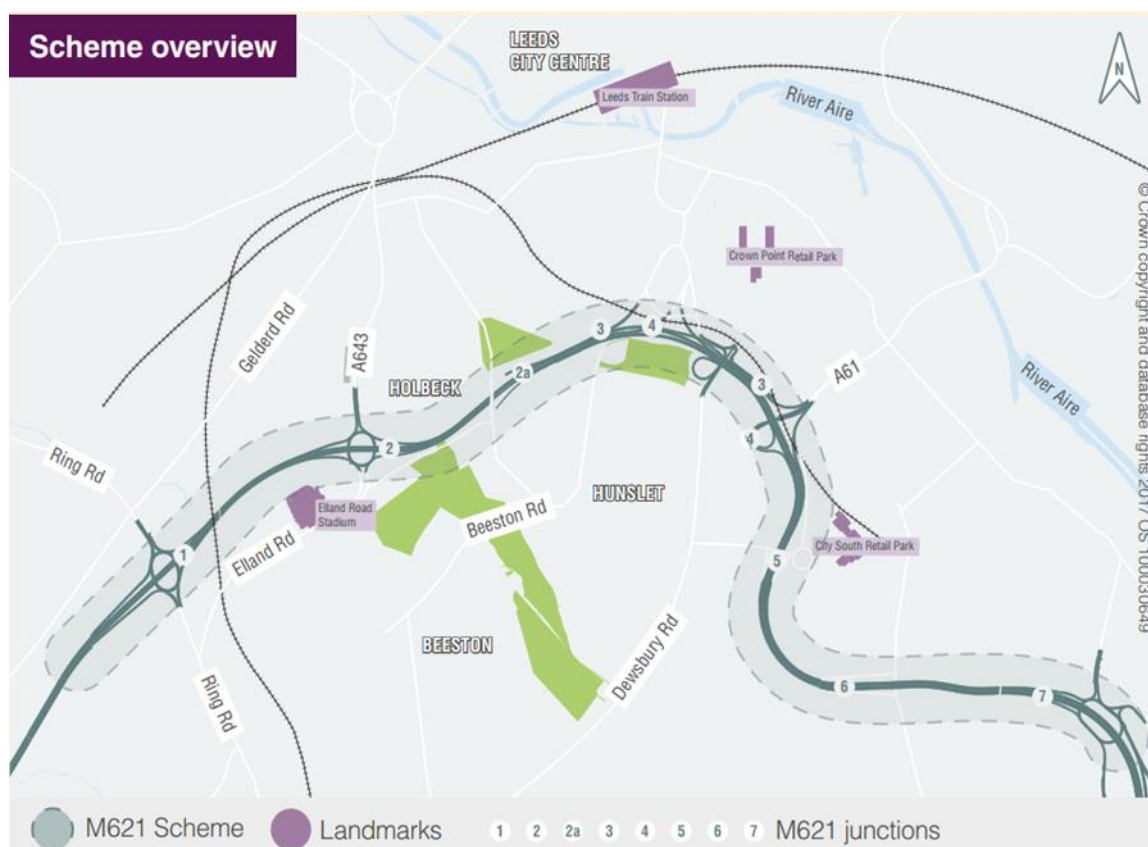


Figure 1-1: Location plan

Environmental overview and constraints – study area

- 1.2.8 The environmental constraints are shown in Annex A with an overview provided in this section.
- 1.2.9 There are two Local Nature Reserves (LNRs) within 1 km of the proposed Scheme. Middleton Woods LNR is located 500 m south of westbound carriageway at Junction 6, approximately 800 m south of Junction 6, and Oakwell Park LNR is located 1 km west of the M621/M62 merge.
- 1.2.10 Four Leeds Nature Areas (LNA) and one Local Wildlife Site (LWS) are located immediately adjacent to or within 100 m of the proposed Scheme, namely Clubbed Oaks and Dean Wood (LNA and LWS), Noster Hill (LNA), Hunslet Moor (LNA) and Hunslet Old Cemetery (LNA).
- 1.2.11 There is a Registered Park and Garden (RPG), Hunslet Cemetery, located around 95 m south of the M621 just west of Junction 7.
- 1.2.12 The following areas of designated Ancient Woodland are located within 1 km of the proposed Scheme:
- Dean Wood (Ancient Replanted Woodland) located 30 m north-west, between Junction 27 of the M62 and Junction 1
 - Birkby Brow Wood (Ancient Replanted Woodland) located 540 m south of Junction 27 of the M62
 - Middleton Wood (Ancient & Semi-Natural woodland) located 940 m south of Junction 6

1.2.13 There are 6 watercourses within 500 m of the proposed Scheme:

- Wortley Beck which is culverted under the proposed Scheme. North-east of Junction 1.
- Unnamed Watercourse which is culverted under the proposed Scheme at Junction 7.
- Farney Wood Beck which is culverted under the proposed Scheme near Junction 1.
- Clark Spring located approximately 30 m south-east, near Junction 1, which joins Farnley Wood Beck.
- Dean Beck flows adjacent to the Scheme, near Junction 1. At the closest point is located approximately 90 m north-west.
- Milshaw Beck flows from the south of the M621 and is culverted underneath the proposed Scheme east of Junction 1.

1.2.14 There is one groundwater abstraction within 100 m of the proposed Scheme alignment, located north of the east bound approach to Junction 1. There are no Groundwater Source Protection Zones.

1.2.15 There are six Air Quality Management Areas (AQMAS) currently declared in the area administered by LCC, due to exceedances of the annual mean NO₂ Air Quality Standard (AQS) objective. Only one of these is within 200 m of the proposed Scheme:

- The Tilbury's: An area encompassing a number of properties adjacent to the eastbound slip road of Junction 2 of the M621 and A653 Ingram Road Distributor.

1.2.16 There are five Noise Important Areas (NIAs)¹ in the immediate vicinity of the proposed Scheme. There are also four additional NIAs, located adjacent to the M621, in between the M62/M621 Junction and M621 Junction 1.

Project description

1.2.17 The proposed Scheme comprises the following:

- Junction 2 improvements include widening from 2 to 3 lanes to the north of the roundabout and widening from 2 to 4 lanes to the south. A free-flow link will be provided between the M621 eastbound and A643 northbound. The A643 southbound approach to Junction 2 will be widened from 2 to 3 lanes and the M621 eastbound on-slip will be widened from 1 to 2 lanes. Additionally, Junction 2 westbound off-slip will be widened from 2 to 3 lanes and widening of the Junction 2 westbound on-slip from 1 to 2 lanes, to accommodate for the forecast increase in traffic flows.
- Junction 3 westbound merge layout will be changed, to provide two lanes through the junction from the M621 westbound carriageway with an offside lane gain from the slip-road. The Junction 3 improvements require the closure of the Junction 2a westbound diverge.
- Conversion of the hard shoulder into a running lane between Junction 2a and Junction 2 westbound.

¹ Noise Important Areas capture the top 1% of the population affected by the highest noise levels from major roads.

- 1.2.18 The above highway improvements would be accompanied by a technology provision, based on adherence to prescribed standards. Where adherence cannot be attained due to the existing sub-standard layout of the M621 and existing constraints, departures will be discussed and applied for with the relevant Highways England Safety, Engineering and Standards (SES) advisors. Applications for departures from standards will be submitted through the webDAS system.
- 1.2.19 Proposals for the use of Junction 2a post-closure will be confirmed as the design progresses through PCF Stage 5, but current opportunities under consideration include:
- retaining the existing carriageway for maintenance access
 - potential replanting in areas, once closed

Project programme

- 1.2.20 The outline programme of the Scheme is presented in Table 1-1 below. Specific construction, operational and long-term management arrangements are not known in detail at this stage of the Scheme.

Table 1-1: Programme schedule (correct in June 2019 – P09)

PCF stage	Start date	End date
PCF Stage 1: Option Identification	May 2016	March 2017
PCF Stage 2: Option Selection	April 2017	May 2018
PCF Stage 3: Preliminary Design	June 2018	November 2019
PCF Stage 4: Statutory Procedures and Powers	August 2019	October 2020
PCF Stage 5: Construction Preparation	September 2019	March 2022
PCF Stage 6: Construction, Commissioning and Handover	March 2021	August 2022
PCF Stage 7: Closeout	August 2022	March 2023

Construction

- 1.2.21 Construction of the proposed Scheme is planned to commence in March 2021 and last for 13 months with the Scheme open to traffic in April 2022.
- 1.2.22 Although the exact details regarding the construction phasing are not currently known, it is expected that certain phases of the construction work would require night-time working. Night-time hours would be agreed with the relevant LCC Environmental Health Officers (EHOs).
- 1.2.23 Certain phases of the construction work will also require night-time working with diversions in place, in addition to further traffic management measures during the day-time. Traffic management including diversion routes, along with good advance notification of the works and advanced directional signage on the M62 and M1, will encourage traffic to use the M62 as a diversion route to avoid closures on the M621.

Operation and long-term management

- 1.2.24 The proposed Scheme would be operational from April 2022. Long-term maintenance of the M621 would be the responsibility of Highways England. Currently, maintenance of the M621 is undertaken by the Asset Support Contractor (Aone+), the Regional Technology Maintenance Contractor (RTMC) (the incumbent is Amey) and the National Road and Telecommunications Service. Upon completion of the proposed Scheme, these parties should adapt, develop and implement appropriate management measures for the M621. Although recognising the Highway Authority boundaries, it may be agreed that Leeds City Council would be responsible for some elements.

1.3 Project objectives

- 1.3.1 The objectives of the proposed Scheme are as follows:

- increase capacity and improve journey time reliability
- improve the safety of the M621 corridor for road users
- provide better and real time information to road users
- avoid and mitigate potential environmental impacts of the proposed Scheme and enhance, where possible, the built and natural environment
- support LCC's development plans including updates to the Leeds transport network, where possible

Highways England objectives

- 1.3.2 Alongside the proposed Scheme objectives, Highways England sets out its own approach to meeting the key performance indicators identified within the Roads Investment Strategy of "no net loss of biodiversity by 2020". In addition, Highways England has an overall objective of ensuring "the best practicable environmental outcomes across all our activities, while working in the context of sustainable development and delivering value for money" (Highways England Environment Strategy, 2012).
- 1.3.3 The Highways England Delivery Plan 2015-2020 also sets targets to mitigate noise in at least 1,150 NIAs between 2015/2016 and 2019/2020. This document also demonstrates the ability of the project to meet the requirements within the Highways England licence, specifically in relation to the environment.

2. Project team roles and responsibilities

2.1 Roles and organisations involved in the delivery of the EMP

- 2.1.1 Highways England, or the Project Management Consultant appointed by Highways England, will be responsible for overseeing management of the proposed Scheme. Some of the site supervision roles such as the Engineering Clerk of Works and procurement specialist consultants to supervise, monitor or check the PC's Method Statements including sensitive activities, will be delegated where required by Highways England.
- 2.1.2 A Principal Contractor is the contractor with control over the construction phase of a project involving more than one contractor. They are appointed in writing by the client to plan, manage, monitor and coordinate health and safety during this phase. The Principal Contractor will be required to delegate responsibilities to experienced onsite personnel within the key areas of the site. The delegation of responsibilities will be clearly identified within relevant project documents and site files.
- 2.1.3 The key project roles envisaged at this stage for Highways England and the Principal Contractor are listed in Table 2-1. These will be reviewed and agreed in subsequent stages. Individual names and contact details will be confirmed and inserted in the CEMP where applicable by Highways England and the Principal Contractor prior to the commencement of construction.

Table 2-1: Contacts details for key project roles and organisations involved in the delivery of the Environmental Management Plan

Contact and organisation	Email	Phone
Highways England Project Manager/ Project Manager Consultant	Charlotte Wright Charlotte.Wright@highwaysengland.co.uk	
Principal Contractor Environmental Manager	TBC	
Principal Contractor Environmental Clerk of Works	TBC	
Principal Contractor Environmental Specialist(s)	TBC	

2.2 Environmental management responsibilities

- 2.2.1 The Principal Contractor is responsible for developing the OEMP to produce the full CEMP at PCF Stage 5: Construction Preparation, once the design and construction plans have been finalised.
- 2.2.2 The Principal Contractor will be responsible for preparing the HEMP and Construction Phase Health and Safety Plan on completion of construction, for handover to the managing agent (produced in PCF Stage 6 for handover in PCF Stage 7).

- 2.2.3 Highways England and/or its delegated Project Management Consultants, Principal Contractor and subcontractors are all responsible for adhering to and complying with the Scheme objectives, Scheme environmental policy, relevant environmental legislation, bylaws and regulations. It is a requirement that all site personnel will be made aware of their Duty of Care to the environment, including local communities, and will be provided with adequate training, supervision or instruction in the form of Tool Box Talks (TBT), site induction modules and specific method statements as necessary.
- 2.2.4 Responsibilities for site environmental management will be delegated to key personnel by the Principal Contractor. These personnel will be responsible for implementation, reporting and monitoring of environmental mitigation during the contract period. Where required, environmental specialists will be consulted to provide advice on specific issues or site activities, in consultation with the PC.
- 2.2.5 The key environmental management roles and responsibilities are shown in Table 2 2. Individual names and contact details will be confirmed and inserted where applicable by Highways England and the PC, prior to commencement of the construction phase.

Table 2-2: Environmental Management Responsibilities

Role	Responsibility	Contact details
Highways England Project Manager	Overseeing implementation of whole project and the individual's undertaking of specific roles and duties. To be reported to as per Contract requirements and internal organisation Environmental Management Systems (EMS).	Charlotte Wright Charlotte.Wright@highwaysengland.co.uk
Principal Contractor Environmental Manager	Overseeing the environmental components of the project. Coordinating with specialists and liaising with the Local Authority to agree working hours, discuss working methods and secure formal consent e.g. Section 61 agreement if required. Auditing the PCs' Site Environmental Management Plans and Programmes and ensuring compliance Monitoring compliance with the environmental requirements of the Works Information. Reviewing and maintaining awareness of the requirements of key relevant legislation, policies, and strategies prior to and during construction	TBC
Principal Contractor Environmental Clerk of Works	Providing site inductions on environmental practices, conducting TBT, specialist surveys and overseeing monitoring activities as required.	TBC

Role	Responsibility	Contact details
	Undertaking day to day monitoring and compliance checks. Monitoring environmental compliance on site. Maintaining and updating site specific method statements. Monitoring dust, noise and vibration (detail to be decided with LCC's EHO and included in the formal Section 61 agreement if required) Monitoring hours of working to meet accepted noise and vibration limits in consultation with LCC's EHO. Developing Emergency Spill Response Plan with Principal Contractor Health & Safety Officer for incidents on site. Ensuring local Environment Agency (EA) requirements are implemented for consents and permits.	
Principal Contractor Environmental Specialist(s)	Contamination & remediation specialist. Waste Management Specialist may be a member of Principal Contractor dedicated quality and safety team. Ecologist to supervise if protected species presence confirmed or risk identified during works. Landscape Manager to supervise planting and aftercare. Agricultural Specialist to advise on construction activities and minimising impacts in relation to agricultural operations. Other, as required.	TBC
Principal Contractor Community Liaison Officer	Key liaison with all of the above and Highways England's Public Liaison Officer: Producing, maintaining, developing and implementing the Community Relations Strategy. Liaising with farmers/landowners in advance of and during the construction process. Notifying local residents, occupiers of nearby properties, and businesses, a minimum of two weeks in advance, of the	TBC

Role	Responsibility	Contact details
	nature and anticipated duration of planned construction works that may affect them Supporting the production of project communications such as the project website and newsletters. Establishing a dedicated freephone telephone helpline together with a dedicated email address and postal address for enquiries and complaints during the construction phase. Ensuring as a minimum that the relevant contact numbers, email and postal addresses are displayed on signs around the construction site and published on the project website. Maintaining comment and enquiries, and complaint logs, and disseminating comments for response and implementation of actions.	

3. Record of Environmental Actions and Commitments

- 3.1.1 The Record of Environmental Actions and Commitments (REAC) identifies the environmental commitments made during the Preliminary Design Stage to address the potential environmental effects of the proposed Scheme. The REAC is presented in Table 3-1.
- 3.1.2 The REAC will be updated as the project progresses and will be finalised at the end of construction on completion of the proposed Scheme, when it will be developed as the HEMP. This is the main vehicle for passing essential environmental information to the Client and crucially to the body responsible for the future maintenance and operation of the asset.

Table 3-1: Record of Environmental Actions and Commitments Table

Ref	Source.	Objective	Location	Action / commitments	Monitoring Required (Yes/No)	Assumptions (on which the action is based)	How the action is to be implemented	Responsible Person	Achievement criteria & reporting requirement	When - Pre-construction - Construction - Operation - All	Completion record
G1	EAR Ch 2 LCC guidance	Hours of Working To limit the impact of the proposed scheme on local residents and commuters	Site wide	Hours of working will be agreed with LCC. Overnight working will be a requirement during the construction of the proposed Scheme. This will likely be required to undertake the following specific tasks: - Installation of communication ducting and gantries between Junctions 1 and 4 - Widening of J2 - Removal of interrupter ducts along the whole route of the M621 The hours of working will be agreed with the relevant LCC Environmental Health Officers.	No	Early Contractor Involvement (ECI) advice.	Site Programming and Daily Site Audits.	Contractual responsibilities between Highways England and Principal Contractor.	Principal Contractor	Pre-construction and Construction Phase	Signature: Date:
G2	EAR Ch 2	Location of construction compound	Compound between A639 and A61	Shown on Scheme Drawings and EAR (Refer to Chapter 2, Figure 2-3)	No	ECI advice.	Site Programming.	Contractual responsibilities between Highways England and Principal Contractor.	Principal Contractor	Pre-construction and Construction Phase	Signature: Date:
G3	EAR Ch 2 Traffic Management Plan (Ref: HE551464-ATK-HGN-XX-RP-CW-000001)	Minimise the impact of construction traffic and road diversions	Site wide	The Principal Contractor will update the Traffic Management Plan (TMP) produced by Atkins. Traffic management measures will also be outlined in the next stage where this OEMP will be developed to create a CEMP to manage the routing of construction traffic and road diversions during the construction phase of the proposed Scheme. Preliminary diversion routes have been provided in the TMP (Atkins, 2019b). If construction traffic are found to repeatedly ignore the measures and routes identified within the TMP, penalties will be given.	No	ECI advice.	Site Programming and periodic Site Audits at likely shortcut locations.	Contractual responsibilities between Highways England and Principal Contractor.	Principal Contractor	Pre-construction and Construction Phase	Signature: Date:
G4	EAR Ch 2	Delivery Routes and minimising disturbance along local roads	Site wide	Access to site for deliveries will be via the M621 through access and egress arrangements agreed and outlined in a TMP.	No	ECI advice.	Site Programming and periodic Site Audits at likely shortcut locations.	Contractual responsibilities between Highways England and Principal Contractor.	Principal Contractor	Pre-construction and Construction Phase	Initial: Date:
G5	EAR Ch 6, Ch 7 Best practice guidance	Reduce light disturbance for sensitive receptors	Site wide, especially sensitive habitats, residential receptors and community facilities.	Any lighting required during construction, additional to that present along the M621, will be implemented to ensure that lights direction is controlled on site to minimise light spill. The lighting scheme will be designed to ensure that the following minimum standards are included: HSE guidance HSG 38 Lighting at Works – ensuring the minimum measured illuminance for getting to and from the worksites are met.	No	ECI advice Best practice.	Site Programming and Daily Site Audits.	Contractual responsibilities between Highways England and Principal Contractor.	Principal Contractor	Pre-construction and Construction Phase	Signature: Date:

Ref	Source.	Objective	Location	Action / commitments	Monitoring Required (Yes/No)	Assumptions (on which the action is based)	How the action is to be implemented	Responsible Person	Achievement criteria & reporting requirement	When - Pre-construction - Construction - Operation - All	Completion record
				Bat Conservation Trust (BCT) and Institution of Lighting Professionals Guidance Note							
G6	EAR Ch 10 TMP (Ref: HE551464-ATK-HGN-XX-RP-CW-000001)	Keeping Non-Motorised User (NMU) routes open	Non-Definitive footpath Brown Lane	During the construction, NMU routes will be maintained where possible. Brown Lane (east of Brown Place, north-east side of Low Fields Road near Junction 2) will be temporarily closed during construction to allow a new footpath to be created. An alternative pathway will be sought to be provided as closely aligned to the original as possible.	No	ECI advice. Best practice.	Site Programming and Daily Site Audits.	Contractual responsibilities between Highways England and Principal Contractor.	Principal Contractor	Pre-construction and Construction Phase	Signature: Date:
G7	Communication Plan (TBC)	Maintain strong community relations	Site wide	The Principal Contractor will keep local residents and other affected parties informed of the progress of the works, including when and where the noisiest activities will be taking place and how long they are expected to last. All noise complaints will be effectively recorded, investigated and addressed. Prior to construction, the contractor will register with the National Considerate Constructor's Scheme that is recognised by industry and the Government for encouraging firms to be sensitive to the environment and will establish a forum to disseminate construction information to the Statutory Authorities, advisory bodies, landowners, parish councils, resident's association, local interest groups and the general public, in line with the stakeholder communications plan. A Community Relations Officer will be appointed who will be responsible for these specific tasks. Details of how to contact the Principal Contractor, at any time, to register complaints will be shared with the general public.	No	Community sensitive receptors are present.	National Considerate Constructor's Scheme and establish a forum to disseminate construction information to all consultees and Stakeholders.	Contractual responsibilities between Highways England and Principal Contractor.	Principal Contractor	Pre-construction and Construction Phase	Signature: Date:
G8	EAR Ch 14	To ensure receptors are not adversely affected by the cumulative impact of the proposed Scheme and any other development	Site wide	Monitoring changes, to noise, air quality, or biodiversity, at nearby sensitive receptors will be undertaken during construction. This will consider the cumulative impact of any other developments also impacting the same receptor.	Yes	Developments which have not been approved, and therefore assessed within the cumulative impact assessment (chapter 14), may give rise to social or environmental impacts on the same receptors as the M621.	Monitoring of developments likely to cause cumulative effects.	Contractual responsibilities between Highways England and Principal Contractor	Principal Contractor	Pre-construction and Construction	Signature: Date:
G9	EAR Ch 4	Minimise the impact on potential cultural heritage resources.	Site wide	If unknown archaeological remains are identified during construction, the Highways England archaeological representative (or appointed representative) will be notified. Archaeological remains will be preserved and recorded through a programme of archaeological investigation in	Yes – if archaeological remains are found	There is low potential for hitherto unknown archaeological remains within the scheme area.	The local planning authority archaeologist (WYAAS) will be consulted and if required, programme of archaeological	Contractual responsibilities between Highways England and	Principal Contractor	Construction	Signature: Date:

Ref	Source.	Objective	Location	Action / commitments	Monitoring Required (Yes/No)	Assumptions (on which the action is based)	How the action is to be implemented	Responsible Person	Achievement criteria & reporting requirement	When - Pre-construction - Construction - Operation - All	Completion record
				consultation with the local planning authority archaeologist (WYAAS).			investigation will be implemented. Mitigation measures and targeted instructions will be included in the CEMP at PCF Stage 5.	Principal Contractor			
AQ1	EAR Ch 5	To limit and control emissions to air during construction to avoid direct and indirect impacts on community and private assets, sensitive receptors and vulnerable groups.	Site wide – with specific awareness at the construction compound	- The precise measures will depend on the intended construction methods and the degree of dust generation at each site. The mitigation measures should be tailored to these methods as they are understood better in later PCF Stages. However, measures may include: - regular water-spraying and sweeping of unpaved and paved roads to minimise dust and remove mud and debris - using wheel washes, shaker bars or rotating bristles for vehicles leaving the site where appropriate to minimise the amount of mud and debris deposited on the roads - sheeting vehicles carrying dusty materials to prevent materials being blown from the vehicles whilst travelling - enforcing speed limits for vehicles on unmade surfaces to minimise dust entrainment and dispersion - ensuring any temporary site roads are no wider than necessary to minimise their surface area - damping down of surfaces prior to their being worked - storing dusty materials away from site boundaries and in appropriate containment (e.g. sheeting, sacks, barrels etc.) - minimising the height of stockpiles and profiling to minimise wind-blown dust emissions and risk of pile collapse - locating stockpiles out of the wind (or cover, seed or fence) to minimise the potential for dust generation	No	Best Practicable Means, as described in Section 79 (9) of the Environmental Protection Act (EPA) 1990. Institute of Air Quality Management (IAQM) demolition and construction dust guidance. Community and ecological receptors sensitive to dust.	Daily Site Audit	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor	Pre-construction and Construction Phase	Signature: Date:
AQ2	EAR Ch 5	All plant and equipment will be maintained in good working order and not left running when not in use. If possible, plant will be located well within the Site, away from the Site perimeter	Site wide	Pre-commencement planning of site activities. Visual observations of good working order. Decommission if in poor / faulty state.	No	IAQM demolition and construction dust guidance.	Mitigation measures will be included in the CEMP at PCF Stage 5.	Principal Contractor	Site log/ Method statement.	During Construction phase	Signature: Date:

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		and any sensitive areas.									
AQ3	EAR Ch 5	Ensure an adequate water supply on the Site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	Site wide	Site planning of water supply sources at early stage of site planning. Provision of water supply around Site where required, including for wheel washing / removal of mud deposits. Appropriate disposal of drainage from wheel-washing operations and solids arising.	No	IAQM demolition and construction dust guidance.	Mitigation measures will be included in the CEMP at PCF Stage 5 Identify source of water for dust suppression.	Principal Contractor	Not applicable.	During Construction phase	Signature: Date:
LV1	EAR Ch 6 EAR Appendix E.5	To limit impacts on trees and woodland during permanent and temporary works Compliance with BS 5837:2012 Trees in Relation to Design, Demolition and Construction: Recommendations	Site wide	Design measures Tree removal is to be further refined during detailed design at PCF Stage 5 and again in construction. Removal will be reduced as much as practically possible to reduce impacts on the landscape and visual resource throughout the study area. Loss of trees and woodland not affected by the permanent works, i.e. to facilitate storage areas and compounds, will be minimised and avoided entirely if possible. Retained trees Implementation of good construction practices. Trees and woodland to be retained should be fenced off with a suitable type of temporary fencing in accordance with BS5837: Trees in Relation to Design, Demolition and Construction - Recommendations. All works to trees should be undertaken in accordance with the arboricultural method statement and guidance in the Arboricultural Impact Assessment (AIA) and BS 3998:2010 Tree Work Recommendations and appropriate Arboricultural Association advice notes, along with the protection of trees. Refer to Appendix E.5 of the EAR.	No	Site clearance drawings which uses a 4 m offset from works. AIA report. BS 3998:2010 Tree Work Recommendations	Refined site clearance drawings, if required. Contractor awareness of the importance of retaining vegetation for screening.	Principal Contractor.	Mitigation measures to be included in the CEMP.	Pre-construction and Construction Phase	Signature: Date:
LV2	EAR Ch 6	To limit landscape impacts and visual intrusion to nearby sensitive receptors during the construction phase.	Site wide	The following measures will be implemented: - As far as practicable, the length of the construction period should be minimised. - Clearance of areas, including clearance of vegetation, should occur as soon as possible before the commencement of works. - Topsoiling, seeding and planting should occur as soon as practicable after sections of work are suitably complete (when seasonal restrictions on planting allow).	No	The proposed Scheme will have landscape and visual effects at sensitive receptors. PCF Stage 3 EAR	Mitigation measures should be included in the CEMP. Site audits.	Principal Contractor.	Successful implementation of the CEMP.	Construction	Signature: Date:

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				- Construction plant and material storage areas should be appropriately sited. - Construction areas should be kept free of litter and debris. - Directed lighting will be used where night-time working is required. - Uncontaminated topsoil for re-use will be used in areas of the same proposed vegetation type. - Stripped topsoil should be used in areas of the same proposed vegetation type.							
LV3	EAR Ch 6	To limit visual intrusions to nearby sensitive receptors and impacts upon landscape during operation.	Site wide	Works will be undertaken to reduce visual intrusion and impacts upon the landscape throughout operation, through the implementation of the landscape design in accordance environmental masterplan and CEMP. Mitigation will include: - retention of existing trees and vegetation wherever possible - replacement of areas of trees and grass lost to facilitate the works wherever practicable - woodland, shrub and scattered tree planting and grass seeding, to contribute to screening and amenity value and mitigate the loss of tree cover in the landscape - planting design to follow guidance in the DMRB Vol. 10. Good Roads Guide - specimen tree planting and species rich grassland seeding to improve the amenity value of the M621 corridor and adjacent areas Provide partial retention of the existing bund as far as practicable to the north east of Junction 2 to maintain screening and reduce impact on visual receptors at Euston Grove, Euston Terrace and Euston Row. Provide new planting near the surface area of the Junction 2a westbound slip road to improve the degree of screening to receptors at properties on Cambrian Street and Cambrian Place. Refer to Environmental Mitigation drawings (Figure 6.5 in Volume 2 of EAR)	No	The proposed Scheme will cause visual effects at sensitive receptors. Preliminary Design EAR	Mitigation measures to be included in the Environmental Masterplan design, the CEMP and HEMP – supervision and review of planting works.	Principal Contractor and project Landscape Architect	Mitigation measures to be included in the CEMP and HEMP. Successful implementation of the CEMP and HEMP.	All	Signature: Date:
LV4	EAR Ch 6	To limit the visual intrusions of potential acoustic barriers at nearby sensitive receptors during operation.	Site wide	Vegetation clearance will be managed to avoid significant visual impacts Appropriate landscape and visual specialists will input into the exact siting of the barriers and provide mitigation measures if necessary.	No	Noise barriers are formally proposed at detailed design following further consideration of the proposed enhanced mitigation in Chapter 8.	Appropriate landscape and visual specialists to be involved in detailed design at PCF Stage 5.	Principal Designer	Not applicable	Pre-construction	Signature: Date:

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LV5	EAR Ch 6	Ensure mitigation planting is implemented to provide habitat replacement/enhancement, integrate the proposed Scheme design into the surrounding landscape and provide screening functions.	Site wide	Environmental Mitigation drawings will be further developed and implemented. Refer to Figure 6.5 in Volume 2 of EAR.	Yes	Ground preparation and soil handling is implemented correctly on site to ensure rapid establishment of planting. Soil testing to ensure soils are appropriate for ecology or planting design.	Site monitoring to ensure ground preparation, soil handling is correctly carried out and soils are not over compacted.	Principal Contractor.	Mitigation measures to be included in the CEMP.	All	Signature: Date:
BD1	EAR Ch 7	To ensure all staff are aware of ecological risks	Site wide	All staff will be required to attend briefings and TBT on correct timing of works, protecting animals from harm within the construction area, and Precautionary Methods of Working (PMW). An Ecological Clerk of Works (ECoW) will be appointed by the contractor to monitor the works against the CEMP.	No	Construction staff may not be aware of ecological risks. Best practice guidance.	Mitigation measures should be included in the CEMP and outlined in the Detailed Design at PCF Stage 5.	Contractual responsibilities between Highways England and Principal Contractor.	Implementation of the CEMP	All	Signature: Date:
BD 2	EAR Ch 7	To establish no net loss of biodiversity and where possible a net gain	Site wide	Habitat replacement to mitigate vegetation clearance and replace areas of trees and grass lost to facilitate the works. The Environmental Mitigation drawings (Figure 6.5 in Volume 2 of EAR) shows potential areas for replanting, including areas for woodland, species rich grassland and scrub. However, this will be refined at detailed design at the Construction Preparation Stage to further limit vegetation loss and optimise replacement planting. Landscaping should be sensitive to nature conservation interests, particularly at Junction 2a and 2 where the largest amount of vegetation is to be removed. The Environmental Mitigation design provides a biodiversity net gain, ensures there is no severance of habitats across the proposed Scheme and improves connectivity between habitats. As the Scheme progresses through detailed design, these plans will be revised to ensure these same achievements are maintained. Habitat enhancement will be considered, additional to that required for mitigation. Habitat enhancement opportunities that have been illustrated on the Environmental Mitigation drawings (Figure 6.5 in Volume 2 of EAR) will be included during PCF Stage 5: Construction Preparation and PCF Stage 6: Construction, commissioning and handover stage	No	The proposed Scheme will impact on habitats and biodiversity.	Mitigation measures will be included in the CEMP and outlined in the Detailed Design at PCF Stage 5.	Design consultant and Principal Contractor	Implementation of the CEMP	All	Signature: Date:
BD3	EAR Ch 7	All site works to be carried out in	Site wide	The proposed Scheme shall adhere to measures to avoid or alleviate negative impacts upon ecological	No	https://www.ciria.org/	Mitigation measures will be included in the	Principal Contractor	Completed method	Construction phase	Signature:

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		accordance with best environmental working practices		receptors, including Guidance for Pollution Prevention (GPPs); and the Construction Industry Research and Information Association (CIRIA) guidance on the control of water pollution from construction sites. All site works to be carried out in accordance with best environmental working practices.		GPPs provide environmental good practice guidance for the whole UK. http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/	CEMP and outlined in the Detailed Design at PCF Stage 5.		statements, permits to work and work logs. Implementation of the CEMP		Date:
BD4	EAR Ch 7	To retain as many trees as possible.	Site wide	For any works taking place immediately adjacent to non-statutory designated sites (e.g. Clubbed Oaks, Dean Wood, Noster Hill), root protection zones will be put in place in accordance with BS 5837:2012.	No	Trees in close proximity to the site will be retained. S 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations https://www.trees.org.uk/	Mitigation measures will be included in the CEMP.	Principal Contractor	Completed method statements, permits to work and work logs. Implementation of the CEMP	Construction phase	Signature: Date:
BD5	EAR Ch 7	To reduce pollution to water habitats	Site wide	Creation and implementation of appropriately designed drainage system to attenuate any discharge from the network. Planning of storage facilities both for main compound and working areas. Implementation of reviewed method statements and permits to work.	No	https://www.gov.uk/guidance/pollution-prevention-for-businesses	Mitigation measures will be included in the drainage design document and the CEMP.	Principal Contractor	Completed method statements, permits to work and work logs.	Construction phase	Ongoing
BD6	EAR Ch 7	The presence of significant ecological receptors has implications for the timing of the development work.	Site wide	Programme of works must include awareness of species and habitat sensitivities.	No	Protected species are present within the site.	Considerate programme to be developed alongside ecologist.	Principal Contractor	Works completed in line with programme.	Construction phase	Ongoing

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		The avoidance of periods of sensitivity is considered best practice and should be considered.									
BD7	EAR Ch 7	Protection of designated sites and habitats. To limit adverse impacts of construction and compensate for habitat loss.	Site wide	Where activities creating significant volumes of dust and noise are anticipated, consideration will be given to damping down and temporary noise barriers. Construction exclusion fencing to be utilised to protect designated sites, ancient woodland, retained trees and other retained habitats as far as possible outside the working area from accidental incursion. Adherence to the GGPs and the CIRIA guidance on the control of water pollution from construction sites. Protection of retained trees following standard practice (i.e. BS 5837:2012 Trees in relation to design, demolition and construction. – Recommendations). All works to trees should be undertaken in accordance with the arboricultural method statement and guidance in the Arboricultural Impact Assessment (Appendix E.5 of the EAR). Implement mitigation measures as set out in this REAC for Air Quality, Noise and Vibration, and Water and Drainage. Provision of an ECoW to advise on the above measures during construction.	No	Construction in close proximity to designated sites and sensitive habitats.	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor Design contractor (including arboricultural specialist)	Compliance with the mitigation measures as outlined in the EAR.	All	Signature: Date:
BD8	EAR Ch 7	Mitigation of impact on reptiles. To limit the adverse impacts of construction and compensate for the habitats lost that are used by common reptiles.	Site wide	A PMW should be produced and implemented by a suitably-experienced ecologist with respect to reptiles.). This PMW should include: - the requirement for a thorough hand-search by a suitably experienced ecologist of suitable terrestrial habitat within the proposed Scheme footprint of the works - vegetation clearance of those areas (where necessary) also under supervision of the suitably trained ecologist - the requirement of a TBT on potential areas of suitable habitat, how to identify reptiles - the procedure to follow in the event that reptiles are found within the site During construction, suitable habitat should be maintained at a very short height (less than 50 mm) to discourage reptiles from entering them during construction. Measures to enhance the habitat of reptiles should be undertaken including: - Creation of reptile hibernacula from waste hardcore produced during the construction phase of the	No	Reptiles present within the site boundary.	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	Compliance with the mitigation measures as outlined in the EAR and the PMW.	All	Signature: Date:

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				proposed Scheme and logs produced during vegetation clearance of the proposed Scheme. Create log piles, that offer habitat to invertebrates, small mammals and reptiles, created from vegetation, such as trees, brash and scrub, produced during vegetation clearance of the proposed scheme.							
BD9	EAR Ch 7	To limit the adverse impacts of construction on badgers.	Site wide	A pre-construction check should be undertaken immediately prior to start of works to check for active badger setts. Steep-sided excavations should be filled-in or covered overnight. Alternatively, one of the sides should be sloped or a sturdy ramp (such as a plank of wood) will be placed in the excavation to allow egress for any badgers which may enter the excavation(s). The site foreman should check all excavations are protected at close of shift. Construction lighting will be sensitively designed to avoid disturbance of badgers.	No	Badgers potentially present within the site boundary. Best practice guidance	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	Compliance with the mitigation measures as outlined in the EAR.	All	Signature: Date:
BD10	EAR Ch 7	Mitigation of impact on roosting bats. To limit the adverse impacts of construction and compensate for the habitats lost that are used by roosting bats.	Site wide	Site specific risks resulted in bat surveys not being completed on 12 bridges - these are considered to offer suitable conditions for transitional/ occasional roosts. However, the structures are exposed and considered unlikely to provide suitable protection from the elements or appropriate conditions for hibernation during winter. Therefore, any works within 20 m of any structures with bat roosting potential should be undertaken during winter when the presence of bats is considered least likely, following a PMW. Prior to works within 30 m of any of the 12 un-surveyed bridge structures an inspection should be undertaken by a licensed bat ecologist as part of pre-construction checks. If evidence of a bat roost (non-hibernation and not utilised at the time of the work) is recorded, the roost shall be safeguarded during the proposed work to ensure that it is not damaged or destroyed. If evidence of an active hibernation bat roost is recorded in a bridge, works shall not proceed until the approach to the work has been reassessed and the requirement for a Natural England development licence has been determined.	No	Potential roosting bats present within the site.	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	Compliance with the mitigation measures as outlined in the EAR and the PMW.	All	Signature: Date:
BD11	EAR Ch 7	Mitigation of impact on commuting/foraging bats. To limit the adverse impacts of construction and compensate for the loss of	Site wide	Night time working during construction, defined as one hour before sunset to one hour after sunrise, will be kept to essential tasks to avoid disturbance to commuting/foraging bats (and any other nocturnal wildlife). Any lighting required for construction will be designed sensitively to avoid illuminating features used by commuting/foraging bats such as woodland/scrub edge.	No	Commuting/foraging bats present within the site. Establishment of bat boxes assumes landowner permits access.	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	Compliance with the mitigation measures as outlined in the EAR and the PMW.	All	Signature: Date:

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		foraging/commuting bat habitat.		Where vegetation is lost, replacement planting will be undertaken to ensure no net loss and any commuting or foraging areas are reinstated. Landscaping should be particularly sensitive at Junction 2a where the largest amount of vegetation is to be removed. Proposals include planting larger plant stock on the earth bund to maximise the height and mitigate the loss of bat commuting/foraging habitat. Incorporation of approximately 50 new roost sites for bats along suitably mature retained trees. These will be a range of Schwegler 2F, 1FF, 3FF, and 3FS. Refer to Environmental Mitigation drawings (Figure 6.5 in Volume 2 of EAR)		Landowner permission will be sought for the installation of bat boxes in third party land.					
BD12	EAR Ch 7 Wildlife and Countryside Act (1981) as amended and the Conservation of Habitats and Species Regulations	Mitigation of impact on breeding birds. To limit the adverse impacts of construction and compensate for the habitats lost that are used by breeding birds.	Site wide	Where possible, works to structures, tree felling, and vegetation clearance will be minimised. Necessary vegetation clearance should be undertaken outside the core bird nesting season (nesting season is 1st March to 31st August, though it should be noted that variation in dates is possible) to avoid damage or destruction of occupied nests or harm to breeding birds. Any works within the core bird nesting season will require an inspection of suitable structures and/ or trees and vegetation to be cleared, for breeding birds and their occupied nests by a suitably qualified ecologist no more than 24 hours prior to any works being undertaken. Any nesting birds identified will be left in situ for their entire nesting period and contractors would be required to stop work immediately until an alternative approach to the work will be found. This may include leaving an exclusion zone around the nest(s) to avoid disturbance. The operation phase mitigation measures include compensation and replacement landscape habitat planting and the incorporation of approximately 50 new nest sites for birds along suitably mature retained trees. These will be Schwegler 1B, 2H, 2M, 3S or similar. Refer to Environmental Mitigation drawings (Figure 6.5 in Volume 2 of EAR).	Yes	Breeding birds present within the site. Establishment of nest boxes assumes landowner permits access.	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	Compliance with the mitigation measures as outlined in the EAR and the PMW (if vegetation clearance is to be carried out within the core breeding season).	All	Signature: Date:
BD13	EAR Ch 7	Mitigation of impact on water vole, otters and invertebrates. To limit the adverse impacts of construction and compensate for the reduction in quality of habitats used by water vole, otters and invertebrates.	Site wide	Proposed Scheme will adhere to measures to avoid or alleviate negative impacts upon ecological receptors including GPPs/PPG's; and the CIRIA guidance on the control of water pollution from construction sites. Temporary site drainage should be designed to ensure that runoff remains within the site boundary. This OEMP will be developed into a CEMP which will include measures to prevent runoff and other pollutants being washed in to watercourses, as well as other measures to ensure to prevent or mitigate adverse impacts to watercourses during the construction phase of the proposed Scheme.	No	Watercourses near the site could be polluted. Drainage design would be developed to ensure runoff remains in the site boundary.	Mitigation measures will be included in the CEMP and outlined in the Detailed Design at PCF Stage 5.	To be implemented by the Principal Designer and Principal Contractor	Implementation of the CEMP	Construction phase	Signature: Date:

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BD14	EAR Ch 7	Mitigation of Invasive Non- Native Plant species (INNPS)	Site wide	Advice will be sought from a specialist contractor regarding the control and/ or removal of the Himalayan balsam, cotoneaster, Japanese knotweed, and montbretia identified within the proposed Scheme. Advice will also be sought to control/prevent any other INNPS, which have not previously been identified, from establishing themselves within the proposed Scheme boundary. Site staff will be made aware of the potential for INNPS to be present within the Site or along access routes and will be able to identify the above species. Site staff will remain vigilant for the presence of INNPS within the Site and along access routes throughout the clearance/construction phase. Any imported material needs to be specified and verified as being free of INNPSs. If INNPS are discovered within or close to the proposed work area, an appropriate buffer zone will be put in place to prevent incidental spread. If this is not possible, they will be treated/ removed by a specialist contractor or by capable site staff strictly following up-to-date guidance.	No	INNPS present within the site.	Mitigation measures should be included in INNPS Management Plan	Contractual responsibilities between Highways England and Principal Contractor.	Compliance with the mitigation measures as outlined in the INNPS Management Plan.	Pre-construction and Construction Phase	Signature: Date:
BD15	EAR Ch 7	To comply with legislation on protected species.	Site wide	Pre-construction surveys including an updated Phase 1 survey will be required to identify any changed protected/notable species activity before works commence on site. Due to the mobility of animals and the potential for colonisation of potential habitat features in the Study Area, it is recommended that an updated extended Phase 1 habitat survey is undertaken within 12 months, prior to the start of construction. These surveys are to include late stage design-change areas, all temporary and permanent works, details of drainage and discharge from the proposed Scheme. Account for any new ecological receptors identified pre-construction.	No	Protected species present on site.	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	Compliance with the mitigation measures as outlined in the EAR.	Pre-construction and Construction Phase	Signature: Date:
NV1	EAR Ch 8	To comply with local guidance and values for noise emissions during construction.	Site wide	The Principal Contractor will consult with the Environmental Health Departments at LCC to obtain guidance on their requirements for managing and controlling noise and vibration from construction works. The contractor shall keep local residents and other affected parties informed of the progress of the works, including when and where the noisiest activities will be taking place and how long they are expected to last. All noise complaints should be effectively recorded, investigated and addressed.	No	Community sensitive receptors	Daily site audits	Contractual responsibilities between Highways England and the Principal Contractor.	Good working practices as listed to be implemented	Pre-construction and Construction Phase	Signature: Date:
NV2	EAR Ch 8	To limit noise and vibration during construction	Site wide	The contractor will use the following good working practices to minimise impacts to local residents and ecological receptors:	Yes	Community and ecological	Contractual responsibilities between Highways	Contractual responsibilities between	Good working practices	Pre-construction and Construction Phase	Signature:

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				- All vehicles and plant will be fitted with effective exhaust silencers which will be maintained in good and efficient working order. - All compressors and generators will be 'sound reduced' models fitted with properly lined and sealed acoustic covers which should be kept closed whenever the machines are in use. - All ancillary pneumatic percussive tools will be fitted with mufflers or suppressors as recommended by the manufacturers, which should be kept in a good state of repair. - Machines in intermittent use will be shut down when not in use - The site compound and static machines should be sited as far as is practicable from noise sensitive buildings. - Where practicable, plant with directional noise characteristics should be orientated to minimise noise at nearby properties. - Plant should be certified to meet the current EU legislation and should be not be louder than the noise levels provided in Annex C and D of BS5228-1. - Mobile plant should be fitted with directional reversing alarms to avoid/minimise off-site noise nuisance - Where appropriate, temporary noise barriers or other noise containment measures should be installed to minimise construction noise levels. - The loading or unloading of vehicles and the movement of equipment or materials should be undertaken in a manner that minimises noise generation. - Concrete mixers should not be cleaned by hammering the drums. - When handling materials, care should be shown not to drop materials from excessive heights. - Selection of routes and programmes for the transportation of construction materials, spoil and personnel to minimise noise and vibration at sensitive receptors. - Avoiding vehicles waiting or queuing on the Public Highway with engines running. - Designing and construction of temporary infrastructure to minimise noise and vibration. - Considerate working hours as well as frequent and open communications with stakeholders will be used to reduce the residual impact of construction and reduce risk of complaints. .		sensitive receptors.	England and Principal Contractor.	Highways England and Principal Contractor.			Date:

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				In addition to the mitigation measures to prevent, control and mitigate all the possible factors impacting ambient noise and vibration, monitoring of ambient noise levels at periodic interval shall be carried out.							
NV3	EAR Ch 8	To minimise the impact of piling	Residential receptors near to new gantry locations, retaining wall works, emergency refuge area works for other structures	Where required, the piling method will be selected carefully to minimise noise and vibration impacts at receptors, so as to generate only low levels of vibration, such as employing rotary bored piling. Methods that cause much higher levels of vibration, such as percussive piling, can cause cosmetic damage to buildings within 50 m of the construction works and should be avoided wherever possible. The use of temporary noise barriers and piling shrouds will be considered. The works programme will be produced considering the durations of working near noise sensitive receptors to ensure they are not exposed to noise levels in excess of the Significant Observed Adverse Effect Level for more than 10 nights in any 15 consecutive night-time periods, or more than 40 days/nights in any six-month period.	No	Best practice including CIRIA guidance	Contractor to consider most appropriate method pre-construction	To be implemented by the Principal Contractor.	Not applicable	Pre-construction and Construction Phase	Signature: Date:
NV4	EAR Ch 8	To ensure the contractor is sensitive to environment	Site wide	The contractor will be a member of the Considerate Contractors Scheme.	No	Best practice	Mitigation measure will be included in the CEMP	To be implemented by the Principal Contractor.	Not applicable	Pre-construction and Construction Phase	Signature: Date:
NV5	EAR Ch 8 Pavement Design Report (Atkins, 2018)	To limit noise during operation	Junction 2 and the westbound carriageway between Junctions 3 and 2	Thin Surface Course System (low noise road surface) will be used for new surface course to reduce unnecessary increases in noise. Hot Rolled Asphalt will only be used only where specifically required, e.g. loop detector sites and bridge decks and will be finalised during the subsequent design stage.	No	IAN 73/06 HD 26/06	Incorporated into the proposed Scheme design	Contractual responsibilities between Highways England, the Principal Designer and the Principal Contractor.	Not applicable	Pre-construction and Construction Phase	Signature: Date:
NV6	EAR Ch 8 BS 5228-1	To mitigate potential impacts due to proposed night-time carriageway closures	Site wide	The contractor will aim to plan the works so there would be no more than 10 uses of a diversion route in any 15-night period. Excessive noise level at any roadside properties for longer periods could warrant the provision of noise insulation along diversion routes (following BS 5228-1). Full and partial carriageway closures will be advertised well in advance of the works to ensure regular users of the M621 at night are aware of when closures are going to occur. The Principle Contractor will liaise with LCC regarding planned carriageway closures in order to ensure that they do not coincide with planned maintenance works on the diversion route, for example. Consideration will also be given to alteration of timings of signal	No	Night time working is required.	Mitigation measure will be included in the CEMP and TMP	Contractual responsibilities between Highways England, the Principal Designer and the Principal Contractor.	Not applicable.	Pre-construction and Construction Phase	Signature: Date:

Ref	Source.	Objective	Location	Action / commitments	Monitoring Required (Yes/No)	Assumptions (on which the action is based)	How the action is to be implemented	Responsible Person	Achievement criteria & reporting requirement	When - Pre-construction - Construction - Operation - All	Completion record
				controlled junctions to avoid queuing traffic and to allow diverted motorway traffic to pass through the diversion route quicker. Full and partial closures of the carriageway will only be planned in the vicinity of works. Multiple diversion routes will be utilised to accommodate the different stages of works between Junctions 1 – 7.							
RD1	EAR Ch 9	To adopt good working practices and follow relevant Environment Agency Pollution Guidelines (GPPs)_to ensure no pollution of the watercourses occurs.	Site wide	Standard pollution prevention and construction best practice must be adopted to mitigate impacts on the water environment where required and reasonably practicable.	Yes – if required	Watercourses Dean Beck, Clark Spring, Farnley Wood Beck, Wortley Beck and Milshaw Beck are within the proposed Scheme extent or within close proximity to the proposed Scheme. Secondary A aquifers underlie the proposed Scheme.	Mitigation measures should be included in the CEMP at PCF Stage 5	To be implemented by the Principle Contractor	Sampling procedure and analysis of results if required by the Regulator.	Pre-construction and construction	Signature: Date:
RD2	EAR Ch 9	To limit the impact on road drainage and water environment during construction	Site wide	A CEMP will be produced to set out control measures to prevent or mitigate any potential adverse impacts on the water environment. Examples of mitigation measures include: - A statement on any flood risk management or mitigation measures implemented in support of temporary and permanent works proposals, and a statement on the cumulative flood risk impact of temporary and permanent works (with reference to the Preliminary Design EAR). - A description of the response procedures to be implemented in the event of works affecting groundwater levels or quality with subsequent adverse effects on abstractions, watercourses, water bodies or springs. - Temporary construction management methods from CIRIA publications to control water pollution on construction sites. - Where required, approval of the relevant regulatory body for plans of work likely to affect any surface or groundwater resource. - Measures to be provided to prevent runoff and other pollutants being washed into watercourses.	Yes – if required	PCF Stage 3 EAR (paragraph 9.7.2 to 9.7.8)	Mitigation measures should be included in the CEMP at PCF Stage 5.	Contractual responsibilities between Highways England and Principal Contractor.	Sampling procedure for local watercourses to be developed by contractor if required.	During construction phase	Signature: Date:

Ref	Source.	Objective	Location	Action / commitments	Monitoring Required (Yes/No)	Assumptions (on which the action is based)	How the action is to be implemented	Responsible Person	Achievement criteria & reporting requirement	When - Pre-construction - Construction - Operation - All	Completion record
RD3	EAR Ch 9	To ensure that proposals for the permanent works comply with the requirements of relevant legislation in respect of the protection of all groundwater resources.	Site wide	The drainage should be designed to provide adequate protection against the effects of both routine runoff and the risk of spillages.	No	N/A	Consultation with the EA.	Contractual responsibilities between Highways England and the Principal Contractor	Mitigation measures as included in the EAR or equivalent.	Pre-construction and Construction Phase.	Signature: Date:
RD4	EAR Ch9	To enable the full assessment of the risk from disruption of groundwater flow and inform the design to prevent impacts.	Site wide	Ground Investigation (GI) and subsequent monitoring of groundwater depth is required.	Yes	Subsurface structures/foundations and earthworks within works area.	Investigation to be incorporated within detailed design at PCF Stage 5.	Contractual responsibilities between Highways England, Principal Designer and the Principal Contractor	Investigations and monitoring completed. Assessment results informed the design	Pre-construction	Signature: Date:
RD5	EAR Ch 9	To review and update the Highways Agency Water Risk Assessment Tool (HAWRAT) assessment when any changes to the design are made to ensure that the proposed Scheme is compliant with water quality standards.	Site wide	The HAWRAT tests will be refined upon receipt of detailed drainage survey data.	No	N/A	Contractual responsibilities between Highways England and their Environmental Consultant	Contractual responsibilities between Highways England and the Principal Contractor	Mitigation measures to be provided to ensure surface water quality is not impacted. Completion of HAWRAT if required.	Pre-construction phase	Signature: Date:
RD6	EAR Ch 9	To comply with the DMRB for the management of spillage risk	Site wide	Undertake the appropriate levels of assessment in line with the DMRB to assess the effects of routine runoff on surface waters, groundwaters and the likelihood and effects of spillage are assessed. The calculated spillage risk return period must not be greater than 1 in 100 years the calculated spillage risk must not be greater than 1 in 200 years where spillage could affect: protected areas for conservation, important drinking water supplies or important commercial activities. The spillage risk from existing outfalls must not be increased.	No	N/A	Contractual responsibilities between Highways England and their Environmental Consultant	Contractual responsibilities between Highways England and the Principal Contractor	Mitigation measures as included in the EAR or equivalent.	Pre-construction	Signature: Date:
RD7	EAR Ch 9	To ensure there are no controlled discharges to ground or groundwater during construction, without Environment Agency consent and	Site wide	Comply with the requirements of relevant legislation in respect of the protection of all groundwater resources. Permission from landowners will be gained. Consent from EA to be gained if required.	No	Secondary A Aquifers within the site extents. Groundwater abstraction (licenced to Troy Foods) located 100	Consultation with the EA and landowners.	Contractual responsibilities between Highways England and the Principal Contractor	Permits acquired from the Environment Agency.	Pre-construction and Construction Phase	Signature: Date:

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		the permission of landowners.				m from proposed Scheme.					
RD8	EAR Ch 9	To determine if an abstraction licence for dewatering is required where any excavation is to be undertaken below the water table during the installation of structures	Site wide	Ground investigation and subsequent monitoring of groundwater depth is required. Consultation with the Environment Agency to be undertaken, if necessary.	Yes	Secondary A Aquifers within the site extents. Excavations required below the water table.	Consultation with the EA.	Contractual responsibilities between Highways England and the Principal Contractor	Record of meeting with the Regulator, relevant licence acquired if needed.	Pre-construction and Construction Phase	Signature: Date:
RD9	EAR Ch 9	To ensure flood risk is minimised during construction	Site wide	Discharges generated through construction should be controlled, where possible, by using the operational drainage networks to ensure no increase in flood risk. The construction site office should be temporarily added to the EA Flood Warning Service.	No	PCF Stage 3 EAR	Mitigation measures should be included in the CEMP at PCF Stage 5.	Principle Contractor		During construction phase	Signature: Date:
RD10	EAR Ch 9	To ensure there is no pollution to watercourses.	Plant storage areas and refuelling locations	Oil spill clean-up equipment including absorbent material and drip trays will be available throughout the site in appropriate locations such as refuelling areas for use in the event of an oil spill or leak.	No	N/A	Contractual responsibilities between Highways England and the Principal Contractor	Contractual responsibilities between Highways England and the Principal Contractor	Mitigation measures to be included in the CEMP.	Pre-construction and Construction Phase.	Signature: Date:
RD11	EAR Ch 9	To provide temporary site drainage to contain surface run-off to ensure there is no pollution of the watercourses occurs.	Site wide	Temporary site drainage should be designed, where practicable, to retain surface runoff within the site boundary. Where possible, the permanent drainage arrangements should be utilised in the temporary management system.	No	N/A	Contractual responsibilities between Highways England and the Principal Contractor	Contractual responsibilities between Highways England and the Principal Contractor	Mitigation measures to be included in the CEMP.	Pre-construction and Construction Phase	Signature: Date:
RD12	EAR Ch 9	To provide measures to deal with a pollution or flooding incident	Site wide	An incident response plan should be in place to deal with any issues as soon as they occur for a particular site and to ensure that works are undertaken with the utmost care where they have potential to lead to contamination of any watercourse. Emergency action planning should include measures to be taken to prevent pollution caused by severe weather.	No	N/A	Contractual responsibilities between Highways England and the Principal Contractor	Contractual responsibilities between Highways England and the Principal Contractor	Response plan produced and kit to deal with response in position on site.	Pre-construction and Construction Phase.	Signature: Date:
RD13	EAR Ch 9	To limit the impact on road drainage and water environment during Operation.	Site wide	The drainage strategy, developed as part of the proposed Scheme, should seek to not exceed existing runoff rates. During detailed design in PCF Stage 5, consultation with LCC as Lead Local Flood Authority (LLFA) will be required. This will include discussion on climate change factors required for flow estimation. Potential options for water quality treatment, will be identified once water quality tests have been refined on receipt of data.	No	PCF Stage 3 EAR (paragraph 9.7.9 to 9.7.14) Increased hardstanding within the surface water drainage catchment may increase surface water runoff and may impact on	Mitigation measures should be included in the CEMP at PCF Stage 5. Consultation with LCC.	Contractual responsibilities between Highways England and the Principal Contractor	Contractor	All	Signature: Date:

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						flood risk to and from the proposed Scheme.					
RD14	EAR Ch 9	To ensure that any potential discharges to receiving waters do not breach environmental legislation.	Site wide	The appropriate levels of assessment will be undertaken in line with the DMRB to assess the effects of the drainage arrangement on runoff on surface waters and groundwaters. Treatment of runoff will be applied as necessary to ensure that discharges during construction and under design conditions, do not prejudice the achievement of water quality standards for the receiving waters.	No	N/A	Consultation with the EA upon completion of the detailed drainage design.	Contractual responsibilities between Highways England and the Principal Contractor	Mitigation measures to be included in the CEMP.	All	Signature: Date:
PHH 1	EAR Ch 10	To ensure pedestrian and non-motorised user linkages and accessibility are maintained.	Site wide	During construction, the proposed Scheme will ensure ongoing access is achieved and the severance for nearby communities is minimised. A clear and consistent signage strategy will be designed to direct users during construction. Users of affected PRow, footpaths and cycleways will be notified of planned diversions, and closure (Junction 2), with signs along sections to be closed during construction, at least one month prior to the works. Construction works will be programmed so that affected PRow, footpaths or cycleways remain open for part, or the whole duration, of the construction period, and so that other routes can act as a diversion for those affected. Potential improvements to the underpass at Lowfields Road should be considered to make the new diverted footpath route safer and more attractive for existing and new users following the closure of the footpath to the west of the Junction 2. Public transport routes and stops will be maintained/ disruption managed.	No	Local traffic and NMUs will still require access around the area. Local community/ NMU are likely to be affected by the construction activities.	Implementation of measures outlined in the Detailed Design at PCF Stage 5, the TMP and CEMP.	Contractual responsibilities between Highways England and Principal Contractor.	Implementation of measures outlined in TMP.	Pre-construction and Construction Phase.	Signature: Date:
PHH 2	EAR Ch 10	To ensure minimum disruption to human receptors due to changes in access to private dwellings	Site wide	The extent of direct land take affecting identified individual receptors should be minimised. Access arrangements will be considered during Detailed Design at PCF Stage 5. A TMP will be developed which outlines diversion routes to be used to minimise disruption on the roads during construction.	No	Potential changes in access arrangements and severance impacts on private dwellings within the core study area, particularly because of the proposed closure of Junction 2a. Local traffic and NMUs will still require access around the area.	Implementation of mitigation measures outlined in the Detailed Design, the TMP and CEMP at PCF Stage 5.	Contractual responsibilities between Highways England, the Principal Designer and the Principal Contractor.	Implementation of measures outlined in TMP.	Pre-construction and Construction Phase.	Signature: Date:

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PHH 3	EAR Ch 10	To ensure minimum disruption to community land and facilities	Site wide	The extent of direct, permanent land take affecting community land should be minimised as far as practicably possible during detailed design at PCF Stage 5. Pedestrian linkages and accessibility should be maintained. During construction, a clear and consistent signage strategy will be designed to support access to community and recreational facilities using footpaths and cycleways.	No	Local community will still require access to community land.	Mitigation measures to be outlined in the CEMP.	Contractual responsibilities between Highways England, the Principal Designer and the Principal Contractor.	Implementation of measures outlined in CEMP.	All	Signature: Date:
PHH 4	EAR Ch 10	To mitigate the impacts of construction on local businesses.	Site wide	Access arrangements will be considered during Detailed Design at PCF Stage 5. A TMP will be developed which outlines diversion routes to be used to minimise disruption on the roads during construction. This will ensure the businesses that require customer, supply chain and delivery access are not impacted significantly. The extent of direct, permanent land take affecting local businesses should be minimised as far as practicably possible during detailed design.	No	Local business is likely to be affected by the construction activity and land take.	Mitigation measures contained in the CEMP and TMP. Community Relations Strategy.	Contractual responsibilities between Highways England and Principal Contractor.	Implementation of measures outlined in CEMP and TMP.	Pre-construction and Construction Phase.	Signature: Date:
PHH 5	EAR Ch 10	To limit impacts of construction on driver stress and on vehicle users.	Site wide	The TMP will be primary in minimising effects upon vehicular travellers during construction through traffic management measures. All diversion routes and any temporary or permanent closures of roads will need suitable signage to minimise adverse effects on driver stress.	No	Local community are likely to be affected by the construction activities	Contractual responsibilities between HE, detailed design consultant and Principal Contractor.	Principal Contractor	Phasing of construction works to maintain access where practicable. Implementation of measures outlined in TMP.	Pre-construction and Construction Phase.	Signature: Date:
GS1	EAR Ch 11	To prevent adverse effects to due to settlement/movement of soils. To limit the damage to the nearby infrastructure, users and occupiers due to settlement/movement of soils	Site wide	An assessment of potential settlement/movement of soils will be undertaken (within the Geotechnical Design Report) prior to construction to identify the level of risk. Temporary and permanent works will be designed to minimise movements. The potential movement of soil will be monitored during construction stage with mitigation measures implemented as required. Mitigation measures include: - Undertaking an appropriate GI - Inspection of existing infrastructure and assessment of movements which can be tolerated - Design of the temporary and permanent works to minimise movement (including appropriate analysis to predict magnitude of movements)	Yes	As outlined in Preliminary Design EAR Chapter 11.7	Completion of GI and assessment of existing infrastructure. Mitigation measures included in Detailed Design and the CEMP at PCF Stage 5.	Contractual responsibilities between Highways England and Principal Contractor.	Successful implementation of the CEMP.	Pre-construction and Construction Phase.	Signature: Date:

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				- Monitoring during the construction works to measure movements, with agreed trigger levels and action plans - Good construction practices							
GS2	EAR Ch 11	To prevent risk of land instability and impacts due to disturbance of old mine workings/mine entries	Site wide	The locations of old mine workings/entries will be further verified through a GI. Mining risk assessment will be undertaken at high risk areas where shallow workings and mine entries are present or are likely to be present. Detailed assessment of high-risk areas will be done through the Ground Investigation Report (GIR) and Geotechnical Design Report (GDR) following GI. A detailed desk study of available mine records should be undertaken during the detailed design stage to inform construction activities. Mitigation measures such as drilling/grouting of old workings and the application of appropriate foundation solutions will be implemented where necessary. Ground gas and groundwater monitoring will be required during grouting works to allow any changes to the gas and groundwater regimes (as a result of the grouting) to be investigated. An appropriate exclusion zone will be adopted in areas where an unacceptable risk from mine workings or mine entries is identified and which has not addressed in detailed design stage. During construction, best practice measures will be implemented to protect ground investigation and drill/grout specialists and construction workers.	Yes – if grouting works are needed	Available mine records assumed to provide accurate detail of location and depth of recorded mines. Recorded surface mining and shallow coal mining, as well as probable shallow coal mining, are indicated to be present beneath most of the M621. There are several mine entries recorded to be present within 20 m of the scheme extents. Risk of unrecorded mine-shafts and shallow mine workings in the area.	Completion of mining risk assessment. Completion of detailed desk study. Completion of GI. Mitigation measures should be included in the CEMP and outlined in the Detailed Design at PCF Stage 5.	Highways England and Principal Contractor	Successful implementation of the CEMP.	Pre-construction and Construction Phase	Signature: Date
GS3	EAR Ch 11	To prevent disturbance of potentially contaminated land and ground/mine gas and the associated risk on sensitive receptors	Site wide	Intrusive GI, with sampling for chemical analysis and groundwater monitoring, will be undertaken prior to the detailed design stage to allow completion of a ground contamination risk assessment and (if required) preparation of a remediation strategy. Data from the GI to be used within generic quantitative risk assessments (GQRA) to assess risks potentially posed to human health, controlled waters and off-site buildings from disturbance/mobilisation of contamination/gas during construction and to inform material re-use assessments. Good construction practices such as the following will be implemented by the construction contractor: - Effective design of excavations to ensure that the amount of exposed material is minimised during activities and that working areas are covered at the end of each working day. - Implementation of construction measures to minimise the quantity of surface water being allowed	Yes	The proposed Scheme involves excavations on land that has previously been occupied by potentially contaminative activities and there is the potential to release contaminants to air (dust/vapours/gas), soil and groundwater	Intrusive GI. Good construction practices. Mitigation measures should be included in the CEMP and outlined in the Detailed Design at PCF Stage 5.	Highways England and Principal Contractor.	Successful implementation of the CEMP.	Pre-construction and Construction Phase	Signature: Date

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				to drain into the ground and to prevent runoff to watercourses. - Control and treatment of solid and liquid contamination. - Effective design of excavations to control dust and leachate generation. - Appropriate control and management of potentially contaminated groundwater extracted during dewatering activities. - Use of dust suppression techniques such as spray bars, bowsers and nebulisers. - Covering of stockpiled materials and use of battering (i.e. smoothing surfaces) of exposed soil slopes to reduce entrainment of soils in runoff. - Effective design of traffic control measures to reduce dust generation and minimise the amount of traffic within working areas, use of wheel washes and spraying of working areas and roadways. - Restricting the size of excavations in sensitive areas.							
GS4	EAR Ch 11	To limit risk on nearby receptors and infrastructure in the case of widespread gross contamination	Site wide	Made Ground will be excavated and removed to reduce potential contamination sources. Materials that might generate ground gas will be excavated or barriers/venting will be installed to intercept and redirect gases, away from sensitive receptors. Remediation measures, e.g. removal or capping of Made Ground to break identified pollution pathways to be implemented.	No	Assuming confirmation of gross widespread contamination within the site boundary.	Made ground to be excavated when discovered.	Principal Contractor	Not applicable.	Construction	Signature: Date
GS5	EAR Ch 11	To limit risk of contamination on the construction compound	Construction compound	GI and assessment are required to quantify the level of risk associated with ground gas accumulation. GI results will inform mitigation measures. If required, ventilated voids will be provided beneath all site compound buildings. To prevent contaminants associated with the historical landfill site beneath the compound permeating the temporary water supply pipes which will be used to service the proposed compound; it is recommended that pipes are laid in clean imported backfill material and are made from materials specified to withstand elevated levels of contamination.	No	A historical landfill is present beneath the site compound area.	Completion of assessments identified. Relevant mitigation measures implemented. Any measures will be included in the CEMP.	Highways England and Principal Contractor	Mitigation measures should be included in the CEMP and outlined in the Detailed Design at PCF Stage 5.	Pre-construction and Construction Phase	Signature: Date
GS6	EAR Ch 11 Control of Substances Hazardous to Health	To prevent adverse risks to on-site human health receptors (construction)	Site wide and specifically the compound	The works will be carried out in accordance with the CDM Regulations 2015 which requires potential risks to human health and the environment from construction activities to be identified and managed.	Yes	Potential on-site sources of contamination have been identified and	Principal Contractor to plan and organise the job, and work together with others involved to make sure that the	Principal Contractor	Mitigation measures to be included in a Construction Management	Pre-construction and Construction	Signature: Date

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	(COSHH) Regulations Construction Design Management (CDM) Regulations, 2015.	workers) associated with the presence of ground or groundwater contamination or the migration of ground gases or vapours	site (previously landfill)	The works will also be completed in accordance with appropriate guidelines and best practices. Health and safety Risk Assessment Method Statements (RAMS) and appropriate Personal Protective Equipment (PPE) for the protection of construction workers will be produced. Groundwater monitoring, will be undertaken prior to the detailed design stage to obtain a better understanding of the groundwater regime at the site and allow or an appropriate remediation strategy to be developed if necessary.		Potential Contaminant Linkages (PCLs) identified. Requirement of existing health and safety legislation to carry out appropriate risk assessments.	work is carried out without risks to health and safety.		Plan and within RAMS.		
GS7	EAR Ch 11	To limit the creation of new pollution pathways by piling or removal of low permeability strata. To avoid deterioration of underlying aquifers and groundwater quality.	Gantry installation, retaining walls, emergency refuge areas and other structures	Where required, aquifer protection measures will be put in place. This may include specified pile design to reduce the risk of new pathway creation. A piling risk assessment will be completed for any areas of proposed piling where the GI indicates there is an elevated level of contamination. Appropriate design measures will restrict the vertical migration of potential mobile pollutants, such as sheet piling of dig areas, control of groundwater during excavation and minimising the size of individual excavation areas. Excavation into low permeability layers will be restricted as much as practically possible or lining systems will be used.	No	Excavations will be required on land that has previously been occupied by potentially contaminative activities, which could result in dissolved contaminants being released to groundwater causing a deterioration in water quality. New foundations will be constructed using driven piles and might impact upon the ancient woodland and Troy foods abstraction both of which are located within 100 m of the proposed Scheme.	Successful implementation of the CEMP.	Highways England and Principal Contractor	Mitigation measures will be included in the CEMP and outlined in the Detailed Design at PCF Stage 5.	Pre-construction and Construction Phase	Signature: Date
GS8	EAR CH 11	To restore agricultural land	Construction compound	The construction compound will be restored to a condition equivalent to its original. The quality and quantity of soil on-site would be maintained by implementing appropriate techniques for stripping, stockpiling and reinstatement, in accordance with Defra's 2009 Code of Practice for the Sustainable Use of Soils on Construction Sites. The field would be subject to an aftercare period (duration to be agreed), during which time problems with settlement, drainage and weed infestation will be rectified.	Yes	The compound site at Junction 7 is required to be returned to agriculture.	Successful implementation of the CEMP and monitoring to ensure establishment.	Highways England and Principal Contractor	Mitigation measures will be included in the CEMP and outlined in the Detailed Design at PCF Stage 5.	All	Signature: Date

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MW1	EAR Ch 12 Source TBC	To follow overarching waste hierarchy throughout the project life cycle.	Site wide	The waste hierarchy - reduce, reuse, recycle, recover and dispose – will be applied throughout design, construction and operation of the proposed Scheme.	No	Not applicable	Awareness of waste hierarchy by all those working on the proposed Scheme.	Highways England Principal Designer Principal Contractor	Not applicable	All	Signature: Date:
MW2	EAR Ch 12	To design out waste material use as much as practically possible.	Site wide	The design will ensure all gantries and signs are essential to save material use and waste generation e.g. packaging and soil generation. The potential to further design out waste in the proposed Scheme design will be assessed at Detailed Design at PCF Stage 5.	No	The design can be refined without a negative effect on the effectiveness of the proposed Scheme.	Refinement of design Principal Contractor to choose appropriate components	Principal Designer	Design sensitive to materials and waste quantities	Pre-construction	Signature: Date:
MW3	EAR Ch 12	To achieve high recycling and waste recovery levels	Site wide	Targets for waste recovery and recycling will be set and adhered to. Appropriate recycling facilities will be provided. Source segregation of recyclable waste will be completed on site.	No	The proposed Scheme will generate recyclable waste. ECI advice.	Targets to be communicated with those working on the proposed Scheme	Designers and Principal Contractor	Completion of Smart Waste Management Plan (live document)	Pre-construction and Construction Phase.	Signature: Date:
MW4	EAR Ch 12	To record waste volumes generated and duty of care information	Site wide	A robust framework to manage, avoid and minimise potential impacts will be implemented. This will include the production of: - A CEMP - A Site Waste Management Plan (SWMP) - A Materials Management Plan (if applicable) These reports will be produced and maintained throughout the construction period to ensure that waste generation and management can be logged and audited.	Yes	Some waste generated will require management offsite	Contractual responsibilities between Highways England and their Principal Contractor	Site personnel responsible for maintaining SWMP (Principal Contractor)	Completion of SWMP (live document)	Construction	Signature: Date:
MW5	EAR Ch 12	To reduce waste during construction to provide environmental and economic benefits	Site wide	Precast concrete and off-site assembled components will be used Deliveries will be organised, so materials arrive on-site as they are needed to reduce the possibility of damage and wastage occurring. Materials will be used as efficiently as possible	No	The Scheme will generate waste and use large volumes of materials.	Principal Contractor to choose appropriate components.	Principal Contractor	Not applicable	Construction	Signature: Date:
MW6	EAR Ch 12	To correctly segregate waste	Site wide	Areas designated for waste will be clearly marked. Separate skips for differing waste types will be provided and well defined. All staff will receive training to understand how and why they should sort waste material. Regular updates and reminders will be undertaken.	No	The Scheme will generate waste.	Principal Contractor to schedule inductions and toolbox talks.	Principal Contractor	Record to be kept to show date of attendance to site induction, toolbox talks and refresher sessions which cover waste.	Construction	Signature: Date:
MW7	EAR Ch 12	To deter waste crime	Site wide	The appointed waste contractor(s) must be registered with the Environment Agency and suitably licensed as a waste carrier for all waste to be transported off site,	No	Organisations not properly registered may offer to	Principal Contractor to carry out thorough checks of carriers and	Principal Contractor	Completion of SWMP (live document) and	Construction Phase.	Signature: Date:

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				including any hazardous waste, as part of their legal Duty of Care. The waste contractor should be able to undertake daily collections which may be required during construction. Completed waste transfer notes and/or hazardous waste consignment notes must, as a legal requirement, be provided by the waste contractor and kept for a minimum of two and three years respectively. Any site that waste is transferred to must have either a permit or exemption that allows it to receive and manage the waste being transferred.		remove waste then dump it. Legal requirements of waste management Duty of Care.	waste management sites.		storage of completed waste transfer notes and/ or hazardous waste consignment for a minimum of two and three years respectively.		
MW8	EAR Ch 12	To ensure waste is managed during in the operational phase of the proposed Scheme	Site wide	Source segregation of waste and recycling will be completed. Source segregation of hazardous waste will be completed. A HEMP which incorporates waste will be developed. Staff and sub-contractors will receive training to relay good practice for waste collection and maintenance.	Yes	Waste will be produced during the operational phase.	Segregation of recycling and waste will be achieved through provision of clearly marked and/or colour coded bins at maintenance depots. Hazardous waste such as waste electrical and electronic equipment, will be stored and collected separately. These wastes may not be suitable for storage in standard waste receptacles, therefore an area will be set aside for hazardous waste storage at maintenance depots. CEMP to include strategy for litter picking and planned/unplanned maintenance. The management plan will be regularly updated, at least every 6 months or whenever there is significant legislative change. Training will be provided regularly. These measures will be implemented through the CEMP and HEMP.	Contractual responsibility of operational maintenance contractor.	Completion and implementation of HEMP (produced in PCF Stage 6 for handover in PCF Stage 7).	Operation	Signature: Date:

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MW9	EAR Ch 12	To manage operational waste	Site wide	The operational embedded mitigation measures to be implemented include: - Source segregation of waste and recycling – achieved through provision of clearly marked and/or colour coded bins at maintenance depots. - Source segregation of hazardous waste –hazardous waste such as Waste Electrical and Electronic Equipment (WEEE) should be stored and collected separately. As these wastes may not be suitable for storage in standard waste receptacles, an area should be set aside for hazardous waste storage at maintenance depots. - Development of an environmental management plan which incorporates waste or have a standalone operational waste management strategy for litter picking and planned/unplanned maintenance. The management plan should be regularly updated, at least every 6 months or whenever there is significant legislative change. - Provision of regular training for staff and/or sub-contractors – this should focus on practices necessary to minimise waste and facilitate good practice whilst undertaking litter picking and planned/unplanned maintenance.	Yes	It is assumed that these actions are consistent with the current management and maintenance of waste from the M621 and are therefore embedded.	Continued monitoring / maintenance of the M621	Highways England or appointed organisation	Not applicable	Operation	Ongoing
C1	EAR Ch 13 Highways England	To implement Highways England's carbon emissions reduction hierarchy	Site wide	To avoid / prevent emissions the design will aspire to re-use and refurbish existing assets as much as possible and explore lower carbon options to deliver the project objectives. To reduce emissions low carbon solutions (including technologies, materials and products) will be applied throughout the project. Construction will be efficient, using techniques that minimise resource consumption throughout construction and operation. As far as practicably possible the project will try to reduce carbon emissions considering measures such as offsetting or sequestration if required.	No	The Scheme will have a negative impact on climate / greenhouse gas emissions.	Implementation of measures outlined in the Detailed Design, the TMP and CEMP at PCF Stage 5.	Contractual responsibilities between Highways England and design consultant and Principal Contractor.	Principal Contractor	All	Signature: Date:
C2	EAR Ch 13 PAS 2080:2016	To limit/reduce emissions from material and transportation in the construction life cycle	Site wide	Consideration will be given to alternative low carbon materials e.g. recycled aggregates, cement substitution etc. Materials transportation will be reduced and avoided, as much as possible, by minimising the quantity of materials required. Additionally, where possible, detailed design and procurement measures will be specified to minimise the necessity to source materials from long distances.	No	Transportation of materials results in increased carbon emissions.	Implementation of measures outlined in the Detailed Design, the TMP and CEMP at PCF Stage 5.	Contractual responsibilities between Highways England and Principal Contractor.	Principal Contractor	Pre-construction and construction	Signature: Date:
C3	EAR Ch 13	To limit /reduce emissions throughout construction	Site wide	Construction plant emissions and water consumption will be minimised by designing efficient construction processes as part of design development. During	No	Construction processes are likely to generate	Implementation of measures outlined in the Detailed Design at	Contractual responsibilities between	Principal Contractor	Construction and operation	Signature: Date:

Ref	Source.	Objective	Location	Action / commitments	Monitoring Required (Yes/No)	Assumptions (on which the action is based)	How the action is to be implemented	Responsible Person	Achievement criteria & reporting requirement	When - Pre-construction - Construction - Operation - All	Completion record
		processes and for any maintenance during the operational phase.		construction these measures will be managed via the CEMP. Reduction of waste generation and off-site processing will be carried out in accordance with the mitigation measures outlined in Chapter 12 Waste and Material Assets. To reduce employee commuter travel wherever possible, local contractors will be employed to work on the proposed Scheme.		greenhouse gas emissions.	PCF Stage 5, the Traffic and Transport Management Plan and CEMP. The CEMP will specify plant operator efficiency requirement and reduction and reuse measures for water consumption.	Highways England, Principal Contractor and Design Consultant.			
C4	EAR Ch 13	To reduce in-use emissions from traffic and operational energy use during the operational phase.	Site wide	Low energy lighting and traffic management systems, controls that minimise on-time, and low carbon energy sources, will be used where practicable. Potential inclusion of NMU routes across the wider road network should be considered to encourage the utilisation of alternative means of transport and help to achieve a more integrated and sustainable transport network, whilst reducing emissions.	No	Reduction in operational emissions is possible.	Implementation of any measures outlined in the Detailed Design at PCF Stage 5.	Contractual responsibilities between Highways England, Principal Contractor and Design Consultant.	Measures to reduce operational emissions considered.	Operation	Signature: Date:

4. Consents and permissions

- 4.1.1 Once the detailed design is available at the Statutory Procedures and Powers Phase, further assessment and consultation with regulating bodies is required to ascertain the need for project consents, licenses and permissions.
- 4.1.2 The Principal Contractor will be required to obtain, implement and comply with all permits, consents and licences during the construction phase. The Principal Contractor will manage submissions and approval of all the required consents, permits and licences prior to commencement of the relevant site works. Table 4-1 lists the anticipated consents and licences which will be reviewed and updated, as required, as the project progresses.
- 4.1.3 All other commitments made by Highways England to local planning authorities; regulatory bodies such as the Environmental Agency, Natural England and Historic England; and local communities must be documented and abided by.
- 4.1.4 Any condition included in consents/licences/permits will be documented in the final CEMP and considered as part of the planning, design and construction process.

Table 4-1: Permits, Consents and Licences

Type of permit, consent, licence and reference	Issuing authority	Requirement	Summary of conditions
Noise Section 61 agreement, Part III of Control of Pollution Act 1974	Local Authority Environmental Health Department	Unknown	The contractor would be responsible for liaising with the LPA should a Section 61 agreement be sought.
Water discharge consents	Environment Agency	Unknown	The drainage design is currently unknown and will be developed during detailed design. Therefore, if discharge to surface water or groundwater is required a permit would be needed.
Flood defence consent	Environment Agency	Unknown	Works carried out within 8 m of the bank of a river may require a permit.
Abstraction licence (water resources licence) for dewatering	Coal Authority	Unknown	A permit will be required for any piling or excavation works in the area as the whole scheme is underlain by Coal Measures, with both shallow and deep coal seams which have been historically worked.
Protected Species Licence	Natural England	Unknown	There are 12 bridges which have not been

Type of permit, consent, licence and reference	Issuing authority	Requirement	Summary of conditions
Bats			surveyed and will be as part of pre-construction checks. If evidence of an active hibernation bat roost is recorded in the bridge, works will not proceed until the approach to the work has been reassessed and the requirement for a Natural England development licence has been considered. If required, allow at least 30 working days for the application determination period.
Public Right of Way stopping up order (temporary and permanent)	Highways Authority (could include the local authority)	Likely	Likely to be required for footpath diversions.
Transport Regulation Order	Highways Authority (could include the local authority)	Likely	Required for potential closure of footway to the west of Junction 2 and to limit or prohibit the movement of traffic on the highway as required.

5. Environmental Asset Data and As Built Drawings

5.1 Highways England Environmental Information System

5.1.1 The Highways England Environmental Information System (EnvIS) consists of specific environmental data supplied by service providers, Highways England and other bodies which is collated and displayed in the Highways Agency Geographic Information System (HAGIS). This data is used to assist in managing the environment, within and surrounding the strategic road network, and in the review and reporting of the environmental performance of both service providers and Highways England.

5.1.2 The aim of EnvIS is to assist Highways England and service providers, in designing and managing the strategic road network in an accurate, consistent and environmentally sound manner. Specifically, it aims to achieve the following key strategic and operational objectives:

- enable consistent and accurate recording and retrieving of specific environmental data about the strategic road network
- assist in the review and reporting of environmental performance of both Highways England and service providers
- improve understanding of the environmental issues and opportunities that must be considered at different stages of trunk road and motorway management
- in line with ensuring a value for money approach, assist in the prioritisation of environmental management actions based on an understanding of the condition of the Element and environmental objectives
- assist in the handover of environmental data from designers to network management agents (and vice versa) and the transfer of environmental data from an outgoing network management agent to its successor
- assist designers and network management agents in the collection of environmental data and use this information to develop specific environmental management programmes and strategies, including EMPs

5.2 Collection and submission of EnvIS data

5.2.1 Highways England's IAN 84/10 states that identifying and recording EnvIS data is an ongoing process. Service providers are required to submit EnvIS data, stored on their own system, in the form of environmental inventory and environmental management information records. For designers, the frequency of EnvIS data submission (to Highways England), should be in line with the end point of the following milestones:

- Development phase (Preliminary Design) – Environmental Assessment / Statement Publication - environmental data resulting from statutory or non-statutory assessment of the environmental implication of a proposed project. Designers collect and submit EnvIS data for all Elements that have influenced or are influenced by the Preferred Route

- Development phase (Construction Preparation) – detailed design drawings - environmental data detailing the final specification of the project. Designers collect and submit EnvIS data detailing all Elements associated with the planning and design of the project and planned environmental management actions that will be undertaken during the construction period and of the existing Elements likely to be affected.
- Construction phase (Construction) – As Built Drawings – environmental data detailing the completion of the project prior to handover. Designers collect and submit EnvIS data detailing all Elements associated with the construction of the project and planning environmental management actions that are required to be undertaken by the network managing agent as part of operating and maintaining the network area.

5.2.2 At this stage of the project, EnvIS data will be submitted through the publication of the EAR. This will include the submission of all species surveys results undertaken to inform the EAR.

[Note: This section should be updated at the next milestone stage (Development phase (Construction Preparation)) to detail the submission arrangements for the future EnvIS data]

References and Glossary

6. References and Glossary

6.1 References

Atkins (2019a). Preliminary Design Environmental Assessment Report Ref: HE551464 -ATK-EGN-XX-RP-LM-000011

Atkins (2019b). Traffic Management Plan. Ref: HE551464-ATK-HGN-XX-RP-CW-000001

Atkins, 2018. Pavement Design Report. Ref: HE551464-ATK-HPV-XX-RP-CH-000001 November 2018

BS EN ISO 14001: Environmental Management Systems 2015.

Highways England (2008a). Volume 11 Environmental Assessment Section 2 Environmental Impact Assessment Part 5 HA 205/08 Assessment and Management of Environmental Effects. August 2008. Available at <http://www.standardsforhighways.co.uk/ha/standards/dmr/vol11/section2/ha20508.pdf>

Highways England (2008b). Volume 11 Environmental Assessment Section 2 Environmental Impact Assessment Part 6 HA 48/08 Reporting of environmental impact assessments. August 2008. Available at <http://www.standardsforhighways.co.uk/ha/standards/dmr/vol11/section2/hd4808.pdf>

Highways England (2010) Interim Advice Note 84/10 Part 1 Volume 10 Section 10 Highways Agency Environmental Information System – EnVIS [online] available at: <http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian84pt1.pdf>

Highways England (2014). Interim Advice Note 183/14 Environmental Management Plans. June 2014. Available at: <http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian183.pdf>

IEMA (2008). Practitioner Best Practice Series Volume 12 Environmental Management Plans. Available at [IEMA Membership Login Required]: www.iema.net/system/files/practitioner_vol_12_environmental_management_plans.pdf

6.2 Glossary and abbreviations

Acronym	Full term and or definition
AIA	Arboricultural Impact Assessment
AQMA	Air Quality Management Area – An area identified where the National Air Quality Objectives are not likely to be achieved. The Local Authority is required to produce a Local Air Quality Action Plan to plan how air quality in the area is to be improved.
AQS	Air Quality Strategy – The AQS sets out air quality objectives and policy options to further improve air quality in the UK from today into the long term.
BS	British Standards
CDM	Construction Design Management
CEMP	Construction Environmental Management Plan - A plan produced by the contractor describing how the environmental impacts of construction activities of a project will be minimised and mitigated.
CIRIA	Construction Industry Research Information Association
COSHH	Control of Substances Hazardous to Health - Under the Control of Substances Hazardous to Health Regulations 2002, employers need to either prevent or reduce their workers' exposure to substances that are hazardous to their health.
Defra	Department of the Environment, Food and Rural Affairs - Defra is the government department responsible for environmental protection, food production and standards, agriculture, fisheries and rural communities in the United Kingdom of Great Britain and Northern Ireland. Defra is a ministerial department, supported by 33 agencies and public bodies.
DF3.2	Design Fix 3 version 2
DfT	Department for Transport - Government department responsible for the transport network in England, and for aspects of the transport network in the devolved administrations.
DMRB	Design Manual for Roads and Bridges - A series of 15 volumes that provide standards, advice notes and other published documents relating to the design, assessment and operation of trunk roads, including motorways in the United Kingdom, and, with some amendments, the Republic of Ireland.
EA	Environment Agency - A non-departmental public body with responsibilities relating to the protection and enhancement of the environment in England.
EAR	Environmental Assessment Report
ECI	Early Contractor Involvement
ECOW	Ecological Clerk of Works
EHO	Environmental Health Officer
EMP	Environmental Management Plan
EMS	Environment Management System
EnvIS	Highways England Environmental Information System

Acronym	Full term and or definition
EPA	Environmental Protection Act 1990
EPS	European Protected Species
EU	European Union
GI	Ground Investigation
GPPs	Guidance for Pollution Prevention
HAGIS	Highways Agency Geographic Information
HAWRAT	Highways Agency Water Risk Assessment Tool
HEMP	Handover Environmental Management Plan
IAN	Interim Advice Note - Contains specific guidance, which shall only be used in connection with works on motorways and trunk roads in England, subject to any specific implementation instructions contained within an IAN.
IAQM	Institute of Air Quality Management
INNPS	Invasive Non- Native Plant species
LCC	Leeds City Council
LNA	Leeds Nature Areas
LNR	Local Nature Reserves
LWS	Local Wildlife Site
MAGIC	Multi-Agency Geographic Information for the Countryside - A web-based interactive map to bring together information on key environmental schemes and designations in one place. Multi-Agency Geographic Information for the Countryside (MAGIC) is a partnership project involving six government organisations who have responsibilities for rural policy-making and management.
MCDHW	Manual of Contract Document for Highway Works
NE	Natural England - Executive non-departmental public body responsible for the natural environment.
NIA	Noise Important Area - Areas where the 1% of the population that are affected by the highest noise levels from major roads are located according to the results of Defra's strategic noise maps.
NMU	Non-Motorised User - Cyclists, pedestrians (including wheelchair users), and equestrians using the public highway.
NOx	Nitrogen Oxide
NPPF	National Planning Policy Framework
NRMM	Non-Road Mobile Machinery
OEMP	Outline Environment Management Plan
PC	Principal Contractor
PCF	Project Control Framework - A joint Department for Transport and Highways England approach to managing major projects.

Acronym	Full term and or definition
	The Framework comprises a standard project lifecycle; standard project deliverables; project control processes and governance arrangements.
PCL	Potential Contaminant Linkages
PMW	Precautionary Method of Working
PPE	Personal Protective Equipment
PRoW	Public Right of Way
RAMs	Risk Assessment Method Statements
REAC	Record of Environment Actions and Commitments
RIS	Road Investment Strategy - The long-term strategy to improve England's motorways and major A roads. The first RIS (known as RIS1) was published in 2014 and covers the period 2015-2020. A second RIS (RIS2) was published in 2015 and covers the post-2020 period.
RPG	Registered Park and Garden
RTMC	Regional Technology Maintenance Contractor
SES	Highways England Safety, Engineering and Standards advisors.
Significant Observed Adverse Effect Level	This is the level above which significant adverse effects on health and quality of life occur.
SRN	Strategic Road Network
SWMP	Site Waste Management Plan - should describe how materials will be managed efficiently and disposed of legally during the construction of the works, explaining how the re-use and recycling of materials will be maximised. This involves estimating how much of each type of waste is likely to be produced and the proportion of this that will be re-used or recycled on site, or removed from the construction site for re-use, recycling, recovery or disposal. It is the joint responsibility of the client and the principal contractor to ensure that a Site Waste Management Plan is in place before construction begins and to ensure that it is enforced.
TBT	Tool-box Talks
The proposed Scheme	The M621 Junctions 1 to 7 Improvement Scheme
TMP	Traffic Management Plan

Annexes

7. Annexes

Annex A: Constraints Map

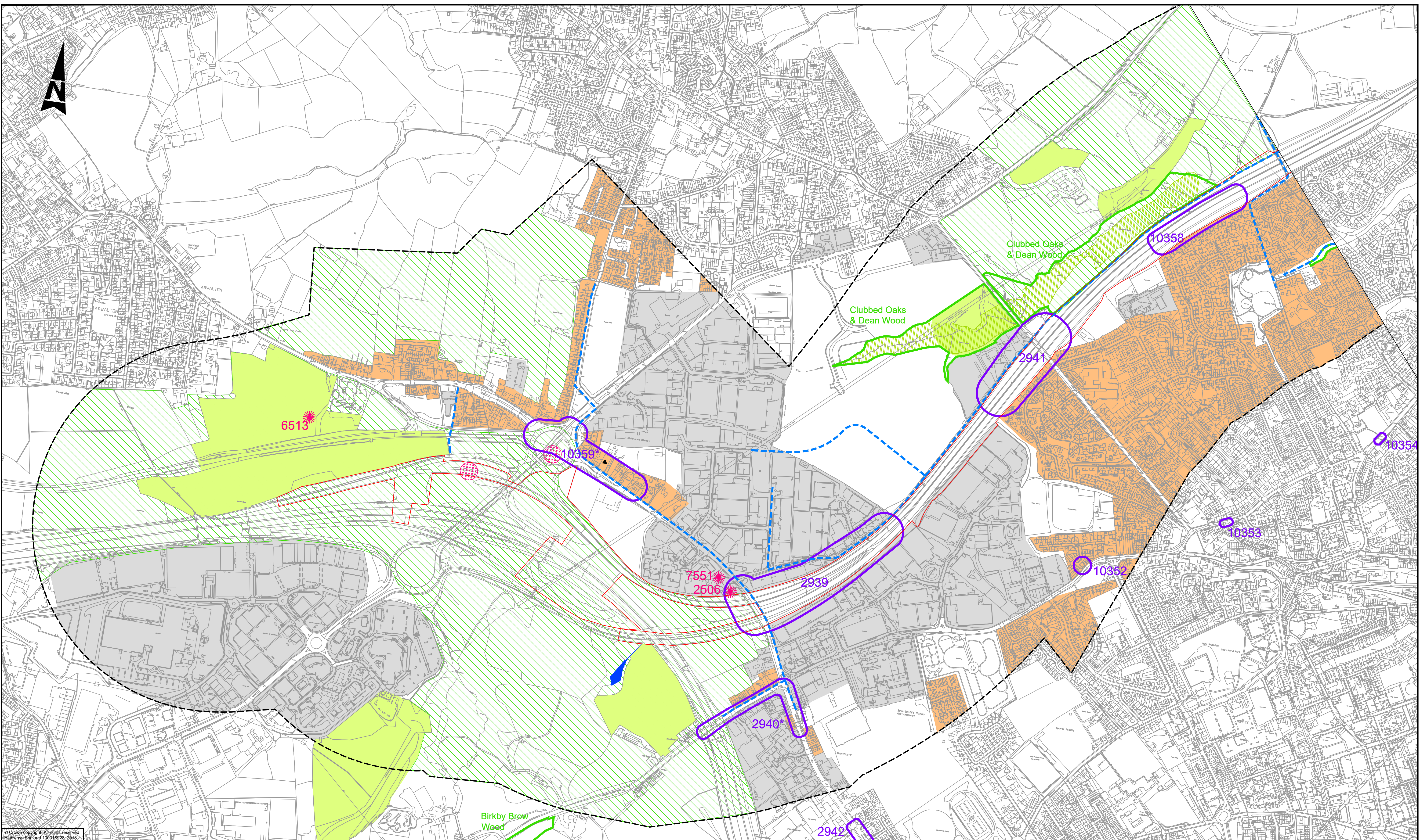
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KEY FOR SHEETS 1 TO 4				SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION				Drawing Suitability				Project Title							
POTENTIAL AREA OF WORKS 500m BUFFER LISTED BUILDING (GRADE II) LISTED BUILDING (GRADE II*) HERITAGE ASSET (PRN) HERITAGE ASSET (AREA) HISTORIC LANDFILL SITES NOISE IMPORTANT AREAS LEEDS NATURE AREAS GREEN BELT ANCIENT WOODLAND INLAND WATERBODY FLOOD ZONE 2 FLOOD ZONE 3 COMMERCIAL / INDUSTRIAL RESIDENTIAL AREAS PUBLIC RIGHT OF WAY FORMER SITE OF MATTHEW MURRAY HIGH SCHOOL PLAYING FIELD CONSERVATION AREA BOUNDARY				Description In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log). Construction TO BE IDENTIFIED Maintenance / Cleaning TO BE IDENTIFIED Use TO BE IDENTIFIED Decommissioning / Demolition TO BE IDENTIFIED				Description Status Revision Drawn Checked Reviewed Authorised Issue Date Stage 3 Design Fix 2 Status S0 Revision C01 Drawn CW Checked SP Reviewed LY Authorised A(P) Issue Date 05/06/18 Description STAGE 3 DESIGN FIX 2 Status A1 Revision C02 Drawn CW Checked SP Reviewed LY Authorised AP Issue Date 01/08/18 Description STAGE 3 Design Fix 3.2 Status A1 Revision C03 Drawn CW Checked SP Reviewed LY Authorised AP Issue Date 25/06/19 Description FOR INFORMATION Status A1 Revision C04 Drawn CW Checked SP Reviewed LY Authorised AP Issue Date 22/07/19				APPROVED - PUBLISHED A1 M621 J1-7 ATKINS Member of the SNC-Lavalin Group The Exchange 2nd Floor 3 New York Street Manchester M1 4HN Tel: +44 (0)1612 453400 Fax: +44 (0)1612 453500 www.atkinsglobal.com Copyright © Atkins Limited (2017) Client Working on behalf of highways england				Drawing Title ENVIRONMENTAL CONSTRAINTS PLAN SHEET 1 OF 4 Drawing Number Project HE551464 - ATK - EGN - XX - DR - LM - 000001 Location Original Size: A1 Scale: 1:5000 Project Ref. No: 5155828 Sheet: 1 of 4 Rev: C04			

POTENTIAL AREA OF WORKS

500m BUFFER

LISTED BUILDING (GRADE II)

LISTED BUILDING (GRADE II*)

HERITAGE ASSET (PRN)

HERITAGE ASSET (AREA)

HISTORIC LANDFILL SITES

NOISE IMPORTANT AREAS

LEEDS NATURE AREAS

GREEN BELT

ANCIENT WOODLAND

INLAND WATERBODY

FLOOD ZONE 2

FLOOD ZONE 3

COMMERCIAL / INDUSTRIAL

RESIDENTIAL AREAS

PUBLIC RIGHT OF WAY

FORMER SITE OF MATTHEW MURRAY HIGH SCHOOL PLAYING FIELD

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction

TO BE IDENTIFIED

Maintenance / Cleaning

TO BE IDENTIFIED

Use

TO BE IDENTIFIED

Decommissioning / Demolition

TO BE IDENTIFIED

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date							
Description Stage 3 Design Fix 2													
Status	S0	Revision	C01	Drawn	CW	Checked	SP	Reviewed	LY	Authorised	A/P	Issue Date	05/06/18
Description STAGE 3 DESIGN FIX 2													
Status	A1	Revision	C02	Drawn	CW	Checked	SP	Reviewed	LY	Authorised	AP	Issue Date	01/08/18
Description STAGE 3 Design Fix 3.2													
Status	A1	Revision	C03	Drawn	CW	Checked	SP	Reviewed	LY	Authorised	AP	Issue Date	25/06/19
Description FOR INFORMATION													
Status	A1	Revision	C04	Drawn	CW	Checked	SP	Reviewed	LY	Authorised	AP	Issue Date	22/07/19

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ENVIRONMENTAL CONSTRAINTS PLAN
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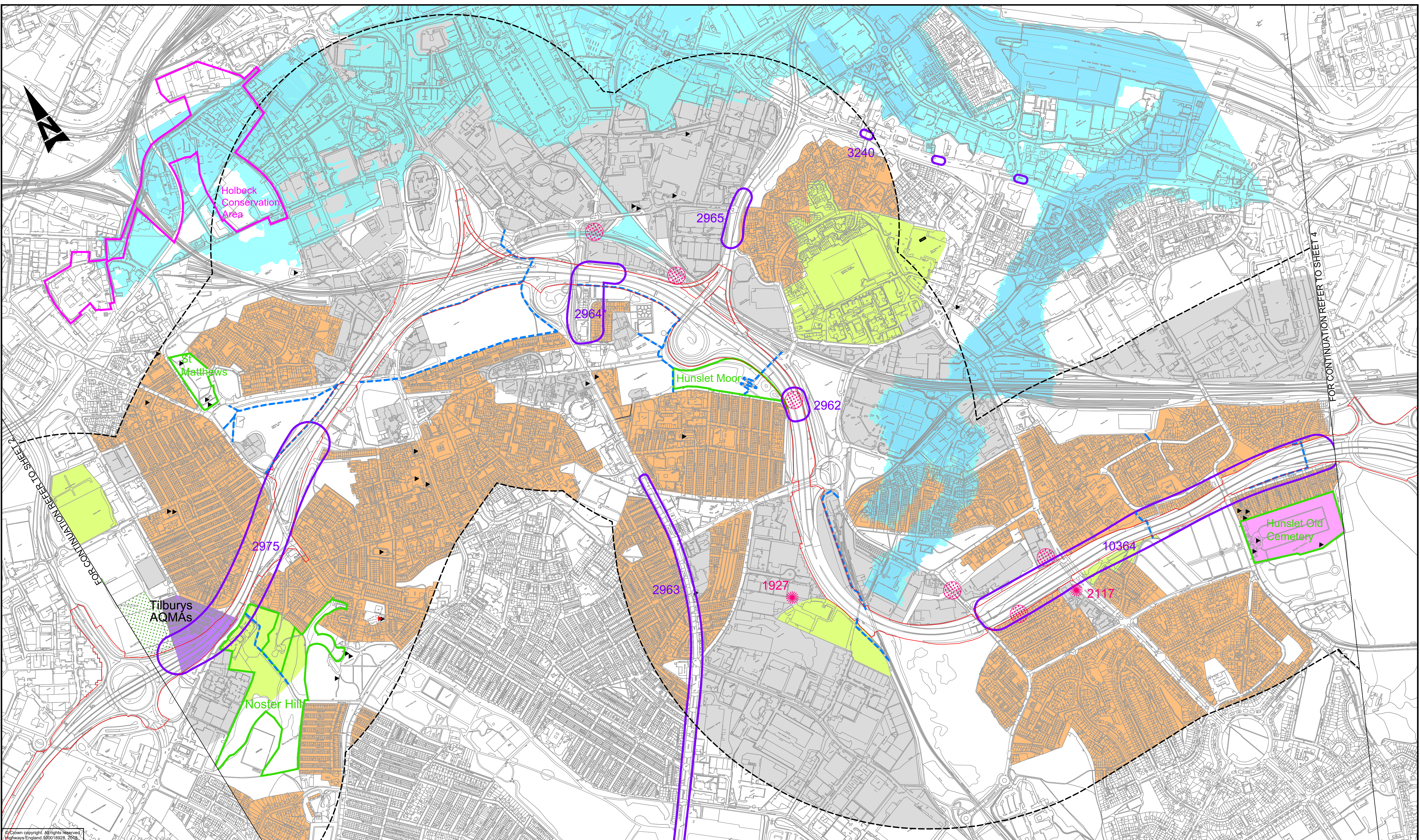
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KEY FOR SHEETS 1 TO 4			
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	500m BUFFER		ANCIENT WOODLAND
	LISTED BUILDING (GRADE II)		INLAND WATERBODY
	LISTED BUILDING (GRADE II*)		FLOOD ZONE 2
	HERITAGE ASSET (PRN)		FLOOD ZONE 3
	HERITAGE ASSET (AREA)		COMMERCIAL / INDUSTRIAL
	HISTORIC LANDFILL SITES		RESIDENTIAL AREAS
	NOISE IMPORTANT AREAS		PUBLIC RIGHT OF WAY
	LEEDS NATURE AREAS		FORMER SITE OF MATTHEW MURRAY HIGH SCHOOL PLAYING FIELD
	CONSERVATION AREA BOUNDARY		

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
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Construction	TO BE IDENTIFIED
Maintenance / Cleaning	TO BE IDENTIFIED
Use	TO BE IDENTIFIED
Decommissioning / Demolition	TO BE IDENTIFIED

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Status	A1	Revision C02	Drawn CW	Checked SP	Reviewed LY	Authorised AP	Issue Date 01/08/18
Description STAGE 3 Design Fix 3.2							
Status	A1	Revision C03	Drawn CW	Checked SP	Reviewed LY	Authorised AP	Issue Date 25/06/19
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Status	A1	Revision C04	Drawn CW	Checked SP	Reviewed LY	Authorised AP	Issue Date 22/07/19

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				Rev: C04			

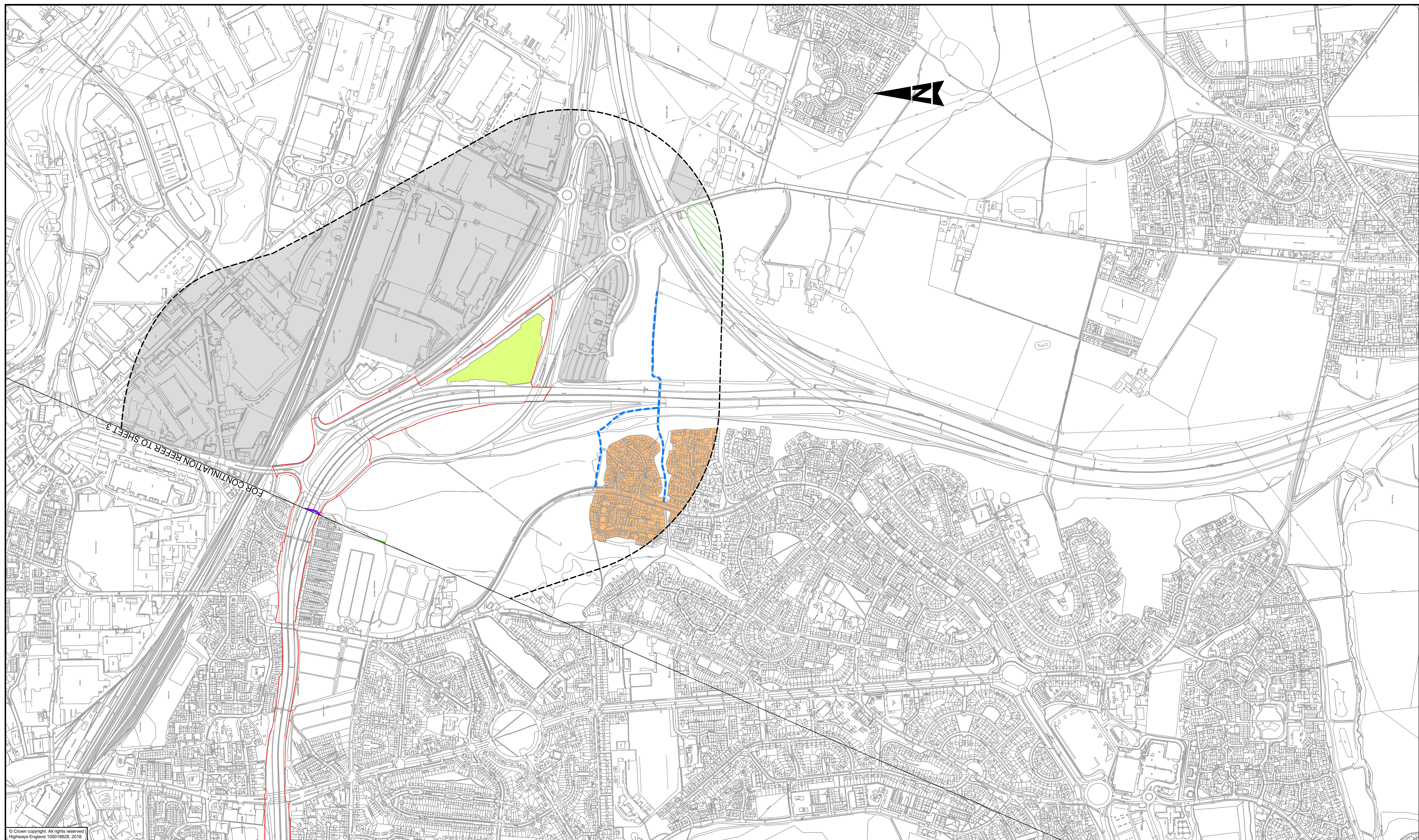
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	500m BUFFER		ANCIENT WOODLAND		
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	LISTED BUILDING (GRADE II*)		FLOOD ZONE 2		
	HERITAGE ASSET (PRN)		FLOOD ZONE 3		
	HERITAGE ASSET (AREA)		COMMERCIAL / INDUSTRIAL		
	HISTORIC LANDFILL SITES		RESIDENTIAL AREAS		
	NOISE IMPORTANT AREAS		PUBLIC RIGHT OF WAY		
	LEEDS NATURE AREAS		FORMER SITE OF MATTHEW MURRAY HIGH SCHOOL PLAYING FIELD		

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
TO BE IDENTIFIED

Maintenance / Cleaning
TO BE IDENTIFIED

Use
TO BE IDENTIFIED

Decommissioning / Demolition
TO BE IDENTIFIED

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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Status	S0	Revision	C01	Drawn	CW	Checked	SP
					Reviewed	LY	Authorised
						A/P	Issue Date
							05/06/18
Stage 3 Design Fix 2							
Status	A1	Revision	C02	Drawn	CW	Checked	SP
					Reviewed	LY	Authorised
						AP	Issue Date
							01/08/18
Stage 3 Design Fix 3.2							
Status	A1	Revision	C03	Drawn	CW	Checked	SP
					Reviewed	LY	Authorised
						AP	Issue Date
							25/06/19
FOR INFORMATION							
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Volume

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Location

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Project Ref. No: **5155828**

Sheet: **4 of 4**

Rev: **C04**

Annex B: Relevant management plans (to be produced at PCF Stage 4 if necessary)

Annex C: Environmental method statements (to be produced at PCF Stage 5)

Annex D: Emergency procedures and record of any environmental incidents (to be produced at PCF Stage 5)

Annex E: Copy of Evaluation of Change Register (to be produced at PCF Stage 5)

Annex F: Final environmental investigation and monitoring reports (to be produced at PCF Stage 5)

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