A46 Newark Bypass

TR010065/APP/6.8

6.5 Environmental Statement First Iteration Environmental Management Plan - Track Changed

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Volume 6

November 2024

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

A46 Newark Bypass

Development Consent Order 202[x]

ENVIRONMENTAL STATEMENT

VOLUME 6.5 FIRST ITERATION ENVIRONMENTAL MANAGEMENT PLAN - TRACK CHANGED

Regulation Number:	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010065
Application Document Reference	TR010065/APP/6.5
Author:	A46 Newark Bypass Project Team, National Highways

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Rev 1	April 2024	DCO Application
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Contents

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1 Introduction and background to the Scheme

1.1 Purpose of the First Iteration Environmental Management Plan

1.1.1 This document is the First Iteration Environmental Management Plan (EMP) for the Scheme. The purpose of the First Iteration EMP is to detail how mitigation and management measures would be implemented to manage the environmental effects of the Scheme as identified within the Environmental Statement (ES) [APP-045 to APP-061 and AS-021] ~~(TR010065/APP/6.1)~~ and to demonstrate compliance with environmental legislation.

1.1.2 This First Iteration EMP is based on the preliminary design for which development consent is being applied. It has been prepared in accordance with the Design Manual for Roads and Bridges (DMRB) LA 120 Environmental Management Plans[1]. The DMRB contains information about current design standards relating to the design, assessment and operation of motorway and all-purpose trunk roads in the United Kingdom and is therefore the relevant standard to apply for this Scheme.

1.1.3 This First Iteration EMP contains several outline management plans to be developed into full management plans, and also identifies additional plans and method statements that will need to be developed by the Principal Contractor (PC) prior to construction commencing to be incorporated into the Second Iteration EMP. Table 1-1 below identifies the plans included as part of the First Iteration EMP, those to be prepared as part of the Second Iteration EMP and the relationship between these Management Plans and the Register of Environmental Actions and Commitments (REAC) in Table 3-1 of this document. As set out in the draft Development Consent Order (draft DCO) [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~ Requirement 3, these Management Plans must be prepared in full as part of the Second Iteration EMP to ensure control measures are in place to limit environmental effects before, during and after construction.

[1] Highways England (2020), LA 120 Environmental management plans [online] available at: a3a99422-41d4-4ca1-bd9e-eb89063c7134 (standardsforhighways.co.uk) (last accessed November 2023)

Table 1-1: EMP status and associated REAC commitments

Environmental Management Plan / Method Statement	EMP Status	REAC commitment(s) detailing required content (refer to Table 3-1)[2]
First Iteration EMP	This document – prepared as part of the DCO application	N/A
Second Iteration EMP	Would be prepared ahead of construction and incorporate requirements of the First Iteration EMP	G1
Third Iteration EMP	Would be prepared at the end of the construction phase and cover operational and maintenance phases of the Scheme and incorporate the requirements of the Second Iteration EMP.	N/A
Outline Site Waste Management Plan (OSWMP) (Appendix B.1 of this First Iteration EMP)	To be developed into Site Waste Management Plan (SWMP) as part of the Second Iteration EMP which would follow the contents of the OSWMP in Appendix B.	M3, GS2 – full plan to build upon outline plan in Appendix B.1 of this document.
Outline Materials Management Plan (OMMP) (Appendix B.2 of this First Iteration EMP)	To be developed into Materials Management Plan (MMP) as part of the Second Iteration EMP which would follow the contents of the OMMP in Appendix B.	GS2 – full plan to build upon outline plan in Appendix B.2 of this document.
Outline Soils Management Plan (OSMP) (Appendix B.3 of this First Iteration EMP)	To be developed into Soils Management Plan (SMP) as part of the Second Iteration EMP which would follow the contents of the OSMP in Appendix B.	GS1, GS8, GS9 ~~GS10, GS11~~ – full plan to build upon outline plan in Appendix B.3 of this document.
Air Quality and Dust Management Plan	To be prepared in full as part of the Second Iteration EMP prior to construction commencing. Contents must follow relevant REAC requirement(s).	AQ1
Noise and Vibration Management Plan		NV1 – NV134
Energy and Resource Use Management Plan		N/A
Biodiversity Net Gain Management and Monitoring Plan		B12
Invasive non-native Species (INNS) Management Plan and Biosecurity Risk Assessment		B10, RDWE8

[2] All plans outlined in Table 1-1 will be required to fulfil the requirements of draft DCO ~~(TR010065/APP/3.1)~~[REP1-001] Requirement 3

Environmental Management Plan / Method Statement	EMP Status	REAC commitment(s) detailing required content (refer to Table 3-1)[2]
Landscape and Ecology Management Plan		L4, L5, L6
Construction Communications Management Plan		PHH2
Pollution Prevention Plan		B1, GS3, RDWE2, RDWE6
Erosion and Sediment Management Plan		B1, RDWE3
De-watering Management Plan		RWDE1, RWDE17
Carbon Management Plan		C1
Education, Employment and Skills Plan		PHH5
Inclusion Action Plan		PHH5
Emergency Response Plan for Flood Events		RDWE4
Construction Worker Travel and Accommodation Plan	Required as part of the Transport Assessment [APP-193]~~(TR010065/APP/7.4)~~.	N/A
Detailed Carbon Monitoring Plan	To be prepared in full as part of the Third Iteration EMP prior to construction commencing. Contents must follow relevant REAC requirement(s).	C3
Outline Arboricultural Method Statement (AMS) (appendix to Appendix 7.4 (Arboricultural Impact Assessment)	This document is an appendix to Appendix 7.4 (Arboricultural Impact Assessment) of the ES Appendices [APP-140 and AS-086 to AS-089]~~(TR010065/APP/6.3)~~. This would be developed into a full Arboricultural Method Statement to be prepared as part of the Second Iteration EMP prior to construction commencing and would follow the contents of the Outline AMS.	L2 – full plan to build upon outline plan as part of Second Iteration EMP at detailed design
Ecological method statements • Badger • Bats • INNS	The bat method statement (produced as part of the full draft "ghost" bat mitigation licence (A13) for DCO) would be reviewed and updated, where necessary, prior to applying for a full bat mitigation licence from Natural England. Regardless of whether a badger licence is required, a method statement would be prepared as part of the Second Iteration EMP prior to	B2 for bats B6 for badgers B4 and B10 for INNS

Environmental Management Plan / Method Statement	EMP Status	REAC commitment(s) detailing required content (refer to Table 3-1)[2]
	construction commencing. INNS method statement, within the INNS Management Plan and Biosecurity Risk Assessment, would be prepared as part of the Second Iteration EMP prior to construction commencing.	
Method statements to be produced in relation to soils and contamination for the following aspects: • Piling works • Earthworks • Topsoil strip • Storage of oil, fuel and other potentially hazardous substances • Designated refuelling and maintenance areas and concrete batching • Welfare of staff	To be prepared in full as part of the Second Iteration EMP prior to construction commencing. Contents for each method statement must follow relevant REAC requirement(s) and for the reuse of soil, methods must align with the MMP and SMP.	GS4, GS5, GS7

1.1.4 An Archaeological Management Plan (AMP) [APP-187]~~(TR010065/APP/6.8)~~ is to be submitted as a standalone document as part of the DCO application. Task specific Written Scheme Investigations (WSI) will be produced by the Archaeological Contractor for each of the works outlined in the AMP. In addition, a Pre-Commencement Plan [APP-188]~~(TR010065/APP/6.9)~~ and Outline Traffic Management Plan [APP-196]~~(TR010065/APP/7.7)~~ have also been prepared as standalone documents as part of the DCO application. These therefore do not form part of this First Iteration EMP.

1.1.5 The Second Iteration EMP will be prepared ahead of construction by the PC once the detailed design and construction plans have been finalised and will include full versions of the plans listed above as well as any necessary method statements. The Second Iteration EMP will be based on and incorporate the requirements of the First Iteration EMP relevant to the pre-construction and construction phase and will be managed alongside the PC's Environmental Management System (EMS), meeting the International Organisation for Standardisation (ISO) 14001 requirements. ISO 14001 sets out "*a framework for organizations to design, implement, and continually improve their*

environmental performance."[3]. ISO 14001 certified organisations intend to enhance their environmental performance, fulfil compliance obligations and achieve environmental objectives with an intended outcome of reducing environmental impacts they are associated with.

1.1.6 Any consents and permissions not covered by the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~ (as outlined in Section 4 of this First Iteration EMP) and the Consents and Agreements Position Statement [APP-023]~~(TR010065/APP/3.3)~~ will be obtained in advance of specific works activities as required.

1.1.7 The final version of the EMP, the Third Iteration EMP, will be prepared at the end of the construction phase and will cover the operational and maintenance phases of the Scheme. The Third Iteration EMP would be developed from the Second Iteration EMP for implementation during operation which would include a five year aftercare period, with the relevant maintenance authorities responsible for long-term maintenance beyond this.

Objectives of this First Iteration EMP

1.1.8 The overall objectives of the First Iteration EMP are as follows:

- To document all environmental actions and commitments that are required to manage and minimise environmental effects of the Scheme as reported within the ES [APP-045 to APP-061 and AS-021]~~(TR010065/APP/6.1)~~
- To minimise the risk of any type of pollution incident or other form of unauthorised discharge
- To minimise any nuisance to the nearby receptors
- To maintain communication between the Client (Employer), the Project Manager and relevant third parties, with assignment of any specific and / or statutory report duties to third parties, where these are to remain their statutory duty
- To be compliant with statutory legislation and contract specifications
- To provide a framework for the implementation and review of the Second Iteration EMP and other relevant documents

1.1.9 This First Iteration EMP takes due consideration of the documents submitted to the Planning Inspectorate (the "Inspectorate") and assessments undertaken on behalf of the Applicant, as well as the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~ for the Scheme itself. It identifies mitigation to control the impacts of the Scheme set out in the ES [APP-045 to APP-061 and AS-021]~~(TR010065/APP/6.1)~~ and compensatory measures where necessary associated with the following phases of construction (detailed descriptions of what works

[3] ISO (2015) ISO 14001:2015 Environmental management systems [online] available at: ISO 14001:2015 - Environmental management systems — Requirements with guidance for use (last accessed December 2023)

are associated with each phase can be found within Chapter 2 (The Scheme) of the ES [APP-046] ~~(TR010065/APP/6.1)~~:

- Demolition
- Advanced and pre-commencement works
- Main construction works
- Post construction maintenance

1.2 The Scheme

The existing A46 corridor

1.2.1 The A46 forms part of the strategic Trans-Midlands Trade Corridor between the M5 in the southwest and the Humber Ports in the northeast. The improvements to the A46 corridor are detailed within the Department for Transport's second Road Investment Strategy (RIS2)[4] as a mechanism for underpinning the wider economic transformation of the country. RIS2 makes a commitment to create a continuous dual carriageway from Lincoln to Warwick.

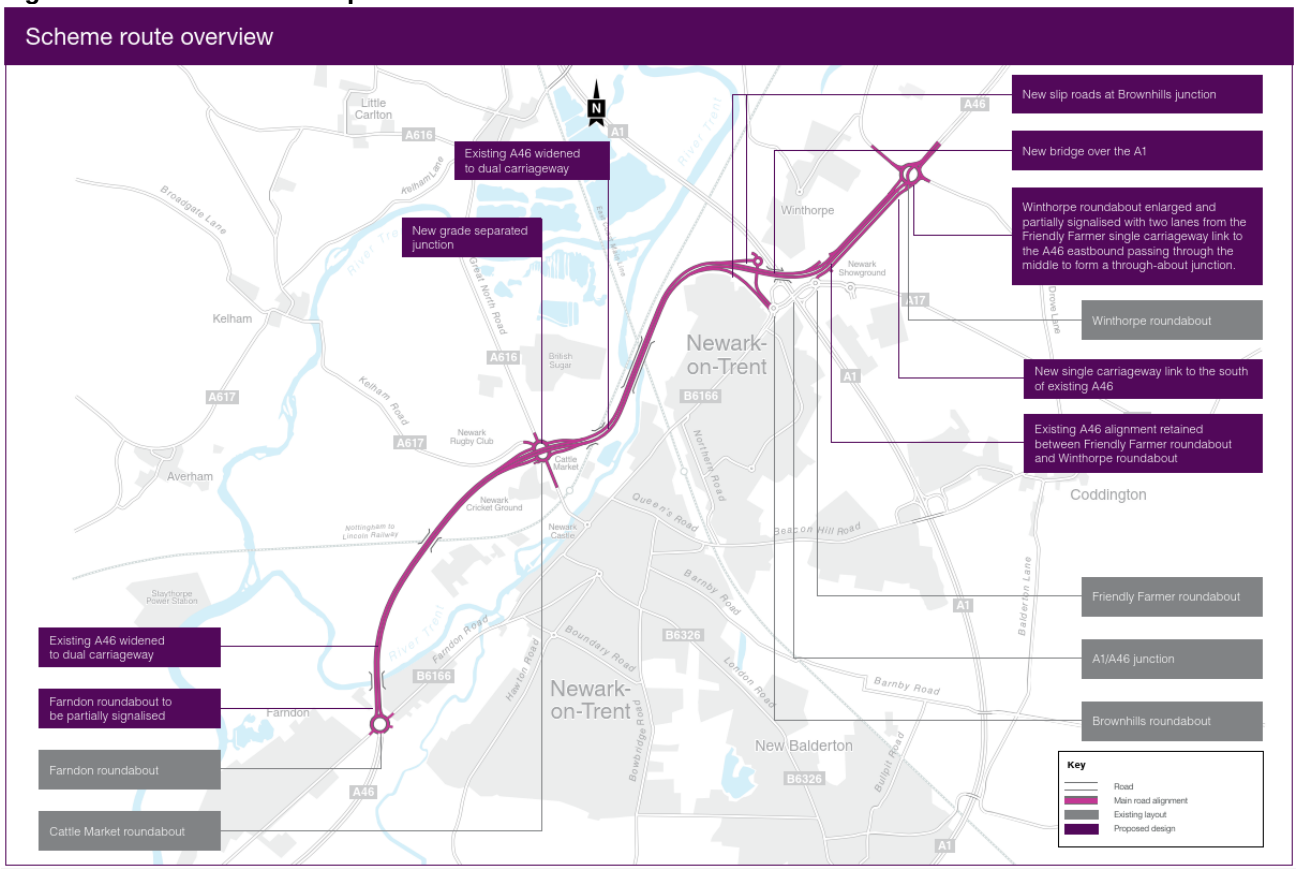
1.2.2 The existing A46, currently single carriageway, is generally elevated on embankment due to the low-lying floodplain of the River Trent located to the west of the A46 for much of the affected length, with a section at the southern end on the eastern side of the A46. Several roundabouts form key junctions along the route, linking with several local A roads. Road infrastructure is softened by roadside vegetation in places and the River Trent is a strong natural influence within an otherwise manmade landscape. To the north of the A46, farmland dominates, interspersed with small-scale settlements. To the south of the road, the town of Newark-on-Trent forms a notable urban settlement.

1.2.3 The stretch of A46 between the Farndon Junction, to the west of Newark-on-Trent and the A1 to the east of Newark-on-Trent, is the last remaining stretch of single carriageway between the M1 and A1 and consequently queuing traffic is a regular occurrence, often impacting journey time reliability.

1.2.4 Figure ~~Figure~~ 1.1 overleaf illustrates the location of the Scheme.

[4] Department for Transport (2020) Road Investment Strategy 2: for the 2020 to 2025 Road Period [online] available at: Road Investment Strategy 2: 2020-2025 (publishing.service.gov.uk) (last accessed November 2023).

Figure 1.1 Scheme location plan



Source: National Highways (the Applicant)

Scheme proposals

1.2.5 The Scheme would provide a dual carriageway on the A46 between Farndon and Winthorpe. The section of the A46 that is to be upgraded is approximately 6.5 kilometres in length. The Scheme comprises on-line widening for the majority of its length between Farndon roundabout and the A1. A new section of offline dual carriageway would be provided between the western and eastern sides of the A1 before the new dual carriageway ties into the existing A46 to the west of Winthorpe roundabout. The widening works include earthwork widening along the existing embankments, and new structures where the route crosses the Nottingham to Lincoln and East Coast Main Line (ECML) railway lines, River Trent, Brownhills link and the A1. The Scheme design is illustrated on the General Arrangement Plans [~~APP-008~~AS-007]~~(TR010065/APP/2.5)~~.

1.2.6 A detailed description of the Scheme is provided within Chapter 2 (The Scheme) of the ES [APP-046]~~(TR010065/APP/6.1)~~. The below summarises the principal elements associated with the Scheme.

- The provision of a dual carriageway for a distance of 6.5 kilometres (approximately 4 miles) to provide two traffic lanes in both directions. This consists of the following key highways elements:
  - Partial signalisation of Farndon Roundabout at the southern extents of the Scheme
  - Widening of the existing A46 for a length of 4.5 kilometres
  - A new grade separated junction at Cattle Market Roundabout
  - A new off-line section to bypass the existing Brownhills and Friendly Farmer roundabouts for a length of 1.3 kilometres
  - A new grade separated link between Brownhills Roundabout and a new roundabout that is situated to the north of the proposed dual carriageway. These are linked to the new dual carriageway via a new northbound off-slip and southbound on-slip.
  - Retention of the existing dual carriageway between Winthorpe Roundabout and the A1 for a length of 0.8 kilometres
  - An upgraded through-about with partial signal controls at Winthorpe Roundabout
  - A two-way parallel link road from Friendly Farmer to Winthorpe Roundabout situated to the south of the existing dual carriageway
  - Tie in with local roads at Farndon, Cattle Market and Winthorpe Junctions
- New bridge structures over the Nottingham to Lincoln and ECML railway lines, River Trent and the A1.
- Improvements/amendments to walking, cycling and horse-riding (WCH) routes.

- Floodplain compensation at the following three floodplain compensation areas (FCAs): Kelham and Averham FCA, Farndon West FCA and Farndon East FCA.
- Three borrow pit areas to support the creation of embankments required for the Scheme.

1.2.7 Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026] ~~(TR010065/APP/6.2)~~ has been prepared for the Scheme. Works must accord with the principles of the Environmental Masterplan, to minimise effects associated with landscape and visual, cultural heritage setting, noise, biodiversity and the road drainage and water environment. The Scheme, once operational, should reflect this environmental design.

Environmental context

1.2.8 All of the environmental designations located within 2 kilometres of the Scheme extent are shown on the Environmental Constraints Plan in Appendix A of this First Iteration EMP. Notable statutory and non-statutory environmental designations and additional environmental constraints are as follows:

- Devon Park Pastures Local Nature Reserve (LNR) (approximately 450 metres east of Order Limits) and Farndon Ponds LNR (approximately 512 metres west of Order Limits).
- 26 locally designated non-statutory ecological sites (24 of which are Local Wildlife Sites (LWS) and 2 of which are Local Nature Reserves (LNR)).
- The River Trent and four other main rivers (two of which are crossed by the existing A46), which are reported reaches under the Water Framework Directive (WFD) and fall within the Humber River Basin District (RBD).
- The Scheme is located across areas within Flood Zone 2 and Flood Zone 3.
- Noise Important Areas (NIAs) within the vicinity of the Scheme including IDs 7832 (North Muskham, Vicarage Lane), 7834 (Langford, A46), 7838 (Newark-on-Trent, A1), 7839 (Newark-on-Trent, A46), 7840 (Newark-on-Trent, A46), 7842 (Newark-on-Trent, A1), 7843 (Balderton, A1), 7846 (Farndon, A46), 8220 (Newark-on-Trent, A46/A1), 11255 (Hockerton) and 11256 (Kelham).
- Designated heritage assets including scheduled monuments (a Civil War sconce at Devon Bridge, Civil War redoubts at Dairy Farm, Valley Farm and the Sugar Refinery, and a Moated site at Dairy Farm are within the Order Limits).
- Numerous listed buildings and structures (including those known collectively and locally as Smeaton's Arches, Newark Castle, and Newark and Winthorpe conservation areas) within 2 kilometres of the Order Limits.

- Winthorpe Conservation Area, Newark Conservation Area and Kelham Conservation Area are within the Order Limits. Averham Conservation Area is located immediately adjacent to the Order Limits. Farndon Conservation Area is located 1 kilometre west of the Order Limits.
- Newark Castle Gardens Grade II Listed Registered Park and Garden is located approximately 100 metres south of the Order Limits.
- Non-designated heritage assets including from the English Civil War period and the likely potential for buried archaeological Palaeolithic remains of national or even international importance at Farndon.
- Grade 2, 3a, 3b and 4 Agricultural Land Classification (ALC) (very good to poor), as identified following the ALC surveys conducted in 2023.
- The Trent and Belvoir Vales National Character Area.
- Eight veteran and 10 notable trees have been identified within, or directly adjacent to, the Order Limits (of which 1 veteran and 10 notable trees are located at St Wilfred's Church, Kelham).
- Extensive areas of Tree Protection Orders (TPOs), 3 of which will be in partial conflict with the Order Limits (11/00099/TPO, 11/00100/TPO, and 11/00149/TPO). The locations of these can be seen on Figure 2.2 (Environmental Constraints Plan) of the ES Figures ~~(TR010065/APP/6.2)~~[~~APP-064~~AS-025].
- Existing communities in the vicinity of the Scheme that are sensitive to environmental change include Newark-on-Trent to the south west of the scheme, accessed from the A46 via Farndon Road; Great North Road, and Lincoln Road; the village of Winthorpe, located to the north east of the Scheme, accessed via the A1133; and the village of Kelham, located to the west of the Scheme, accessed via the A617.

1.3 Scheme objectives

1.3.1 The Scheme objectives are detailed in Table 1-2 below. Further details on how the Scheme meets these objectives can be found in the Case for the Scheme [APP-190]~~(TR010065/APP/7.1)~~.

Table 1-2: Scheme objectives

Safety	Improving safety through Scheme design to reduce collisions for all users of the A46 Scheme.
Congestion	Improve journey time and journey time reliability along the A46 and its junctions between Farndon and Winthorpe, including all approaches and A1 slip roads.
Connectivity	Accommodate economic growth in Newark-on-Trent and the wider area by improving its strategic and local connectivity.
Environment	Deliver better environmental outcomes by achieving a net gain in biodiversity, and improve noise levels at Noise Important Areas along the A46 between Farndon and Winthorpe junctions.
Customer	Build an inclusive Scheme which improves facilities for cyclists, walkers and other vulnerable users where existing routes are affected.

2 Scheme team roles and responsibilities

2.1 Site roles and responsibilities

2.1.1 This section outlines the roles and responsibilities of those individuals and organisations involved with the delivery of the First and Second Iteration EMP, including the development of the EMP itself and implementation of it.

2.1.2 Names and contact details for each role will be provided by the PC within this section (Table 2-1) as part of the Second Iteration EMP along with relevant competent expert statements where necessary, as required by DMRB LA 120.

2.1.3 The PC is responsible for producing the Second Iteration EMP once the detailed design and construction plans have been finalised. The Applicant and delegated consultants acting on their behalf, the PC and subcontractors are all responsible for complying with the Scheme 's environmental policies, relevant environmental legislation and regulations. It is a requirement that all persons on site will be made aware of their duty of care to the environment and will be provided with sufficient training, supervision or instruction through Site Inductions, toolbox talks (TBTs) and specific Method Statements as necessary. Responsibilities for the site environmental management will be delegated to key personnel by the PC who will manage all reporting and monitoring of environmental mitigation during the contract period.

2.1.4 The key site-based roles and the organisation of responsibilities in relation to environmental management are summarised in Table 2-1 overleaf. The PC will be required to delegate responsibilities to onsite personnel within key areas of the site and compounds. The delegation of responsibility will be clearly identified within relevant documents and site files.

Table 2-1 - Roles and responsibilities relating to the EMP

Role	Responsibilities
The Applicant Project Manager	• Responsible for the delivery of the Scheme • Oversee implementation of whole Scheme and the individuals undertaking specific roles and duties • To ensure the final version of each EMP Iteration (First, Second and Third) are approved by the Secretary of State for Transport through the discharge of requirements process set out in the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~ • To report as per Contract requirements and monitor the PC's performance against contractual requirements to assist the Applicant in meeting the KPIs set out within the Operational Metrics Manual[5] and ensure that certain environmental aspects such as biodiversity net gain and carbon relating to the Scheme are continually measured and environmental impacts are reduced as far as possible.
PC Project Manager	• Responsible for the delivery of the Scheme • Overall responsibility for ensuring control measures in the Second Iteration EMP are complied with, in coordination with the PC Environmental Manager • Responsible for environmental performance delivery and delivery of the contract requirements • Ensure any environmental consents and permits are obtained in advance of works • Ensure compliance from a health and safety perspective and that employees receive necessary training, inductions and Toolbox Talks • Logging and monitoring and incidents or non-compliances and reporting these to the Applicant
PC Environmental Manager	• PC Environmental Manager or delegate responsible for overseeing the environmental components of the Scheme including the production, development and implementation of the Second Iteration EMP • Maintain and update site specific Method Statements and supporting Management Plans • Coordination of specialists and site environmental management compliance for all staff • Audit the PCs' SWMP and activities associated with onsite waste management • Monitor site compliance with the environmental requirements of the Works Information • Provide site induction on environmental toolbox talks, organise specialist surveys, and oversee monitoring and testing of materials as required • Undertake day to day monitoring and compliance checks • Monitor control of dust, noise and vibration • Hours of working to meet accepted noise and vibration limits set in consultation with Environmental Health Officer

[5] Highways England (2021) Operational Metrics Manual [online] available at: ris2-operational-metrics-manual-july-2021-1.pdf (nationalhighways.co.uk) (last accessed November 2023)

Role	Responsibilities
	(EHO). • Develop with PC Site Health & Safety Officer an Emergency Spillage Response Plan and associated protocols for incidents. • Ensure any environmental consents, licences and agreements are obtained in advance of works
PC Ecological Clerk of Works (ECoW)	• Ensure all ecological elements of the Second Iteration EMP and all relevant ecological legislation is fully complied with • Ensure any protected species licensing requirements are fully complied with • Monitoring the works and implementation of construction mitigation measures as required including any necessary surveys before or during construction as required • Undertaking pre-works checks and watching briefs before or during any vegetation clearance • Provide Toolbox talks to site staff as the PC Environmental Manager requires
PC Archaeological Clerk of Works	• Ensure all archaeological elements of the AMP [APP-187]~~(TR010065/APP/6.8)~~ and all relevant archaeological legislation is fully complied with • Monitoring the works and implementation of construction mitigation measures as required by the AMP • Liaise with heritage stakeholders
PC Environmental Specialist(s)[6]	• Reviewing relevant sections of the Second Iteration EMP and supporting management plan/s as required by the PC Environmental Manager • Ensuring compliance with relevant elements of the Second Iteration EMP • Provide technical input as defined by the PC Environmental Manager potentially in relation to contamination and remediation, ecology and landscape works. • Landscape Manager to supervise planting and aftercare as required by the PC Environmental Manager • Provide archaeological Toolbox talks to site staff as the PC Environmental Manager requires
PC Health and Safety Manager	• Ensure necessary incident, processes and control measures in relation to health and safety are incorporated into the Second Iteration EMP • Ensure compliance of site work with health and safety regulations and guidelines • Ensure appropriate health and safety training given to staff before any works start and that necessary risk assessments are completed • Undertake health and safety audits and site visits to ensure compliance as necessary

[6] Other environmental specialists not covered by the roles above, but needed to provide the PC with necessary advice or expertise to fulfil the requirements of the First, Second or Third Iteration EMP. Such specialists could be required to input into the management plans outlined in Table 1-1 and could relate to landscape, ecology, road drainage and water environment disciplines for example. It will be for the PC Environmental Manager to coordinate and/or procure such inputs.

Role	Responsibilities
Community Liaison Officer	• Key liaison with all above and the Applicant's Public Liaison Officer: Maintain and develop Community Relations Strategy • Maintain comment and enquiries log and disseminate identified comment for response and implementation of action
All site staff	• Adhere to all environmental policies, requirements and procedures set out in the Second Iteration EMP and supporting management plans, with the objective of reducing impacts to the environment as far as possible • Site personnel to receive briefings, inductions and toolbox talks to ensure awareness of and that correct environmental procedures are followed • In the case of an incident or if any environmental issues identified on site, implement control measures strictly in accordance with the Second Iteration EMP and immediately report to the PC Environmental Manager and/or any other personnel as required

3 Register of environmental actions and commitments

3.1 Introduction

3.1.1 The REAC contained in Table 3-2 identifies the environmental commitments included within the ES [APP-045 to APP-061 and AS-021]~~(TR010065/APP/6.1)~~ to address the likely environmental effects of the Scheme. As part of this, specific actions and control measures which individual ES Chapters relied upon as part of their assessments have been defined and presented in the REAC. These measures must be implemented and complied with in full.

3.1.2 The REAC may be updated as part of the Second Iteration EMP by the PC, where required, however any alterations must be in accordance with the principles and procedures defined in the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~ and First Iteration EMP.

3.1.3 The measures outlined in the REAC have been determined to ensure compliance with different regulations such as the EIA regulations[7], which require an ES to include '*a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment'.*

3.2 Guide to the REAC

3.2.1 Table 3-1 provides a summary of the purpose of each column within the REAC table.

Table 3-1: Guide to the REAC

Column	Description
Reference	A unique reference given for each action or commitment relating to the discipline of relevance.
Document Reference	Documents of relevance to the action or commitment that should be referred to.
Objective	The objective of the action or commitment
Action or commitment	The necessary action or commitment needed to minimise environmental effects, as required by the ES. This includes specific references to locations as and where necessary.

[7] Statutory Instrument (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, No. 572 [online] available at: The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (legislation.gov.uk) (last accessed November 2023).

Column	Description
Monitoring required?	Details any monitoring requirements associated with the action of commitment.
Assumptions	Any assumptions on which the action or commitment is based,
Achievement criteria and reporting requirements	Relevant documents, consultation or other actions needed to ensure the commitment is carried out correctly, and in full.
How the action is to be implemented	How the relevant action will be secured including contractually and through the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~
Responsible person(s)	The person or body responsible for implementing the action or commitment.
When	Expected timescale for when the relevant action or commitment will be adhered to and/or implemented either pre-construction, during construction or in operation.
Completion record	Column to be filled in by PC Project Manager once the action or commitment has been implemented in full.

Table 3-2: Register of environmental actions and commitments

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
General										
G1	This First Iteration EMP	Ensure necessary environmental mitigation is appropriately detailed and implemented	A Second Iteration EMP will be prepared by the PC in advance of construction detailing necessary measures which must be complied with pre-construction and during construction of the Scheme. The Second Iteration EMP will follow the principles and requirements detailed in the First Iteration EMP to ensure necessary mitigation measures required in the ES [APP-045 to APP-061 and AS-021]~~(TR010065/APP/6.1)~~ are complied with and implemented. The Second Iteration EMP will provide and adhere to a number of supporting management plans and method statements as detailed in Appendix B and C of this First Iteration EMP.	No – the Second Iteration EMP will set out further details on monitoring requirements, but no monitoring is directly required for this commitment. The Second Iteration EMP will require approval by the Secretary of State for Transport to ensure it is fit for purpose, following consultation with the relevant local planning authorities as set out within the draft DCO [APP-~~021~~REP1-001]~~(TR010065/APP/3.1)~~.	The Second Iteration EMP will follow the principles and requirements set out in this First Iteration EMP. The PC Project Manager and PC Environmental Manager will ensure the measures in the Second Iteration EMP are implemented.	Approval of the Second Iteration EMP by the Secretary of State for Transport.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [APP-~~021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P	Signature: Date:
G2	The ES [APP-045 to APP-061 and AS-021]~~(TR010065/APP/6.1)~~	Hours of working	Core construction working hours will be between 07.00 and 18.00 on weekdays and from 07.00 to 13.00 on Saturdays. Other than in the case of the exceptions described below, and in the case of emergencies, the PC would adhere to these core working hours as far as is reasonably practicable. Exceptions to core hours include the following: • online sections of the Scheme would require night-time working to facilitate traffic management	Yes – PC to monitor working hours regularly Scheme wide.	Consultation with the relevant local authority where necessary where certain works are required outside core hours.	Not applicable	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [APP-~~021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			installation and removal • the installation of bridge beams to the new bridge structures • removal of the existing signal gantry on the A46 between the Friendly Framer and Winthorpe roundabouts and the installation of new gantry structures at the Winthorpe roundabout and north of the Winthorpe roundabout • tie-in of new road surfacing into existing and installation of road markings • installation of signs and streetlights where works are adjacent to live traffic • abnormal load deliveries, such as bridge beams or large items of plant, that cannot travel on the road network within core working hours • construction of the Nether Lock Rail bridge over the ECML and the works over the Nottingham to Lincoln line would require working in proximity to the railway line. The timings of the possessions would be dictated by Network Rail's 'Rules of the Route' requirements, these being the rules agreed with train operators under which speed							

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			restrictions or temporary line closures can be imposed. Where practicable, railway possessions would be used to install safety systems (for example protection decks and railway protection barriers) to enable a greater amount of the construction activities to be undertaken during core hours. • security • maintenance of plant and equipment requiring 24/7 operation such as dewatering pumps • certain other specific construction activities would require extended working hours for reasons of engineering practicability. These activities include, but are not limited to, major concrete pours and piling works • environmental and engineering surveys may be carried out outside of core working hours Outside the core hours and days specified above, the Applicant will consult with the local planning authority prior to carrying out certain operations such as earthworks which are season and weather dependent. Any other work required to be undertaken outside of core hours (not including repairs or							

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			maintenance) would be agreed with the relevant local authority prior to undertaking the works. In addition any Section 61 of the Control of Pollution Act 1974 consents will be obtained where required.							
G3	Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ .	To ensure environmental mitigation is implemented and functions as expected in the ES	The environmental detailed design for biodiversity, landscape and road drainage and the water environment will follow the principles of Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ and accord with the Landscape and Ecology Management Plan (LEMP).	No	Potential for mitigation functions to be altered which could affect the findings of the ES.	Implementation of final design at detailed design.	Contractual responsibilities between the Applicant and the PC. Requirements 3 6 and 12 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	Principal Contractor	P	Signature: Date:
G4	The ES [APP-045 to APP-061 and AS-021]~~(TR010065/APP/6.1)~~	To reduce the probability of the structures being defaced by anti-social activities, enabling a better legacy for the Scheme.	Anti-~~graffiti~~graffiti coating would be applied up to a height of 2.4 metres above ground level.	No	Not applicable.	Compliance with the Second Iteration EMP.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	Principal Contractor	C	Signature: Date:
Air quality										
AQ1	Chapter 5 (Air Quality) of the ES [~~APP-049~~AS-021] ~~(TR010065/APP/6.1)~~	To limit and control emissions and dust exposure and dispersal during construction.	Works will be carried out in accordance with the best practicable means, as described in Section 79 (9) of the Environmental Protection Act 1990 (as set out in the Statement Relating to Statutory Nuisance [APP-186]~~(TR010065/APP/6.7)~~), to reduce dust exposure and dispersal which may impact upon air quality. This will include dust suppression measures such as:	No ambient monitoring is required for dust or particulates; however, visual inspections will be undertaken daily for dust deposition on and off site.	Sensitive receptors (e.g. residential properties, schools and hospitals), and ecological designated sites sensitive to changes in pollutant concentrations and dust exposure within the vicinity of the Scheme. .	Development of an Air Quality and Dust Management Plan with measures to monitor effectiveness of mitigation as part of the Second Iteration EMP. Measures include: Daily on site and off site inspections to be included in EMP; Record of	Contractual responsibilities between the Applicant and the PC Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			•Avoid double handling of materials. •Minimise height of stockpiles and profile to minimise wind-blown dust emissions and risk of pile collapse. •Locate stockpiles out of the wind (or screen, cover, seed or fence) to minimisethe potential for dust generation. •Ensure that all vehicles with open loads of potential dusty materials are securely sheeted or enclosed. •Provide a means of removing mud and other debris from wheels and chassis of vehicles leaving the site. This may involve a simple coarse gravel running surface or jet wash, or in the case of a heavily used exit point, wheel washers. •Maintain a low speed limit on site to prevent the generation of dust by fast moving vehicles. •Damp down surfaces in dry conditions. •Water to be sprayed during cutting/grinding operations. •All vehicle engines and plant motors to be switched off when not in use. •High dust generating activities within site compounds should be located as far away from nearby receptors as possible.			complaints/exceptional dust events to be included in EMP.				
Cultural heritage										
CH1	Chapter 6 (Cultural	To minimise adverse	An Archaeological Management Plan (AMP)	Yes – will include recording of the	Potential for buried archaeological	Implementation of the Archaeological	Contractual requirement	PC	P and C	Signature:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	Heritage) of the ES [APP-050]~~(TR010065/APP/6.1)~~ Appendix B.6 (Archaeological Management Plan) of the ES Appendices [APP-045 to APP-061 and AS-021]~~(TR010065/APP/6.3)~~	effects on archaeological assets during construction and provide enhancement where possible through public outreach	[APP-187]~~(TR010065/APP/6.8)~~ will be updated after each phase of archaeological works to ensure best practice and limit impacts on cultural heritage assets. This will include building recording for the grade II Causeway Arches 500m north west of level crossing (MM228). The final phase (Phase 3) of the AMP will be completed following consent and prior to and during construction. This phase will include an Archaeological Mitigation Strategy, including the details of the excavation and recording of archaeological assets identified during previous investigations. The Phase 3 AMP will outline the public outreach opportunities where feasible. These will be detailed within the WSI's produced for the archaeological mitigation works.	grade II Causeway Arches 500m north west of level crossing (MM228). This will include the monitoring of construction activities by a qualified archaeologist and monitoring visits from Stakeholders Nottinghamshire County Council Senior Practitioner Archaeology and Newark & Sherwood District Council Historic Environment Advisor and an Archaeological Clerk of Works (ACoW).	assets to be impacted by the Scheme.	Mitigation Strategy (i.e. Phase 3 of the AMP).	between the Applicant and the PC. Requirement 9 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			Date:
CH2	Chapter 6 (Cultural Heritage) of the ES [APP-050]~~(TR010065/APP/6.1)~~	Use of structural monitoring systems to vulnerable assets before, during and after the construction phase.	Structural monitoring will be required before, during and after construction at grade II* listed Concrete Footbridge across River Trent (MM038), grade II listed Farndon Windmill (MM139), grade II listed, and grade II listed Causeway Arches 500 meters north-west of level crossing (MM228) to ensure any vibrations from construction machinery do not affect the structural integrity of these assets. The buffer zones required for the structural monitoring will be defined by a structural engineer before works start in these areas. A structural condition survey and Level 2/3 building	Yes – structural monitoring required at the locations set out in this commitment before, during and after works. The PC will be responsible for ensuring a Monitoring Plan is prepared as part of the Phase 3 AMP.	Potential for nearby listed buildings to be damaged during construction due to proximity of construction machinery and/or construction impacts.	Consultation with local authority archaeological advisor and conservation officer. Buffer zones to be defined by structural engineer.	Contractual requirement between the Applicant and the PC. The PC will be responsible for ensuring that a plan containing the technical detail will be prepared as part of the Archaeological Mitigation Strategy, i.e. Phase 3 AMP, with assistance from acoustic environmental specialists as	PC	A	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			recording will be undertaken specifically for Causeway Arches 500m north west of level crossing (MM228), prior to the commencement of works in order to inform a construction methodology and design specification for the rebuilt element of arches.				required. Requirement 9 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			
CH3	Chapter 6 (Cultural Heritage) of the ES [APP-050] ~~(TR010065/APP/6.1)~~ Chapter 7 (Landscape and Visual Effects) of the ES [APP-051] ~~(TR010065/APP/6.1)~~ Appendix 6.3 (Assessment of Cultural Heritage Effects During Construction of the Scheme) of the ES Appendices ~~(TR010065/APP/6.3)~~[APP-134]	To minimise adverse effects on setting of heritage assets during construction	The use of temporary noise barrier to reduce degradation of setting and/or maintenance of access routes to a heritage asset to maintain its viability during construction. This should be provided at grade II listed Farndon Windmill (MM139), grade II listed Lowwood (MM053), grade II listed Langford Hall (MM026) and the designated Conservation Area at Winthorpe (MM432).	Yes – barrier to be regularly inspected by the PC Environmental Manager to ensure mitigation working as intended throughout construction.	Potential impacts on the setting of heritage assets during construction.	Consultation with local authority archaeological advisor, conservation officer and environmental health officer.	Contractual requirement between the Applicant and the PC Specific areas requiring fencing/protection will be contained within the archaeological mitigation strategy, i.e. the AMP phase 3 update. Requirement 9 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~. Fencing will be built in accordance with Requirement 7 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
CH4	Chapter 6 (Cultural Heritage) of the ES [APP-050]~~(TR010065/APP/6.1)~~ Appendix 6.3 (Assessment of	To minimise adverse effects on setting of heritage assets during construction	Installation of physical protection measures such as fencing and hoarding for known heritage assets in close proximity to the Scheme including, but not limited to, areas of preservation in situ south of Farndon roundabout (MM503), the early medieval settlement at Winthorpe	Yes – fencing and hoarding to be regularly inspected by the PC Environmental Manager to ensure mitigation working as intended, throughout construction.	Avoiding potential direct impacts on heritage assets or encroachment on nationally protected assets during construction.	Consultation with local authority archaeological advisor Conservation officer and construction teams. Placement of fencing around identified assets.	Contractual requirement between the Applicant s and the PC. Specific areas requiring fencing/protection will be contained	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	Cultural Heritage Effects During Construction of the Scheme) of the ES Appendices [APP-134]~~(TR010065/APP/6.3)~~		(MM876), and the Scheduled monument Civil War redoubt 550m south east of Valley Farm (MM007) in close proximity to Cattle Market Roundabout and listed buildings Causeway Arches (MM228) and Farndon Windmill (MM139) As identified in section 6.10 in the ES [APP-050] ~~(TR010065/APP/6.1)~~.				within the AMP phase 3 update. No part of the authorised development is to commence until for that part a Written Scheme of Investigation (WSI) for the investigation and mitigation of areas of archaeological interest, reflecting the mitigation measures included in the archaeological mitigation strategy, has been prepared in consultation with the relevant planning authority and Historic England, agreed with the County Archaeologist and submitted to and approved in writing by the Secretary of State. Requirement 9 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~. Fencing will be built in accordance with Requirement 7 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			
CH5	Chapter 6 (Cultural Heritage) of the	Use of sensitive landscape	The landscape design for the Scheme includes new and replacement planting which	Yes – long term monitoring requirements will	Potential impacts on the setting of heritage assets	Implementation and maintenance of planting Scheme.	Contractual requirement between the	PC	C and O	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	ES [APP-050]~~(TR010065/APP/6.1)~~	design and planting to provide visual screening and conserve the setting of heritage assets where appropriate.	would reflect the character of the local area and help screen heritage assets from the road network. This includes locations of planting to be used and different species. The design will be developed further at detailed design which will reflect Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~.	be required to review the success and establishment of planting.	during operation.	The Series 3000 and LEMP will set out long term maintenance requirements and any long term reporting needed to audit this.	Applicant and the PC. Requirements 6 and 9 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			
CH6	Chapter 6 (Cultural Heritage) of the ES [APP-050]~~(TR010065/APP/6.1)~~	Avoidance, preservation by record, in the case of archaeological remains.	A WSI will be prepared in consultation with the local authorities. The WSI should include any mitigation or recording identified as a result of the evaluation work. Archaeological works will be undertaken as detailed in the WSI which may take the form of archaeological excavation and / or strip map and/ or archaeological monitoring. A report will be produced and published for the results of the mitigation; these will require approval from the local authority archaeological advisor.	Yes – archaeological works to be undertaken within the order limits and monitored as set out in the WSI.	Potential for underlying archaeological assets to be impacted by the Scheme.	Consultation with local authority archaeological advisor and Historic England. Preparation of a WSI. Appointment of an archaeological sub-contractor to undertake the agreed works. Publication of results of the archaeological work.	Contractual requirement between the Applicant and the PC. Requirement 9 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:
CH7	Chapter 6 (Cultural Heritage) of the ES [APP-050]~~(TR010065/APP/6.1)~~	To identify and record any archaeological assets	Provision of a Protocol of Archaeological Discoveries and tool box talks for construction workers and operatives to highlight reporting procedures to be followed, should archaeological deposits be encountered during the works.	No	Potential for underlying archaeological assets not previously recorded to be impacted by the Scheme.	Creation and implementation of Protocol of Archaeological Discoveries.	Contractual requirement between the Applicant and the PC. Requirement 9 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature:
CH8	Chapter 6 (Cultural Heritage) of the ES [APP-050]~~(TR010065/APP/6.1)~~	To limit impacts and provide enhancement where possible for heritage assets	Continued multi disciplinary consultation with design, noise and landscape teams throughout the design process to work to limit impacts, provide enhancements where possible (subject to funding and any other consents being	No	Avoiding potential direct impacts on heritage assets or encroachment on nationally protected monuments during construction.	Reduction of impacts on heritage assets.	To be implemented by the PC. Requirement 9 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/AP~~	PC	P	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			required being secured) and preserve in situ heritage assets across the Scheme.				~~P/3.1)~~.			
CH9	Chapter 6 (Cultural Heritage) of the ES [APP-050]~~(TR010065/APP/6.1)~~	To minimise impacts on Winthorpe Conservation Area and Lowwood Listed Building	Landscape bunds will be provided to the south east of Winthorpe Conservation area to mitigate against noise impacts resulting from the Scheme. Planting will be provided on these bunds to minimise visual impacts associated with this. Planting will also be provided to the west of Winthorpe Conservation area and Lowwood towards the existing A1 to provide visual screening from the new road. Noise barriers and low noise road surfacing will be also be provided to minimise noise impacts upon Lowwood and Winthorpe Conservation area.	Yes – long term monitoring requirements will be required to review the success and establishment of planting.	Potential impacts on the setting of heritage assets during operation.	The Series 3000 and LEMP will set out long term maintenance requirements and any long term reporting needed to audit this.	To be implemented by the PC. Requirement 9 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	A	Signature: Date:
CH10	Chapter 6 (Cultural Heritage) of the ES [APP-050]~~(TR010065/APP/6.1)~~	To minimise adverse effects on the heritage value of Causeway Arches 500 meters north-west of level crossing (MM228)	The section of Causeway Arches 500 meters north-west of level crossing (MM228) to be demolished will be rebuilt in an appropriate and sensitive manner and materials, the details of which will be subject to further consultation with stakeholders.	No	Potential impacts on the heritage value of Causeway Arches 500 meters north-west of level crossing (MM228) during operation.	Detailed design for rebuilt section of Causeway Arches 500m including specification of materials, in consultation with stakeholders.	To be implemented by the PC. Requirement 9 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:
Landscape										
L1	Chapter 7 (Landscape and Visual Effects) of the ES [APP-051]~~(TR010065/APP/6.1)~~	To limit landscape and visual effects during construction.	The following mitigation measures to be undertaken to reduce visual intrusion and impacts upon the landscape throughout construction: • Keep a well ordered and tidy site, including keeping stockpiles to a minimum, with delivery of goods on an as needed basis. • Temporary offices and	Yes – daily site audits will be undertaken by the PC Environmental Manager throughout construction to ensure these actions are implemented.	A need to limit adverse effects upon landscape character and visual receptors within the study area.	Daily Site Audits and regular reporting on this.	To be implemented by the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~**.**	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			welfare facilities would be a recessive colour to blend in with local surroundings. This is particularly the case in more rural areas away from the urban edge of Newark. • Boundary fencing or timber hoarding (2 metres in height) would be erected around all compounds and material storage areas. • Constructing screening mounds, where they are proposed as part of the permanent works, as early as is practicable to provide screening to the construction work. • Limiting works to core hours in the most part, with any night works to be kept to a minimum where practicable. Exceptions to these core hours are detailed in G2 above. • Lighting would be kept to the minimum luminosity necessary and use low energy consumption fittings. Where appropriate, lighting would be activated by motion sensors to prevent unnecessary usage. The main site compound would be occupied at all times for the security of the plant, equipment and materials within it. As such, the main site compound would be lit as required during hours of darkness. Lighting would be directional, and positioned sympathetically, to minimise light spill and							

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			disturbance for highly sensitive receptors. Construction lighting will be provided as detailed in Section 2.6 of Chapter 2 (The Scheme) of the ES [APP-046]~~(TR010065/APP/6.1)~~. • Restoration of land used temporarily to construct the Scheme, as soon as practicable.							
L2	Chapter 7 (Landscape and Visual Effects) of the ES [APP-051]~~(TR010065/APP/6.1)~~ Appendix 7.4 (Arboricultural Impact Assessment) of the ES Appendices [APP-140 and AS-086 to AS-089]~~(TR010065/APP/6.3)~~	To limit the impact of construction on existing trees and vegetation to be retained.	During construction existing trees and vegetation to be retained are to be protected with fencing, ground protection, and arboricultural supervision, where specified within Table 4-2 of Appendix 7.4 (Arboricultural Impact Assessment) of the ES Appendices [APP-140 and AS-086 to AS-089]. ~~(TR010065/APP/6.3).~~ An Outline Arboricultural Method Statement (AMS) has been prepared in Chapter 5 of the Arboricultural Impact Assessment. This would be developed into a full AMS ahead of construction alongside the Second Iteration EMP which will include Table 4-2, and not be limited to the following details: • Retention and avoidance of impact upon existing trees and vegetation wherever possible, including the sensitive consideration of priority habitats, trees protected by TPOs and other veteran and notable trees within and adjacent to the works boundary. • Protecting existing trees and vegetation to be retained with protective	Yes – supervision will be required for felling / clearance operations for trees detailed in Table 4-2 of Appendix 7.4 (Arboricultural Impact Assessment) of the ES Appendices ~~(TR010065/APP/6.3)~~[APP-140 and AS-086 to AS-089]. Table 4-2 will also be included in the full AMS. An inspection of temporary protection measures is also required once these are installed.	Tree information is as per that within the Arboricultural Impact Assessment and associated drawings and removals as set out in the Tree Protection Plan in Appendix E of Appendix 7.4 (Arboricultural Impact Assessment) of the ES Appendices [APP-140 and AS-086 to AS-089].~~(TR010065/APP/6.3).~~	Daily Site Audits in the location of work during the construction period and the reference to and adherence with the Arboricultural Impact Assessment / Arboricultural Method Statement (to be included in the Second Iteration Environmental Masterplan).	To be implemented by the PC. Requirement 3 of Schedule 2 of the draft DCO [APP-~~021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC.	P and C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			fencing, where deemed necessary. • Check the robustness and positioning of tree protection fencing, and that no materials or plant are stored within the tree protection fencing.							
L3	Chapter 7 (Landscape and Visual Effects) of the ES [APP-051] ~~(TR010065/APP/6.1)~~	Proposed planting matures to provide effective landscape and visual mitigation as well as successful habitat creation.	New and replacement native planting which reflects the local landscape character, including the use of species listed in the Newark and Sherwood Landscape Character Assessment SPD as appropriate and biodiversity needs would be provided as detailed in Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026] ~~(TR010065/APP/6.2)~~.	Yes –monitoring requirements throughout the aftercare period will be required to review the success and establishment of planting	A need to limit adverse effects upon landscape character and visual receptors within the study area, and ecological receptors/ habitats within close proximity to the Scheme.	Successfully implemented in line with Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026] ~~(TR010065/APP/6.2)~~ and the LEMP produced as part of the Second Iteration EMP.	To be implemented by the PC. Requirements 3 and 6 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001] ~~(TR010065/APP/3.1)~~.	PC	P, C and O	Signature: Date:
L4	Chapter 7 (Landscape and Visual Effects) of the ES [APP-051] ~~(TR010065/APP/6.1)~~	To ensure that existing vegetation including field boundaries and highways planting remains intact wherever possible, and wildlife corridors are not severed.	Hedgerows and linear belts of vegetation along the highway boundary would be retained and/or strengthened wherever possible. Where reasonably possible, enhancement of existing hedgerows within the Order Limits will be undertaken by means of, for example, coppicing, hedge laying or planting up gaps with native climate resilient species. Where retention is not possible, new planting would be sought to restore continuity of existing vegetation as set out in Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026] ~~(TR010065/APP/6.2)~~ and the LEMP to be developed as part of the Second Iteration EMP. This would include, but not be limited to, areas of species rich grassland, hedgerows, hedgerows with trees, linear belts of shrubs	Yes – monitoring throughout the aftercare period will be required to review the success and establishment of planting	A need to limit adverse effects upon landscape character and visual receptors within the study area, and ecological receptors/ habitats within close proximity to the Scheme.	During detailed design and construction the Applicant will maximise retentions, strengthen hedgerows and linear belts of vegetation whilst reflecting the landscaping principles set out in the submitted in Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026] ~~(TR010065/APP/6.2)~~.	To be implemented by the PC. Requirements 3 and 6 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001] ~~(TR010065/APP/3.1)~~.	PC	P, C and O	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			and trees and woodland, as well as wetland planting of drainage features and habitat creation at Farndon East and West Floodplain Compensation Areas.							
L5	Chapter 7 (Landscape and Visual Effects) of the ES [APP-051] ~~(TR010065/APP/6.1)~~	Mitigating landscape and visual impacts during operation.	Landscape works undertaken should be maintained to ensure successful establishment of the environmental design. Maintenance should be undertaken in accordance with the Series 3000 Landscape and Ecology specification appendices and LEMP (to be produced) to ensure the establishment and continued growth of new plant stock to ensure mitigation planting meets its objectives as presented in Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026] ~~(TR010065/APP/6.2)~~.	Yes – monitoring throughout the aftercare period will be required to review the success and establishment of planting	A need to limit adverse effects upon landscape character and visual receptors within the study area.	Successfully implemented in line with Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026] ~~(TR010065/APP/6.2)~~ and LEMP.	To be implemented by the PC. Requirements 3 and 6 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001] ~~(TR010065/APP/3.1)~~.	PC	C and O	Signature: Date:
L6	Chapter 7 (Landscape and Visual Effects) of the ES [APP-051] ~~(TR010065/APP/6.1)~~ Appendix 7.4 (Arboricultural Impact Assessment) of the ES Appendices [APP-140 and AS-086 to AS-089] ~~(TR010065/APP/6.3)~~	Monitoring landscape requirements during construction and operation	The PC Environmental Manager would ensure commitments L1-L5 above are complied with. Notably in construction including: • Ensuring tree protection barriers and ground protection are installed correctly • Angle and direction of night time lighting is not directly focused on residential receptors • Soil is stored correctly with stockpiling in accordance with the Outline Soil Management Plan (see Appendix B of this First Iteration EMP) In operation, monitoring to review the success and establishment of planting would be undertaken in the scope set out in the Series	Yes – monitoring to be undertaken in line with this commitment throughout construction.	A need to limit adverse effects upon landscape character and visual receptor within the study area.	Minimising impacts during construction. Successfully implemented in line with Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026] ~~(TR010065/APP/6.2)~~, LEMP and Soil Management Plan.	To be implemented by the PC. Requirements 3 and 6 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001] ~~(TR010065/APP/3.1)~~.	PC	C and O	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			3000 and LEMP.							
L7	Consultation Report Annexes **(TR010065/APP/5.2)** Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~.	Where reasonably possible to provide screening planting and mitigate visual impacts at the earliest possible opportunity	The PC will explore opportunities to provide advanced planting where reasonably possible.	Yes – monitoring of planting throughout the aftercare period will be required to review the success and establishment of planting.	An opportunity to limit adverse effects upon landscape character and visual receptors within the study area.	Minimising impacts during construction and operation.	To be implemented by the PC.	PC	A	Signature: Date:
L8	Chapter 7 (Landscape and Visual Effects) of the ES [APP-051]	To mitigate the introduction of pests and diseases from planting stock.	All plants supplied shall comply with BS 3936: Parts 1 to 10 as relevant, BS 8545, the National Plant Specification published by the Horticultural Trades Association and with prevailing UK policies and regulations relating to plant health and biosecurity.	Yes - monitoring required in order to ensure compliance with commitment at time of specification, procurement, and at time of plant delivery to site.	The measures here will be implemented in full.	PC Environment Manager to confirm adherence to British standards and prevailing UK policies and regulations relating to plant health and biosecurity at each stage of monitoring.	To be implemented by the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001].	PC	P and C	Signature: Date:
Biodiversity										
B1	Chapter 8 (Biodiversity) of the ES [APP-052]~~(TR010065/APP/6.1)~~	Protection of habitats and protected species during construction	The following general measures or principles will be adhered to for biodiversity during construction: • an Ecological Clerk of Works (EcoW) will be employed to provide advice and monitor the works' adherence to the Second Iteration EMP and construction mitigation measures • a pre-construction search by the ECoW prior to vegetation clearance/brash removal to check for notable faunal species such as hedgehog and toad resting places • toolbox talks on protected species and control of INNS to be delivered prior to construction activities	Yes – monitoring to entail: • Pre-construction search by ECoW Monitoring during staged grass cutting and directional clearance	Effects on terrestrial and aquatic habitats and species. Assumes that relevant measures will be implemented in necessary timescales.	Compliance with the Second Iteration EMP. ECoW oversee works where necessary. Preparation and delivery of toolbox talks. Preparation and implementation of method statements as part of the Second Iteration EMP.	To be implemented by the PC. Requirement 10 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:

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			• Phased grass cutting/vegetation clearance and directional clearance • a Pollution Prevention Plan will be prepared as detailed in commitments RDWE2 and RDWE3 of this First Iteration EMP. Techniques could include the use of oil booms on the River Trent during construction of the new outfall. • outfall construction (integrated into an existing headwall) on the River Trent (adjacent to Nether Lock Weir) to be undertaken between mid-June and October, avoiding periods of flooding. This will allow higher winter flows to wash silt through the system before the next coarse fish spawning season (March to mid-June). • Site drainage (including site compounds and material storage areas) will be designed to connect to existing road/mains drainage network, and not directly discharged to the environment. • Best practice methodology for the correct storage and disposal of wastewater and pollutants, the establishment of dedicated plant and wheel washing areas at least 10 metres from any watercourse or surface water drain, collection of runoff water in sumps,							

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			and the recycle and reuse of water where possible. • use of best practice measures set out in the LEMP (to be produced as part of the Second Iteration EMP) to minimise impacts on mammals such as covering excavations over-night, or securing mammals ladders within excavations. • restriction of night working, where possible along the majority of the working width to minimise the requirement for artificial lighting to be used. • Use task and directional lighting with cowls to minimise light splay to the River Trent and its banks outside of the works area. • Use suitable piling equipment to minimise noise and vibration and use a slow start-up, where possible, for all night works and sheet piling adjacent to the River Trent. • Use of screening, dust suppression measures, vegetating or covering of spoil heaps to minimise dust exposure and dispersal, with focus on areas in the vicinity of LWS. • The Second Iteration EMP will detail the working methodology for protected and notable species during construction. • Environmental protection best practice guidelines will be followed, such as						

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			Construction Industry Research and Information Association (CIRIA) C741 – Environmental Good Practice on Site (4th Edition) (CIRIA, 2015a), CIRIA C532 – Control of Water Pollution from Construction Sites (CIRIA, 2001) and CIRIA C648 – Control of water pollution from linear construction projects (CIRIA, 2006). Where necessary, protected species licences will be applied for and a Method Statement will be provided in the licence package which will need to be adhered to.							
B2	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~	Protection of bats	A bat mitigation licence will be obtained from Natural England prior to the demolition of bat building F004. The method statement, as part of the bat mitigation licence application, will detail necessary mitigation for bats including: • Bat roosting features identified within one building which will be demolished (building F004) to facilitate the Scheme will be checked by a suitably qualified bat ecologist (Level 2 Natural England Licence or equivalent) via torchlight and/or endoscopic inspection prior to destruction of the building. • Where features cannot be fully inspected, the bat licensed ecologist will soft-strip materials, inspecting the feature periodically after each removal of material. • Soft stripping of building	Yes – A suitably qualified ecologist will need to inspect features in one building (F004) prior to demolition. Annual monitoring of bat boxes during year 2 and year 3 of construction and annually for 5 years post-construction. Monitoring includes maintenance (cleaning, repair and replacement),	A bat mitigation licence will be obtained from Natural England, due to the unavoidable demolition of one bat roost (building F004) which has potential to kill, injure, and disturb bats.	Following the DCO being granted, the PC will either register the scheme under a CL21 licence (subject to the employed ecologist holding such a licence) or formally submit a full bat mitigation licence application (A13).	To be implemented by the PC. Implementing all measures required in the bat licence. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~	PC during construction. The Applicant for post-construction monitoring.	P and C	Signature: Date:

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			F004 (daytime summer roost) will be undertaken in the daytime in March to April and/or October to November inclusive, where possible and subject to weather conditions, during the transitional period (avoiding the core summer season and bat hibernation period) to reduce the risk of injuring or killing a bat. • Should no roosts be identified as being present within the building following the inspection, any suitable roosting features would be made unsuitable. This could be achieved by either soft-striping materials from the building or in some cases it may be more appropriate to back-fill accessible crevices with wet newspaper, wet hay or expanding foam to eliminate the risk of bats using features identified within the building prior to it being demolished. This method of backfilling will not be undertaken on features that cannot be fully inspected. • The installation of one bat box should be located close to bat building F004, in retained adjacent semi-mature woodland or on posts, whilst trees mature, but beyond 100m from areas of heavy construction (e.g. piling). Should a bat be found during soft-stripping of this buildings, the suitably qualified bat ecologist							

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			(Level 2 Natural England Licence or equivalent) will rehome any individuals into the bat box. Indicative locations for provision of bat boxes are detailed on Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]**~~(TR010065/APP/6.2)~~** and the bat licence application. In addition to embedded mitigation such as directional lighting (detailed in Chapter 2 (The Scheme) of the ES [APP-046]**~~(TR010065/APP/6.1)~~**), the following mitigation, not associated with the bat licence application, will be applied across the Scheme. • To mitigate disturbance to bat roosts in bat building F054, the farmyard off Kelham Road will not be used to store materials, receive deliveries, or have vehicles associated with the Scheme left idling. • In addition to embedded mitigation such as directional lighting (detailed in (detailed in Chapter 2 (The Scheme) of the ES [APP-046]**~~(TR010065/APP/6.1)~~**), the use of task lighting with cowls to prevent illumination of the roost access point or associated access flight lines during any unavoidable night works will mitigate lighting disturbance to the bat roost present in building F057. This is also							

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			applicable to roosts in building F010 and F013 and trees F123, F210, F213 and F225 and the assumed to be present roosts in buildings F002, F005, F009, F034, F062, F063 and F064. • All trees to be felled for the Scheme with potential for a bat roost would be re-inspected for roosting bats prior to felling. This would comprise aerial climb inspection surveys with endoscopes. • Where a feature cannot be fully inspected (e.g. tree unsafe to climb), the tree would be soft-felled where the licensed ecologist can undertake the inspection at ground level. • Felling of trees with hibernation potential will be undertaken outside of the hibernation period (i.e., avoid November – March, inclusive) or otherwise, features will be inspected by a licensed surveyor prior to back-filling accessible crevices on trees. • If an inspection prior to tree felling confirms a bat roost, works would need to cease and Natural England would need to be consulted, as a bat mitigation licence would need to be applied for. This could result in the potential provision of further bat boxes in retained adjacent semi-mature woodland or on posts							

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			whilst trees mature. The number of bat boxes will depend on the number and type(s) of roosts lost and the species using those roosts. • In addition to one mitigation bat box prior to soft-stripping of building F004, further bat boxes will be installed in suitably mature trees or on posts in consultation with Natural England to provide alternative roosting opportunities to compensate for the loss of suitable bat roosting features. Natural England have been consulted in regard to the proposed ratio of bat boxes to suitable roosting features lost (as detailed in Chapter 8 (Biodiversity) of the ES [APP-052]~~(TR010065/APP/6.1)~~. Indicative locations for provision of bat boxes are detailed on Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~.							
B3	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~	Protection of otter	Based on this survey data and the implementation of embedded mitigation and measures (such as the restriction of night working, where possible) detailed in B1 of this table to mitigate disturbance, a licence will not be required. Passage would be maintained along commuting routes (e.g. River Trent) during	Yes - ongoing by the PC during construction to report any observations of otter within the Order Limits.	An otter mitigation licence (A45) is not required based on survey data, however otter have been recorded to be active within the Order Limits.	Avoid committing a wildlife offence by ceasing work if an otter or otter evidence is observed within or adjacent to works, to consult with the Scheme ecologist.	To be implemented by the PC Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			construction e.g. oil booms would be positioned so they do not act as a barrier to otter movement. Should otter or evidence of otter be observed within or adjacent to the Order Limits within the zone of influence (ZoI), works must stop and the Scheme ecologist contacted to assess a suitable working methodology for works to proceed without committing a wildlife offence.							
B4	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~	Protection of aquatic habitats Contributing to compensation for loss of non priority habitats	Pond creation within the Kelham and Averham FCA (within the Order Limits) will be required to compensate for the loss of an existing pond within this FCA (as detailed indicatively on Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~. Implement the INNS Management Plan (see B10) during construction to manage and prevent the spread of INNS from the invasive species within the working areas. Creation of the Farndon West wetlands and planting the borrow pits in Farndon East to improve biodiversity of the lake, will also be beneficial by increasing the availability of aquatic habitat (as detailed indicatively on Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~.	Yes – ongoing by the PC during construction to ensure adherence of the INNS Management Plan.	Effects on aquatic habitats and species and BNG.	Pond created within the Order Limits (Kelham and Averham FCA) to compensate for the loss of pond. Avoid committing a wildlife offence by implementing control measures to prevent the spread of INNS. Creation of Farndon West wetland and Farndon East lake to improve biodiversity of borrow pits.	To be implementeded by the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~. PC will be responsible for the management of the pond during the aftercare period), unless agreements are made with the landowner with regards to them adopting management responsibilities in the long-term. The Applicant will be responsible for management of the pond following the aftercare period in line with the requirements of the LEMP (to be detailed within the Second Iteration EMP), unless agreements are	PC	A	Signature: Date:

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							made with the landowner with regards to them adopting management responsibilities in the long-term.			
B5	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~	Protection of water vole	Based on current water vole field sign data (three water vole droppings recorded in a single location along Old Trent Dyke, 135 metres from the Order Limits, beyond the zone of influence), there is no need for a water vole mitigation licence (A11). As water vole are a mobile species, completion of pre-commencement monitoring surveys will be undertaken prior to vegetation clearance along Old Trent Dyke, (as water vole field signs have been recorded outside of the Order Limits). Pre-commencement water vole surveys must be undertaken between 15 February and September end so that should water vole be present, displacement can be undertaken between the period 15 February to 15 April inclusive or between 15 September and 31 October inclusive by an ECoW in line with the conditions of a class licence (CL31). No subsequent attempt at displacement of water voles can be undertaken within the unaffected adjacent habitat for a period of 12 months. Displacement can only be undertaken along a continuous length of 50 metres across both banks. A suitably experienced water	Yes - pre-construction monitoring surveys will confirm whether water vole are still absent, prior to vegetation removal.	Based on current survey data, a water vole licence is not required at this time (see the Consents and Agreement Position Statement [APP-023] ~~(TR010065/APP/3.3)~~ for further details.	Pre-construction monitoring surveys will ensure a wildlife offence is not committed.	To be implemented by the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001] ~~(TR010065/APP/3.1)~~.	PC	P	Signature: Date:

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			vole ecologist will undertake monitoring of areas both sides of culverts (where it is safe to do so) for five years post construction This will take the form of annual field sign surveys during late summer/ autumn. Further monitoring using remote cameras could be used, where possible, over a period of four weeks during early spring and a further four weeks during late summer/autumn.							
B6	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~	Protection of badger	Based on survey data collected to date, a development licence from Natural England is not required for closure(s) of any badger setts. However, pre-construction monitoring surveys will be required in advance of construction to confirm this. Timings are detailed in the following paragraphs below and should commence prior to construction and following DCO consent. Prior to construction, any identified burrows that are of a size and shape to support use by badgers within 30 metres of works that have potential to damage, destroy or obstruct a burrow or have the potential to disturb a badger within a sett, will be monitored for 21 consecutive days. This could include such methods such as trail cameras, monitoring tracks in sand, or 'sett sticking' to ascertain whether the burrows are currently being used by badgers (i.e. an active sett). If no field signs are recorded during this monitoring period, then a one-way gate will be installed to	Yes – prior to construction commencing, large mammal burrows that could support badgers, located within 30 metres of works that have potential to damage, destroy or obstruct a burrow or have the potential to disturb a badger within a sett will need monitoring for 21 consecutive days to confirm it is not in use. Any active setts will be monitored for 21 days following the installation of a one-way gate (after obtaining a licence from Natural England to do so)	Based on current data, no active badger setts will need closing as part of the Scheme. Land access would be provided by the Applicant and third parties, for any pre-construction or monitoring surveys potentially needed prior to construction.	As badger are a mobile species, completion of pre-construction monitoring surveys will be undertaken prior to closure of large mammal burrows / inactive badger 'setts' to determine if a badger mitigation licence is needed.	To be implemented by the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001] ~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			each entrance, under supervision of a suitably experienced ecologist. Exclusion can be undertaken at any point in the year on disused 'setts' (technically considered a mammal burrow if it is not in use by a badger). Badger will be permanently excluded from one 'sett' to be lost under the footprint of the Scheme (sett F001) and temporarily excluded for the duration of construction from one 'sett' that will only be subjected to disturbance (F002), both of which are currently inactive. If a large burrow within 30 metres of works that have potential to damage, destroy or obstruct a burrow or have the potential to disturb a badger within a sett, is found to be used by badger during pre-construction surveys or during construction, then a licence would need to be applied for via Natural England 'to interfere with a badger sett for the purpose of development' (A24). This would permit obstructing sett entrances by means of one-way gates, followed by the destruction of a vacant sett. If a one-way badger exclusion gate is required prior to destruction of a sett, it would be installed between 1 July and 30 November. It would stay in situ for 21 consecutive days following the last sign indicating possible access by badgers into the sett and until immediately before action is taken to close or destroy the sett.							
B7	Chapter 8	Protection of	~~Barn owl stage 3 surveys of~~	Yes – Checks of	Barn owl boxes to	Compliance with the	To be	Pre-	A	Signature:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	(Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~	barn owls	~~potential nesting sites (PNS) within 175m of the Order Limits will be undertaken pre-construction, one year prior to the closure of confirmed barn owl nest sites. These pre-commencement surveys will be undertaken by an experienced ornithologist who holds a Natural England class 1 barn owl licence, ideally in winter to avoid the core nesting season. Where~~ Completed barn owl Stage 3 surveys confirmed where barn owls are absent and not considered to be nesting or potentially nesting, ~~these checks will~~ and allow for the temporary blockage of confirmed nesting sites and potential nesting sites (PNS) for the duration of construction, following provision of alternative nesting sites (e.g. barn owl nestboxes). Checks of features (pre-commencement surveys) will be undertaken immediately prior to their temporary closure, by an experienced ornithologist who holds a Natural England class 1 barn owl licence. If barn owls are present and confirmed to be nesting during these pre-commencement surveys, the nest site will need to be monitored and will only be closed once individuals have naturally fledged. Until the chicks have fledged and the nests become inactive, it may be necessary to employ 'no-working' buffers around the nest(s), if active breeding overlaps with the pre-commencement or main construction works, to avoid disturbance of any actively	features (pre-commencement surveys) will be undertaken immediately prior to their temporary closure, by an experienced ornithologist who holds a Natural England class 1 barn owl licence. ~~Barn owl stage 3 surveys of barn owl PNS within 175m of the Order Limits will be undertaken one year prior to closure of confirmed nesting sites, prior to construction, ideally in winter months.~~ ~~If barn owl boxes are required to be installed, a~~Annual monitoring surveys of barn owl nestboxes will be undertaken during construction and for a minimum of five~~3~~ years post-construction. Maintenance (cleaning / repair / replacement) as required during this time. Post this period, continued monitoring could be undertaken by voluntary groups, should the site be entered into a national monitoring Scheme (e.g.	be installed by a competent ecologist one year prior to construction, and no later than mid-February prior to the commencement of any work, either on retained trees of a suitable maturity or on posts, close to confirmed nesting sites which will be lost and not within the Zone of Influence. ~~Presence of barn owls and completion of barn owl stage 3 surveys on PNS within 175m of the Order Limits to be completed one year prior to construction, ideally in winter, no later than mid-February prior to the commencement of any work.~~	Second Iteration EMP to prevent killing or injuring or disturbing barn owls. ~~Completion of barn owl stage 3 surveys within 175m of the Order Limits at least one year prior to barn owl box installation, prior to construction~~ ~~Potential p~~Provision of five barn owl boxes one year in advance of confirmed nest site and potential nest site closures, pre-construction. Provision of boxes will be at the closest indicative location (as shown in Figure 2.3 (Environmental Masterplan) of the Environmental Statement Figures) [AS-026] to the feature being temporarily lost. ~~(location and number to be determined following completion of barn owl stage 3 surveys identifying confirmed nesting sites).~~	implemented by the PC and Applicant. Requirement 3 of Schedule 2 of the draft DCO [APP-021REP1-001] ~~(TR010065/APP/3.1)~~. Landowner agreement will be required for barn owl box installation and annual monitoring surveys during operation.	construction/Construction = PC Operation = Applicant		Date:

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			breeding birds. The need for and the design of 'no-working' buffers would be confirmed by an ecologist and would be subject to the works proposed in the area around the active nest. ~~Should they be required,~~ ~~b~~Barn owl boxes shall be installed by a competent ecologist one year prior to construction, and no later than mid-February prior to the commencement of any work, either on retained trees of a suitable maturity or on posts, close to confirmed nesting sites which will be lost and not within the Zone of Influence. This will allow the barn owl boxes time to weather and provide barn owls time to explore them prior to closure of confirmed nesting sites. Any confirmed nest sites will be closed a year after barn owl box installation, outside of the core nesting period prior to construction to reduce risk of the nest being active. Two barn owl boxes will be erected for each ~~barn owl confirmed nest site~~ occupied breeding site (OBS) temporarily lost during construction. One barn owl box will be erected for each PNS temporarily lost during construction. These will be erected prior to the temporary blockage of nest sites and will be located as close as possible to the closures, beyond 175m from the Scheme, as directed by a competent ecologist. ~~Prior to completion of barn owl Stage 3 surveys to identify confirmed nesting~~	British Trust Ornithology (BTO) Nest Record). Habitat manipulation of the isolated Type 2 habitat would commence during the construction works and continue through operation and would include habitat management under supervision of an ECoW.						

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			~~sites, i~~Indicative suitable locations for barn owl box installation ~~will be~~have been informed by the completion of barn owl Stage 3 surveys~~location of PNS, ARS and PRS~~, foraging and commuting habitats (existing and post-construction landscape planting) and the carriageway alignment. This ~~will~~ has facilitated securing landowner permissions ~~prior to completion of surveys~~, to install barn owl boxes, allow access for monitoring surveys and maintenance. Barn owl box pairs will be located within approximately 100-150 metres of each other to create a breeding territory. Where more than one confirmed barn owl nest is recorded, paired boxes will be located approximately 500-1km between territories. Indicative locations of barn owl nestboxes are detailed on Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~. Annual checks of barn owl nest boxes will be undertaken during construction and for ~~a least three~~five years post-construction (during the after-care period), with remedial measures undertaken (e.g. clearing of nest debris only if full and therefore unusable, nestbox replacement if deteriorated beyond use) as required. Records of barn owl nest box usage to be submitted by the PC to Local Record Centre (LRC). Habitat manipulation under							

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			the supervision of an ECoW of the isolated Type 2 habitat (sub-optimal) south of the new flyover between Brownhills roundabout and the A1 carriageway would further reduce the risk of vehicle collision with barn owl at this potential new Traffic Accident Blackspots (TAB). Such mitigation would commence during the construction works and continue through operation and would include habitat management such as intensive mowing to render habitat further unsuitable for foraging barn owls.							
B8	Chapter 8 (Biodiversity) of the ES -[APP-052] ~~(TR010065/APP/6.1)~~	Protection of breeding birds	Where possible vegetation clearance and topsoil removal will be programmed to avoid the nesting bird season (March – August inclusive) and night-time hours. Where this is not possible, a nesting bird check / pre-construction check will be carried out by a suitably experienced ecologist of the vegetation to be removed and immediately adjacent, no more than 48 hours in advance of proposed clearance works to check for bird nesting activity. The ecologist will provide actions for implementation based on the findings of the survey, which may include species specific buffer zones of no construction or vegetation removal activity, and compensation should any losses of Schedule 1 species nest be required. Removal of the rookery located northwest of Friendly Farmer Roundabout and partial removal of the rookery	Yes – any clearance and topsoil removal during the nesting bird season or during night-time hours will require a nesting bird survey / pre-construction check within 48 hours of clearance. ECoW to advise on requirements following survey. Annual monitoring of barn owl and kestrel boxes during construction and ~~a minimum of~~for ~~3~~5 years post-construction in September / October to coincide with box maintenance. Maintenance (cleaning / repair / replacement) as required during this time. ~~Post this~~	Presence of breeding birds. Provision of nest boxes assuming local landowners will grant permission. It is anticipated that birds displaced from the rookery as a result of habitat loss or disturbance will utilise retained woodland elsewhere across the Scheme, which provides alternative nesting provision.	Compliance with the Second Iteration EMP to prevent killing or injuring or disturbing breeding birds. Nesting bird survey within 48 hours of clearance if between March and August (inclusive) or during night-time hours. Removal of the rookery between September and February, inclusive (where possible). Use of task lighting with cowls during unavoidable night works. Provision of bird boxes in advance of construction to provide alternative habitat to that lost.	To be implemented by the PC. Requirement 3 of Schedule 2 of the draft DCO [APP-~~021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	A	Signature: Date:

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			located at Winthorpe Roundabout, would be between September and February inclusive, outside of the core nesting period (where possible). In addition to embedded mitigation (such as directional lighting), the use of task lighting with cowls will minimise disturbance during unavoidable night works. A pair (2 no.) of kestrel nest boxes shall be installed a year prior to construction commencing, on retained vegetation or on a post within suitable habitat close to the kestrel nest to be lost and approximately within 100-150 metres of each other. The exact placement of these will be directed by a competent ornithologist on site e.g. out of prevailing winds. The indicative locations are shown on Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~.	~~period, continued monitoring could be undertaken by voluntary groups, should the site be entered into a national monitoring Scheme (e.g. British Trust Ornithology (BTO) Nest Record).~~						
B9	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~ Habitat Regulations Assessment [APP-185]~~(TR010065/APP/6.6)~~ ~~Appendix 13.4: (Drainage Strategy Report) of the~~	Protection of fish	Electro-fishing will be undertaken as part of fish rescue prior to sheet piling at Windmill Viaduct and works to Slough Dyke to mitigate injury and death of fish. The screening aperture across the abstraction pump inlets during dewatering works at Slough Dyke would be small enough to prevent access of European eel (yellow eel life stage) (no greater than 3mm). The sheet piling has been realigned to avoid severing the gabion basket on Windmill Viaduct north bank. It would now sit behind the gabion	Yes – ECoW to supervise this work at the locations identified in this commitment.	Protected fish such as lamprey (a reason for the designation of Humber Estuary Special Area of Conservation (SAC) which is hydrologically connected to the Scheme) and eels are present within watercourses in the Order Limits.	Compliance with the Second Iteration EMP to prevent killing or injuring fish as far as practicable.	To be implemented by the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:

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	~~ES Appendices [APP-179](TR010065/APP/6.3).~~		basket, avoiding loss of fish refugia, retaining the existing riverbank profile, whilst providing scour protection. A net would be installed in front of the retained gabion basket and electro-fishing will be undertaken by a competent ecologist to facilitate a fish rescue prior to sheet piling commencing. An ECoW will be required to supervise the installation of sheet piling to further reduce risk to fish species such as eel. Where possible, sheet piling works, integrating the drainage design into the existing headwall adjacent to Nether Lock Weir and dewatering Slough Dyke would avoid the coarse fish spawning period (between March to 15 June). Sheet piling works would be undertaken in the daytime to avoid adverse impacts during more sensitive periods for fish, including migration of lamprey at night. Use suitable piling equipment to minimise noise and vibration and a slow start-ups would be used where possible, for all night works adjacent to the River Trent (e.g. bridge beam installation) and any daytime works likely to cause disruption to fish migration, spawning and foraging (e.g. sheet piling). Temporary drainage and silt management techniques are detailed in commitment RDWE3 and GS3 of this table. ~~outlined in Appendix 13.4: (Drainage Strategy Report) of the ES Appendices [APP-179](TR010065/APP/6.3).~~						

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			These methods, such as silt curtains and~~,~~ cut-off ditches ~~and silt curtains~~, would be used during construction to reduce the amount of silt discharging into ecologically sensitive areas ~~and could include such techniques as bubble curtains~~. Water quality monitoring would be undertaken downstream of these works ~~bubble curtain~~ to detect ~~if~~ adverse levels of sediment ~~pass through the curtain~~. Where indicated, remedial action would be taken to protect the fish spawning site. The wetland design has incorporated fish escape passages to mitigate the risk of fish entrapment as flood water recede. Following consultation with the Environment Agency, the specific number, location and design of fish escape passage will be finalised during detailed design, and the proposals will be tested in the fluvial hydraulic model to assess the potential impact to receptors. For lamprey (during times of migration or breeding) and any other fish which may enter the Farndon West FCA and Farndon East FCA during flood events, these passages would provide a direct escape route back to the River Trent and prevent/reduce the risk of entrapment. Fish escape passages would be of a naturalised shape and measure a minimum of 0.5 metres wide and 0.3 metres deep, where possible. The greatest depth of pools within Farndon West FCA and							

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			Farndon East FCA would be a minimum of 2 metres to provide stable thermal properties for the survival of fish until the next flood event, should individuals not use the fish escape passage as flood water recedes. ~~The following measures are also required to minimise effects on lamprey migratory routes:~~ • Static, task lighting with cowls should direct light towards the areas of works ~~and avoid direct illumination of the River Trent, where possible~~to minimi~~s~~ze light spill on lamprey migratory routes. • ~~Where this is not possible, there may be restrictions to night working along the majority of the working width along the River Trent to minimise the requirement for artificial lighting to be used, thereby avoiding disturbance effects of artificial lighting on sensitive ecological features.~~							
B10	Chapter 8 (Biodiversity) of the ES -[APP-052] ~~(TR010065/APP/6.1)~~	Preventing the spread of INNS	An INNS Management Plan and Biosecurity Risk Assessment will be prepared as part of the Second Iteration EMP prior to construction commencing which will outline measures to manage and prevent the spread of INNS from the invasive species working areas within the Order Limits and the spread of INNS into the Order Limits, -so far as is within the control of the Applicant, as a result of Scheme construction activities (e.g. transportation	Yes – measures defined in the INNS Management Plan and Biosecurity Risk Assessment will be monitored on site by the PC Environmental Manager for the Scheme during construction and at least 3 years post-construction	Invasive species are present in the Order Limits.	Acceptance of the INNS Management Plan and Biosecurity Risk Assessment by Nottinghamshire County Council and Newark & Sherwood District Council. Successfully implement the INNS Management Plan (which will be a part of the Second Iteration EMP) and prevent spread of	To be implemented by the PC. Requirement 3 of Schedule 2 of the draft DCO [APP-~~021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	A	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			in building materials and vehicle tyre tread). The INNS Management Plan and Biosecurity Risk Assessment will be submitted to and agreed with Nottinghamshire County Council and Newark & Sherwood District Council. Biosecurity measures and other aspects to be included in the INNS will include, but not be limited to the following: • All plant within an invasive species working area will be retained within this area, to prevent spread elsewhere in the construction corridor. • A separate refuelling area will be established for an invasive species working area, to make sure plant stays within the restricted area. • All pedestrians will be required to clean their footwear as they exit an invasive species working area, including removal of physical organic matter and boot baths. • Any arisings from the boot bath will be deposited onto the invasive species working area, not within 10m of any watercourses (nor on a slope with a hydrological pathway) and refreshed/refilled when required. • Demarcate a designated area for vegetation clearance arisings to be kept on site. • When construction plant leave an invasive species working area, a full biosecurity wash-down will be established to allow jet washing of all			INNS beyond known areas of presence.				

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			plant to remove any contaminated material. • No contaminated runoff will be allowed to enter drains or watercourses. • No clearance of Indian balsam within 10m of any watercourses when seeds have germinated.							
B11	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~ Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~	Protection of habitats during operation	As set out in commitment L5 of this First Iteration EMP, maintenance should be undertaken in accordance with the Series 3000 Landscape and Ecology specification appendices and LEMP (to be produced) to ensure the establishment and continued growth of new plant stock to ensure mitigation planting meets its objectives as presented in Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~. This would include the replacement of failed or defective plants where necessary.	Yes – monitoring throughout the aftercare period will be required to review the success and establishment of planting and inform any remedial action.	Sensitive ecology receptors within close proximity to the Scheme.	Successfully implement Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ design in line with LEMP.	To be implemented by the PC and the Scheme Landscape Architect. Requirements 6 and 12 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	Pre-construction/Construction = PC Operation = Applicant	A	Signature: Date:
B12	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~ Appendix 8.14 (Biodiversity Net Gain Report) of the ES Appendices [APP-159]~~(TR010065/APP/6.3)~~	Protection of habitats during operation to achieve expected Biodiversity Net Gain (BNG) score	Production of a BNG Management and Monitoring Plan detailing how BNG will be achieved. Any habitat creation contributing to BNG will be maintained and monitored for 30 years post construction.	Yes – BNG Management and Monitoring Plan to set out specific requirements – but routine monitoring will be required for 30 years post construction. Monitoring also needed during construction to ensure habitats retained and in the aftercare period for the establishment and aftercare of new and reinstated habitats.	Habitats will be created and managed as set out in Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ and LEMP that will reach conditions in timescales as assessed in Appendix 8.14 (Biodiversity Net Gain Report) of the ES Appendices [APP-159]~~(TR010065/APP/6.3)~~.	Reports detailing monitoring recommendations for years 1, 5 and 15 post construction. Successful implementation of Figure 2.3 (Environmental Masterplan) of the ES Figures (TR010065/APP/6.2).	To be implemented by the PC and monitored by the Scheme Ecologist during construction. Monitoring for 30 years post construction to be undertaken by the Applicant. Requirements 3 and 12 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	Pre-construction/Construction = PC Operation = Applicant	A	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
B13	Appendix 8.14 (Biodiversity Net Gain Report) of the ES Appendices [APP-159]~~(TR010065/APP/6.3)~~ Figure 2.3 (Environmental Masterplan) of the ES Figures (TR010065/APP/6.2)	Review the delivery of the habitat creation and determine whether BNG has occurred.	A Biodiversity Net Gain Audit and Report would be undertaken both at the end of construction and at the end of a 5-year aftercare period for new landscape planting and habitat creation. The purpose of this would be to review the delivery of the habitat creation and determine whether BNG has occurred.	Yes – An audit survey is required at the end of construction and at the end of the 5year aftercare period	Biodiversity Net Gain Audit Survey and Report will be undertaken in necessary timeframes	Biodiversity Net Gain Audit Survey and Report (two revisions) – determining if BNG achieved	To be implemented by the PC and monitored by the Scheme Ecologist. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	O	Signature: Date:
B14	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~ Figure 2.3 (Environmental Masterplan) of the ES Figures (TR010065/APP/6.2)	Protection of reptiles	Phased vegetation clearance will be carried out under ECoW supervision in areas where surveys have identified reptiles are present. This will comprise an initial cut of scrub and tall vegetation to approximately 250 millimetres and arisings will be removed. This will be followed by a second cut 48 hours later to lower vegetation to approximately 150 millimetres, and arisings will be removed. The second cut must move in a directional manner towards retained vegetation suitable for reptiles and be undertaken during the active season and during suitable whether conditions with reference to best practice. The planting design will reinstate or create habitats lost in areas where reptiles have been recorded and once established, improve connectivity along the A46 to suitable areas along the Scheme. The provision of log and brash piles from retained felled trees, in species rich grassland, around ponds with	Yes – these measures will be monitored on site by the PC Environmental Manager for the Scheme. Monitoring will be undertaken in year 1, 3 and year 5 and will comprise of a habitat assessment of habitat created for reptiles and presence / likely absence surveys for reptiles. Post this period, continued monitoring could be undertaken by voluntary groups, should the site be entered into a national monitoring Scheme e.g. National Reptile Survey (part of the National Amphibian and Reptile Monitoring Programme).	Reptiles are present within the Order Limits.	Compliance with the Second Iteration EMP to prevent killing or injuring reptiles as far as practicable.	To be implemented by the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	A	Signature: Date:

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			areas of scrub and creation of the Farndon West wetland area will compensate for the loss of habitat suitable for reptiles at different life stages (within the Order Limits). Population size class surveys for reptiles will take place pre-construction to inform the quantity of- and suitable location/s to create-hibernacula, providing further opportunities for hibernation to compensate for the loss of shelter, resulting from vegetation clearance. In the absence of survey data, suitable locations for hibernacula shown on Figure 2.3 (Environmental Masterplan) of the ES Figures (TR010065/APP/6.2) are indicative only. Details of hibernacula will be provided in the Second Iteration EMP. Monitoring will be undertaken in year 1, 3 and year 5 during operation. Monitoring will comprise of only an assessment of habitat created for reptiles in year 1 and presence / likely absence surveys for reptiles as well as habitat assessment in year 3 and 5. Results will indicate whether new habitats have established successfully, whether reptiles have recolonised and will inform whether any remedial work is required.							
B15	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~ Figure 2.3	Compensatory requirements for local wildlife sites (LWS)	The planting plan details provision of habitats equivalent to those lost for which a LWS has been designated or which support protected species for which the site has been designated. The location of this	Yes – long term monitoring requirements (30 years post-construction) will be required to review the success and establishment	Areas of LWS identified as being in poor condition and habitats of low ecological value adjoining impacted LWS can be enhanced.	Successful implementation of the Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~.	To be implemented by the PC. Requirement 12 of Schedule 2 of the draft DCO [~~APP-021~~REP1-	PC during construction. The Applicant for post-construction monitoring.	C and O	Signature: Date:

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	(Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ Figure 8.4 (Compensation Planting for Loss of Local Wildlife Site Habitats) of the ES Figures ~~(TR010065/APP/6.2)~~[APP-084]		compensation habitat will be provided as close to the source of loss and within the Order Limits (detailed in Figure 8.4 (Compensation Planting for Loss of Local Wildlife Site Habitats) of the ES Figures [APP-084]~~(TR010065/APP/6.2)~~). The Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ details the species composition within compensation planted areas. Where possible, habitats within LWS in poor condition will be enhanced to compensate for increased nitrogen deposition during operation which cannot be mitigated. As planting along the A46 carriageway corridor establishes, it will act as more of a buffer over time to adjacent grassland (Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~).	of planting.			001]~~(TR010065/APP/3.1)~~.			
B16	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~ Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ Figure 8.4 (Compensation Planting for Loss of Local	Compensation for losses of habitats of principle importance (HPI)	Use of Cellweb matting in Great North Road Grassland LWS, where lowland meadow HPI will be subject to temporary long-term loss (during the construction period), to reduce soil compaction, ensuring suitable ground conditions endure to allow for successful recreation of lowland meadow from green hay cut post-construction. Green hay from surrounding retained lowland meadows will be used to create lowland meadow in fields adjacent to Great North Road Grassland LWS (Figure 2.3 (Environmental	Yes – long term monitoring requirements (30 years post-construction) will be required to review the success and establishment of planting	Following the mitigation hierarchy, creation of HPI has been achieved within the Order Limits. In addition, either plantation woodland at Doddington hall (outside the Order Limits) will be subject to enhancement to create lowland mixed deciduous woodland or a suitable alternative will be provided.	Successful implementation of Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~. Implementation of BNG Management and Monitoring Plan and Second Iteration EMP.	To be implemented by the PC. Legal agreement with the landowner. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC during construction. The Applicant for post-construction monitoring.	C and O	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	Wildlife Site Habitats) of the ES Figures [APP-084]~~(TR010065/APP/6.2)~~		Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~) and Figure 8.4 (Compensation Planting for Loss of Local Wildlife Site Habitats) of the ES Figures [APP-084]~~(TR010065/APP/6.2)~~. Coastal floodplain grazing marsh will be created in Farndon West borrow pits post construction to compensate for the loss of this HPI. Creation of lowland mixed deciduous woodland within the Order Limits to compensate for the loss of this HPI. In addition, either plantation woodland at Doddington Hall will be subject to enhancement to create lowland mixed deciduous woodland to compensate for the loss of lowland mixed deciduous woodland of a poorer condition or a suitable alternative would be provided. The details of this will be included in a LEMP.							
B17	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~ Appendix 7.4 (Arboricultural Impact Assessment) of the ES Appendices [APP-140 and AS-086 to AS-089]~~(TR010065/APP/6.3)~~	Protection of veteran trees during construction	Temporary barrier protection must be erected in accordance with BS 5837:2012 and positioned to enclose the section of their RPAs outside the construction footprint. The area within the protective barriers will be a Construction Exclusion Zone (CEZ) for the duration of the works. Temporary ground protection matting in the form of two layers of permeable Cellweb matting to sufficiently	Yes - To ensure the success of habitats replanted, mitigation planting areas will be maintained for a period of five years from completion of the Scheme.	Cellwebb matting to be used within the RPA of veteran trees	Compliance with the Second Iteration EMP.	To be implemented by the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:

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			distribute the load of heavy construction plant that cannot be excluded from the RPA of retained veteran trees T038, T136, and T139, mitigating compaction of the soil along this track and resulting in no change to water availability to the veteran tree's remaining RPA. Excavation works required for the drainage pipe installation within T038's RPA must be carried out with supervision from a competent arboriculturist and in accordance with the recommendations in BS 5837:2012 (7.2). Permanent ground protection will be required where the permanent maintenance track is within the RPA of T136 and T139. The ground protection specification for the maintenance track will be in accordance with the BS 5837:2012 specification and be suited to distribute vehicle loads using the maintenance track without causing compaction within the RPA. The southern side of T139's crown will require vertical pruning (<0.5 metres) to provide vertical clearance to facilitate plant access. The physiological condition of the veteran trees will be monitored by an Arboriculturist prior to the commencement of construction and following the installation of temporary protection measures. Excavation works within the							

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			RPA of trees T038, T136, and T139 must be carried out with supervision from a competent arboriculturist and in accordance with the recommendations in *BS 5837:2012* (7.2). The Scheme arboriculturist should provide supervision at three intervals during the development of the proposal when in proximity of veteran trees T038, T136, and T139. These intervals should be: • Prior to the commencement of construction operations and following the installation of temporary protection measures • During construction of the earthworks and adjacent haul road/maintenance track • On completion of the construction operations in this location.							
B18	Chapter 8 (Biodiversity) of the ES [APP-052] ~~(TR010065/APP/6.1)~~	Protection of veteran trees in operation	It is recommended that annual inspections are undertaken of veteran trees T038, T136 and T139 to monitor the physiological condition and effectiveness of the aforementioned mitigation. The need for management of the retained veteran tree crown (for clearance of maintenance vehicles) would be assessed during annual monitoring surveys of the veteran tree health (will be detailed in the Second Iteration EMP).	Yes – annual inspections needed.	The 3 veteran trees will be monitored annually during construction and in the aftercare period.	Compliance with the Second Iteration EMP.	To be implemented by the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001] ~~(TR010065/APP/3.1)~~.	PC	O	Signature: Date:
Geology and soils										
GS1	OSMP (Appendix B.1 of this First Iteration EMP)	The protection of soil structure and quality – to prevent	The SMP will be developed, implemented and based on the OSMP provided in Appendix B.3 of this First Iteration. This is to ensure	Yes – monitoring of reinstated soils will be required by an appropriately qualified soil	Assessment assumes measures within the SMP will be implemented.	Implementation of SMP (live document) which will form part of the Second Iteration EMP.	Contractual responsibilities between the Applicant and the PC	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	Chapter 9 (Geology and Soils) of the ES [APP-053]~~(TR010065/APP/6.1)~~	degradation of soils both within and outside the permanent and temporary development areas.	works are undertaken in accordance with appropriate guidelines including Defra's Construction Code of Practice for the Sustainable use of Soils on Construction Sites (2009)[8] and the British Standards Institution Specification for topsoil BS 3882 (2015)[9] particularly in areas where reinstatement of agricultural land is required. BS 3882:2015[9] will also apply for topsoil spreading on areas of newly constructed earthworks where import is required. Where importation of topsoil is required for spreading on areas of newly constructed earthworks, a soil certificate will be required in accordance with BS 3882:2015[9] to ensure that the topsoil provides suitable substrates for native plant species and to maximise biodiversity, in accordance with industry best practice. Management of excavated topsoil and subsoils would be in line with the guidance provided within the OSMP.	scientist (appointed by the PC) as outlined in the OSMP. In particular, soil should be monitored by the PC and reported on annually via auger bores or small trial pits at representative locations for a period of five years post-construction.			Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			
GS2	OMMP (Appendix B.2 of this First Iteration EMP) OSWMP (Appendix B.1 of this First Iteration EMP) Chapter 9 (Geology and	To maximise the re-use of suitable site-won geological resources while minimising waste generated for disposal off site, and	Where Made Ground (soil and stones (from construction and demolition sites) not containing hazardous substances) is proposed to be reused on-site, then up to 1000t may be placed under a U1 Exemption. If the amount of Made Ground proposed for reuse exceeds the exemption limit, a Materials Management Plan (MMP) or re-use of	No	A CL:AIRE Qualified Person (QP) declaration must be submitted and in place prior to the commencement of excavated material movement (refer to the Consents and Agreements Position Statement	Completion of MMP and SWMP (live documents) which will form part of the Second Iteration EMP. As part of the MMP process a verification report is required to be produced on completion of the earthworks and	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:

[8] Department for Environment, Food, and Rural Affairs (2009). Construction Code of Practice for the Sustainable use of Soils on Construction Sites.

[9] British Standards (2015) BS 3882:2015 Specification for topsoil.

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	Soils) of the ES [APP-053]~~(TR010065/APP/6.1)~~	minimising the need for importation of virgin materials. To comply with industry recognised code of practice for the re-use of excavated material on-site in construction.	waste environmental permit must be used. Completion of earthworks in line with the site MMP (refer to Appendix B.2 of this First Iteration EMP for the Outline MMP) and Site Waste Management Plan (SWMP) (refer to Appendix B.1 of this First Iteration EMP for the OSWMP), and compliance with the CL:AIRE document 'The Definition of Waste: Development Industry Code of Practice' (2011)[10].		[APP-023]~~(TR010065/APP/3.3)~~.	landscaping. A copy of all the waste carrier licences and waste management licences /environmental permits must be retained for inclusion in the verification report (refer to the Consents and Agreements Position Statement [APP-023]~~(TR010065/APP/3.3)~~.				
GS3	Chapter 9 (Geology and Soils) of the ES [APP-053]~~(TR010065/APP/6.1)~~	The protection of controlled waters: general.	Works to be carried out in accordance with Environmental Protection Act (EPA) 1990, Section 161A of the Water Resources Act 1991 and the Environmental Permitting (England and Wales) Regulations 2016. Reasonable and practicable steps to be taken to protect the water environment will be identified in the Pollution Prevention Plan as part of the Second Iteration EMP and include: • The careful management of construction site drainage, including the use of cut-of ditches to collect site run-off passed through settling lagoons or silt traps to allow removal of sediments prior to discharge. Where considered necessary, treatment plant will be made available on site for construction runoff water and groundwater from dewatering, including: ○ Settlement tanks	Yes – works will be monitored sitewide by the PC Environmental Manager to ensure the protection of controlled waters for the duration of the works.	Not applicable	Daily site audits carried out by the PC Environmental Manager.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:

[10] CL:AIRE Definition of Waste: Development Industry Code of Practice, March 2011

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			○ Chemical dosing plant ○ Concrete washwater plant ○ Oil-water separators ○ Materials separators • All immobile plant must stand on impervious drip trays to prevent spillage of fuel and oil. Fuels, oils and chemicals will be stored safely and be suitably bunded. Repairs and refueling of machinery will be carried out on impervious drip trays or within a designated construction site compound. • Management of excavated topsoils and subsoils will be in line with the guidance provided within the SMP, to minimise soil being entrained in runoff water. • Works will be monitored by the PC Environmental Manager. An auditing programme will be implemented to verify environmental performance. Surface water quality testing is recommended to be undertaken during and post works to compare against these baseline conditions to ensure no deterioration of surface water quality.							
GS4	Chapter 9 (Geology and Soils) of the ES [APP-053]~~(TR010065/APP/6.1)~~	The protection of controlled waters during excavation	Where piling or penetrative ground improvement is required, the works will be carried out in accordance with the Environment Agency	Yes – works will be monitored sitewide by the PC Environmental Manager to ensure the protection of	Not applicable	Consultation with the Environment Agency.	Contractual responsibilities between the Applicant and the PC.	PC	P and C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
		and foundation works.	guidance[11;12]. Nether Lock Viaduct new and Nether Lock railway bridge new structures require piled foundations. Piling Works Method Statement will be produced for the works. This method statement will be specific to the piling locations and will include an appropriate risk assessment ~~These are located adjacent to exploratory hole BH11, where soil contaminant exceedances were noted.~~ ~~It is recommended that a Piling Works Risk Assessment (including any method statement if necessary) is undertaken, if deemed necessary by the Detailed Design Environmental Consultant, after the detailed design has completed and prior to commencement of construction.~~ The location of the contamination hotspot at Nether Lock will be recorded and documented by the Detailed Design Consultant and shared to the PC. Before construction commences, the PC will install fencing and signage, clearly identifying and restricting access to the area. Should there be changes in the proposed works at the WS46 hotspot, Newark and Sherwood District Council will be informed and engaged in discussions.	controlled waters.			Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]**(~~TR010065/APP/3.1~~).**			

[11] Environment Agency (2001) Piling and penetrative ground improvement methods on land affected by contamination: guidance on pollution prevention. National Groundwater and Contaminated Land Centre Report NC/99/72 [online] available at: Piling and penetrative ground improvement methods on land affected by contamination: guidance on pollution prevention - The Construction Information Service (ihs.com) (last accessed November 2023).

[12] Environment Agency (2002) Piling into contaminated sites. National Groundwater and Contaminated Land Centre Report [online] available at: [ARCHIVED CONTENT] (nationalarchives.gov.uk) (last accessed November 2023).

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			The batching of concrete to only be undertaken in designated impermeable areas with a segregated drainage system, placement of temporary bunds down-slope to contain any spillages, and the development of a spill response protocol by the PC Environmental Manager. Excavations may require dewatering of run off waters, perched waters or groundwater. In particular, dewatering is likely in the identified FCAs. No waters are to be discharged directly into any watercourse. Discharge to surface waters may require Land Drainage Consent. The discharge of potentially contaminated groundwater will be managed by the PC through the use of appropriate treatment prior to discharge.							
GS5	Chapter 9 (Geology and Soils) of the ES [APP-053]~~(TR010065/APP/6.1)~~	The protection of site soil and groundwater quality with respect to plant and working methods.	Working method statements to be in place during construction, reflecting the guidance to be included within the Second Iteration EMP, to ensure environmentally safe working practices on site with respect to the underlying ground and groundwaters. These will include (but not limited to): • The storage of oil, fuel and other potentially hazardous substances will be within a secure site compound located on a hardstanding area. Storage of these substances will be within an appropriately bunded area (110% of total capacity volume), at	Yes – works will be monitored sitewide by the PC Environmental Manager to ensure the protection of controlled waters for the duration of the works.	Not applicable	Production of working method statements. Daily site audits, where practically possible.	Contractual responsibilities between the Applicant and the PC. Requirements 3 and 8 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P, and C.	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			minimum of 10m away from controlled waters and as far away from drain gullies as practically possible. • There will be designated refuelling and maintenance areas and concrete batching with drainage treated appropriately. Placement of temporary bunds down-slope of potentially polluting activities will contain any spillages. A spill response protocol will be developed. Any spillages are to be cleaned up immediately and the site manager notified. • Regular inspections of site plant will be carried out and the use of drip trays and training in the location and use of spill kits and emergency spillage procedures will be provided for site workers. Action Plans will be in place to effectively deal with any contamination issues during construction for example for spillages and leaks from construction plant. All refuelling operations shall be supervised and closely monitored to avoid overfilling and unnecessary spillages. • Adjacent areas outside Order Limits will be protected by site fencing to prevent accidental encroachment and damage of topsoil by site plant. • Piling Works Method Statement will be							

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			produced for the works. This method statement will be specific to the piling locations and will include an appropriate risk assessment.							
GS6	Chapter 9 (Geology and Soils) of the ES [APP-053]~~(TR010065/APP/6.1)~~	Management of contamination risks: reporting	A qualitative and quantitative Contaminated Land Risk Assessment (CLRA), has been prepared for the Scheme(Appendix 9.2 (Contaminated Land Risk Assessment) of the ES Appendices [APP-164 to APP-169]~~(TR010065/APP/6.3)~~ . The CLRA is to be shared with the PC prior to commencement of construction. The following recommendations from the CLRA should be implemented by the PC and are summarised below: • PC to develop and adhere to an unexpected contamination protocol as part of the construction works. • In the event that contaminated land, including groundwater, is found at any time when carrying out the authorised development, which was not previously identified in the Environmental Statement, requirement 8 of the draft DCO[~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~ should be referred to.	No	The CLRA assumes standard health and safety procedures are in place and best practices are followed during construction. It is understood that the area at BH11 will be hardstanding upon completion, should this change the conceptual site model (CSM) should be updated accordingly. It is assumed that the determined Design Sulphate and Aggressive Chemical Environment for Concrete (ACEC) classes for each stratum are used to inform the design of appropriate concrete foundations.	PC to review CLRA, and method statement, in consultation with Newark & Sherwood District Council and the Environment Agency. A verification report is required to be produced on completion of the earthworks and landscaping, in particular to confirm no excavation works have taken place at the location of the contamination hotspot, and to confirm the fate of contaminated material identified at the location of BH11 (Nether Lock viaduct).	Contractual responsibilities between the Applicant and the PC. Requirement 8 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C.	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			• If any asbestos is identified as part of the works, a specialised contractor should be contacted to advise on potential asbestos risk and remediation requirements. • The location of the contamination hotspot at Nether Lock will be recorded and documented by the detailed design consultant and shared to the PC. Before construction commences, the PC will install fencing and signage, clearly identifying and restricting access to the area. • Should there be changes in the proposed works at the WS46 hotspot, Newark and Sherwood District Council will be informed and engaged in discussions.							
GS7	Chapter 9 (Geology and Soils) of the ES [APP-053]~~(TR010065/APP/6.1)~~ Appendix 9.2 (Contaminated Land Risk Assessment) of the ES Appendices [APP-164 to APP-169]~~(TR010065~~	Management of contamination risks: workers	PC Environmental Manager to review Appendix 9.2 (Contaminated Land Risk Assessment) of the ES Appendices [APP-164 to APP-169]~~(TR010065/APP/6.3)~~ prior to construction commencing and produce risk assessments specific to the works in order to identify risks and appropriate mitigation measures in line with all the relevant health and safety legislation and guidance, to ensure the safety of workers.	Yes – works will be monitored sitewide by the PC Environmental Manager to ensure the protection of human health and controlled waters for the duration of the works.	Construction activities pose a risk to workers on site. Access to the construction works will be controlled and will be inaccessible to members of the public. If unexpected contamination is encountered during	Production of and adherence to risk assessments.	Contractual responsibilities between the Applicant and the PC. Requirement 8 of Schedule 2 of the draft DCO [APP-~~021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	~~(APP/6.3)~~		Contamination risks to construction workers will also be managed in accordance with DMRB GG 104[13] Requirements for safety risk assessment. Potential risk from ground gases to construction workers working in excavations and other confined spaces will be managed by the PC, in-accordance with The Confined Spaces Regulations 1997[14]. Furthermore, access to confined spaces and excavations would be restricted. Where work in confined spaces is unavoidable, site-specific and task-specific risk assessments would be undertaken.		construction, it is assumed that the risks will be managed by the PC, following their previously developed unexpected contamination protocol.					
GS8	Chapter 9 (Geology and Soils) of the ES [APP-053]~~(TR010065/APP/6.1)~~ Outline SMP Appendix B.3 of the First Iteration EMP	To maximise the re-use of excavated soils while maintaining their quality and integrity.	The re-use of soil resources – such as on-site to facilitate landscape planting or wetland establishment, or off-site – is a vital design consideration. The success of re-use relies on the appropriate utilisation of the tailored soil management measures included within the OSMP (Appendix B.3 of this First Iteration EMP), which is built on the results of the Agricultural Land Classification (ALC) surveys, while the Soil Nutrient Surveys (SNS) should be referred to in order to guide landscape plant design.	No	ALC surveys and SNS were undertaken within the Order Limits to inform on soil properties and quality.	Successful establishment of landscaped areas and wetlands.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	
GS9	Chapter 9 (Geology and Soils) of the ES	To reinstate agricultural land to its	Unless otherwise agreed with the landowner, where agricultural land is to be	No	ALC surveys were undertaken within the Order Limits to	Unless otherwise agreed with the landowner, returning	Contractual responsibilities between the	PC	C	

[13] Highways England, Design Manual for Roads and Bridges, GG104 Requirements for safety risk assessment (0338b395-7959-4e5b-9537-5d2bdd75f3b9 (standardsforhighways.co.uk) (last accessed November 2023)

[14] Confined Spaced Regulations 1997. Available at: The Confined Spaced Regulations 1997 (legislation.gov.uk) (last accessed November 2023).

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	[APP-053]~~(TR010065/APP/6.1)~~ Outline SMP Appendix B.3 of the First Iteration EMP	previous condition	returned to the landowner, it should be returned to its previous use as determined by the ALC survey and set out in the OSMP (Appendix B.3 of this First Iteration EMP.		inform on baseline soil properties and the production of an SMP as part of the Second Iteration EMP.	agricultural land to its previous use.	Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			
Material assets and waste										
M1	Chapter 10 (Material Assets and Waste) of the ES [APP-054]~~(TR010065/APP/6.1)~~ Outline MMP Appendix B.2 of this First Iteration EMP	Reduce the use of materials and ensure resource efficiency.	A Materials Management Plan (MMP) will be prepared based on the Outline MMP at Appendix B.2 of this First Iteration EMP and will accord with the CL:AIRE Definition of Waste: Code of Practice. Material requirements will be minimised during detailed design with consideration of the following principles when technically and economically feasible: • sequencing of the works in relation to reuse of material • designing to reuse as much site-won material as possible • where site won material is not available or suitable for reuse, secondary or recycled materials will be procured • precast elements would be used	No	The construction of the Scheme will require large quantities of material, but will look to use this as efficiently as possible A CL:AIRE Qualified Person (QP) declaration must be submitted and in place prior to the commencement of excavated material movement.	Implementation of measures set out in the MMP as part of the Second Iteration EMP.	Contractual responsibilities between the Applicant and the PC Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P	Signature: Date:
M2	Chapter 10 (Material Assets and Waste) of the ES [APP-054]~~(TR010065/APP/6.1)~~	Ensure efficient use of material assets for the Scheme, and minimising waste arisings.	Locally sourced materials and suppliers to be used where possible. Materials will be delivered on a just-in-time basis, and critical materials stored on site where appropriate.	No	Materials can be sourced locally and would be stored on site as appropriate.	Not applicable	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
M3	Chapter 10	Reduce	A Site Waste Management	Yes - the SWMP	The principles of	Implementation of	Contractual	PC	C	Signature:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	(Material Assets and Waste) of the ES [APP-054]~~(TR010065/APP/6.1)~~ OSWMP Appendix B.1 of this First Iteration EMP	generation of waste.	Plan (SWMP) will be prepared based on the OSWMP in Appendix B.1 of this First Iteration EMP. Works will accord with the SWMP to reduce waste arisings, by implementing the principles of the waste hierarchy and circular economy. The following measures will be implemented, where feasible throughout construction: • all suitable excavated material will be reused in landscaping features or flood compensation areas; and it will also be considered to create flood bund, when possible • green waste arisings from vegetation clearance would be chipped on-site and reused in the landscaping, or sent off-site for processing, likely to be composted • waste arisings from demolition works will be sorted and managed as high up in the waste hierarchy as possible; reuse on-site will be first option (i.e. by crushing, blending and subsequent reuse, as an aggregate), or sent to a recycling/recovery facility. • on-site facilities will be provided to separate out waste to enable the recovery of material through recycling • where waste must be taken to a recycling or disposal site, the PC would ensure that the site has the appropriate permits and that it is located as close to the works as possible	will be used by the PC Environmental Manager throughout construction to measure and monitor the types and quantities of waste reused on site and taken off-site for recovery or recycling, and for disposal.	the waste hierarchy and circular economy will be followed.	measures set out in the Second Iteration EMP and SWMP.	responsibilities between the Applicant and the PC Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			• temporary stockpiling of fill materials prior to incorporation in the Scheme would be avoided • material and waste audits will be undertaken by the PC • potential hazardous waste will be identified and separated from other waste streams to avoid contamination • surplus soils would be offered to Schemes in close proximity to the Scheme for reuse on land. Disposal to landfill will be considered the last preferred option							
M4	Chapter 10 (Material Assets and Waste) of the ES [APP-054]~~(TR010065/APP/6.1)~~	Providing enhancements where technically appropriate and economically feasible for material assets and waste	Additional measures that could also be considered in the Scheme, where technically appropriate and economically feasible, are listed below: • Low carbon materials would be prioritised. • Materials with recycled content would be considered to be used within the Scheme. Similarly, considerations would be undertaken for the reuse of materials or the use of materials with higher proportions of sustainable features.	No	These measures will be explored to further reduce waste and materials.	Not applicable	Contractual responsibilities between the Applicant and the PC.	PC	C	Signature: Date:
Noise and Vibration										
NV1	Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~	To ensure that the effects of noise are controlled, and that the measures for controlling noise are implemented	The PC will develop and implement a Noise and Vibration Management Plan (NVMP) based upon the REAC, which will detail the management and monitoring processes to be introduced across all construction sites and compounds. The Plan will adopt a range of	Yes – noise monitoring will be undertaken by the PC Environmental Manager for the activities in the action and commitment column.	Effects on sensitive receptors. The Noise and Vibration assessment assumes good practice mitigation and monitoring measures will be followed during the	If required, the PC will carry out noise monitoring surveys during the construction period. Monitoring requirements will be agreed with the applicable local authorities.	Contractual requirement between the local authority and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/A~~	PC	A	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
		accordingly.	industry standard good practice construction phase mitigation and monitoring measures, and general control measures, including but not limited to, the following: • Integration of noise control measures into the preparation of all method statements for the works. • Details and locations of all site hoardings, screens or bunds that would provide acoustic screening during construction. • Procedures for the installation of noise insulation (if deemed to be required) or provision of temporary re-housing (if deemed required) and to ensure such measures are in place as early as reasonably practicable. • Noise and vibration monitoring protocols including monitoring locations, stages during construction at which monitoring would be undertaken, and methods of publishing the results. • Details of inspection and maintenance schedules to be undertaken. Processes to ensure ongoing compliance with all controls and consent for the works. • Process for implementing corrective actions that may be required to		construction phase.		~~PP/3.1)~~.			

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			avoid or address a potential non-compliance. • Coordination with Local Authority to agree the use of Section 61 applications as needed.							
NV2	Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~	Limit noise emissions during construction.	Temporary acoustic barriers would be used to control noise during construction where there would otherwise be significant adverse effects. In each case these would need to break line of sight between the specific construction activity and the specified affected receptors, all of which are listed in "Assessment of likely significant effects" in Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~. The following list sets out the barrier locations and the phases of construction for which they would be required: • Construction activities visible from Sandhills Park during the pre-commencement works; • Construction activities visible from Alexander Avenue during pre-commencement works, earthworks and floodplain compensation, ground improvement works, and bridge structure works; • Construction activities adjacent to Windmill Viaduct during earthworks and floodplain	Yes – noise monitoring will be undertaken by the PC Environmental Manager for the activities as set out in the action and commitment column.	These measures will be implemented throughout construction. Where temporary acoustic barriers are proposed to mitigate noise from construction activities, earth bunds would be considered as alternative mitigation to provide equivalent acoustic screening for relevant activities e.g. during earthworks and borrow pit phases.	Implementation of the Noise and Vibration Management Plan forming part of the Second Iteration EMP will include specific details on the locations and specification of temporary mitigation measures needed during construction.	Contractual responsibilities between the Applicant and the PC. Requirements 3 and 16 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			compensation, ground improvement works, and bridge structure works; • Construction activities adjacent to Cattle Market Roundabout during pre-commencement works earthworks and floodplain compensation, drainage, and roadworks (barriers must also be adjacent to the tie in to the Great North Road (B6326) and receptors at Kelham Road); • Construction activities adjacent to Nether Lock Viaduct during earthworks and floodplain compensation, ground improvement works, and bridge structure works; • Construction activities adjacent to the proposed grade-separated junction at Brownhills during pre-commencement works, earthworks and floodplain compensation, drainage, and roadworks; • Construction activities adjacent to construction activities in Winthorpe during earthworks and floodplain compensation (barriers must be adjacent to the bund construction) and roadworks (barriers must be							

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			adjacent to the northern tie in to the existing A46); • Construction activities adjacent to borrow pit excavation during earthworks and floodplain compensation works; • Construction activities adjacent to site compounds during their operation; and • Construction activities adjacent to Kelham and Averham FCA construction.							
NV3	Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~	Limit noise emissions during construction.	During Pre-Commencement works: Control the on-time of, or acoustically treat, the excavator with breaker attachment and the hydro demolition equipment (a major contributor of noise during demolition). Control the quantity and/or on-time of the excavators and dozers (the main contributors of noise during parts of the Kelham and Averham FCA related works that occur during the pre-commencement phase) operating within 300 metres of affected receptors. If it is unfeasible to restrict the excavators and dozers in this way they must be fitted with efficient exhaust reduction equipment and manufacturers' enclosure panels must be kept closed. Control the quantity and/or on-time of the strimmers and chainsaws (the main contributors of noise during site clearance) operating within 300 metres of affected	Yes – noise monitoring will be undertaken by the PC Environmental Manager for the enabling works activities as set out in the action and commitment column.	These measures will be implemented throughout construction.	The Second Iteration EMP will include specific details on the locations and specification of temporary mitigation measures needed during construction.	Contractual responsibilities between the Applicant and the PC. Requirements 3 and 16 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			receptors.							
NV4	Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~	Limit noise emissions during construction.	Control the on-time (to fewer than 10 days or nights in any 15 consecutive days or nights and a total number of days or nights fewer than 40 in any 6 consecutive months) and/or the quantity of excavators and dozers (the main contributors of noise during this activity) operating within 300 metres of affected receptors during earthworks and floodplain compensation. Excavators and dozers must alternatively be fitted with efficient exhaust reduction equipment and manufacturers' enclosure panels must be kept closed if they are to operate within 300 metres of affected receptors during Earthworks and floodplain compensation.	Yes – noise monitoring will be undertaken by the PC Environmental Manager for the activities as set out in the action and commitment column.	These measures will be implemented throughout construction.	The Second Iteration EMP will include specific details on the locations and specification of temporary mitigation measures needed during construction.	Contractual responsibilities between the Applicant and the PC. Requirements 3 and 16 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
NV5	Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~	Limit noise emissions during construction.	If piling activities are elevated such that any temporary acoustic barriers would need to be unfeasibly tall to break line of sight then they would be fitted with appropriate measures to control noise generation at the source e.g. muffler or sound reduction equipment during Bridge structures.	Yes – noise monitoring will be undertaken by the PC Environmental Manager activities as set out in the action and commitment column.	These measures will be implemented throughout construction.	The Second Iteration EMP will include specific details on the locations and specification of temporary mitigation measures needed during construction.	Contractual responsibilities between the Applicant and the PC. Requirements 3 and 16 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
NV6	Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~	Limit noise emissions during construction.	Control the on-time (to fewer than 10 days or nights in any 15 consecutive days or nights and a total number of days or nights fewer than 40 in any 6 consecutive months) and / or the quantity of the mobile concrete pump, the concrete wagons, and the poker vibrator (the main contributors of noise during this activity) operating within 300m of affected receptors in the	Yes – noise monitoring will be undertaken by the PC Environmental Manager for the activities as set out in the action and commitment column.	These measures will be implemented throughout construction.	The Second Iteration EMP will include specific details on the locations and specification of temporary mitigation measures needed during construction.	Contractual responsibilities between the Applicant and the PC. Requirements 3 and 16 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			night-time bridge deck construction during Bridge structures.							
NV7	Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~	Limit vibration during construction.	Where vibration levels would exceed SOAEL the PC will: use alternative piling methods and/or plant if practicable; keep occupiers informed of the likely times and duration of works through letterbox drops; monitor the vibration level at the nearest receptors (or at an equivalent offset distance) to enable the vibration level at receptors to be determined; and carry out a condition survey at nearby structures where necessary to ensure works can progress without causing permanent damage, and to ensure any current damage to buildings is accounted for ahead of time.	Yes – vibration monitoring will be undertaken by the PC Environmental Manager to manage vibration levels during construction.	These measures will be implemented throughout construction.	The Second Iteration EMP will include specific details on the locations and specification of temporary mitigation measures needed during construction.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:
NV8	Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~	Manage noise and vibration levels during construction.	The use of best practicable means (BPM) would be applied for noise and vibration control at all times during construction. These should include the selection of the most appropriate method and plant for the job, adequate maintenance of plant, optimum siting of stationary plant, local screening and the education of the workforce. Restrictions may also be placed on early/late delivery times.	No	These measures will be implemented throughout construction.	The Second Iteration EMP will include specific details on mitigation relating to noise and vibration.	Contractual responsibilities between the Applicant and PC. Requirements 3 and 16 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
NV9	Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~ Section 2.5 of Chapter 2 (The Scheme) of the ES [APP-046]~~(TR010065~~	To contain road traffic noise and minimise operational effects on noise sensitive receptors.	Three landscape bunds at a height of 2.0-2.5m would be included north of the A46 section between the A1 and Winthorpe roundabout which will also provide noise screening. The locations of the bunds are illustrated on Figure 2.3 Environmental Masterplan of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~.	No	Will reduce noise at nearby sensitive receptors as assessed in Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~.	Successfully implemented in line with Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ and General Arrangement Plans [AS-007~~APP-008~~]~~(TR010065/APP/2.5)~~.	Contractual responsibilities between the Applicant and the PC. Requirement 16 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	~~/APP/6.1)~~ Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~									
NV10	Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~ Section 2.5 of Chapter 2 (The Scheme) of the ES [APP-046]~~(TR010065/APP/6.1)~~ Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~	To contain road traffic noise and minimise operational effects on noise sensitive receptors.	Six noise barriers at a height of 2m from the road surface (or from local ground, if not positioned along the A46) would be included along the Scheme: • Two located along the southbound entry slip from Cattle Market Roundabout extending part way down the west side of the Great North Road south of Cattle Market Roundabout; • One located at the southbound entry slip road at Brownhills Junction; • One along the northbound carriageway from the Brownhills Junction to the Esso Service Station; • Two located from the Esso Service Station to the Winthorpe Roundabout at the northern extreme of the Scheme, transitioning at the midpoint from barrier at the roadside to barrier on the crest of the adjacent bund. The locations of the noise barriers are illustrated on Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~.	No	Will reduce noise at nearby sensitive receptors as assessed in Chapter 11. (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~.	Successfully implemented in line with Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ and General Arrangement Plans [AS-007~~APP-008~~]~~(TR010065/APP/2.5)~~ and Manual Contract for Highways Works (MHCW) Volume 1 Specification for Highways Works Series 2500 which will be prepared prior to construction.	Contractual responsibilities between the Applicant and the PC. Requirement 16 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
NV11	Chapter 11 (Noise and	To contain road traffic	Standard height parapets with infill panels would be included	No	Will reduce noise at nearby sensitive	Successfully implemented in line	Contractual responsibilities	PC	C	Signature:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~ Section 2.5 of Chapter 2 (The Scheme) of the ES [APP-046]~~(TR010065/APP/6.1)~~ Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~	noise and minimise operational effects on noise sensitive receptors.	along the west side of the new viaduct and the east side of the existing viaduct (the parapet along the western side of the viaduct to extend further south towards Farndon Roundabout, transitioning in form in to a 2 metre barrier).		receptors as assessed in Chapter 11 (Noise and Vibration) of the ES [APP-055]~~(TR010065/APP/6.1)~~.	with Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ and General Arrangement Plans [AS-007~~APP-008~~]~~(TR010065/APP/2.5)~~ and MHCW Volume 1 Specification for Highways Works Series 2500 which will be prepared prior to construction.	between the applicant and the PC. Requirement 16 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			Date:
NV12	Section 2.5 of Chapter 2 (The Scheme) of the ES [APP-046]~~(TR010065/APP/6.1)~~ General Arrangement Plans [AS-007~~APP-008~~]~~(TR010065/APP/2.5)~~	To contain road traffic noise and minimise operational effects on noise sensitive receptors.	Low noise surfacing will be provided along the new dual carriageway, where existing pavements are retained along the existing A46 then these will be re-surfaced with low noise surfacing where this has not been undertaken already.	No	Will reduce noise at nearby sensitive receptors as assessed in Chapter 11. (Noise and Vibration) of the ES [APP-055].~~(TR010064/APP/6.1).~~	Successfully implemented in line with the Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ and General Arrangement Plans [AS-007~~APP-008~~]~~(TR010065/APP/2.5)~~.	Contractual responsibilities between the Applicant and the PC. Requirement 16 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
NV13	Chapter 11 (Noise and Vibration) of the ES [APP-055]	Limit noise emissions during construction.	Control the extent of usage of any particular public and non-public diversion route used to transfer plant and material to site at night (to fewer than 10 nights in any 15 consecutive nights and a total number of nights fewer than 40 in any 6 consecutive months).	Yes – noise monitoring will be undertaken by the PC Environmental Manager for the activities as set out in the action and commitment column.	These measures will be implemented throughout construction.	The Second Iteration EMP will include specific details on the locations and specification of temporary mitigation measures needed during construction.	Contractual responsibilities between the Applicant and the PC. Requirements 3 and 16 of Schedule 2 of the draft DCO [REP1-001].	PC	C	Signature: Date:
Population and human health										
PHH1	Chapter 12 (Population and Human Health) of the ES [APP-	To ensure there is a safe environment for those	As detailed in Table 1-6 of Appendix 12.2 (Population and Human Health Supplementary Information) of the ES Appendices	No	Local traffic and Walker Cyclist Horse Rider (WCH) require access to the	Implementation of measures outlined in the Outline Traffic Management Plan (TMP) [APP-	Contractual responsibilities between the Applicant and the PC.	PC	P and C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	056]~~(TR010065/APP/6.1)~~ Outline Traffic Management Plan [APP-196]~~(TR010065/APP/7.7)~~	travelling along the route, and for those delivering the construction works. Also, to ensure access to and reduce disruption to residential properties, businesses and community assets.	~~(TR010065/APP/6.3~~ [APP-175]~~)~~, a Traffic Management Plan (TMP) would be implemented during the construction phase of the Scheme, to ensure that access is maintained to private property, businesses, community land and facilities and WCH routes as well as access to green and designated open spaces and disruption is minimised as far as possible.		network Local community require daily access to properties and assets. Community likely to be affected by construction activities.	196]~~(TR010065/APP/7.7)~~.	Requirement 11 of Schedule 2 of the draft DCO [APP-~~021~~REP1-001]~~(TR010065/APP/3.1)~~.			
PHH2	Chapter 12 (Population and Human Health) of the ES [APP-056]~~(TR010065/APP/6.1)~~	To ensure that construction information is disseminated to landowners, parish councils, local interest groups and the general public.	Engagement with local people and businesses (including bus companies) about how construction may impact them will take place prior to, and throughout, the construction period. As part of this, regular engagement should be undertaken with the Newark Showground and other recreational activities to ensure construction activities are planned around key events.	No	Local community likely to be affected by the construction activities.	Preparation and Implementation of a Construction Communications Management Plan which will form a part of the Second Iteration EMP.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [APP-~~021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P	Signature: Date:
PHH3	Chapter 12 (Population and Human Health) of the ES [APP-056]~~(TR010065/APP/6.1)~~ Streets, Rights of Way and Access Plans [~~APP-007~~AS-006].~~(TR010065/APP/2.4)~~ Chapter 2 (The	To minimise impacts on WCH as a result of the Scheme	As detailed in Table 1-6 of Appendix 12.2 (Population and Human Health Supplementary Information) of the ES Appendices [APP-175]~~(TR010065/APP/6.3)~~, all temporary diversions for WCH around the work site to be clearly signed, with alternative access arrangements maintained throughout the construction period, as required. WCH routes are to only be closed once diversions are in place or the new arrangement has been	No	Local communities and WCH likely to be affected by the construction activities.	WCH routes are signed and alternative access is arranged where necessary. WCH facilities installed at locations as defined within the Streets, Right of and Access Plans [~~APP-007~~AS-006]~~(TR010065/APP/2.4)~~.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [APP-~~021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	Scheme) of the ES [APP-046]~~(TR010065/APP/6.1)~~		established. New or diverted WCH routes have been embedded into the Scheme design in operation.							
PHH4	Chapter 12 (Population and Human Health) of the ES [APP-056]~~(TR010065/APP/6.1)~~	To capture and maximise socio-economic benefits of the Scheme locally and understand the overall economic benefits of the Scheme for local communities within Newark & Sherwood District	To enhance socio-economic benefits captured within the local area, the following monitoring will be undertaken throughout the construction period by: • Monitoring the number of employees from the local (Newark & Sherwood District) area • Monitoring what apprenticeship and training opportunities have been provided where people of Newark & Sherwood District have benefited • Recording the monetary value of contracts which have been entered into with local (Newark &Sherwood District) companies	Yes – monitoring of socio-economic benefits would be undertaken throughout construction.	This monitoring will be undertaken.	Ongoing regular monitoring to record numbers of employees, apprenticeships and training opportunities throughout construction and recording of monetary value of contracts, all for Newark &Sherwood Districts.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
PHH5	Equality Impact Assessment [APP-195] ~~(TR010065/APP/7.6)~~	Identify targets and strategies to implement to increase the diversity of the workforce for the Scheme and to ensure that local people benefit from jobs created for Scheme.	An Education, Employment and Skills Plan and an Inclusion Action Plan will be prepared as part of the Second Iteration EMP to increase the diversity of the workforce for the Scheme and to ensure that local people benefit from jobs created for Scheme.	No	These plans will be prepared.	The Second Iteration EMP will include the preparation and Implementation of an Education, Employment and Skills Plan and an Inclusion Action Plan.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
Road drainage and the water environment										
RDWE1	Chapter 13	To mitigate	Construction activities must	Yes – surface	The assessment	Daily site audits.	Contractual	PC	P and C	Signature:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	(Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~	potential adverse effects upon surface waters and groundwater during the construction phase	be managed in accordance with CIRIA Guidelines. Guidance on best practice in relation to pollution prevention and water management is set out in the following documents: • CIRIA's *Environmental good practice on site*[15] • CIRIA's *Control of water pollution from linear construction projects; Technical Guidance*[16] • Environment Agency's Protect *groundwater and prevent groundwater pollution*[17] An Erosion and Sediment Management Plan and De-watering Management Plan is to be prepared as part of the Second Iteration EMP in accordance with the above guidance.	water, and groundwater monitoring will be undertaken during construction as outlined within Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~.	assumes CIRIA and Environment Agency guidelines will be followed.	The Second Iteration EMP will include the preparation of the Pollution Prevention Plan and Erosion, ~~and~~ Sediment Management Plan and De-watering Management Plan.	responsibilities between the Applicant and the PC. Requirements 3 and 13 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			Date:
RDWE2	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	A Pollution Prevention Plan will be prepared to mitigate impacts to watercourses and groundwater. This plan will include pollution prevention measures (such as vehicle wash down prior to leaving works area and appropriate covers on vehicles) and emergency spill procedures. The Pollution Prevention Plan will be prepared in accordance with CIRIA Guidelines.	Yes – surface water, and groundwater monitoring will be undertaken during construction as outlined within Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~.	The assessment assumes a Pollution Prevention Plan will be implemented.	Preparation of Pollution Prevention Plan as part of the Second Iteration EMP.	Contractual responsibilities between the Applicant and the PC. Requirements 3 and 13 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:
RDWE3	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-	To mitigate potential adverse effects upon surface waters during the	An Erosion and Sediment Management Plan will be prepared to mitigate impacts to watercourses and groundwater. This plan will include measures such as silt curtains to mitigate sediment	Yes – surface water, and groundwater monitoring will be undertaken during construction as outlined within	The assessment assumed an Erosion and Sediment Management Plan will be implemented.	Preparation of Erosion and Sediment Management Plan as part of the Second Iteration EMP.	Contractual responsibilities between the Applicant and the PC. Requirements 3	PC	P and C	Signature: Date:

[15] Audus, Charles and Evans (2010) *Environmental Good Practice on Site* (Third Edition) (C692).
[16] Murnane, Heap and Swain (2006) *Control of water pollution from linear construction projects; Technical Guidance*
[17] Environment Agency (2017) *Protect groundwater and prevent groundwater pollution* [online] available at: Protect groundwater and prevent groundwater pollution - GOV.UK (www.gov.uk) (last accessed November 2023).

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	057]~~(TR010065/APP/6.1)~~	construction phase	disturbance and smothering of gravel during construction.	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~.			and 13 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			
RDWE4	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	Where possible, construction activities associated with watercourses (realignment and outfalls) will avoid being carried out during periods of flooding. An Emergency Response Plan for Flood Events will be prepared and included within the Second Iteration EMP.	No	Construction activities associated with watercourses (outfalls, realignments) to be avoided during periods of flooding / high rainfall.	None	Contractual responsibilities between the Applicant and the PC. Requirement 13 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
RDWE5	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	Site drainage, including for site compounds and material storage areas, will be designed to connect existing road/mains drainage network and would not directly discharge into environment. The construction drainage network will incorporate measures (for example interceptors) to prevent the discharge of hydrocarbons to surface or groundwater systems, as outlined within Appendix 13.4 (Drainage Strategy) of the ES Appendices [APP-179]~~(TR010065/APP/6.3)~~.	Yes - surface water, and groundwater monitoring will be undertaken during construction as outlined within the Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~.	Construction site drainage to connect to existing road / mains drainage network.	Second Iteration EMP will provide detailed measures on how site drainage will work, and ensure no pollution to surrounding environment.	Contractual responsibilities between the Applicant and the PC. Requirements 3 and 13 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
RDWE6	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	Specific measures to be implemented to limit the impact of construction activities on the water environment include: • All construction workers to be briefed on the importance of maintaining water quality, the location of surface water features, and the location and use of spill kits as part of the site induction.	No	The measures here will be implemented in full.	Preparation of the Pollution Prevention Plan which would form a -part of the Second iteration EMP. Quarterly surface and ground water monitoring and associated reporting.	Contractual responsibilities between the Applicant and the PC. Requirement 3 and 13 of Schedule 2 of the draft DCO **(TR010054/APP/3.1).**	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			• In areas where there is increased risk of hydrocarbon / chemical spillage and around hazardous substance stores, additional precautions to be taken. These include bunding, impermeable bases, suitable drainage systems, and siting away from any open drainage channels. • Any stockpiled materials to be stored away from watercourses, and within enclosed areas to enable the runoff to be stored and treated where required. • It is advised that materials (including stockpiles) are located a minimum of 8 metres away from a watercourse to avoid unnecessary pollution run-off into the watercourses. • Any concrete works to be carefully controlled and where required, any concrete tankers will be washed out in controlled areas. • All plant and machinery to be maintained in a good condition and any maintenance required will be undertaken within safe areas. • Pollution prevention and spill response procedures (in the form of an Incident Control Plan) to be developed by the contractor and a spill kit and clean up equipment maintained on site. • Establishment of dedicated plant and wheel washing areas a minimum							

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			of 8m from any watercourse or surface water drain. • Manually operated penstocks to be provided immediately prior to all outfalls leading to a watercourse and upstream of attenuation pond flow control devices. • Methodology for correct storage and disposal of wastewater and pollutants to be detailed in the Pollution Prevention Plan. • Collection of run-off water in sumps, as well as recycle and reuse of water where possible							
RDWE7	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~ in Appendix 13.5 (Surface Water Quality Monitoring Report) of the ES Appendices [APP-180]~~(TR010065/APP/6.3)~~	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase.~~To mitigate potential adverse effects upon surface waters and groundwater during the construction phase~~	Surface water monitoring Surface water monitoring to be carried out before, during, and after construction to ensure no adverse impact on water quality. Pre-construction monitoring to continue on a quarterly basis. Updates to be made to Appendix 13.5 (Surface Water Quality Monitoring Report) of the ES Appendices [APP-180] prior to construction to provide for monthly monitoring to be undertaken for the duration of the construction period, and for quarterly monitoring post-construction to be undertaken for the duration of one year. ~~Surface water monitoring to be carried out before, during, and after construction to ensure no adverse impact on water quality. The surface water quality monitoring criteria is outlined in Appendix 13.5 (Surface Water Quality Monitoring Report) of the ES~~	Yes – surface water monitoring is required before, during and after construction. Surface water monitoring to be carried out monthly during construction and then quarterly for the duration of one year post-construction. Yes - Groundwater monitoring is required pre-commencement of construction for at least 12 months. Ground water monitoring to be carried out monthly during construction and then quarterly for the duration of one year, post-construction.~~Yes – surface water monitoring is required before,~~	The measures here will be implemented in full.	Surface and groundwater monitoring and associated reporting. Data collected pre-construction, during construction and post-construction to be sent to the Environment Agency on a quarterly or monthly basis (depending on the period over which monitoring is being undertaken at that stage of the project). Data collected to be sent to the following contacts at the Environment Agency:	Contractual responsibilities between the Applicant and the PC. Requirement 13 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P, C and O~~C~~	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			~~Appendices (TR010065/APP/6.3). Groundwater monitoring will be carried out preconstruction for at least 12 months. The frequency and duration of construction and post construction groundwater monitoring will be agreed with the Environment Agency in advance of construction.~~ Groundwater monitoring Groundwater monitoring will be carried out pre-construction for at least 12 months. Groundwater monitoring to take place monthly during construction. Groundwater monitoring to be undertaken quarterly post-construction for the duration of one year.	~~during, and after construction. Groundwater monitoring is required preconstruction for at least 12 months. Groundwater monitoring will continue during construction, and post-construction. Upon completion of baseline groundwater monitoring, the frequency of monitoring may change, following consultation with the Environment Agency.~~		• Surface water monitoring results to be sent directly to the Environment Agency's East Midlands Area Land & Water Team: [redacted] and copied to the National Infrastructure Team: [redacted] Groundwater monitoring results to be sent directly to the Environment Agency's East Midlands Area Groundwater and Contaminated Land Team: [redacted] and copied to the National Infrastructure Team: [redacted]~~Surface and groundwater monitoring and associated reporting.~~				
RDWE8	Chapter 13 (Road Drainage and the Water Environment) of the ES	To prevent spread of INNS and contamination of surface waters	An INNS Management Plan and Biosecurity Risk Assessment will be prepared prior to construction commencing, as outlined in row B10.	Yes – monitoring requirements will be set out in the INNS Management Plan and managed by the PC	Assessment assumes INNS will be prepared and measures included in this are implemented.	Preparation of INNS as part of the Second Iteration EMP to be submitted to and consulted on with Nottinghamshire	Contractual responsibilities between the Applicant and the PC.	PC	P and C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	[APP-057]~~(TR010065/APP/6.1)~~	during construction		Environmental Manager.		County Council and Newark & Sherwood District Council prior to the commencement of development.	Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			
RDWE9	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~	To mitigate potential adverse effects on private groundwater supplies during the construction phase.	A "no derogation" agreement will be made with the owner/operator of any private groundwater supply impacted by dewatering, including those at Hall Farm (where there are 3 boreholes). This legal agreement will ensure that measures would be taken to maintain a supply throughout the period in which the groundwater source was affected.	No	Legal agreement is reached for private groundwater suppliers.	A "no derogation" legal agreement will be made with the owner/operator of any private groundwater supply impacted by dewatering, including those at Hall Farm (where there are 3 boreholes).	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:
RDWE10	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~ Appendix 13.2 (Flood Risk Assessment) of the ES Appendices [APP-177]~~(TR010065/APP/6.3)~~	To compensate for the loss of floodplain storage as a result of the Scheme	FCAs will be provided to compensate for the loss of floodplain storage, as outlined in the Appendix 13.2 (Flood Risk Assessment) of the ES Appendices [APP-177]~~(TR010065/APP/6.3)~~. Prior to commencing any above ground works (including above ground pre-commencement works) there must be sufficient replacement floodplain storage in place to compensate for those works. The FCAs will require maintenance for the lifetime of the Scheme however at this stage maintenance details are not known. These details will be defined at the next stage of design.	No	FCAs will be designed and implemented to accord with the Appendix 13.2 (Flood Risk Assessment) of the ES Appendices [APP-177]~~(TR010065/APP/6.3)~~.	Implementation of design assessed as part of Appendix 13.2 (Flood Risk Assessment) of the ES Appendices [APP-177]~~(TR010065/APP/6.3)~~.	Contractual responsibilities between the Applicant and the PC. Requirement 14 of the draft Development Consent Order [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	A	Signature: Date:
RDWE11	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065~~	To mitigate potential adverse effects of contaminated surface run-off during	A maintenance schedule and methodology (once the Scheme is operational) as set out by the Sustainable Drainage Systems (SuDs) manual should be followed, is outlined within the Appendix 13.4 (Drainage Strategy) of	No	Implementation of the Appendix 13.4 (Drainage Strategy) of the ES Appendices [APP-179]~~(TR010065/APP/6.3)~~ as assessed at the	Appendix 13.4 (Drainage Strategy) of the ES Appendices [APP-179]~~(TR010065/APP/6.3)~~.	Preparation of Pollution Prevention Plan which would form a part of the Second iteration EMP.	The Applicant	O	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	~~/APP/6.1)~~ Appendix 13.4 (Drainage Strategy) of the ES Appendices [APP-179]~~(TR010065/APP/6.3)~~	operation	the ES Appendices [APP-179]~~(TR010065/APP/6.3)~~. This is to maintain the integrity of the drainage system and reduce the risk of polluted run-off.		time of writing.		Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			
RDWE12	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~ Chapter 9 (Geology and Soils) of the ES [APP-053]~~(TR010065/APP/6.1)~~	To mitigate potential adverse effects upon groundwater during the construction phase	As per commitment GS4 of this REAC, piling will be required during construction; As detailed in Chapter 9 (Geology and Soils) of the ES [APP-053]~~(TR010065/APP/6.1)~~, Piling Works Risk Assessments will be undertaken, if deemed necessary, prior to construction of the Scheme. In addition, method statements detailing piling operations will cover the potential to cause pollution to the underlying aquifer and potential mobilisation of contaminated soil.	No	Risk assessments and method statements to be completed in advance of any piling to reduce risk of contamination to underlying groundwaters.	Completion of risk assessments and method statements before piling.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:
RDWE13	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~	To mitigate potential adverse effects upon surface water and groundwater during the construction phase	Necessary consents for the water environment (Flood Risk Activity Permit (FRAP), land drainage consents, and groundwater abstraction and water discharge) to be sought from the relevant authorities (Environment Agency and/or local authorities), where disapplication has not been granted, prior to construction. As detailed in the Scheme Consents and Agreement Position Statement [APP-023]~~(TR010065/APP/3.3)~~.	Yes – surface water monitoring and groundwater monitoring will be undertaken during construction as outlined within the Chapter 13, (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~.	Works within 8m of a main river will require a FRAP. Works within or across an ordinary watercourse will require a land drainage consent. Works which involve groundwater abstraction and water discharge will require consultation with the Environment Agency.	Permits to be sought.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:
RDWE 14	Chapter 13 (Road Drainage and the Water Environment)	To mitigate potential adverse effects upon fluvial	Stockpiles will be located on higher ground (i.e. outside Flood Zone 3) where practicable.	No	It is assumed that stockpiles are required for time-limited periods during	Permits to be sought (see RDWE13 of this REAC).	Contractual responsibilities between the Applicant and the PC.	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	of the ES [APP-057]~~(TR010065/APP/6.1)~~	flooding during the construction phase	The following applies to stockpiles located within Flood Zone 2/3: • Each stockpile will not exceed 40m in length. • There will be a minimum gap of 25m between adjacent stockpiles, except where both adjacent stockpiles are shorter, in which case the gap must be at least as long as the longest adjacent stockpile. Some stockpile lengths and associated gaps may only be 10m. • Gaps in the stockpiles will be located to preserve existing low points and flow paths. • Stockpiles should not exceed 10m above the existing ground level, and be less than 20m wide at the toe. Stockpiles to be seeded if they are to be retained for more than 2 months to encourage stabilisation of topsoil.		construction, and that all stockpiles will be removed before the end of construction.		Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			
RDWE 15	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~	To mitigate potential adverse effects upon surface water and fluvial flooding during the construction phase	Construction compounds will be located on higher ground (i.e. outside Flood Zone 3) where practicable. The following applies to construction compounds located within Flood Zone 2/3: • Any runoff from the compounds will be to the vegetated ground in line with SuDS principles. SuDS measures may include attenuation storage; infiltration	No	It is assumed that stockpiles are required for time-limited periods during construction, and that all stockpiles will be removed before the end of construction.	Permits to be sought (see RDWE13 of this REAC).	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			trenches/soakaways. Where settlement or filtering is not practicable or effective, alternative disposal options would be considered for example, discharge onto a grassed/vegetated area (with consent from the landowner and following Environment Agency consultation). • At sites with bunds or other forms of visual / acoustic barriers, ensure appropriate gaps in the screening (or culverts through earth bunds where these are used). • Offices and other site facilities will be raised above the modelled 1 in 30 (3.3%) annual probability event level where modelled data are available. Where not available this would be estimated from the best available information. Facilities could be elevated on stilts.In some cases, site facilities are to be mobile and/or located on the higher areas of the compound so that stilts are not required. • Minimal storage of potential pollutants e.g. fuel, hazardous substances.							
RDWE16	Chapter 13 (Road Drainage and the Water	To mitigate for loss of riparian vegetation.	As shown on Figure 2.3 (Environmental Masterplan) of the ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~,	Yes –Successfully implement Figure 2.3 (Environmental Masterplan) of the	None	Successfully implement Figure 2.3 (Environmental Masterplan) of the ES	Contractual responsibilities between the Applicant and the	PC	C	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	Environment) of the ES [APP-057]~~(TR010065/APP/6.1)~~		riparian vegetation will be reinstated along watercourses following completion of construction activities along those watercourses (i.e culvert extensions, watercourse realignments, and viaducts).	ES Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ design in line with LEMP.		Figures [~~APP-065~~AS-026]~~(TR010065/APP/6.2)~~ design in line with LEMP.	PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~**.**			
RDWE 17	Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]	To mitigate potential adverse effects of de-watering on waterbodies during construction.	A De-watering Management Plan will be prepared to outline the procedures and measures necessary to remove and manage water. Its purpose will include ensuring safe and dry working conditions, protecting the integrity of structures, minimising environmental impact, managing groundwater levels, preventing soil erosion, and complying with regulatory requirements. The plan will detail the methods for de-watering, monitoring protocols, emergency response strategies, and responsibilities of personnel involved in the process.	Yes monitoring of water levels, flow rate, water quality, soil stability, structural, environmental impact, and compliance with regulatory requirements, consents and permits.	None. Commitment included upon request of regulatory authorities.	Preparation of De-watering Management Plan as part of the Second Iteration EMP. Monitoring and associated reporting is also required.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]	PC	P and C	Signature: Date:
Climate										
C1	Chapter 14 (Climate) of the ES [APP-058]~~(TR010065/APP/6.1)~~	To seek to reduce greenhouse gas (GHG) emissions as far as practicable during construction	A construction Carbon Management Plan will be completed in conjunction with the Second Iteration Environmental Management Plan and will include the following topics: • Procurement. • Materials and resource management on site. • Change process for low / zero carbon solutions. • Low / zero carbon plant and management. • Construction techniques and competency. • Training matrix.	No	Implementation of the Carbon Management Plan.	Production of a construction Carbon Management Plan as part of the Second Iteration EMP.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~**.**	PC	P and C	Signature: Date:
C2	Chapter 14	To seek to	During detailed design and	No	These	Production of a	Contractual	Detailed Design	All	Signature:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
	(Climate) of the ES [APP-058] ~~(TR010065/APP/6.1)~~	reduce GHG emissions as far as practicable during construction and operation	construction, opportunities to further reduce emissions will be sought. These will follow on from the opportunities identified and captured within the Carbon Opportunities Log to date. Any progress or further opportunities will be captured within the Carbon Opportunities Log. Opportunities identified during the design and construction of the Scheme for operation will be captured within the Carbon Opportunities Log which will be updated by the PC and handed over to the maintenance provider to pursue as part of the Third Iteration EMP.		opportunities will be explored and further opportunities identified.	construction Carbon Management Plan as part of the Second Iteration EMP	responsibilities between the Applicant, the Detailed Design Consultant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	Consultant and PC		Date:
C3	Chapter 14 (Climate) of the ES [APP-058] ~~(TR010065/APP/6.1)~~	Operational adaptive management for climate resilience	The operational Scheme is required to manage, maintain and monitor asset data to ensure the Scheme is operating as intended. Adaptive management will be employed during the operational period where it is necessary to adapt the asset management in response to climate impacts. Where appropriate additional interventions will be determined and implemented. During detailed design a detailed monitoring plan will be determined in line with the requirements for the Scheme and the planned operational procedures noted in Section 14.10 of Chapter 14 (Climate) of the ES [APP-058] ~~(TR010065/APP/6.1)~~ which will feed into the Third Iteration EMP.	Yes – monitoring of asset data and preparation of detailed monitoring plan.	Monitoring of operation of Scheme.	Continued operational maintenance and monitoring as defined during detailed design.	Contractual responsibilities between the Applicant and the PC. A detailed monitoring plan will be determined and feed into the Third Iteration EMP. Requirement 4 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	The Applicant	O	Signature: Date:
C4	Chapter 14 (Climate) of the ES [APP-058] ~~(TR010065/APP/6.1)~~	As-built carbon assessment	Through detailed design and post construction carbon assessments will continue to both drive further reductions and provide the Applicant with	Yes – monitoring of construction data by a carbon specialist.	Monitoring of activities on site to understand actual GHG emissions.	Completion of as built carbon assessment post construction.	Contractual responsibilities between the Applicant and the PC.	PC	All	Signature: Date:

Reference	Document reference	Objective	Action or commitment	Monitoring required?	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			the post construction data. This shall include as stated in DMRB LA114, 4.1 "Quarterly GHG emission returns required on projects during the construction and operation stages shall be reported in accordance with the Overseeing Organisation's requirements."				Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.			
C5	Chapter 14 (Climate) of the ES [APP-058] ~~(TR010065/APP/6.1)~~	Construction to be resilient to weather	Contingency plans to be put in place for extreme weather through construction, including for storms, high winds and flooding. In addition, provision of health safety and welfare plans for employees to reduce impacts from weather.	No	Plans will be put in place.	Completion of relevant plans for construction.	Contractual responsibilities between the Applicant and the PC. Requirement 3 of Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~.	PC	P and C	Signature: Date:

4 Consents and permissions

4.1 Consents and agreements position statement

4.1.1 The Consents and Agreements Position Statement [APP-023]~~(TR010065/APP/3.3)~~ for the Scheme sets out the Applicant's intended strategy for obtaining consents and agreements (including any licences, permits and other approvals) needed to implement the Second Iteration EMP and the Scheme. It identifies at a high-level what consents are expected to be needed for the Scheme together with how those consents will be obtained.

4.2 Consents and permissions

4.2.1 As detailed in the Consents and Agreement Position Statement [APP-023]~~(TR010065/APP/3.3)~~, the principal consent for the Scheme will be the DCO. The DCO process provides development consent for the works and enables land acquisition, along with many consents and powers to be dealt with at the same time. It is likely that there will be a number of requirements in Schedule 2 of the draft DCO [~~APP-021~~REP1-001]~~(TR010065/APP/3.1)~~ that would need discharging in consultation with other bodies as required, and approved off by the Secretary of State for Transport in the prescribed durations outlined in the draft DCO.

4.2.2 There are various additional consents and permissions that may need to be sought separately from the DCO which are outlined in the Consents and Agreement Position Statement [APP-023]~~(TR010065/APP/3.3)~~.

4.2.3 Other consents and agreements not associated with DMRB environmental disciplines will be needed including:

- a "no derogation" agreement with the owner/operator of any private groundwater supply impacted by dewatering. This legal agreement would ensure that measures, such as a tankered supply, would be taken to maintain a supply throughout the period in which the groundwater source was affected.
- Crown consent for the acquisition of land identified as Crown Land (further details are available on the Crown Land Plans [AS-017~~APP-019~~]~~(TR010065/APP/2.11)~~, the Book of Reference [REP1-005~~APP-027~~]~~(TR010065/APP/4.3)~~ and the Statement of Reasons [APP-025]~~(TR010065/APP/4.1)~~ (set out under Section 135 of the Planning Act 2008).

5 Environmental asset data and as built drawings

5.1 National Highways Environmental Information System

5.1.1 The National Highways Environmental Information System (EnvIS) consists of specific environmental data supplied by service providers, National Highways and other bodies which is collated and displayed in the Highways Agency Geographic Information System (HAGIS)[18]. 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 National Highways.

5.1.2 The aim of EnvIS is to assist National Highways 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 National Highways 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 National Highways Asset data management manual states that ‘Environmental data will be collected and amended over time in a

[18] National Highways (2021) Asset data management manual [online] available at: admmv13_part_2_requirements_and_additional_information_final.pdf (nationalhighways.co.uk) (last accessed November 2023)

cycle of continual improvement as an integral part of the Company's licence obligation to maintain high quality and readily accessible information about the assets we hold, operate and manage'' and that the two key milestones for delivery of environmental data are as part of the First Iteration EMP and Third Iteration EMP.

5.2.2 For the First Iteration EMP it's identified that for major projects such as this Scheme that new environmental data particularly for protected species, habitats and cultural heritage assets should be submitted through the EnVIS process, if any previously unknown assets are identified during surveys.

5.2.3 Then as part of the Third Iteration EMP, a final as built environmental inventory should be submitted and the Third Iteration EMP cannot be signed off by the Applicant (until this has been submitted and validated by them).

5.3 Completion of species surveys

5.3.1 A variety of ecology surveys have been undertaken to inform the ES [APP-145 to APP-160]~~(TR010065/APP/6.1)~~ and any potential future licencing requirements as detailed in Chapter 8 (Biodiversity) of the ES [APP-052]~~(TR010065/APP/6.1)~~. Survey data has been collected for the following protected species and habitats. Survey data is captured in the ES Appendices [APP-145 to APP-160]~~(TR010065/APP/6.3)~~.

- Phase 1 survey to identify habitats within the study area (Appendix 8.1 (Extended Phase 1 Technical Report) of the ES Appendices)
- National Vegetation Classification (Appendix 8.2 (National Vegetation Classification Technical Report) of the ES Appendices) to inform the biodiversity assessment reported in the ES and the Biodiversity Net Gain assessment (Appendix 8.14 Biodiversity Net Gain Technical Report) of the ES Appendices)
- Badger (Appendix 8.15 Confidential Badger Technical Report) of the ES Appendices
- Bat surveys for all trees, buildings, structures and suitable habitats within the study area (Appendix 8.3 (Bat Technical Report) of the ES Appendices)
- Barn owl (Appendix 8.4 (Confidential Barn Owl Technical Report) of the ES Appendices)
- Breeding birds (Appendix 8.5 (Breeding Bird Technical Report) of the ES Appendices)
- Wintering birds (Appendix 8.6 (Wintering Bird Technical Report) of the ES Appendices)
- Great crested newt (Appendix 8.7 (Great Crested Newt Technical Report) of the ES Appendices)
- Aquatic habitats (riverine waterbodies, ponds and linear ditches), aquatic invertebrates and fish species (Appendix 8.8 (Aquatic

Technical Report) of the ES Appendices (for ponds) and Appendix 8.13 (River Physical Habitat Technical Report) of the ES Appendices (for rivers))

- Terrestrial invertebrates (Appendix 8.9 (Invertebrate (Terrestrial) Technical Report) of the ES Appendices)
- Otter (Appendix 8.10 (Confidential Otter Technical Report) of the ES Appendices)
- Reptiles (Appendix 8.11 (Reptile Technical Report) of the ES Appendices)
- Water vole (Appendix 8.12 (Water Vole Technical Report) of the ES Appendices)

5.3.2 Invasive species were also identified during some of the above surveys e.g. aquatic surveys, and have been reported in the associated appendix.

6 Details of maintenance and EMP monitoring activities

6.1 Introduction

6.1.1 This section lists systems of recording and inspections that will be required so as to maintain an audit trail of the environmental obligations, detailed in Table 3-2, of this First Iteration EMP. This will be managed through the Quality and Safety Management Systems (QMS) and the Environmental Management System (EMS) of the PC, meeting the ISO14001 standards.

6.1.2 The system will include methods for monitoring, recording and implementing environmental management on site, and for responding to any noted areas of non-compliance. This will ensure that a high standard of environmental control is maintained for the Scheme through the corrective action system managed by the PC.

6.2 Environmental records inspections

6.2.1 The PC's Scheme Quality Administrator will ensure there is a central filing system in place for any checklists, reports and monitoring consistent with the Project QMS and EMS. Records of compliance with the requirements of the Second Iteration EMP, derived from audits and other inspections, will be held at the PC's site office. These will be available for inspection by representatives of any internal or external audit team and the Environment Agency in their statutory role.

6.3 Daily inspection check list

6.3.1 The PC as site owner will ensure environmental mitigation and staff responsibilities are made clear to Site Managers, sub contracted staff and Site Supervisors. This will be managed through site inductions and specialist training as required. The PC shall make key staff aware of their responsibilities for undertaking daily routine checks of the site and equipment. It will be essential that the PC has processes and protocols in place for environmental aspects to be checked. The PC will insert their standard inspection forms and checklists that are associated with their internal EMS into the Second Iteration EMP Appendices for information.

6.3.2 On completion of inspection and daily checks these will be logged and corrective actions implemented by the delegated Site Manager in discussion with the PC. The log will be reviewed as part of the Applicant's reviewing and audit role.

6.4 Procedures to monitor compliance

6.4.1 An overall Scheme Record will be required as part of the Second Iteration EMP for formal and auditable records associated with implementation of the EMP.

Administration

6.4.2 The PC will be responsible for maintaining site based environmental records including coordination of environmental site checks / inspection records, monitoring (sampling, recording and subsequent actions), consents, permits, and waste transfer notes. The Appendices of the Second Iteration EMP will be live. The environmental records are to be scanned and filed electronically or filed in a hard copy of the live Second Iteration EMP (subject to the PC internal filing systems). In the case of overlap with Health, Safety, Environment and Quality (HSEQ) files, these will be cross referenced within the updated Second Iteration EMP back to HSEQ files held by the PC for any formal auditors to track and monitor compliance. This will be most likely in the case of handling and disposal of hazardous or contaminated waste and any chemicals and specialist materials subject to Control of Substances Hazardous to Health (COSHH) regulations.

Quality Management - Environmental Audit

6.4.3 As part of Quality, Environmental and Safety management systems it will be necessary for an audit to record environmental compliance. The 'Applicants Project Manager will instigate regular audits to report on compliance with the contract specification, environmental best practice and site-specific method statements. This will include the review of the monitoring, recording and reporting procedures being maintained by the PC throughout the Scheme.

6.4.4 For completeness, an auditor can only review and take account of the environmental information available at the time of the audit. The outcome of an audit is to identify environmental progress of the Scheme and to issue a formal record in the form of an audit report. Any issues will be raised and dealt with at the time or a Corrective Action Request will be made for actions to be undertaken within a reasonable and timely manner.

Environmental Management Systems

6.4.5 EMS requirements will need to be maintained by contractors associated with the Scheme for the duration of their respective contracts. Contractors are required to be accredited or seeking to be

accredited under ISO14001 as this indicates an understanding and implementation of an EMS for recording, monitoring and managing a Scheme.

6.4.6 The level of environmental management will be monitored to assess compliance with the Contract and environmental standards through inspections, and audits. Subject to the contract arrangements, the responsibility for maintaining correspondence and day to day records will rest with the individual organisations and their internal systems. This includes original copies of correspondence and record copies of issued documentation together with records of subsequent changes. Copies are to be kept on site and circulated to appropriate personnel for action or information only.

Control Documents

6.4.7 All the PC Risk Assessments, Method Statements and COSHH forms must consider environmental impacts and sensitivities in addition to health and safety concerns.

6.4.8 This section will be updated prior to construction by the PC to additionally include:

- Full details of monitoring and reviewing compliance with the Second Iteration EMP, for example daily / weekly / monthly inspections and audit reports.
- Assessment criteria to identify success.
- Procedures for rectification of breaching or failings of the Second Iteration EMP measures.

6.5 Maintenance and monitoring activities

Landscape and ecology

6.5.1 As highlighted in REAC Ref L5 and Appendix B in the First Iteration EMP, a LEMP will be produced as part of the Second Iteration EMP which will outline management requirements for landscape and ecology aspects for the Scheme. The LEMP will also specify monitoring requirements for landscape and ecology during the aftercare period to ensure the successful establishment of essential mitigation.

6.5.2 Alongside this, a BNG Management and Monitoring Plan detailing how BNG will be achieved, and how habitat creation will be maintained and monitored for 30 years post construction. Monitoring recommendations will be set out for years 1, 5 and 15 post construction.

Road drainage and the water environment

6.5.3 The FCAs will be maintained for the lifetime of the Scheme, with discussions being undertaken with the Environment Agency and landowners to define and agree these aspects. The Third Iteration EMP will provide final maintenance details for the FCAs. The Second Iteration EMP will provide details on how the FCAs will be maintained, as known at that time.

6.5.4 A maintenance schedule and methodology will also be followed as outlined within the Appendix 13.4 (Drainage Strategy) of the ES Appendices [APP-179]~~(TR010065/APP/6.3)~~ to maintain the integrity of the drainage system and reduce the risk of polluted run-off.'

7 Induction, training and briefing procedures for staff

7.1 Introduction

7.1.1 Table 7-1 identifies an indicative programme of training on environmental issues relevant to the Scheme that have been identified for delivery prior to and during the construction stage. On commencement of site mobilisation, the PC will be the site owner and responsible for site inductions and training of all personnel on the site, whether visitors, full time staff or subcontractors

7.1.2 All individuals working on or visiting the Scheme site will be required to attend the PC's site-specific induction. Those participating in or near to specific activities that have an environmental impact will be required to attend additional training or toolbox talks (TBTs), led by the PC or specialists, on the likes of ecology, pollution control, waste management and emergency procedures for minor and major incidents.

7.1.3 The list below is not exhaustive and the PC or PC Environmental Manager onsite must highlight requirements for additional training, as the project progresses, to improve and add value to the overall site environmental awareness and compliance. Additional training or induction issues would be identified from the regular site environmental check reports, or site feedback on any noted non-compliance. It is a requirement for the site to maintain the standard of environmental management and minimise risks that could negatively impact on the environment.

Table 7-1: Indicative programme of training for staff on environmental issues relevant to the Scheme

Topic	Personnel	Delivery	Delivery Format
Competent resources (staff)	All	By lead staff resource or employer if sub-contractor prior to commencement of activities.	Supply of specific certificates, for example Construction Skills Certification Scheme (CSCS) Scheme Cards, training confirmation.
Reporting of environmental observations and suggestions.	All	Site induction	Presentation and environmental reporting cards to be supplied. Posters with site reporting and environment contact numbers.
Communications to public.	All	Site induction	Follow Considerate Constructors Scheme principles (CCS) or a Communication Plan, if required.
Spill kit use.	All	Site induction	Toolbox talks and Deployment Training Session.

Topic	Personnel	Delivery	Delivery Format
Refuelling / mechanical repairs and maintenance (off and on site)	All	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).
Tree root protection areas (RPAs)	All staff	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).
Waste from Welfare units and offices – Sewage	All staff	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).
Chemical handling and storage	Stores manager and any persons with access or contact	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).
Ecological sensitivities	All	Site induction. Prior to works close to sensitive areas.	Toolbox talks where relevant and daily site briefings.
Presenting nuisance (noise, vibration, dust and odours)	Any specialist installations (for example breaking out concrete, existing pavement) machine drivers and banks-men.	Site induction. Prior to works close to sensitive areas.	Toolbox talks where relevant and daily site briefings.

7.2 Environmental competencies

7.2.1 The PC shall ensure all personnel conducting environmental tasks are suitably qualified or experienced for the roles and responsibilities that they are employed to undertake.

7.2.2 The PC will monitor and record that all staff have attended the relevant environmental induction or training as listed above (including updated or new training) prior to undertaking any activities on site.

7.3 Training and site induction

7.3.1 All site personnel and visitors are to receive Site Safety induction and Environmental Awareness training from the PC before commencing

activities on site. The list below is not exclusive but environmental training at Induction will at least include the following:

- Company/Project Environmental Policy.
- Site environment.
- Fuel containment.
- Earthworks and Excavations (Risks of exposing contamination).
- Pollution protocol and measures for example use of spill kits.
- Defined Materials Storage area (excavated and imported).
- Defined waste areas - Domestic and construction materials.
- Wheel wash – road sweeping.
- Dust and emissions control.
- Noise control.
- Vibration control.
- Site traffic protocols and routes in the form of a Traffic Management Plan - haul routes, staff travel to site plan.
- Warning signs.
- Site Inspection and monitoring forms.
- Material procurement.
- Toolbox talks where relevant to specific works.
- Communication Systems on site – dealing with the public, incident and near miss reporting inclusive of environment.
- Site organisation, key personnel responsibilities and contact details;
- Emergency Response Plan(s) for addressing Safety and Environmental issues.
- Contamination risk management.
- Update and maintain site specific toolbox talks or advisory sheets relevant to the Scheme.

7.4 Toolbox talks and induction supporting materials

7.4.1 Toolbox talks will be posted within common use areas such as welfare units and office reception areas. Key environmental issues linked to the programme will be targeted on the daily notice board as an aide memoir to all staff on site for example seasonal environmental constraints such as bird nesting seasons.

8 Glossary

Term / abbreviation	Definition
Development Consent Order (DCO)	A DCO is the means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects (NSIP). This includes energy, transport, water and waste projects.
Contaminated Land Risk Assessment	The management and remediation of contaminated land that, in its current state, is causing or has the potential to cause significant harm or significant pollution of the water environment, is regulated by legislation contained within the Environmental Protection Act (1990) known as Part IIA.
Dust	The word 'dust' usually refers to particulate matter in the size range 1-75 microns in diameter. Dust can be mechanically transported either by wind or re-suspension by vehicles. It can also arise from wind erosion on material stock piles and earth moving activities.
Environment Agency	The Environment Agency is responsible for environmental protection and regulation in England and plays a central role in implementing the government's environmental strategy. The Environment Agency is the main body responsible for managing the regulation of major industry and waste, treatment of contaminated land, water quality and resources, fisheries, inland river, estuary and harbour navigations, and conservation and ecology. They are also responsible for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea.
PC Environmental Manager	An environmental professional responsible for implementing the actions and commitments detailed in the EMP
Flood Risk Assessment (FRA)	An assessment of the likelihood of flooding in a particular area so that development needs and mitigation measures can be carefully considered.
Ground Investigation	Geotechnical investigations are performed by geotechnical engineers or engineering geologists to obtain information on the physical properties of soil and rock around a site.
Historic England	The public body that looks after England's historic environment. Championing historic places and helping people understand their value and care for them.
ISO 14001 Environmental Management Systems (EMS)	An ISO 14001 environmental management system (or commonly referred to as an EMS) is a structured system designed to help organisations manage their environmental impacts and improve environmental performance caused by their products, services and activities.
Listed Building	A building which is considered by the Secretary of State (for Culture, Media and Sport) to be of special architectural or historic interest in accordance with the regime set out in the Town and Country Planning (Listed Buildings and Conservation Areas) Act 1990.
Local Records Centre (LRC)	Local Records Centre's are organisations that bring together local information on wildlife and to supply this to local users

Local Wildlife Site (LWS)	Non-statutory sites that are given protection under the planning process.
Materials Management Plan (MMP)	The Materials Management Plan (MMP) identifies materials to be generated and clarifies how they will be reused. The Materials Management Plan must be approved by an independent Qualified Person (registered with CL:AIRE).
Mitigation	Measures intended to avoid, reduce and, where possible, remedy significant adverse environmental effects.
Natural England	Natural England are responsible for: Helping land managers and farmers protect wildlife and landscapes. Advising on the protection of the marine environment in inshore waters (0 to 12 nautical miles). Improving public access to the coastline. Managing 140 National Nature Reserves and supporting National Trails. Providing planning advice and wildlife licences through the planning system. Managing programmes that help restore or recreate wildlife habitats. Conserving and enhancing the landscape. Providing evidence to help make decisions affecting the natural environment.
Operation	The functioning of a project on completion of construction.
Order limits	The land needed to carry out the proposed development.
Receptor	A defined individual environmental feature that has the potential to be affected by a project.
Special Area of Conservation	A Special Area of Conservation (SAC) is defined in the European Union's Habitats Directive (92/43/EEC), also known as the Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora.
Scheduled Monument	A scheduled monument is a historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Culture, Media and Sport under the regime set out in the Ancient Monuments and Archaeological Areas Act 1979.
Second Iteration Environmental Management Plan	A Second Iteration EMP includes the specific measures that will be taken to control and manage the environmental impacts whilst the project is under construction that may otherwise occur for each of the environmental topics, such as noise, air quality, water resources and ecology. In addition, a description of the planned works and the general site arrangements should be included in the Second Iteration EMP. The Principal Contractor will be responsible for ensuring the measures specified within the Second Iteration EMP are implemented.
Site Waste Management Plan (SWMP)	SWMPs encourage the effective management of materials and ensure waste is considered at all stages of a project - from design through to completion. Although no longer a regulatory requirement in England, SWMPs are still considered to be good practice.
Soils Management Plan (SMP)	An SMP is an important part of ensuring soil sustainability during construction projects.
Third Iteration Environmental Management Plan	A management plan that contains essential environmental information needed by the body responsible for the future maintenance and operation of the asset.

Traffic Accident Hotspot (TAB)	Locations where road traffic collisions have historically been concentrated.
Written Scheme of Investigation (WSI)	A WSI outlines known and potential archaeological features and deposits or built heritage elements on a site and suggests a structure for exploring them using the latest, most appropriate and cost-effective archaeological techniques.

9 References

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[6] [Clarification note].

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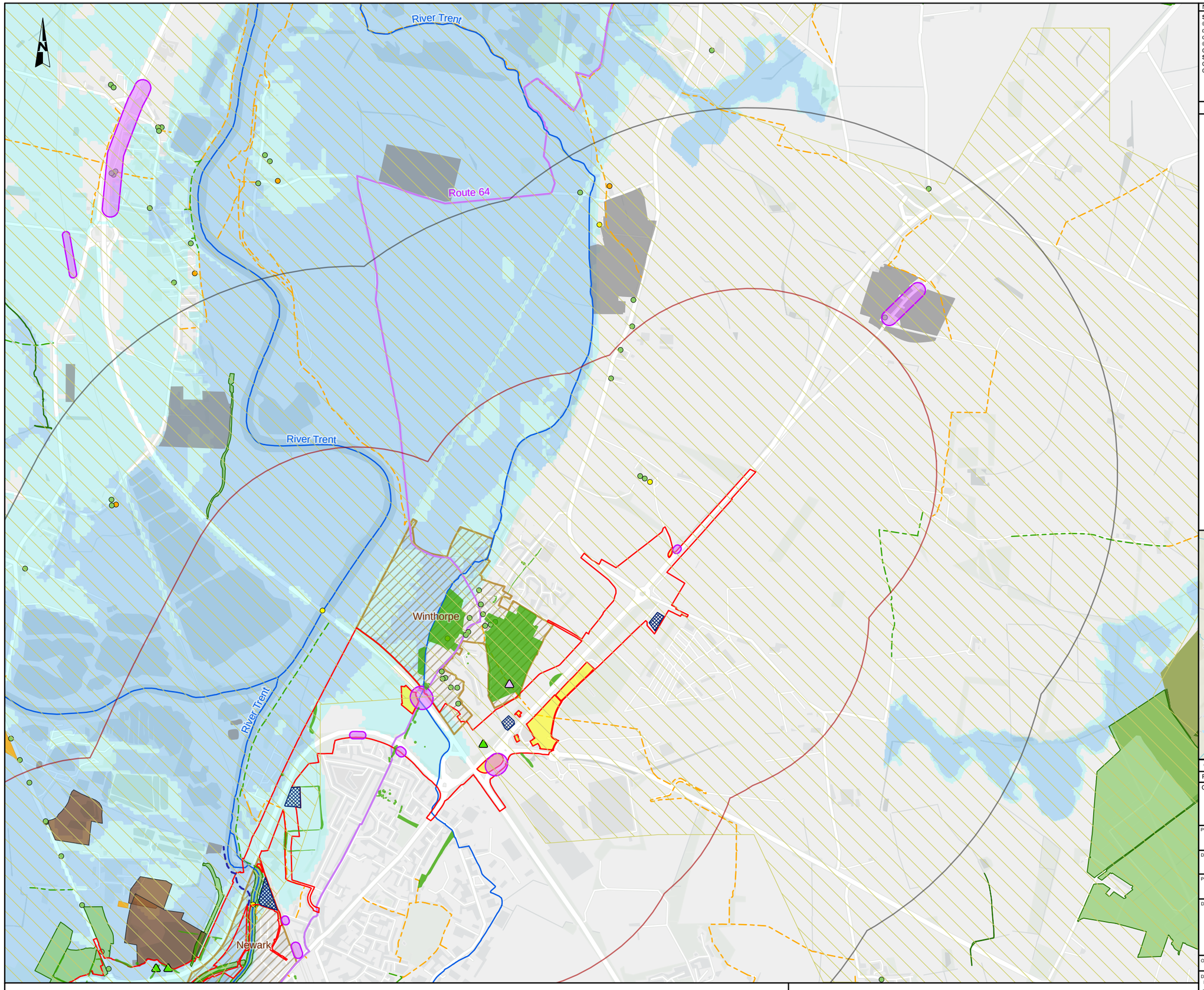
Appendix A: Environmental constraints plan



NOTES

Source

Service Layer Credits

KEY TO SYMBOLS

- Order Limits
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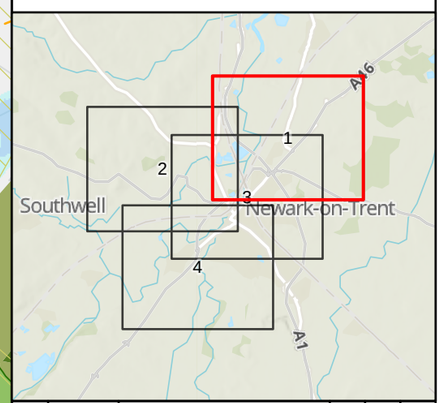
- Land not included within the Order Limits
- Order Limits 1km buffer
- Order Limits 2km buffer
- Grade I Listed Building
- Grade II* Listed Building
- Grade II Listed Building
- Ancient and semi-natural woodland
- Ancient replanted woodland
- Scheduled Monument
- Conservation Area
- Flood Zone 2
- Flood Zone 3
- Main River
- Tree Preservation Order
- Veteran Tree
- Notable Tree
- Noise Important Area
- Historic Landfill Site
- Authorised Landfill Site
- Local Wildlife Site
- Mineral Safeguarding Area- Alluvial Sand and Gravel
- National Cycle Network
- Permissive path
- Public Right of Way- Footpath
- Public Right of Way - Bridleway



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CLIENT: national highways

PURPOSE OF ISSUE: DCO EXAMINATION

DEVELOPMENT CONSENT ORDER NUMBER: TR010065

PROJECT TITLE: A46 NEWARK BYPASS

DRAWING TITLE: Figure 2.2 Environmental Constraints Plan Sheet: 1 of 4

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PROJECT REF NO.: HE551478

REVISION: C02

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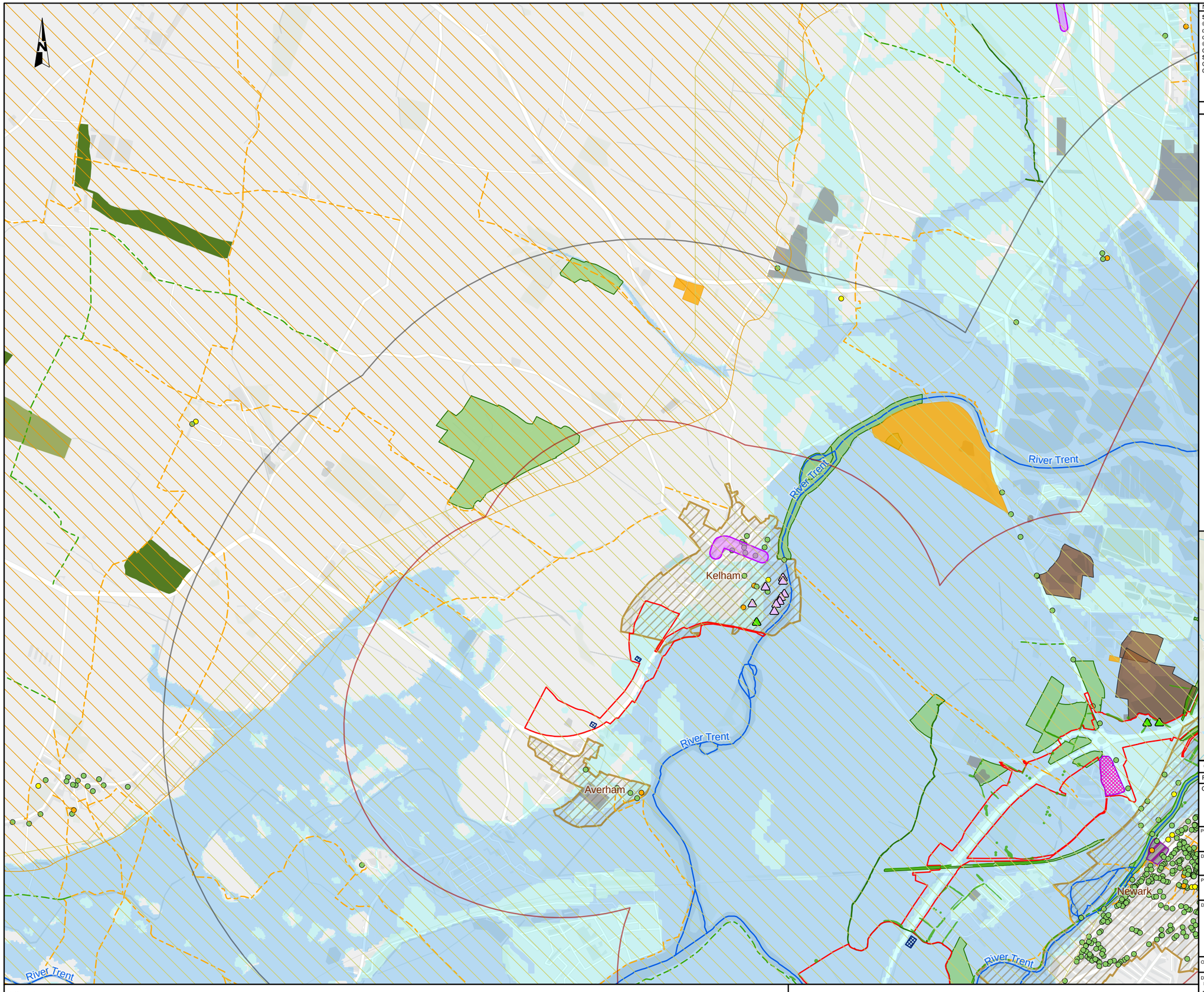

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KEY TO SYMBOLS

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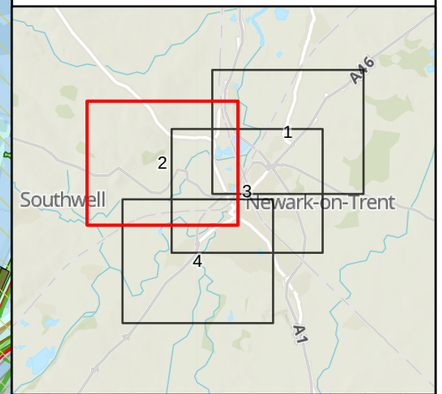

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national highways

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DEVELOPMENT CONSENT ORDER NUMBER
TR010065

PROJECT TITLE
A46 NEWARK BYPASS

DRAWING TITLE
Figure 2.2
Environmental Constraints Plan
Sheet: 2 of 4

ORIGINAL SIZE A3
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REVISION C02

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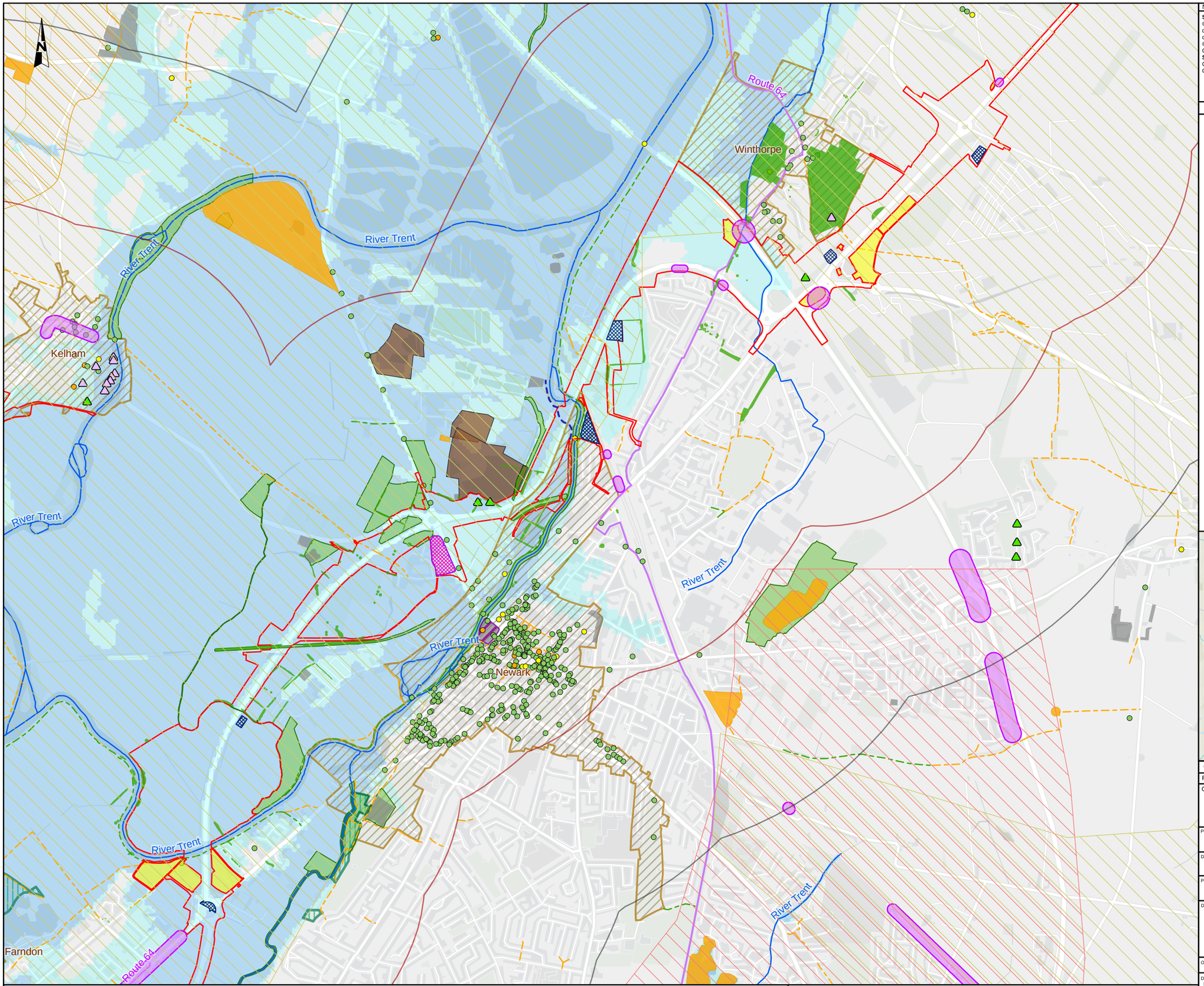

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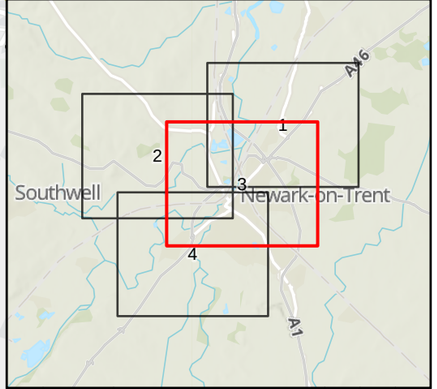

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DEVELOPMENT CONSENT ORDER NUMBER: TR010065

PROJECT TITLE: A46 NEWARK BYPASS

DRAWING TITLE
Figure 2.2
Environmental Constraints Plan
Sheet: 3 of 4

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SCALE: 1:20,000

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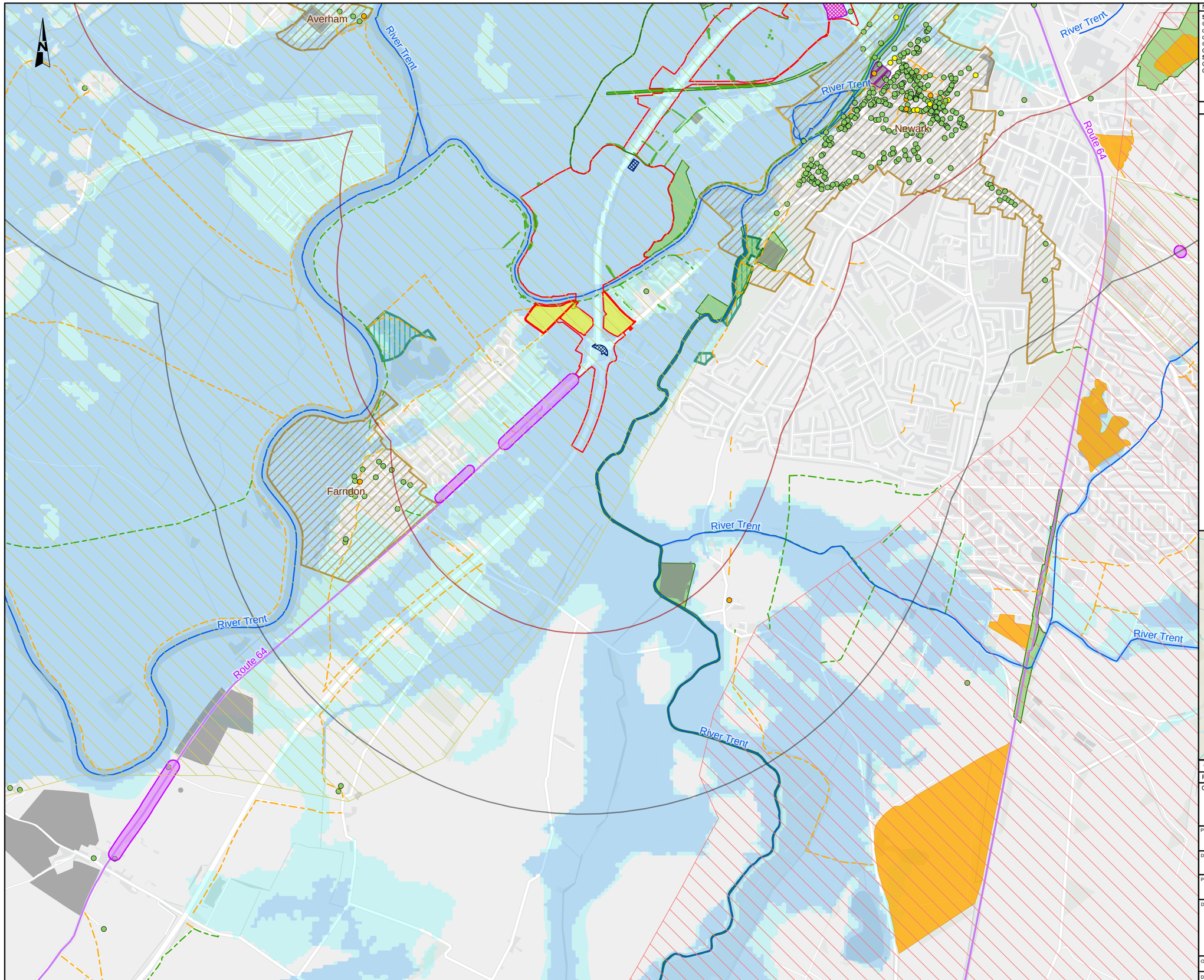

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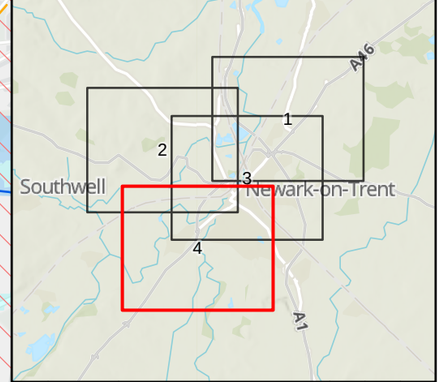

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PURPOSE OF ISSUE
DCO EXAMINATION

DEVELOPMENT CONSENT ORDER NUMBER
TR010065

PROJECT TITLE
A46 NEWARK BYPASS

DRAWING TITLE
Figure 2.2
Environmental Constraints Plan
Sheet: 4 of 4

ORIGINAL SIZE A3 | SCALE 1:20,000

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PROJECT REF NO. HE551478
REVISION C02

0 500 1,000 Metres

Appendix B: Relevant management plans

Table 1-1 of this document outlines the different management plans to be prepared at which stage.

Outline management plans have been included in this First Iteration EMP in Appendices B.1 to B.3. These will be developed into full management plans as part of the Second Iteration EMP.

- Appendix B.1 – Outline Site Waste Management Plan (OSWMP)
- Appendix B.2 – Outline Materials Management Plan (OMMP)
- Appendix B.3 – Outline Soils Management Plan (OSMP)

The following management plans will also need preparing at a minimum, as part of the Second Iteration EMP in addition to the above plans:

- Air Quality and Dust Management Plan
- Noise and Vibration Management Plan
- Energy and Resource Use Management Plan
- Biodiversity Net Gain Management Plan
- Invasive Non-Native Species (INNS) Management Plan and Biosecurity Risk Assessment
- Landscape and Ecology Management Plan
- Construction Communications Management Plan
- Pollution Prevention Plan
- Erosion and Sediment Management Plan
- De-watering Management Plan
- Carbon Management Plan
- Education, Employment and Skills Plan
- Inclusion Action Plan
- Emergency Response Plan for Flood Events
- Construction Worker Travel and Accommodation Plan

A detailed Carbon Monitoring Plan will also need preparing as part of the Third Iteration EMP.

Appendix B.1 – Outline Site Waste Management Plan (OSWMP)

Contents

1. Introduction to the Outline Site Waste Management Plan

1.1 Purpose of the document

1.1.1 This Outline Site Waste Management Plan (OSWMP) has been prepared to support the Development Consent Order (DCO) application for the Scheme.

1.1.2 This OSWMP identifies the strategic approach for the management of waste generated during the construction phase of the Scheme. As defined in the draft DCO Schedule 2 Requirement 3 **(TR010065/APP/3.1)**, the OSWMP will be developed into a full SWMP as part of the Second Iteration Environmental Management Plan (EMP). This OWSMP has been produced using information available at the time of writing. It will be a live document as it features aspects for the Principal Contractor (PC) of the Scheme to complete as further information is obtained, including any potential changes at detailed design. Specific details that require update and/or clarification are shown in **red and bold** (unless stated that it is to be completed by the PC).

1.1.3 This OSWMP complies with the Nottinghamshire and Nottingham County Council Waste Core Strategy (2013)[1], policy WCS2 Waste awareness, prevention and reuse. This OSWMP has been developed to ensure measures will be in place to minimise the generation of waste, to maximise the use of recycled materials, and to assist with the separation, sorting, recycling and recovery of waste from the Scheme.

1.1.4 The receptors likely to be subject to impacts as a result of waste generation and management are landfills and other waste management infrastructure. The potential assessment with the generation and management of waste on these receptors include:

- Utilisation and depletion of the remaining local landfill capacity, and
- Occupation of available waste management infrastructure capacity.

1.1.5 Mitigation measures will be put in place to adequately deal with waste that may be generated during construction, including hazardous waste such as heavily contaminated soils, where applicable.

1.1.6 The OSWMP aims to ensure that construction waste is managed, stored, and disposed of in an appropriate manner by approved contractors in accordance with the waste hierarchy and all relevant legislation. English and Welsh law was updated on 1 October 2020 to include changes to the Waste Framework Directive made in 2018. This was done through the

[1] Nottinghamshire County Council (2013) Waste Core Strategy 2020 [online]. Available at: waste-core-strategy-1.pdf (nottinghamshire.gov.uk) (Last accessed December 2023).

Waste (Circular Economy) (Amendment) Regulations 2020. The Waste and Environmental Permitting etc (Legislative Functions and Amendment etc) (EU Exit) Regulations 2020 were laid before Parliament on 16 December 2020, to ensure that the waste and environmental permitting regimes continue to operate effectively at the end of the transition period.

1.1.7 Best practice suggests that the OSWMP approach will be applied from the early design stages and carried forward and revised throughout the Scheme delivery process. This ensures cost savings are maximised by considering waste minimisation initiatives and identifying opportunities to reduce, reuse or recycle waste materials and improve resource efficiency during the earliest design stage.

1.2 Scheme information

1.2.1 Table 1-1 below outlines further information on the Scheme. The PC will update Table 1-1 below as part of the updates to the Second Iteration EMP prior to commencement of construction.

Table 1-1 - Scheme information

Client	National Highways	
Person in charge of the Scheme	**TBC**	
Author of SWMP	Design stage	D Vargas
	Construction stage	**TBC**
	Operational phase	**TBC**
Scheme title	A46 Newark Bypass	
Scheme location	A46 between Farndon and Winthorpe in Nottinghamshire	
Scheme cost (estimated)	**TBC**	
Start date	August 2025	
Estimated completion date	November 2028	
Description of Scheme	Scheme description is detailed in Chapter 2 (The Scheme) of the ES **(TR010065/APP/6.1)**; the works will involve widening of the existing A46 to a dual carriageway for 6.5 kilometres to provide two traffic lanes in both directions.	
Person responsible for waste management	**Principal Contractor (TBC)**	

Client	National Highways
Document controller	**TBC**
Version date and number	Draft issue: **[to be updated during revision of the plan in the construction and operational stages and in the event of significant changes]**
Location of SWMP	Hard copy to be kept on-site

1.3 Responsibilities

1.3.1 The OSWMP has been produced before any work in relation to enabling works, excavations, and construction for this Scheme commences on-site. Table 1-2 below sets out the general roles and responsibilities in preparing and implementing the SWMP.

Table 1-2 - Responsibilities for the preparation and implementation of the SWMP

Role	Responsibilities
National Highways Project Manager	Monitor the PC's performance against the contract including any environmental commitments and targets agreed for the Scheme.
PC Project Manager	Approval of the SWMP as part of the Second Iteration EMP. Ensuring that all employees and subcontractors implement the measures outlined in the SWMP in full.
PC Environmental Manager	Oversee the management of waste for the Scheme and appoint at least one person responsible for managing the implementation of the SWMP and ensuring compliance with relevant resource and waste legislation. Amending the OSWMP to become a full SWMP when preparing the Second Iteration EMP. Ensuring copies of the SWMP will be made available to all relevant site staff. Any updates to the SWMP will be identified to the relevant people through toolbox talks. This process will be undertaken every time the plan is updated. Ensuring that staff and subcontractors implement the measures outlined in the SWMP in full.

Role	Responsibilities
PC Site Materials and Waste Manager	Looking to minimise materials and waste in accordance with the requirements of the DCO on site by applying the measures set out in Table 2-1 and in turn providing necessary advice to the PC Environmental Manager and appointed subcontractors to help achieve this. Ensuring appointed subcontractors comply with the procedures set out in the SWMP throughout construction.
Individual subcontractor(s) as appointed	Read through and understand the requirements of the SWMP. Follow procedures set out in the SWMP and seek to minimise waste and material use within the realms of the contract. Produce necessary waste documentation.

1.4 Key performance indicators

1.4.1 The PC would take into account the key performance indicators specified by the Waste Framework Directive, which stipulates that 70 percent of non-hazardous construction and demolition (C&D) waste, by weight, must be reused, recovered or recycled. The PC would aim to achieve a recovery rate, by weight, of 92 percent of non-hazardous C&D waste to align with UK's estimated recovery rate[2]. Waste arising will be reused or recovered within the Order Limits, wherever economically and technically feasible, or within the East Midlands region, where the Scheme is located.

1.4.2 The PC would aim to achieve a target of at least 14 percent of the aggregates imported to the Scheme to comprise of recycled or secondary aggregates, where economically and technically feasible. This aligns with the target indicated for aggregate provision in the Design Manual for Roads and Bridges LA 110 for Material Assets and Waste[3] for the East Midland region.

[2] Defra (2022) UK statistics on waste [online]. Available at: UK statistics on waste - GOV.UK (www.gov.uk) (Last accessed December 2023).

[3] Highways England (2019) Design Manual for Roads and Bridges, LA 110 – Materials assets and waste [online] available at: 6a19a7d4-2596-490d-b17b-4c9e570339e9 (standardsforhighways.co.uk) (Last accessed December 2023).

2. Proposals for minimisation, reuse, and recycling of waste

2.1 General measures

2.1.1 The OSWMP will be used to record any early decisions, design changes, construction methods or material specifications which have helped to minimise waste arisings on-site. Where applicable, the management of the use of materials and generation of waste will be in line with the key circular economy principles. While waste management should not be seen as a standalone solution to achieving the circular economy, it remains an integral part in enabling the transition to a circular economy. Circular economy is a model for the use of systems and products designed to eliminate the concept of waste, by enabling the recovery and reuse of all materials at the highest value possible at all times. The core principles are[4]:

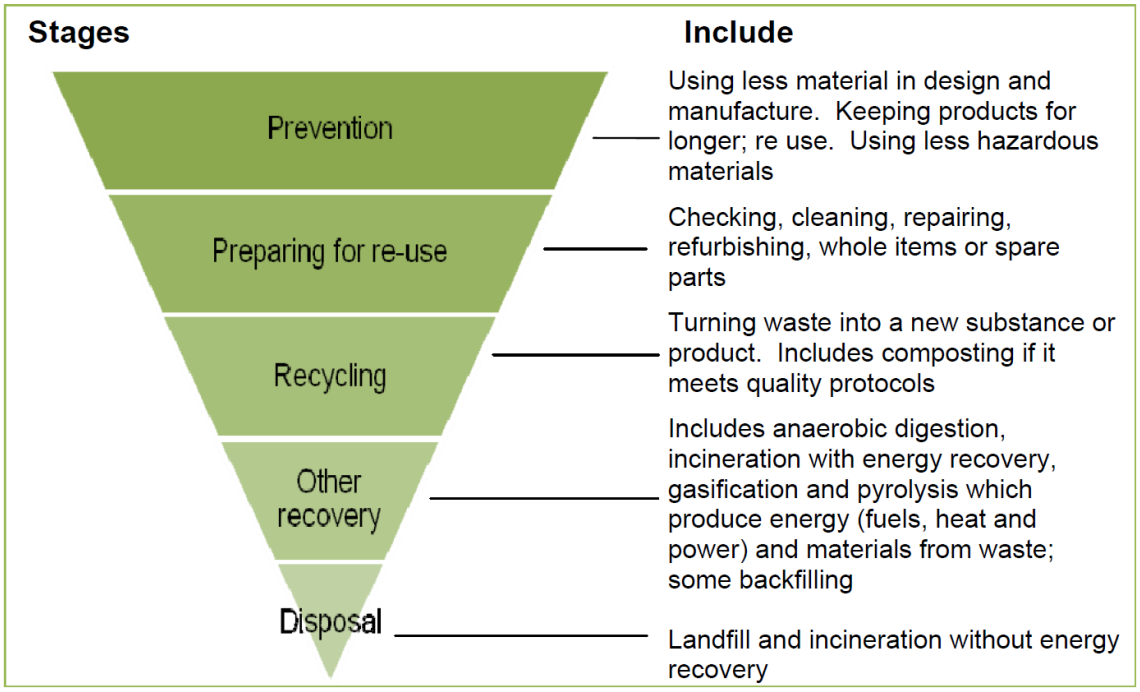
- Designing out of waste and negative externalities: Finding suitable measures to firstly avoid generating waste (prevention and minimisation), before focusing on recovering. The choice and planned use of products are considered with their end of life in mind.
- Keeping products and materials in use at the highest possible value at all times: Ensure products and materials stay within the economy without ending up in the biosphere. Strategies include renting rather than buying, repairing, remanufacturing, keeping products in use for longer by reusing, sharing, reselling, and ultimately recycling as a last alternative.
- Regenerating the natural ecosystem: Regenerate the natural ecosystems by returning valuable nutrients to the biosphere (soils, waters, and atmosphere). Biological (or organic) materials such as wood, food and water, can be incorporated into the ecosystem and re-generated through biological processes.

2.1.2 Where waste cannot be avoided the waste management hierarchy illustrates the waste management options according to what is best for the environment. It gives top priority to preventing waste in the first place. When waste is created, it gives priority to preparing it for reuse, then recycling, then recovery, and last of all disposal (for example landfill). The higher up the waste hierarchy waste is managed, the greater the cost and resource savings will be.

2.1.3 The waste hierarchy is illustrated in Figure 2.1 overleaf.

[4] Ellen MacArthur Foundation (n.d.) Circular economy introduction [online]. Available at: What is a circular economy? | Ellen MacArthur Foundation (Last accessed December 2023).

Figure 2.1 - The Waste Hierarchy



Source: Department for Environment, Food and Rural Affairs (Defra), 2011[5]

2.1.4 Eliminating waste at source is the best way to make dramatic savings in waste handling and processing costs and reducing the overall impact on the environment and is one of the key principles of circular economy. This can be achieved through:

- Careful procurement of materials
- Better utilisation of materials already available on-site
- Reducing the amount of waste generated where it cannot be eliminated completely
- Reuse and then recycle as much as possible, once it is not possible to reduce the waste any further.

2.1.5 Disposal of waste to landfill or incineration (without energy recovery) will be a last resort after all the above options have been considered.

2.1.6 Waste prevention is at the top of the waste hierarchy and this will continue to be a priority throughout the Scheme, including during construction.

2.1.7 The purpose of this OSWMP is to facilitate the implementation of circular economy and the waste hierarchy principles as set out in order of preference; the highest options will be adopted, where reasonably practicable, but a combination of options will be appropriate.

[5] Defra (2011) Guidance on applying the waste hierarchy [online]. Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf (Last accessed December 2023).

2.1.8 Waste will arise mainly from the removal of vegetation, site clearance, enabling works, demolition, excavation, construction, and landscaping activities. The Scheme will require specific construction materials (such as concrete, asphalt, geotextiles) to be imported to the site. Professional judgement, based on similar projects has been used, at a high-level, to demonstrate the potential types and quantities of waste materials produced from the Scheme. Quantities of material resources required for the Scheme, available at the time of DCO submission, have been used to identify additional potential types and quantities of waste materials.

2.1.9 The PC Environmental Manager is required to identify appropriately permitted facilities that can accept and treat the waste materials produced, in order to divert them from landfill. Actions to be taken to facilitate resource efficiency throughout the Scheme, and therefore, minimise waste produced, are detailed in the subsequent section below.

2.1.10 Potentially contaminated material will be kept separate from clean materials and sent for either recycling or recovery at appropriately permitted facilities.

2.1.11 Unsuitable waste materials will be separated, where possible, and collected in receptacles for subsequent further separation and treatment at off-site facilities.

2.1.12 In order to ensure the appropriate reuse of the materials, the earthworks will be carried out, where necessary, under a Materials Management Plan (MMP). This will be in accordance with industry adopted guidance "The Definition of Waste: development industry Code of Practice Version 2", published by Contaminated Land Application in Real Environments (DoWCoP, CL:AIRE) in March 2011.

2.2 Construction waste

2.2.1 Common waste streams generated by construction sites and likely to be generated by these works include:

- Surplus construction materials as a result of over-ordering
- Materials damaged on-site or in transit
- Hazardous materials
- Packaging materials
- Surplus demolition and excavation materials from site clearance and enabling works
- Site compound waste from canteen, accommodation and welfare areas

Demolition materials

2.2.2 Material arising from the demolition will be carefully stored in segregated piles for reuse on-site, if possible. If any material deemed acceptable is produced from the enabling works (such as good quality topsoil) this will be stored and re-laid within the Scheme. If this is not possible it will be

sent for reuse elsewhere or alternatively for further treatment or processing at an appropriately permitted facility off-site.

Excavated soils

2.2.3 Any excavated materials will be carefully stored in segregated piles for subsequent reuse on the site, wherever possible. These excavated materials may be reused as deposition material for infilling, landscaping (such as creating shallow margins to enable vegetation to be established), to create flood bunds or earth bunds.

2.2.4 Any surplus materials will be removed from site for either direct beneficial use elsewhere (such as land remediation projects) or recovery at an off-site facility. Surplus excavated materials including soils, gravels, clay and man-made fill can potentially lead to significant disposal costs, if they cannot be reused on-site.

2.2.5 Excavated pavement material can be stripped, stored and later re-laid, or sent for recovery off-site.

Vegetation

2.2.6 Any vegetation removed will be chipped, where practicable, and used for landscaping or sent for composting if reuse is not possible.

Packaging

2.2.7 Any packaging waste will be source segregated for recycling or returned to suppliers, where practicable. If feasible, prefabricated material will be used and imported to site. In certain circumstances this will reduce the amount of packaging required and waste produced.

Hazardous waste

2.2.8 Hazardous wastes, including any contaminated soil arisings classed as hazardous, will be identified, kept separate from inert or non-hazardous construction waste materials, tested, and disposed of in accordance with the Hazardous Waste Regulations 2005 (as amended). Should hazardous waste and other contaminants be encountered, it will be managed and handled appropriately, kept separate and removed off-site in accordance with legislation and disposed of or treated at an appropriately permitted site by a licensed contractor in accordance with all appropriate regulation.

Unacceptable materials

2.2.9 Other unusable construction waste materials will be collected in receptacles with mixed construction waste materials, for subsequent separation and recycling at an off-site facility.

Imported materials

2.2.10 Surplus or waste materials arise from either the materials imported to the site or those generated on-site. Imported materials are those which are brought on to the site for inclusion into the permanent works. Where possible, consideration will be made for the reuse of materials back into the Scheme, however, the Scheme will require specific materials to be imported to the site.

2.2.11 Any waste produced through the importation of materials needs to be monitored and included in the OSWMP under construction works. Where possible, the use of materials with a higher recycled content such as concrete (such as for the base of any areas requiring concreting) will be utilised at the Scheme.

2.2.12 Materials will be ordered so that the timing of the delivery, the quantity delivered, and the storage is not conducive to the creation of unnecessary waste. Additional waste from imported material is likely to come from packaging materials and spillages, but these are difficult to quantify at this time.

2.3 Resource efficiency

2.3.1 Table 2-1 highlights some of the various resource efficiency measures that can be used to minimise waste during the site works. The table shows the responsibilities apportioned to designated personnel to ensure the measures are undertaken, where practicable. It demonstrates the decisions and actions involved in facilitating a reduction in the amount of waste and surplus materials being produced.

2.3.2 This is intended to assist in the transition from disposing waste via landfill to a cradle-to-cradle (circular economy) approach by retaining the value and use of materials and products within the economy or built environment for as long as possible[6].

[6] Definition and further explanation of the circular economy model is given in Section 2.1.

Table 2-1 - Resource efficiency measures

Planning waste minimisation during construction	Waste minimisation decision taken	Resource saving	Responsibility[7]	Date action commenced
Design	Enabling the purchase of materials in shape/dimension and form that minimises the creation of off-cuts/waste. Ensure design considerations take into account the five principles for resource efficient design and circular economy: • Design for reuse and recovery • Design for off-site construction • Design for materials optimisation • Design for resource efficient procurement • Design for deconstruction and flexibility (for the future) • Design for longevity • Consider standardisation and/or modulation • Identify potential industrial symbiosis opportunities[8]	Minimal waste produced	PC Project Manager/PC Site Materials and Waste Manager/PC Environmental Manager	From the design outset
Construction methods	Sequencing the works such that reuse of materials can be undertaken.	Minimal waste produced	PC Project Manager/PC Site Materials and Waste	During design and planning stages and

[7] Is the responsibility of National Highways to appoint a Contractor for the purposes of the OSWMP if one or more contractors are working on the Scheme.

[8] Providing waste or by-product from construction to another business that can utilise the material

Planning waste minimisation during construction	Waste minimisation decision taken	Resource saving	Responsibility[7]	Date action commenced
			Manager/PC Environmental Manager	implemented during construction.
Materials	Assess the quantities of materials required on-site.	Prevents lost time in re-ordering of damaged equipment, reduces need for storage if over ordering occurs.	PC Project Manager/PC Site Materials and Waste Manager/PC Environmental Manager/Individual subcontractors	During construction planning and throughout the Scheme construction. During design and throughout the procurement/ construction stages of the Scheme.
	Use reverse logistics/take back schemes, where available.			
	Procure from suppliers with reduced and recyclable packaging			
	Use just-in-time delivery (as needed basis) to prevent over supply.			
	Provide secure storage to minimise the generation of damaged materials/theft.			
	Keep deliveries packaged until they are ready to be used.			
	Inspect deliveries on arrival.			
	Increase the use of recycled content; this could include traditional use of recovered material such as crushed concrete demolition waste and by procuring mainstream manufactured products with higher recycled content than their peers.	An increase in the demand for such products would reduce the quantity of waste going to landfill. Use of recycled material results in a reduction in demand for extraction of virgin materials and subsequently the		

Planning waste minimisation during construction	Waste minimisation decision taken	Resource saving	Responsibility[7]	Date action commenced
		carbon and environmental footprint		

2.3.3 The PC will endeavour to reuse or recycle materials in the Scheme where possible.

2.3.4 Actions to be taken to facilitate resource efficiency throughout the Scheme, and therefore minimise waste produced, are detailed in Table 2-2, which identifies recommended minimisation measures for the Scheme. The PC will be responsible for implementing these measures during construction.

Table 2-2 - Summary of minimisation measures

Minimisation measure	Description
Use of prefabricated or pre-cast elements	As much of the construction as possible will be carried out off-site, when technically and economically feasible, with prefabricated units being delivered to site when required. Where possible, applicable elements of the design will be prefabricated off-site to minimise on-site waste arisings and associated vehicle movements. These prefabricated units will generate less on-site waste through off-cuts and storage damage. Units will be sourced from a supplier that recycles off-cuts and materials at the prefabrication site, where practicable.
Limiting surplus excavation	Reuse any excavated material on-site or on local developments. Minimise the depth of highways drainage and excavation where possible.
Limit stockpiling	Stockpiling of fill materials on-site prior to incorporation will be avoided where possible, to ensure double handling and damage is minimised and therefore waste generation is avoided.
Material reuse	**Concrete:** Concrete will be taken up and will be source segregated, for recycling either as fill/capping on-site and/or removed to an off-site facility, where practicable.
	Tarmac: Tarmac will be taken up and, if possible, will be reused on-site for either tarmac hardstanding, capping or for sub-base.
	Landscaping features: If any landscaping features such as trees and shrubs are to be removed to facilitate either the demolition or construction of the works, these features will be appropriately removed and stored for the duration of the works and then replanted, where practicable. If this is not possible, then they will be chipped for reuse on-site in landscaping or removed off-site to permitted waste management facilities.
Minimisation of contaminated land arisings	Where possible, contaminated material will be clearly identified and delineated prior to the works commencing to reduce the likelihood of non-contaminated material being excavated. Remediate and reuse on-site if practicable, or, if found to pose no risk to receptors (like groundwater and human health) would be left undisturbed.

Minimisation measure	Description
Avoiding over purchasing and accurate delivery times	Use just-in-time delivery (as needed basis) to prevent over supply. As far as reasonably practicable, optimise the soil profile to ensure only the exact amount required is imported.
Use of take back schemes	Utilise, where practicable, take back schemes (particularly for packaging and pallets).
Monitoring and review	Waste data and the periodic review process (required as part of this OSWMP) will be used to assess whether the waste objectives are being met, and if not to review procedures to steer the Scheme towards achieving them. The PC Environmental Manager will be responsible for this monitoring.
Education and awareness	Waste minimisation will be underpinned by education and awareness throughout all levels of the Scheme team, from the design team to site contractors who handle the construction materials. Training to be via site inductions and frequent toolbox talks (included as part of Health and Safety updates, etc.) which all contractors and site workers will be required to attend.
Consideration of End-of-Life materials	Where possible, elements will be designed for repair, modular repair, recycling at the end of life or safe disposal. The use of hazardous materials during construction, in particular, will be minimised as much as possible.

2.3.5 Table 2-3 below identifies some additional measures that will be considered and implemented, where appropriate, to ensure that the Scheme is as resource efficient and cost effective as possible. Table 2-3 is not an exhaustive list and does not suggest that all measures would be implemented but aims to provide a list of possible opportunities undertaken on similar projects.

Table 2-3 - Considerations for reuse and recycling of waste materials for the Scheme

Opportunity	Description
Landscaping	Use site excavated material within landscaping design as drainage base and mound features.
	Reuse or recycle tarmac and asphalt (provided there is on-site storage) for paths, construction storage space, and hard standing for plant, etc.
	Retain topsoil, treat on-site with compost (or other remediation) and use for soft landscaping.
	Manufacture topsoil using surplus excavated soil blended with compost.
	Chipping green waste on-site for use in the landscaping for the site.

Opportunity	Description
	Use existing soft landscape that cannot be retained (trees, shrubs) as compost, soft landscape top mulch, and large features (such as trees stumps) for benches.
Concrete	Recycle aggregates (either on-site or off-site) in concrete mix as fill etc.
Packaging	Reuse packaging by returning to supplier/manufacturer or using it for other purposes (for instance timber packaging pallets) can be chipped and used for landscaping top mulch.
Excavation	Minimise excavation and replacement by leaving the surface in place if everything is structurally sound and technically feasible.
Modular design	Design with modularisation in mind.
Volumetric	Specify the use of plastic pipes rather than clay/metal pipes. In addition, specify recycled content.
	Use pre-cast concrete or modular units where necessary to reduce waste and improve quality, including pre-cast concrete for pipes, kerbs and beams.
	Use recycled cement and other site won materials as subbase for the Scheme (where applicable).
Steel construction	Use steel frame design.
	Use prefabricated steel structures.
Services	Rigorously plan mechanical and electrical (M&E) plant and distribution routes to reduce access requirements and facilitate future maintenance.
	Rigorously plan M&E layout and distribution routes to reduce building works by consolidating risers, ducts etc.
	Enable consolidation of trades to reduce M&E penetrations in already finished surfaces.
Detail Design	Optimise layout to reduce cutting and offcuts.
Avoidance of excavation	Optimise structure position and levels to minimise excavation requirements as much as possible.
Standardisation and dimensional co-ordination	Use 3D modelling to avoid clashes/conflicts of services/structure etc. and thus reduce construction errors and consequent rework.
	Co-ordinate structure and services so that service ducts are incorporated without the need to chase out, minimising waste production. Order services based on BIM/structure model to deliver just enough cable/ducting length and minimise generation of off-cuts.
Supply chain	Employ waste specialist consultant/contractor with expert knowledge in waste minimisation.
	Discuss methods of waste minimisation with design team, potential subcontractors and suppliers at an early stage.
	Discuss options for packaging reduction with subcontractors and suppliers.
Specification	Specify responsibly sourced materials that reduce waste or materials with high recycled content whenever feasible.

Opportunity	Description
	Specify adequate protection to fragile materials to minimise damage on-site.
Contract, contractor	Involve the PC from early design and decision stages to identify methods of waste minimisation in relation to procurement routes.
	Consider financial incentives and penalties to reduce waste.
	Require the PC Environmental Manager to produce an update to this OSWMP at an early stage that includes a site storage and logistics plan.
	Require all tendering contractors to provide information on how they plan to reduce waste through the supply chain and site activities.
	Require just-in-time deliveries.
	Use a consolidation centre to facilitate just-in-time delivery.
	Select procurement route that minimises packaging.
	Use ordering procedures that avoid waste (for instance, no over ordering, take back schemes for both material surplus and offcuts).
	Plan the work sequence to reduce on-site waste.
	Include within the tender documents, the requirement to sign off the waste per work package – waste must not exceed a contractual agreed limit.
	Ensure appropriate waste bins are included.
Materials	Reuse suitable excavated material.
	Use mechanical fixings that facilitate deconstruction.
	Avoid gluing and composite materials.
	Specify materials that can be reused rather than recycled.
	Use landscaping materials that can be easily taken up and reused.
	Use structural elements that can easily disassembled.
Logistics	Design deconstruction at an early stage.
	Consider compaction of certain wastes to reduce haulage requirements.

Note: This table can be updated with actual design considerations in terms of minimising material resources use and waste produced. Not all opportunities may be applicable or feasible for the Scheme, these are to be identified by the designers and PC.

2.4 Waste minimisation statement

2.4.1 The purpose of this OSWMP is to facilitate the implementation of the circular economy and waste hierarchy principles and to minimise the production of waste from the outset of the Scheme. Such measures are to be incorporated into the design and implemented in the construction stage of the Scheme.

2.4.2 This is in addition to ensuring correct waste disposal procedures in accordance with the Waste Duty of Care provisions as set out under

section 34 of the Environmental Protection Act (1990), as amended. Where waste cannot be reused, recycled or recovered, it will be disposed of in accordance with the Landfill Directive (1999/31/EC) and Waste Acceptance Criteria procedures.

2.5 Initial review of anticipated waste arisings

2.5.1 Table 2-4 illustrates an initial qualitative review of the potential and expected waste arisings of the Scheme. The aim of this review is to identify the waste streams anticipated to be encountered at the Scheme and consider the possible management options of these materials (which would include identification of suitable local waste management or disposal sites that can accept the waste). This initial waste review considers the reuse and recycling potential of each waste stream anticipated and identifies some indicative benchmark recycling targets which could be used to steer the detailed SWMP as the Scheme develops.

2.5.2 The review is subjective and relies on professional judgement and experience from working on similar projects.

Table 2-4 - Initial review of anticipated waste arisings

Activity	Anticipated waste stream	Anticipated volume	Recovery potential	Overall priority for recovery	Achievable recovery target	Management options
Site clearance	Vegetation	High	High	Medium	100%	Vegetation including trees, shrubs, and plants etc removed during site clearance works will be collected in skips or stockpiled on-site to await removal. Where possible, some vegetation will be chipped and reused back within the Scheme as landscaping. If it cannot be reused in the Scheme, it will need to be sent off site for processing. A suitable facility, in close proximity to the Scheme, will be the preferred management solution, where possible. All waste will be pre-treated before it is sent for final disposal, whether this is segregation on-site or off-site at a transfer facility.
Demolition works	Rock, concrete, steel, asphalt, tar products, existing footway, highway kerb stone	Medium	Medium	High	70-90%	Materials to be reused on-site where appropriate for the construction of the Scheme. Concrete can be readily separated and easily recycled with good quality assurance. Concrete will be segregated from other inert material and sent for screening and certification. Concrete will be segregated and sent for off-site recycling. Asphalt and tarmac will be taken up and reused on-site for either tarmac hardstanding, capping or for sub-base. Demolition waste that cannot be reused on-site will be removed by licensed contractors and recovered at appropriately permitted waste facilities.
Earthworks	Topsoil	High	High	High	90-100%	Topsoil has excellent potential for reuse opportunities in landscaping around the Scheme.

Activity	Anticipated waste stream	Anticipated volume	Recovery potential	Overall priority for recovery	Achievable recovery target	Management options
						Topsoil waste that cannot be reused on-site will be removed by licensed contractors and recovered at appropriately permitted waste facilities.
	Excavated natural ground	High	High	High	100%	Opportunities for the reuse of material as infill or as a base will be explored. If the material is low grade subsoil, there is potential to reuse this as a landscaping or infill material prior to the laying of topsoil. Waste that cannot be reused on-site will be removed by licensed contractors and recovered at appropriately permitted waste facilities.
	Excavated man-made ground	Low	High	High	70%	Due to the properties of man-made fill, opportunities to reuse the material compared to uncontaminated soils or topsoil are more limited. However, reuse where possible within the Scheme, or will be sent for recycling.
	Contaminated soil	Low	Low	Low	10%	All soil extracted (whether contaminated or not) will need to be stockpiled at the site and subject to laboratory analysis prior to reuse or removal to an off-site waste facility (following European Union (EU) Waste Acceptance Criteria (WAC) testing if required) to identify whether the material can be reused as fill material or would require landfilling at an appropriately permitted site. Contaminated soils may be considered for reuse if it is in accordance with the DoWCoP CL:AIRE and a risk assessment has been undertaken to ensure there is no environmental risk if it is reused and its reuse fits with the justification in the DoWCoP CL:AIRE.

Activity	Anticipated waste stream	Anticipated volume	Recovery potential	Overall priority for recovery	Achievable recovery target	Management options
Construction	Concrete, mortar	Low	High	High	100%	This could potentially create waste through spillages. Any arisings will be contained in an appropriate skip to be sent for off-site reprocessing.
	Cables	Low	Low	Low	80%	Cables are likely to be used in the wiring of the electrical components. Off-cuts of cable will therefore be required to be disposed of. Avenues of recycling of cable are limited, even though the copper can be recovered. Any arisings will be contained in an appropriate skip to be sent for off-site reprocessing or disposal.
	Drainage pipes, kerbs	Low	High	High	100%	Small quantities may arise, although pre-casting of the components prior to arrival on the site will reduce wastage in the first place. Any arisings will be placed in the skips and sent to a local recycling facility for crushing down and subsequent reuse on other projects.
	Bitumen road surface	Low	High	High	100%	Through careful ordering of material by the PC, it is possible to minimise potential waste generated from road surfacing activities. A good waste management practice is that, if there is any technically feasible and economically viable opportunity, any road-surfacing material can be reworked into a reusable form to enable reuse back within the Scheme or on nearby schemes, if identified.
	Liquid waste	Low	Low	Low	0%	Disposal of liquids from temporary welfare facilities will be undertaken by a licensed contractor. Disposal of liquid wastes down surface water drains may cause water pollution, which if it occurs is a strict liability offence and can lead to expensive clean-up costs and enforcement action being undertaken. Only clean, uncontaminated surface water is discharged to surface

Activity	Anticipated waste stream	Anticipated volume	Recovery potential	Overall priority for recovery	Achievable recovery target	Management options
						water drains. Any discharges to foul sewer, if necessary, will require permission to be obtained from the relevant sewerage undertaker. All contaminated liquids will be stored in appropriately designed containers, with secondary containment systems in place and sent for disposal or treatment.
	Metals (cut-offs from steelworks, surplus materials)	Low	High	High	95%	Small quantities of waste metal may arise due to off-cuts during the construction phase. Metals can be easily segregated and sent for off-site recycling. Therefore, any arisings will be contained in an appropriate skip to be sent off-site for recycling. When recycling is not possible, arisings will be sent off-site for disposal.
	Timber and wood materials (fencing, wooden panels, posts, packaging)	Low	High	High	95%	Waste timber and other wood materials may arise as cut-offs, surplus or as packaging. Waste timber and wood materials may be suitable for reuse within the Scheme's construction, where practicable. Waste timber and wood materials will be segregated and sent for off-site recycling if not suitable for reuse on-site, or to an energy recovery facility.
	Hard plastics (uPVC)	Low	Medium	Medium	70%	Waste hard plastic, such as uPVC, may arise from the Scheme as off-cuts or surplus materials. PVC materials will be sent to off-site recycling facilities. Recycling facilities can melt small pieces of PVC into new products, or break it down into its chemical molecules, which are then reformed to make fresh PVC materials. Where possible, PVC will be segregated and sent off to recycling facilities. Disposal to landfill will be considered if no other alternative is available.

Activity	Anticipated waste stream	Anticipated volume	Recovery potential	Overall priority for recovery	Achievable recovery target	Management options
	Textiles (geomembrane)	Low	Medium	Low	50%	Recycling options for textile materials, such as geomembrane, may vary depending on its composition. Arisings of these materials from the Scheme may be due to off-cuts. Any arising will be contained in an appropriate skip to be sent for off-site recycling or disposal (as least preferred option).
	Hazardous waste (resins, oils, paints, etc.)	Low	Medium	Medium	50%	These waste streams will be segregated from other (non-hazardous) waste streams and stored in appropriately designed and secure bunded storage areas/cupboards for subsequent identification and removal for treatment off-site at a hazardous waste facility.
General site waste	Packaging waste (plastic, metal, cardboard)	Low	Low	Medium	50%	This waste would predominantly consist of plastic sheeting, shrink-wrap, metal strips (binding). Each waste stream will be segregated into colour-coded or appropriately designated skips and removed off-site to an appropriate waste facility for recycling, where practicable. Opportunities will be explored for supplier packaging take back schemes, where practicable.
	Welfare facilities waste (sewage sludge)	Low	Low	Low	0%	Limited options to recover waste arising from on-site welfare facilities. Sewage sludge from the toilet facilities would be pumped out and sent to an appropriately permitted treatment plant. Other wastes such as paper towels etc. would be sent to an Energy from Waste (EfW) facility or a landfill.
	Site operatives waste (paper, cardboard,	Low	Medium	Medium	75%	Likely to comprise paper, cardboard, metal cans, plastic bottles and some non-recyclable material such as tissues. All recyclable materials will be sent to recycling facilities; all non-recyclable materials will be sent to an

Activity	Anticipated waste stream	Anticipated volume	Recovery potential	Overall priority for recovery	Achievable recovery target	Management options
	plastics, non-recyclable					EfW facility or a landfill, where practicable. Offices will be equipped with bins to segregate each waste stream for collection and future recycling off-site, if feasible.

3. Waste management

3.1 Segregation

3.1.1 A specific area will be laid out and labelled to facilitate the separation of materials for potential recycling, salvage, reuse, and return. It will be the responsibility of the PC Site Materials and Waste Manager to ensure that recycling and waste bins are kept clean and clearly marked to avoid contamination of materials. Skips for segregation of waste currently identified are:

- Inert (such as concrete, inert plastics, rubble)
- Hazardous (such as contaminated land, residues of applicable paints)
- Mixed non-hazardous (non-biodegradable waste)
- Mixed non-hazardous (biodegradable waste)
- Metal (such as copper and iron, mixed ferrous and non-ferrous)
- Wood (including fencing, frames)
- Canteen/office/welfare waste

3.1.2 The PC will ensure compliance of the Scheme with the Waste (England and Wales) Regulations 2011 (as amended), which make the following provisions which came into force on 1 January 2015:

- Businesses to present metal, plastic, glass, paper and card for separate collection
- Waste contractors to provide collection and treatment services which deliver high quality recycling
- A ban on any metal, plastic, glass, paper, card, and food collected separately for recycling from going to incineration or landfill.

3.1.3 Excavation and construction work will be carried out closely with the waste management contractors, in order to determine the best techniques for managing waste and ensure a high level of recovery of materials for reuse or recycling.

3.1.4 Successful recycling and reuse rely upon early planning by the PC, identification of clear responsibility and provision of space within a compound for segregation and storage.

3.1.5 Discussions will be undertaken between National Highways and the PC to identify space requirements within the compounds to accommodate skips (or other suitable containers such as wheeled containers) and storage of reusable materials, where possible.

3.1.6 Waste management options will be supported by the identification of appropriately permitted waste treatment and recycling facilities in close proximity to the Scheme. The PC Environmental Manager will ensure that a qualified person has completed assessments for all types of waste

streams arising during the Scheme's works. All waste streams will be correctly classified and given a European Waste Catalogue (EWC) code and description which will be used in the Waste Transfer Note (WTN) or Hazardous Waste Consignment Note (HWCN).

3.1.7 The use of different coloured skips (or sufficiently clear labelling), to ensure that construction workers can understand where to put each type of waste, will help reduce the level of contamination in the skips. This also increases the likelihood that a load will not be rejected once the waste stream has been sent off site for reprocessing. In cases where the load is rejected, the likely destination would be landfill (which would increase the costs to the Scheme).

3.2 Reuse of construction materials

3.2.1 Excavation and site clearance activities generate a significant quantity of potential waste arisings.

3.2.2 The classification of waste material from the Scheme will be undertaken in accordance with Annex II of the EU Directive on the landfill of waste (1999/31/EC) (the Landfill Directive). Uncontaminated material, where identified, will be reused where possible within the proposed works for site levelling and fill.

3.2.3 If applicable, surplus inert excavated materials with some engineering strength (for example stone, clay, rubble, rock) could be suitable for beneficial use in land reclamation projects, if these were proceeding locally at the same time as the Scheme. This may require compliance with the criteria and thresholds of certain exemptions (for instance U1 or U11 may be applicable) or permits under the Environmental Permitting (England and Wales) Regulations 2016. Exemption U1 allows for the use of waste in construction under certain conditions, and when suitable, rather than virgin raw material. Exemption U11 allows the spreading of waste on non-agricultural land to replace manufactured fertilisers or virgin materials to improve or maintain the soil.

3.2.4 The DoWCoP CL:AIRE may also be applicable for the reuse of this material. Any chosen option will meet current legislative requirements. For example, the material could be reused in other developments in the surrounding area, if any were proceeding at the same time. This would help to avoid the costs and associated impacts of removing material to facilities further away.

3.3 Waste disposal characterisation

3.3.1 Under Article 4 of the Landfill Directive, waste is classified as either inert, non-hazardous, or hazardous. Hazardous waste cannot be reused on-site under an exemption and may require additional treatment prior to disposal. The exception is contaminated soil reused in accordance with

an approved Materials Management Plan produced under the DoWCoP CL:AIRE.

3.3.2 Furthermore, there is a statutory requirement under Article 6 (a) of the Landfill Directive to pre-treat any waste (including hazardous waste) prior to disposal off-site. Pre-treatment may reduce the cost of disposal by rendering the waste non-hazardous. Responsibility for the basic classification of waste rests with the waste producer (the Applicant), the PC Site Materials and Waste Manager and the landfill operator.

3.4 Forecasting the planning, reduction, and reuse of waste

3.4.1 The following section details expected waste arisings from the Scheme. Table 3-1 details those types of waste expected to arise from pre-commencing works, demolition, and construction works and segregate the approximate amounts of waste into different waste streams. The overall aim is to prevent cross-contamination of waste types and to maximise reuse and recycling opportunities.

3.4.2 Material quantities, where provided, are intended to act as an approximate guide for efficient waste management best practice; the PC will independently verify the quantities of waste materials likely to be produced during the works. Waste quantities, where identified within this Outline SWMP, are also subject to programme and design change.

3.4.3 The information in this SWMP is based on information from the quantities of material resources available at the of DCO submission, publicly available data and professional judgement relating to predicted construction effects.

3.4.4 Table 3-1 also allows space for actual quantities to be inserted. The actual quantities will be inserted once known and are set out against the estimated quantities to allow for a direct comparison and to determine performance against the estimates.

Table 3-1 - Waste arising from pre-commencing, demolition and construction works (including excavation) (to be completed by the PC)

Type	Materials	Quantities (tonne)		On-site reuse/recycling (%)		Recovery (%)		Disposal (%)	
		Forecast	Actuals	Forecast	Actuals	Forecast	Actuals	Forecast	Actuals
Inert	Concrete	6,260		83		16		1	
	Aggregate based materials	200,900		80		20		0	
	Other (specify and add rows)								
Non-hazardous	Excavated material	579,400		84		16		0	
	Asphalt plannings	5,690		43		39		18	
	Bricks and blocks	155		80		20		0	
	Mixed waste	530		4		88		9	
	Metal	995		0		100		0	
	Timber	335		0		90		10	
	Plastic	1		4		88		9	
	Geotextile	21		80		20		0	
	Green waste (vegetation)	1,550		0		100		0	
	Other (specify and add rows)								

Type	Materials	Quantities (tonne)		On-site reuse/recycling (%)		Recovery (%)		Disposal (%)	
		Forecast	Actuals	Forecast	Actuals	Forecast	Actuals	Forecast	Actuals
Hazardous	Contaminated excavated material – unsuitable for reuse*	6,495		0		0		100	
	Oils and fuels								
	Paints (container and residues)								
	Other (specify and add rows)								

Source: Quantities of material assets at the time of DCO submission.

Note: The forecast quantities maybe to subject to change. The PC will be required to confirm. Quantities related to construction works are estimated on a worst-case scenario assuming a 10% of material losses brought on-site during construction works (based on professional judgement). *Contaminated soils forecast is based on worst-case scenario for the arising of hazardous material from excavation works.

3.5 Waste treatment and disposal options

Waste treatment, recovery, or reuse

3.5.1 The appointed waste contractor will contact the relevant treatment/transfer facilities or, if needed, the Environment Agency, directly to determine the most appropriate waste management facility to handle the waste material being produced, where feasible. It is intended that the receiving facility/facilities will recover as much value as possible from the material delivered prior to organising the final disposal of any residual materials at an appropriate landfill site.

3.5.2 The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020[9] and the Waste (Circular Economy) (Amendment) Regulations 2020[10] incorporates the directives related to European Union Article 4 of Landfill Directive 1999/31/EC[11] on the landfill of waste. Article 4 requires landfills to be classified into one of three categories dependent on the chemical composition of the material; these are hazardous, non-hazardous and inert. EU Waste Acceptance Criteria (WAC) are in place to control the nature of hazardous waste that can be sent to landfill. For hazardous wastes there are numerical limit values covering substances in granular wastes, monolithic wastes, and stable non-reactive hazardous wastes (SNRHW). The limit values are set out in Annex II of the Council Decision of 19th December 2002[12] establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II to Directive 1999/31/EC.

3.5.3 Certain waste streams will be analysed by the PC or appointed waste contractor prior to disposal to confirm whether they are inert, hazardous or non-hazardous. Then the material may require WAC testing prior to disposal. WAC testing is only required if a waste is detained to be sent to landfill and is not required for all types of waste. An appropriately competent and qualified person will develop a testing regime, as required, prior to disposal.

3.5.4 For excavated materials that are confirmed to be suitable for reuse within the Scheme without causing harm to human health or the environment, there are a number of reuse and recycling opportunities such as infill,

[9] Her Majesty's Government (2020) The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 [online]. Available at The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 (legislation.gov.uk) (Last accessed December 2023).

[10] Her Majesty's Government (2020) The Waste (Circular Economy) (Amendment) Regulations 2020 [online]. Available at: Legislation.gov.uk (Last accessed December 2023).

[11] Landfill Directive (1999/31/EC) [online]. Available at: [redacted] (Last accessed December 2023).

[12] Council of the European Union (2002) 2003/33/EC: Council Decision of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC [online]. Available at: [redacted] (Last accessed December 2023).

bunding and landscaping or for construction or maintenance of roads, pavements, footings for gates, fences and poles.

3.5.5 If reuse or recycling on-site is not possible due to high levels of contamination, soil treatment facilities are available in England that could be used to treat the soil. Due to the limited volume of contamination anticipated this information has not been included in this OSWMP but is available upon request should it be necessary.

3.5.6 Table 3-2 outlines the available facilities for recycling and recovery which manage construction and demolition waste, either through transfer, treatment, crushing and screening, and storage within 10 kilometres of the Scheme; measured from postcodes NG23 5RS and NG24 2NY. The postcode locations were selected as they are located at opposite ends of the Order Limits of the Scheme. Not all treatment facilities may be suitable for accepting waste generated by the Scheme, but it demonstrates that sufficient treatment facilities are within the surrounding areas of the Scheme.

Table 3-2 - Permitted waste management facilities within 10 kilometres of the Scheme

Site name	Treatment facility type	Distance from NG24 2NY (km)	Distance from NG23 5RS (km)
Newark Waste Transfer Station (TS) – Veolia ES Nottinghamshire	S0805 No5: 75kte Household, commercial and industrial (HCI) Waste Transfer Station + asbestos.	1.6	6.5
Conica Ltd	A15: Material Recycling Treatment Facility.	2.4	6.5
Eurotech Waste Treatment Ltd	Disposal of non-hazardous waste involving physico-chemical treatment. Temporary storage of hazardous waste. Disposal or recovery of hazardous waste involving physico-chemical treatment.	2.6	5.8
Briggs Metal Ltd	A20: Metal Recycling Facility	3.6	4.4
Quarry Farm – Nubeau Holdings Ltd	S0803 No3: 75kte HCI Waste Transfer Station + treatment.	5.9	6.8
Ivan Hall Newark Mini Skips	S1504 No4: 75kte HCI Waste Transfer Station.	6.1	6.8
Regional Waste Recycling (commercial) Ltd	A11: HCI Waste Transfer Station.	6.1	7.9
Cromwell Quarry	A25: Deposit of waste to land as a recovery operation.	6.2	8.4
Cromwell Quarry	S0803 No3: 75kte HCI Waste Transfer Station + treatment.	6.2	8.5
Laffy's	S0906 No6: Inert and excavation waste Transfer Station with treatment.	7.0	>10

Site name	Treatment facility type	Distance from NG24 2NY (km)	Distance from NG23 5RS (km)
Swinderby Quarry	SR2010 No12: Treatment of waste to produce soil <75,000 tpy	7.9	>10
Ansons Farm	SR2011 No4: Treatment of waste wood <75,000 tpy A22: Composting facility	9.1	>10
Hobleys Yard	SR2010 No12: Treatment of waste to produce soil <75,000 tpy	9.4	>10
Coneygre Farm - Hoveringham	A25: Deposit of waste to land as a recovery operation.	>10	8.7
Coneygre Farm	A16: Physical treatment facility.	>10	8.7

Source: Environment Agency (2023)[13]

3.5.7 In addition to permitted C&D waste management sites, inert material is also managed on sites that have an Environment Agency environmental permit exemption. These exempt sites generally comprise land restoration activities, such as restoring mineral voids, engineering/landscaping proposed developments and for agricultural improvements on farmland.

3.5.8 Although small tonnages of waste from other waste streams (such as biodegradable waste) may be managed at locations with an exemption, the largest tonnage of exempt activities is likely to involve construction and demolition material. There are approximately 298 waste exempt sites listed by the Environment Agency[13] within 10 kilometres of the western side of the Scheme (from postcode NG23 5RS); and approximately 284 waste exempt sites within 10 kilometres of the eastern side of the Scheme (from postcode NG24 1GB). These exempt sites are often short-lived and not all will be applicable to construction waste, and therefore, will be identified for their suitability when preparing the full SWMP, upon commencement of construction.

Waste disposal

3.5.9 Table 3-3 outlines the operational disposal facilities within 50 kilometres from the Scheme. Currently, there is one inert landfill within 10 kilometres from the Scheme with remaining capacity at the end of 2021 (latest information available). Other inert and non-hazardous landfills can be found further away outside the 10 kilometres radius; there is no hazardous landfill site within 50 kilometres of the Scheme.

[13] Environment Agency (2023) Public Registers Online [online]. Available at: Public Registers Online (data.gov.uk) (Last accessed December 2023).

Table 3-3 - Permitted landfills sites with remaining capacity for C&D waste by the end of 2021, located within 50 kilometres of the Scheme

Landfill facility name	Operator name	Landfill type	Remaining capacity at the end of 2021 (m^3)	Distance from the Scheme (km)
Borrow Pits Landfill	British Sugar Plc	L05 - Inert Landfill	383,603	1
Lincwaste Ltd	Leadenham Landfill	L04 - Non-Hazardous	1,400,000	25
Lincwaste Ltd	Whisby Landfill	L04 - Non-Hazardous	2,500,000	29
Lincwaste Ltd	North Hykeham Landfill Site	L04 - Non-Hazardous	285,000	29
Lincwaste Ltd	Colsterworth Landfill Site	L04 - Non-Hazardous	3,533,000	32
Harmston Quarry Inert Landfill Site	Harmston Waste Management Ltd	L05 - Inert Landfill	75,000	39
Daneshill Landfill Site	FCC Recycling (UK) Ltd	L04 - Non-Hazardous	753,378	39
EDF Energy (West Burton Power) Ltd	Cottam Ash Lagoons	L04 - Non-Hazardous	1,559,955	39
EDF Energy (West Burton Power) Ltd	Bole Ings Ash Disposal Site	L04 - Non-Hazardous	1,553,790	39
Midland Landfill Ltd	Vale Road Quarry	L05 - Inert Landfill	1,875,518	41
Harrycroft Quarry Landfill	Tarmac Aggregates Ltd	L05 - Inert Landfill	688,653	49
Saint-Gobain Construction Products UK Ltd	Welby Tip	L04 - Non-Hazardous	12,670	50
Tarmac Trading Ltd	Brooksby Quarry	L05 - Inert Landfill	168,164	50

Source: Environment Agency (2023)[13].**Error! Bookmark not defined.**

3.6 Waste controls and handling

Duty of care compliance

3.6.1 Section 34 of the Environmental Protection Act 1990 (as amended)[14] lays out duties with respect to the management of waste. Waste must be managed correctly by storing it properly, only transferring it to the appropriate persons and ensuring that when it is transferred it is adequately and appropriately described to enable its safe recovery or disposal without harming the environment.

3.6.2 The Waste (England and Wales) Regulations 2011(as amended)[15] explains the duties which apply to anyone who produces, keeps, stores, transports, treats, imports, disposes or manages controlled waste in England and Wales.

3.6.3 One purpose of the OSWMP is to incorporate an auditable system that identifies the person responsible for removing the waste from site and keeping copies of all duty of care documentation (WTN and HWCN). This would be in accordance with the relevant duty of care legislation in place and other regulatory requirements.

3.6.4 Table 4-1 (waste description records) and Table 4-3 (implementation checklist) assist with the information required to meet the duty of care requirements.

3.6.5 It will be the responsibility of the PC to ensure that any appointed waste contractors have systems in place to ensure that all the duty of care requirements are met prior to the waste being collected.

Responsibility for waste management

3.6.6 Table 3-4 identifies details of the primary waste streams that are expected to arise from the activities at the Scheme and whose responsibility it is to control and monitor the amounts of waste produced.

Table 3-4 - Assigned responsibility for waste management (to be completed by the PC)

Site activity/Sub-contractor work package	Primary waste stream	Who is responsible
Excavation and site clearance		
Groundworks		
Foundations, piling		
Structure		
Brick & blockwork		

[14] Her Majesty's Government (1990) Environmental Protection Act 1990 [online]. Available at: Environmental Protection Act 1990 (legislation.gov.uk) (Last accessed December 2023).

[15] Her Majesty's Government (2011) The Waste (England and Wales) Regulations 2011, No.988 [online]. Available at: https://www.legislation.gov.uk/uksi/2011/988/contents (Last accessed December 2023).

Site activity/Sub-contractor work package	Primary waste stream	Who is responsible
Mechanical electrical		
Trades (joinery, painting, etc)		
Removal of site offices, temporary works & final clear away		

3.7 Waste storage and transportation logistics

3.7.1 An area for on-site storage for excavated waste, construction materials and newly procured materials will be identified and appropriately secured. If waste is not to be kept on-site, removal may be required on a shift-by-shift basis.

3.8 Site security

3.8.1 The PC will take reasonable steps to ensure site security measures are in place during construction to prevent fly-tipping/illegal disposal of waste.

3.8.2 All waste produced by the Scheme will be collected by registered waste businesses to prevent fly-tipping of waste. A log of the waste movement will be maintained as stated in the OSWMP (refer to Table 4-1).

3.8.3 All fly-tipping of waste will be dealt in accordance with the guidance provided by the government[16].

[16] Department for Environment, Food & Rural Affairs (2016) Guidance – Fly-tipping: council responsibilities [online]. Available at: Fly-tipping: council responsibilities - GOV.UK (www.gov.uk). (last accessed December 2023).

4. Implementation of the Outline SWMP

4.1 Register of waste carrier licences and permits

4.1.1 Table 4-1 and Table 4-2 outlines information regarding the waste management contractors, including their environmental permit, waste carriers' licences and/or relevant exemptions that would need to be checked and verified for use on the Scheme. These tables will be completed by the PC Environmental Manager once the details are available, but when preparing the full SWMP as part of the Second Iteration EMP.

4.1.2 The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 and the Waste (Circular Economy) (Amendment) Regulations 2020 require that waste is described by EWC codes on WTN (and HWCN if waste is hazardous under the Hazardous Waste Regulations 2005, as amended) as required by the Waste Regulations 2011, as amended. The EWC categorises wastes into 20 main groups and approximately 900 codes. The EWC also identifies hazardous wastes, and these wastes are dealt with by the Hazardous Waste Regulations 2005 (as amended). These wastes will be appropriately described on HWCN.

Table 4-1 - Waste description records (to be completed by the PC)

EWC waste description	EWC[17]	Origin	Waste Carrier			Permit	
			Name	Licence number	Expiry date	Name	Licence number
Concrete	17 01 01	From excavation of made ground known to be uncontaminated					
Mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substances	17 01 06*(M)[18]	From construction of structures					
Mixtures of concrete, bricks, tiles and ceramics other than those in 17 01 06*	17 01 07	From construction of structures					
Wood	17 02 01	From construction of structures					
Glass	17 02 02	From construction of structures					

[17] EWC code categorised from the Lists of Waste pursuant to Article 1(a) of Directive 75/442/EEC on waste and Article 1(4) of Directive 91/689/EEC on hazardous waste.

[18] *(M) after the EWC denotes that the waste is potentially hazardous the (M) means that it is a mirror entry and the waste is only hazardous if the dangerous substance present is above threshold concentrations.

EWC waste description	EWC[17]	Origin	Waste Carrier			Permit	
			Name	Licence number	Expiry date	Name	Licence number
Plastic	17 02 03	From construction of structures					
Glass, plastic and wood containing or contaminated with dangerous substances	17 02 04* (M)	From construction of structures					
Bituminous mixtures containing coal tar	17 03 01* (M)	Excavation of Made Ground and potential historical contamination					
Bituminous mixtures other than those mentioned in 17 03 01*	17 03 02	From excavation of Made Ground known to be uncontaminated					
Coal tar and tar products	17 03 03*	From construction of highways					
Iron and steel	17 04 05	From construction of buildings					
Mixed metals	17 04 07	From construction of buildings					
Cables containing oil, coal tar and other	17 04 10* (M)	Installation of replacement cables, including off-cuts					

EWC waste description	EWC[17]	Origin	Waste Carrier			Permit	
			Name	Licence number	Expiry date	Name	Licence number
dangerous substances							
Cables other than those mentioned in 17 04 10	17 04 11	Installation of replacement cables, including off-cuts					
Soil and stones containing dangerous substances	17 05 03* (M)	From excavation of Made Ground known to be contaminated					
Soils and stones other than those mentioned in 17 05 03	17 05 04	From excavation of Made Ground known to be uncontaminated					
Other construction and demolition wastes (including mixed wastes) containing dangerous substances	17 09 03* (M)	From excavation of Made Ground known to be contaminated					
Mixed construction and demolition waste other than those	17 09 04	Site excavation of Made Ground known to be uncontaminated					

EWC waste description	EWC[17]	Origin	Waste Carrier			Permit	
			Name	Licence number	Expiry date	Name	Licence number
mentioned in 17 09 01, 17 09 02 and 17 09 03		and construction waste.					
Paper and card	20 01 01	Packaging materials, site office waste					
Mixed municipal waste	20 03 01	General site waste					
Waste of liquid fuels, fuel oil and diesel	13 07 01*(A)[19]	General leaks from vehicle movements, construction equipment					
Petrol	13 07 02*(A)	General leaks from vehicle movements					
Other fuels including mixtures	13 07 03*(A)	General leaks from vehicle movements					
Waste paint and varnish containing organic solvents or other	08 01 11*(M)	Paint wastage from road marking					

[19] *(A) after the EWC denotes that the waste is hazardous the (A) means that it is an absolute entry and the waste is hazardous regardless of any threshold concentrations.

EWC waste description	EWC[17]	Origin	Waste Carrier			Permit	
			Name	Licence number	Expiry date	Name	Licence number
dangerous substances							
Waste paint and varnish other than those mentioned in 08 01 11	08 01 12	Paint wastage from road marking					
Waste paint or varnish remover	08 01 21*(A)	Paint wastage from road marking					
Septic Tank Waste	20 03 04	Portable toilets and welfare facilities					
Bio-degradable kitchen and canteen waste	20 01 08	Mess room wastes					
Other, as applicable							

4.2 Training and communication

4.2.1 The full SWMP (as updated), as well as the procedures to be followed, will be given to all contractors and subcontractors at site induction and key measures reinforced in 'toolbox' talks. The PC Environmental Manager will be responsible for delivering this training. 'Toolbox' talks will be carried out every month on waste issues and all subcontractors will be expected to attend. Attendance will be recorded in the relevant training logs. It is hoped that these values can be transferred from this site to the next, promoting adoption of sustainable waste management practices on a wider scale.

4.3 Monitoring and waste records

4.3.1 All waste leaving the site will be recorded by the site's Materials and Waste Manager by way of WTN or HWCN in the case of hazardous waste. The waste producer (National Highways) and/or PC will receive a copy of the completed WTN from the waste disposal company showing the exact amount of waste materials removed from site and confirming that the waste has been disposed of or treated. This note will also identify how much material goes to landfill and how much goes for recycling (Table 14.2).

4.3.2 All skips will be monitored by the PC Site Materials and Waste Manager to ensure that cross-contamination of segregated skips does not occur. The 'toolbox' talks will focus on how the waste management system is working and identify the extra costs associated with contamination.

4.3.3 The PC Environmental Manager will continually review the type of surplus materials being produced and change the site set up to maximise on-site reuse or recycling; landfill would be the last option.

4.3.4 This full SWMP will be included as an agenda item at the weekly construction meetings. In addition, the OSWMP will be communicated by the PC Environmental Manager to the whole team (including National Highways) at the monthly meetings. This would include any updates from the last version.

Table 4-2 - Waste management records[20] (to be completed by PC)

Date removed	Waste type	Volume of waste (m^3)	Identity of the person removing the waste	Site the waste is being taken to and whether licensed of exempt	Waste carrier and registration number	Confirmation of delivery	Waste management route (reuse on/off-site, recycled on/off-site, recovery, landfill, other)

[20] Evidence of waste carrier registration and waste transfer or HWCN for each removal of waste are filed and cross-referenced.

4.4 OSWMP implementation checklist

4.4.1 Table 4-3 is a checklist which will be filled out by the PC Environmental Manager to ensure the SWMP is fully implemented from the outset of the Scheme. Further actions required to accompany the checklist are identified in Table 4-4.

Table 4-3 - Implementation checklist (to be completed by PC)

Checks (please tick)	Yes	No
Have terms and commercial rates been agreed with the waste management contractor(s)?		
Have data reporting procedures been agreed with the waste management contractor(s)?		
For off-site waste management or disposal – Are all the waste destination details correct?		
Has a waste segregation/collection area been prepared?		
Has the waste management area been adequately sign posted?		
Has the OSWMP planning meeting been set?		
Has the waste management document control/filing system been set up?		
Have all the necessary staff and contactors read and signed the Outline SWMP?		
Have all the OSWMP training/briefing requirements for staff been met?		
Have all the OSWMP training/briefing requirements for contractor(s) been met?		
Have all the waste management targets been set?		
Has the OSWMP been approved by the Project Manager?		

Table 4-4 - Further actions (to be completed by the PC)

Comments/further actions	
1. Excavated material to be tested for contamination prior to reuse and/or disposal	
2. Waste contractor to be assigned	
3. Storage areas for excavated material to be decided upon	
4. Frequency of waste removal from the site to external storage areas or WTS to be decided upon	
5.	
6.	

4.5 Updating the SWMP

4.5.1 The full SWMP will be updated as often as necessary, to record accurate information on progress and whenever changes occur on-site or relating to materials, or at least every six months if there is little change during the construction of the Scheme.

4.5.2 Updates to the SWMP will give a current picture of how work is progressing against the waste estimates contained in the original SWMP. Therefore, for waste that is reused or recycled on-site, the SWMP will be updated to describe how much of the estimated volume or tonnage has been processed. For waste that is removed from the Scheme, the SWMP will be updated to record the identity of the person removing the waste, the type (and quantity) of waste and the site to which it has been taken.

4.5.3 Whenever waste is removed from the Scheme the PC Site Materials and Waste Manager will record the actions in Table 4-4. Revisions to the SWMP will be recorded in Table 4-5.

Table 4-5 - OSWMP revision record (to be updated by the PC)

Nature of revision	Date of revision	Author of revision

5. Audit and review of Outline SWMP

5.1 Audit plan

5.1.1 An audit will be undertaken at regular intervals (at least every six months, but preferably every three months) to check the plan is being implemented correctly by the PC. The audit will review the records maintained under this OSWMP to record the amount, nature and composition of the waste generated on-site.

5.1.2 Furthermore, the audit will also examine the manner in which the waste is produced and will provide opportunity for a commentary to highlight how the management and practices inherently contribute to the production of construction and demolition waste. To help in this review Table Table 5-1 will be completed as part of the audit to include on-going actual quantities of waste generated. Records are to be completed on the deviations between those waste quantities forecasted, on-going actuals and waste management targets, demonstrated in Table 5-1.

5.1.3 A regular review of the on-site reuse/recycling, off-site recovery and off-site disposal rates will provide evidence to support potential need for further or maintained mitigation to ensure the Scheme meets it waste management targets and applies circular economy principles.

Table 5-1 - Pre-commencement, demolition and construction works waste deviations (to be completed by the PC)

Type	Materials	Quantities (tonne)		On-site reuse/recycling (%)		Recovery (%)		Disposal (%)	
		Actuals	Deviation	Actuals	Deviation	Actuals	Deviation	Actuals	Deviation
Inert	Concrete								
	Aggregate based materials								
	Other (specify and add rows)								
Non-hazardous	Excavated material								
	Asphalt plannings								
	Bricks and blocks								
	Mixed waste								
	Metal								
	Timber								
	Plastic								
	Geotextile								
	Green waste (vegetation)								
	Other (specify and add rows)								

Type	Materials	Quantities (tonne)		On-site reuse/recycling (%)		Recovery (%)		Disposal (%)	
		Actuals	Deviation	Actuals	Deviation	Actuals	Deviation	Actuals	Deviation
Hazardous	Contaminated excavated material – unsuitable for reuse*								
	Oils and fuels								
	Paints (container and residues)								
	Other (specify and add rows)								

Note: Forecasts to be in accordance with Table 3-1

5.2 Post-construction review

5.2.1 This section of the SWMP will be for the post-construction review, designed to identify that the SWMP has been monitored throughout the lifetime of the Scheme and then signed off at its closure (Table 5-2).

5.2.2 At the end of the Scheme, the PC will review, revise and refine the SWMP as necessary within three months of completion to ensure compliance with relevant legislation and to identify if lessons could be learned for the next time a similar Scheme is undertaken. This review will identify and may conclude the following:

- An explanation of any deviation from the original plan.
- A comparison of the estimated quantities of each waste type against the actual quantities generated.
- An action plan to address the lessons that have been learnt from the Scheme that could be implemented for the next Scheme.
- An estimation of the cost savings (if any) that have been achieved through the measures undertaken to minimise, reuse, recycle or recover waste arisings rather than just sending it to landfill.

Table 5-2 - Post-construction confirmation (to be completed by the PC)

This plan has been monitored on a regular basis to ensure that work is progressing according to the plan and has been updated to record details of the actual waste management actions and waste transfers that have taken place.	
Signatures	Date
Client:	
Contractor:	

5.2.3 Table 5-3 records the deviation between those waste quantities estimated and actuals.

Table 5-3 - Deviations (to be completed by the PC)

Issue	**Details**
[Waste forecasts – exceeded]	**TBC – reasons**
[Waste forecasts – not met]	**TBC – reasons**

5.3 Estimate of cost savings

5.3.1 **To be completed at the end of the Scheme**

5.4 Declaration

5.4.1 The PC will take all reasonable steps to ensure that:

All waste from the Scheme is dealt with in accordance with the Waste Duty of Care in Section 34 of the Environmental Protection Act 1990 and The Waste (England and Wales) Regulations 2011, as amended; and materials will be handled efficiently, and waste managed appropriately.

Contractor representative:	Signatures:	Date:

5.4.2 National Highways will take all reasonable steps to ensure that

The PC has access to the Site Waste Management Plan in advance of and during the construction phase. Internal project management team members understand the National Highways' and the PC responsibilities for all waste from the Scheme to be dealt with in accordance with the Waste Duty of Care in Section 34 of the Environmental Protection Act 1990 and The Waste (England and Wales) Regulations 2011, as amended; and materials will be handled efficiently.

Client representative:	Signatures:	Date:

5.5 References

[1] Nottinghamshire County Council (2013) Waste Core Strategy 2020 [online]. Available at: waste-core-strategy-1.pdf (nottinghamshire.gov.uk) (Last accessed December 2023).

[2] Defra (2022) UK statistics on waste [online]. Available at: UK statistics on waste - GOV.UK (www.gov.uk) (Last accessed December 2023).

[3] Highways England (2019) Design Manual for Roads and Bridges, LA 110 – Materials assets and waste [online] available at: 6a19a7d4-2596-490d-b17b-4c9e570339e9 (standardsforhighways.co.uk) (Last accessed December 2023).

[4] Ellen MacArthur Foundation (n.d.) Circular economy introduction [online]. Available at: [redacted] (Last accessed December 2023).

[5] Defra (2011) Guidance on applying the waste hierarchy [online]. Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf (last accessed December 2023).

[6] [Clarification note]

[7] [Clarification note]

[8] [Clarification note]

[9] Her Majesty's Government (2020) The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 [online]. Available at The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 (legislation.gov.uk) (last accessed December 2023).

[10] Her Majesty's Government (2020) The Waste (Circular Economy) (Amendment) Regulations 2020 [online]. Available at: Legislation.gov.uk (last accessed December 2023).

[11] Landfill Directive (1999/31/EC) [online]. Available at: [redacted] (last accessed December 2023).

[12] Council of the European Union (2002) 2003/33/EC: Council Decision of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC [online]. Available at: [redacted]) (last accessed December 2023).

[13] Environment Agency (2023) Public Registers Online [online]. Available at: Public Registers Online (data.gov.uk) (last accessed December 2023).

[14] Her Majesty's Government (1990) Environmental Protection Act 1990 [online]. Available at: Environmental Protection Act 1990 (legislation.gov.uk) (last accessed December 2023).

[15] Her Majesty's Government (2011) The Waste (England and Wales) Regulations 2011, No.988 [online]. Available at:

https://www.legislation.gov.uk/uksi/2011/988/contents (last accessed December 2023).

[16] Department for Environment, Food & Rural Affairs (2016) Guidance – Fly-tipping: council responsibilities [online]. Available at: Fly-tipping: council responsibilities - GOV.UK (www.gov.uk). (last accessed December 2023).

[17] [Clarification note].

[18] [Clarification note].

[19] [Clarification note].

[20] [Clarification note].

Appendix B.2 – Outline Materials Management Plan (OMMP)

Contents

1 Introduction

1.1 Purpose of this Outline Materials Management Plan

1.1.1 This Outline Materials Management Plan (MMP) aims to outline the commitment of the Scheme to minimise waste generated by seeking ways to reuse site-won / excavated materials within the construction of the Scheme, provided it meets the requirements of the CL:AIRE Definition of Waste Code of Practice (DoW CoP)[1].

1.1.2 This Outline MMP will be developed by the Principal Contractor (PC) into a full Materials Management Plan (MMP) prior to construction, and included within the Second Iteration Environmental Management Plan (EMP), as appropriate and necessary, prior to commencement of works in accordance with the relevant Requirement 3 of Schedule 2 of the draft Development Consent Order (DCO) **(TR010065/APP/3.1)**. Further details on the First and Second Iteration EMPs, including how mitigation is secured within the DCO, is provided within Section 4.4 of Chapter 4 (Environmental Assessment Methodology) of the Environmental Statement (ES) **(TR010065/APP/6.1)**.

1.2 Overview of the Scheme

1.2.1 A detailed description of the Scheme is provided within Chapter 2 (The Scheme) of the ES **(TR010065/APP/6.1).**

1.2.2 Materials excavated on site from earthworks, if geotechnically and environmentally suitable, are proposed to be reused on the site of origin as backfill to excavations and in new embankment sections. The on-site excavated material is likely to comprise of Made Ground, alluvium and River Terrace Deposits. In areas of soft landscaping Topsoil and subsoil will be reused.

1.2.3 An Outline Soil Management Plan (SMP) has been produced which provides information on likely thicknesses and volumes of subsoil and topsoil, how these materials should be handled, stored and reused. The Outline SMP is contained within Appendix B of Volume 6.5 First Iteration EMP **(TR010065/APP/6.5)**. This information should be taken into account during any future iterations of this Outline MMP.

1.3 Scope of this Outline MMP

1.3.1 This Outline MMP has been prepared to act as a framework from which to develop the full MMP and has been based on the following information:

[1] CL:AIRE Definition of Waste: Development Industry Code of Practice, March 2011

- Intrusive GI factual reporting.
- Detailed geotechnical design.
- Contaminated land risk assessment.
- Soil Management Plan.
- Detailed earthworks design / cut-fill mass balance volumes.
- Tracking system and contingency arrangements.
- Scheme layout drawing including landscape plans.

1.3.2 The full MMP will be prepared as part of the Second Iteration EMP following receipt of the DCO, associated regulatory consultation and detailed design information. This will be a live document.

1.3.3 Where additional information is required to be included at a later stage of the Scheme prior to construction, this is indicated as red text within the report.

1.3.4 Appendices will be produced by the PC, prior to construction.

1.4 Definitions

1.4.1 The abbreviations and definitions used within this Outline MMP are provided within Table 1-1

1.4.2 [This table would be further populated as the document is updated with additional information].

Table 1-1 Definitions

Term/ abbreviation	Definition
ACM	Asbestos-Containing Material
BS	British Standard
CEMP	Construction Environmental Management Plan
CL:AIRE	Contaminated Land: Applications in Real Environments
DCO	Development Consent Order
DoW CoP	Definition of Waste: Development Industry Code of Practice
EQS	Environmental Quality Standard
ES	Environmental Statement
MMP	Materials Management Plan
QP	Qualified Person
SMP	Soil Management Plan
SSV	Soil Screening Values
SWMP	Site Waste Management Plan

2 Materials Management Plan

2.1 Background

2.1.1 Materials are only considered to be waste if they are discarded, intended to be discarded or required to be discarded, by the holder. Once discarded, they remain a waste until fully recovered.

2.1.2 The primary aim of the Waste Framework Directive[2] is the protection of human health and the environment. There is no single factor that can be used to determine if something is a waste or when it ceases to be waste. However, in the context of excavated materials used on sites undergoing development, the following factors are of relevance:

- Factor 1: Protection of human health and protection of the environment
- Factor 2: Suitability for use, without further treatment
- Factor 3: Certainty of use
- Factor 4: Quantity of material.

2.1.3 The production of the MMP will demonstrate that the above factors have been considered in line with the CL:AIRE Code of Practice (CoP)[3]

2.1.4 At the current time, this Outline MMP is assumed to relate to the DoW CoP Scenario 1 – reuse on the site of origin, however this would need to be confirmed following the receipt of the items listed in paragraph 1.3.1.

2.2 Form

2.2.1 The form below follows the MMP proforma (dated October 2014) provided by CL:AIRE[3]. The answers to the questions posed within this form, together with the supporting documentation would constitute the MMP and must be provided to the CL:AIRE QP. It will be the responsibility of the PC to appoint a CL:AIRE QP prior to any excavated Made Ground reuse on site. The CL:AIRE QP requirements are detailed in Appendix 6 of the CL:AIRE Definition of Waste: Development Industry Code of Practice.

2.2.2 This CL:AIRE QP Declaration form would be completed once the lines of evidence have been marshalled in relation to suitability for use, certainty of use and quantity required.

2.2.3 The answers to the questions posed within this Declaration form, together with the supporting information will constitute the MMP and must be provided to the CL:AIRE QP.

[2] European Commission (2008) Directive 2008/98/EC on waste (Waste Framework Directive).

[3] CL:AIRE Definition of Waste: Development Industry Code of Practice, March 2011

2.2.4 A CL:AIRE QP may comment on draft versions of this MMP, but would not complete and submit the Declaration until receipt of all the relevant documents, demonstrating lines of evidence have been provided for the Scheme.

The person / organisation agreeing to pay the Declaration Fee - Name, organisation and contact details inc. email address -	

☐I confirm I have read and understood the Terms & Conditions.

Each question must be answered. If the question is not applicable please state this and provide a brief explanation.

1. Specify the scenario to which this MMP relates, as described in the Definition of Waste: Development Industry Code of Practice (DoW CoP) (1, 2, 3 or 4):

☐1. Reuse on the Site of Origin

☐2. Direct Transfer of clean naturally occurring soil / mineral materials

☐3. Cluster Project

☐4. Combination of any of the above

In the case of a combination of reuse scenarios, please describe it below (e.g. (i) Reuse on Site of Origin and Direct Transfer of clean naturally occurring unpolluted soils, (ii) Reuse on the Site of Origin with Direct Transfer of clean naturally occurring soil to x number of development sites etc:

(NB: A Declaration is required for reuse on the Site of Origin and for any 2 site arrangement i.e. there is no facility for a combination Declaration).

2. Organisation and name of person preparing this MMP	(Full address and contact details)

Document Control

Date issued	
Revision date	
Summary of revision 1	
Summary of revision 2	

Insert additional lines to the table above for any subsequent revisions.

Note - revisions to the MMP do not trigger an additional Declaration by a QP, unless an additional site is added to the Scheme.

Revisions to the MMP must be recorded and summarised in the Document Control box above.

Site Details

3. Site / Scheme name(s)	
Reuse / receiving site name :	
Donor site name (if Direct Transfer)	

Landowners

4a. Name of Landowner(s) (full address and contact details) – where excavated materials are to be reused	
4b. Name of Landowner(s) (full address and contact details) – where excavated materials are arising from	

Summary and objectives

5a. Provide a brief description of the Scheme and how excavated materials are to be reused.	

General Plans and Schematics

6. **Attach** a location plan for the site(s) and a plan of the site(s) which identifies where different materials are to be excavated from, stockpile locations (if applicable), where materials are to be treated (if applicable) and where materials are to be reused.	Plan Document Reference(s):

7. **Attach** a schematic of proposed materials movement. Where there is only one source area and one placement area briefly describe it. For all other projects a schematic is required.	Description & Schematic Document Reference:

Parties Involved and Consultation – if more than one party please provide additional details for them and identify the location that they will be working e.g. where a site is zoned.

8a. Main earthworks contractor(s) (full address and contact details) – Where excavated materials are to be reused	
8b. Main earthworks contractor(s) (full address and contact details) - Where excavated materials are arising from	

9. Treatment contractor(s) (full address and contact details) – for treatment on site of origin, or at a Hub site within a fixed STF / Cluster scheme	

10. Where wastes and materials are to be transported between sites, provide details of the transport contractor(s) (full address, contact details and waste carriers registration details (if applicable))	

11. Provide Local Authority contact details (full address and named contacts) where excavated materials are to be reused	

12a. For the site where materials are to be reused and for Hub Site locations provide Environment Agency contact details (full address and named contacts):	
For all Cluster schemes: 12b. Attach any relevant documentation from the Environment Agency relating to the excavation and reuse of the materials to demonstrate no	Environment Agency references:

objection to the proposals (see 3.37 of DoW CoP) If the Environment Agency has not been consulted please explain why (see paragraph 3.39 of the DoW CoP).	

Lines of Evidence

There is no one single factor that can be used to decide that a substance or object is waste, or when it is, at what point it ceases to be waste; as complete a picture as possible has to be created.

The following sections require completion to ensure the correct decision is made.

If a requested item is not relevant it is important to clearly state why this is so (e.g. no planning permission required because permitted development status exists).

Suitable for use criteria

13. Please describe or provide copies of the required specification(s) for the materials to be reused on each site.	Document Reference(s):

Where contamination is suspected or known to be present 14a. Please provide copies of or relevant extracts from the risk assessment(s) that has been used to determine the specification for use on the site. **This must relate to the place where materials are to be used.** This must be in terms of (i) human health (ii) controlled waters and (iii) any other relevant receptors. If a risk assessment is not relevant for a particular receptor given the site setting please explain why below:	Document Reference(s):

14b. Please attach any relevant documentation from the LA relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP)	LA Document references:
14c. Please attach any relevant documentation from the Environment Agency relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 and Table 2 of the CoP)	Environment Agency Document references:
14d. Please attach any relevant documentation from any other regulators (if relevant) relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP)	Document Reference(s):

Where contamination is not suspected 15a. Please attach copies or relevant extracts from the Desk Top Study that demonstrates that there is no suspicion of contamination.	Document Reference(s)
15b. Please attach copies of or relevant extracts from the site investigation/testing reports that adequately characterise the clean materials to be used (if appropriate).	Document Reference(s)
15c. Please attach copies of any other relevant information (if available) confirming that land contamination is not an issue.	Document Reference(s)

NB: It is your responsibility to assess the nature of the material to be used and that it fits within the limitations of the scenario under which it is to be used.

Certainty of use

Various lines of evidence are required to demonstrate that the materials are certain to be used. This includes:

- The production of this MMP

- An appropriate planning permission (or conditions that link with the reuse of the said materials)
- An agreed Remediation Strategy(ies)
- An agreed Design Statement(s)
- Details of the contractual arrangements

Please identify in the following sections what lines of evidence relate to the site(s) **where the materials are to be used**.

16a. Planning Permission(s) relating to the site where materials are to be reused Please provide a copy of the relevant planning permission	Document Reference:
16b. Explain how the reuse of the excavated materials fits within the planning permission(s) for each site.	
16c. If planning permission is not required for any one site please explain why below e.g. permitted development, clean up of a chemical spill, surrender of an Environmental Permit, re-contouring within the existing permission.	

Where contamination is suspected or is known to be present 17. Please provide a copy of any Remediation Strategy(ies) that have been agreed with relevant regulators.	Document Reference(s):

Where contamination is not suspected 18. Please provide a copy of any Design Statement(s) that have been agreed (e.g. with the planning authority or in the case of permitted developments the client).	Document Reference(s):

Quantity of Use

19. Please provide a breakdown of the excavated materials for each site and how much will be placed at each site or sub area of each site. Where this is not specific to a single readily identifiable source refer to an annotated plan, schematic or attach a tabulated summary.	Document Reference(s):

20a. How has consolidation/compaction being considered in the above mass balance calculations?	
20b. How has loss due to treatment being considered in the above mass balance calculations (if applicable)?	
20c. How has the addition of treatment materials being considered in the above mass balance calculations (if applicable)? Note - An exact figure is not required but one that is reasonable in the circumstances and can be justified if challenged.	

Contingency arrangements

Explain what is to happen in the following situations and **identify the appropriate clauses** in the contract(s) (Such clauses must be provided to the QP, preferably as a summary document): or

21a. What is to happen to, and who is to pay for out of specification materials?	Reference:
21b. What is to happen to, and who is to pay for any excess materials?	Reference:
21c. What happens if the project programme slips in relation to	Reference:

excavated materials or materials under -going treatment?	
21d. Other identified risk scenarios for the Scheme (relating to excavated materials)?	Reference:

The Tracking System

Where contamination is suspected or known to be present, state the procedures put in place to:

22a. For all sites please describe the tracking system to be employed to monitor materials movements.	
Where contamination is suspected or known to be present, state the procedures put in place to: 22b. Prevent contaminants not suitable for the treatment process being accepted	
Where contamination is suspected or known to be present, state the procedures put in place to: 22c. Prevent cross contamination of materials not in need of treatment, wastes awaiting treatment and treated materials	
Where contamination is suspected or known to be present, state the procedures put in place to: 22d. Demonstrate that materials that do not require treatment and successfully treated materials reach their specific destination	
Where contamination is suspected or known to be present, state the procedures put in place to: 22e. Ensure that waste for off-site disposal or treatment is properly characterised and goes to the correct facility	

23. Please attach a copy of the tracking forms / control sheets that are to be used to monitor materials movements. To include transfer of loads on site into stockpiles prior to treatment (if applicable), stockpiled after treatment (if applicable), stockpiled awaiting use (as appropriate) and final placement.	Document reference(s)

For Hub Sites within Cluster schemes & where materials need treatment before reuse 24. Please attach a copy of the Environmental Permit covering the treatment process. Alternatively if the treatment is covered by a Mobile Plant Permit and associated Deployment Form, attach a copy of the Environment Agency agreement to the Deployment Form.	Permit reference / Environment Agency letter reference:

Records

25. Where, and in what form, are records to be kept? Note – records e.g. transfer notes, delivery tickets, Desk Top Study, Site Investigation, Risk Assessment(s), Verification Report(s) need to be kept for at least 2 years after the completion of the works and production of the Verification Report	

Verification Plan

26. Provide or explain the Verification Plan which sets out how you will record the placement of materials and prove that excavated materials have been reused in the correct location and in the correct quantities within the development works (see 3.4 of the DoW CoP).	Document Reference

2.3 References

[1] CL:AIRE Definition of Waste: Development Industry Code of Practice, March 2011

[2] European Commission (2008) Directive 2008/98/EC on waste (Waste Framework Directive).

[3] CL:AIRE Definition of Waste: Development Industry Code of Practice, March 2011

Appendix A: Materials movement schedules

[To be produced by the PC]

Appendix B: Evidence of no objection by regulators

[To be produced by the PC]

Appendix C: Re-use criteria for the protection of human health and controlled waters

[To be produced by the PC]

Appendix D: Earthworks estimated volumes

[To be produced by the PC]

Appendix E: Example tracking sheets

An example material tracking sheet is shown overleaf.

Site Materials Management Plan: Materials Tracking Form

Site and Scheme: A46 Newark Bypass

Site Operator:

Earthworks Contractor:

Materials Management Plan Ref:

Stockpile Reference [1]	Source of Material [2]	Volume of Material Excavated (m^3)	Volume of Material Backfilled/Disposed (m^3)	Fate of Material e.g. Reused without treatment/ description of treatment/ offsite disposal [3]	Name of responsible person	Date

1. Include Reference to Drawing Number and location on drawing, if material is moved directly without stockpiling then leave blank.

2. E.g. excavated from area 1 drawing 1 or waste materials sorted from stockpile 2, Include Reference to Drawing Number and location on drawing.

3. Complete when action taken. Include Reference to Drawing Number and location on drawing where material is stockpiled or used on site. Where material is stockpiled rather then used a new entry for new stockpile should be created as this one is completed. Specific details of treatment needed e.g. licence number if applicable - In case of disposal reference where disposal details can be found.

Note: materials may have more than one entry and multiple sheets can be used

Appendix F: Organogram

[To be produced by the PC]

Appendix G: Out of specification material

[To be produced by the PC]

Appendix B.3 – Outline Soils Management Plan (OSMP)

Contents

1 Introduction

1.1 Purpose of this Outline Soil Management Plan

1.1.1 Soil is a non-renewable resource and critical to a vast array of ecosystem services. The mishandling of soils may have consequences for soil quality, stability, erosion, carbon sequestration and contamination, and all of which can have financial and environmental implications.

1.1.2 The guidance within this Outline Soil Management Plan (OSMP) is given in-line with industry best practice ('The Construction Code of Practice for the Sustainable Use of Soils on Construction Sites' - Department for Environment Food and Rural Affairs (Defra) 2009)[1], and is designed to ensure that soil structure and overall quality does not unduly deteriorate during construction, thereby remaining suitable for intended landscaping or eventual reinstatement and reuse.

1.1.3 The OSMP provides a framework that can be used by contractors to manage and monitor the soils disturbed during the construction phase of the proposed development.

1.1.4 This OSMP will be developed by the Principal Contractor (PC) into a full Soil Management Plan (SMP) prior to construction, and included within the Second Iteration Environmental Management Plan (EMP), as appropriate and necessary, prior to commencement of works in accordance with the relevant Requirements in Schedule 2 of the draft Development Consent Order **(TR010065/APP/3.1)**. Further details on the First and Second Iteration EMPs, including how mitigation is secured within the DCO, is provided within Section 4.4 of Chapter 4 (Environmental Assessment Methodology) of the Environmental Statement (ES) Appendices **(TR010065/APP/6.3)**.

1.2 Scope of this Outline SMP

1.2.1 This OSMP covers all areas within the Order Limits as shown in Figure 2.1 (Scheme Location Plan) of the ES Figures **(TR010065/APP/6.2)**. The Scheme alignment is broken down into four sections:

- **Farndon East and West Borrow its Floodplain Compensation Area (FCAs):** An Agricultural Land Classification (ALC) survey was carried out within the southern section of the Order Limits, straddling the A46 just north of the Farndon Roundabout, in 2023. Results are contained

[1] Department for Environment, Food and Rural Affairs (DEFRA) (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.

within the Appendix 9.3 (Agricultural Land Classification Survey Report) of the ES Appendices **(TR010065/APP/6.3).**

- **Kelham and Averham FCA:** This area was also covered by the ALC survey undertaken in 2023, results of which are contained within Appendix 9.3 (Agricultural Land Classification Survey Report) of the ES Appendices **(TR010065/APP/6.3).**
- **Scheme alignment north of Farndon east and west FCAs:** Soil data from a previous ALC survey undertaken in 2021 was used to inform soil management for this area of the Scheme. The one exception to this can be found just north of the Winthorpe Roundabout (A46/A1133), toward the extreme north of the Order Limits, where a section of one agricultural field to the east of the A46 was included in the 2023 ALC survey.
- **Scheme alignment south of Farndon east and west FCAs:** Baseline data from Landis[2] and Soils Survey for England and Wales (SSEW[3]) was used to comment on soil management as no soil surveys have been done in this area.

1.2.2 The data from all sources above, along with the findings of the desk-based study (see Section 3 of this report) have been used to identify and investigate the key properties of the on-site soil resources in order to compile this Outline SMP.

1.2.3 This OSMP includes:

- A summary of background information applicable to soils for the Scheme, including current land-uses, topography, geology, soils, climatological trends and flood risk.
- Details of the soil resources, including soil types identified, profile depths and horizon thickness, using information from the 2021 and 2023 ALC survey (further details of which are contained within Appendix 9.3 (Agricultural Land Classification Survey Report) of the ES Appendices **(TR010065/APP/6.3)**.
- Descriptions of suitable guidance for the handling of soils including stripping, storage, reconditioning, reinstatement and record keeping.
- An outline of the required aftercare and monitoring programmes for ensuring the continuation of soil resource suitability following the construction of the Scheme.
- An overview of the roles and responsibilities in relation to the handling of site soils.
- Appended maps depicting the spatial distribution of soil types and other key information.

[2] Landis Soil Series. Available at: [redacted] . (Last Accessed December 2023).

[3] Hodge, C.A.H. (1984). Soils and their use in Eastern England *(Bulletin / Soil Survey of England and Wales).*

1.2.4 This OSMP should be read alongside Appendix 9.3 (Agricultural Land Classification Survey Report) of the ES Appendices **(TR010065/APP/6.3)**.

2 Guidance

2.1 Background

2.1.1 This section sets out guidance relating to soil management measures admissible to the Scheme.

2.1 Guidance

Safeguarding our Soil: A Strategy for England

2.1.1 The Safeguarding our Soils: A Strategy for England[4] emphasises the sustainable use of soil as a non-renewable natural resource that provides ecosystem services and is threatened by intensive agriculture, pollution and urban development.

Construction Code of Practice for the Sustainable Use of Soil on Construction Sites

2.1.2 The Code of Practice for the Sustainable Use of Soils on Construction Sites[1] is a practical guide to assist those involved in the construction industry to protect the soil resources with which they work.

2.1.3 Below is a summary of the key messages of the code:

- Conduct an intrusive soil survey that informs on the resources present, prior to construction.
- Stay informed on waste regulations.
- Consider the use of sustainable drainage systems on site as these can provide more long-term protection of soils beyond the construction phase, by facilitating the infiltration and attenuation of surface water.
- Prepare a SMP showing the areas and types of topsoil and subsoil to be stripped, haul routes, the methods to be used, and the location, type and management of each soil stockpile.
- When stripping, stockpiling or placing soil, do so in the driest condition possible and use tracked equipment where possible to reduce compaction.
- Confine traffic movement to designated routes.
- Keep soil storage periods as short as possible.
- Clearly define stockpiles of different soil materials.
- Ensure that the entire soil profile is in a condition to promote sufficient aeration, drainage and root growth.

[4] Department for Environment, Food and Rural Affairs (DEFRA) (2009). Safeguarding our Soils. A strategy for England. Available at: Safeguarding our Soils - A Strategy for England (publishing.service.gov.uk). (Last Accessed December 2023).

- Safeguard and utilise on-site soil resources where possible. If importing soils, use a reputable supplier, establish the source of the soil and ensure it is suitable for the intended use.

British Standards

2.1.4 The following standards provide guidance on the handling of soils during construction:

- BS 3882 Specification for topsoil[5] - This British Standard specifies requirements for the classification, composition and use of topsoils that are moved or traded for creating soil profiles intended to support plant growth.
- BS 8601 Specification for subsoil[6] and requirements for use − This British Standard specifies requirements for the classification, composition and use of subsoils that are moved or traded for creating soil profiles intended to support plant growth.

The Definition of Waste Development Industry Code of Practice

2.1.5 The Definition of Waste: Development Industry Code of Practice[7] outlines the process required to determine if site-won soils are to be considered as waste.

[5]British Standards Institution (BSI) (2015). BS 3882 Specification for topsoil.

[6]British Standards Institution (BSI) (2013), BS 8601 Specification for subsoil.

[7] CL:AIRE (2011). The Definition of Waste: Development Industry Code of Practice. Available: [redacted] (Last accessed December 2023).

3 Baseline information

3.1.1 The following section presents the findings from an initial desk-top review of available information conducted prior to the subsequent soil surveys. It was compiled to guide survey methodology and complement the empirical results, enabling a combined approach for the advice given herein on appropriate management of the soil resources during and post construction.

3.2 Land Use2.1

3.2.1 The 6.5 kilometre proposed route primarily consists of arable land with sections of woodland and unmanaged grassland. In addition, north-west of the Cattle Market Roundabout there is a water body to the side of woodlands being surveyed and south-west of Cattle Market Roundabout there is a small section of urban land being used as a lorry park.

3.3 Topography

3.3.1 The majority of the land adjacent to the existing A46 is flat, only varying between around 10 metre Above Ordnance Datum (AOD) and 17 metre AOD, from the extreme south of the Order Limits to Brownhills Roundabout, with the low point as it crosses the River Trent just east of the weir. North of the Brownhills Roundabout the land rises from 14 metre AOD to 23 metre AOD, adjacent to the Newark Showground, before falling slightly to 20 metre AOD at the northern limit of the Scheme. The Kelham and Averham FCA is also relatively flat, with elevations ranging from 13 metre AOD to 17 metre AOD across the site.

3.4 Geology

3.4.1 British Geological Survey (BGS) mapping was consulted to determine on-site geology prior to intrusive survey. This included both the superficial (drift) and bedrock (solid) geological constituents.

Superficial geology

3.4.2 BGS '*GeoIndex'* mapping[8] 1:50,000 resolution mapping indicates there are three superficial geologies present across the Scheme area:

- *Alluvium* – Clay*,* silt, sand and gravel: Described as 'soft to firm consolidated and compressible silty clay, but can contain silt, peat and gravel'. Underlies the Farndon East and West FCAs, the Scheme alignment south of Farndon East and West FCAs, the Scheme alignment north of Farndon East and West FCAsand a section of the Kelham and Averham FCA that lies to the east of the A617.
- *Holme Pierrepont Sand and Gravel Member - Sand and gravel:* Described as 'Pinkish, poorly sorted and compositionally rather immature, sandy gravels dominated by rounded pebbles of quartz/quartzite, flint, Triassic and Upper Carboniferous sandstone, Lower carboniferous cherts etc, which typically develops 1-2 metres above the floodplain'. Underlies the Kelham FCA.
- *Balderton Sand and Gravel Member* - Sand and gravel. Described as 'Orange-brown sandy gravel, dominated by round pebbles of quartz/quartzite, subangular flint and rarer Triassic sandstone'.

Bedrock geology

3.4.3 BGS '*GeoIndex'* mapping 1:50,000 resolution indicates there are three bedrock geologies present across the Scheme:

- *Gunthorpe Member - Mudstone*. Described as 'Mudstone, red-brown, subordinate siltstone and fine grained sandstone, greenish grey gypsum veins and nodules'. Underlies the majority of the Farndon East and West FCAs, the Scheme alignment south of Farndon East and West FCAs Scheme alignment north of Farndon East and West FCAs.
- *Edwalton Member - Mudstone*. Described as 'Mudstone and siltstone, red-brown and greenish grey, variably dolomitic siltstone and very-fine grained sandstone common in the lower half and fine gypsum common in the upper half'. Predominantly located within the Farndon East and West FCAs and the Scheme alignment south of Farndon East and West FCAs.
- *Mercia Mudstone Group - Mudstone*. Described as 'red, sometimes green-grey, mudstones and subordinate siltstones. Thin beds of gypsum and anhydrite are widespread with thin sandstones also present. Mid Triassic to latest Triassic'. Underlies The Kelham and Averham FCA .

[8] British Geological Survey. *GeoIndex Geological Map Viewer.* Available [redacted] (Last accessed December 2023).

3.5 Climatological data and flood risk

3.5.1 Climatological and flood risk data are key factors to be considered during soil management planning.

Climatological data

3.5.2 '*Climatological Data for Agricultural Land Classification*'[9] was consulted to obtain data relevant to the site. The data is summarised in Table 3-1 as below.

Table 3-1: Climatological data

Variable	**Measurements**		
National Grid Reference	SK 77833 53324*	SK 76157 55161**	SK 80025 55070***
Altitude in metres (ALT)	8	14	10
Average annual rainfall (AAR) in mm	587	587	559
Median duration of field capacity (FCD) in days, when the soil moisture deficit is zero	113	113	108

*Farndon East and West FCAs and Scheme alignment south of Farndon East and West FCAs
** Kelham and Averham FCA
***Scheme alignment north of Farndon East and West FCA

Flood risk

3.5.3 The Environment Agency's '*Flood Map for Planning*'[10] indicates that the Farndon East and West FCAs and Scheme alignment south of the Farndon East and West FCAs are categorised as being at a high risk of flooding (Flood Zone 3), equating to a greater than 3.3% chance annual flooding. The Scheme north of Farndon FCAs, to the Winthorpe interchange is also predominantly at a high risk of flooding. The area north of the Winthorpe interchange, where the land is more elevated (approximately 18-23 metres AOD) is not within in any flood zone. The majority of the Kelham and Averham FCA area is outside of flood zones, however some area on the west side of the A617 toward the northeast of the order limits is categorised as having a low risk of annual flooding (between 0.1% and 1%). On the east side of the A617 the majority of the land is categorised as having a medium risk of

[9] The Met Office, Soil Survey and Land Research Centre and Ministry of Agriculture, Fisheries and Food (1989). *Climatological Data for Agricultural Land Classification.*

[10] Environment Agency. *Flood Map for Planning.* (November 2023).

annual flooding (1 – 3.3%), with a smaller area close to the River Trent categorised as having a high risk of annual flooding (>3.3%).

3.6 Agricultural land classification

3.6.1 Full details of the ALC surveys undertaken for the Scheme are detailed within Appendix 9.3 (Agricultural Land Classification Survey Report) of the ES Appendices **(TR010065/APP/6.3)**.

3.7 Soil Associations

3.7.1 National Soil Association mapping[11] suggests that the soils comprise of the following seven Associations:

- **Fladbury 2**: Stoneless clayey soils variably affected by groundwater some with sandy subsoils. Some similar fine loamy soils. Anticipated toward the eastern side of the A46 site.
- **Wharfe**: Deep stoneless permeable fine loamy soils. Some similar soils variably affected by groundwater. Anticipated toward the western side of the A46 site.
- **Arrow**: Deep permeable coarse loamy soils affected by groundwater. Anticipated to cover most of the FCAs.
- **Compton**: Stoneless mostly reddish clayey soils affected by groundwater and subject to seasonal flooding. Only anticipated in the extreme north-west of the Kelham and Averham FCAs.
- **Blackwood**: Deep permeable sandy and coarse loamy soils affected by groundwater.
- **Newport 1**: Deep well drained sandy and coarse loamy soils. Some sandy soils affected by groundwater.
- **Dunnington Heath**: Reddish coarse and fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.

[11] Hodge, C.A.H. (1984). Soils and their use in Eastern England (Bulletin / Soil Survey of England and Wales).

4 Soil management

4.1.1 The following section provides soil management guidance to limit detrimental impacts on soil quality, both during and after construction and/or landscaping. Inappropriate handling of on-site soils may adversely affect their physical, chemical and biological properties, and eventual suitability for reinstatement by exacerbating erosion, runoff, compaction and contamination.

4.1.2 The methods advised throughout this section are in line with the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites[1]. The PC will have an appointed Soil Scientist to advise on soil handing operations where required on site.

4.1.3 To complement the guidance offered throughout this section, it is recommended that Toolbox Talks are provided by the PC to all workers likely to be involved with any stage of soil handling. These talks should encompass soil stripping, stockpiling, reinstatement and aftercare, with the overarching principle of handling soil resources sustainably. Appendix A includes the recommended Toolbox Talks to be delivered to site personnel required to handle on-site soils as a component of pre-construction planning.

4.2 Pre-construction planning

4.2.1 Table 4-1 of this document details the appropriate pre-construction planning operations which have been undertaken. Please refer to Appendix B for a copy of the background pre-construction planning flowchart used.

Table 4-1: Summary of pre-construction planning

Operation	Details
Soil Management Plan	This document reports upon the results of the ALC which incorporates soil resources data and provides both general principles and site-specific soil management guidance to be consulted throughout all construction phases and during the reinstatement of displaced soils. As the report precedes the finalisation of Scheme design, such soil management information should be treated flexibly and updated once plans are finalised.
Operation Checklist	An operation checklist has been produced to guide all stages of soil handling. Please refer to Appendix C for a copy of the Operation Checklist, which includes key audit agendas regarding: (1) pre-development; (2) soil resource planning; (3) topsoil stripping; (4) subsoil stripping; (5) soil stockpiling; (6) soil placement; (7) sourcing and importing soil; (8) topsoil manufacture; (9)

Operation	Details
	soil aftercare; and (10) uses for surplus soil.

4.3 Soil handling constraints

4.3.1 The term 'handling' refers to all stages of the construction process including stripping, storage and reinstatement. Handling of site soils should always be conducted in accordance with Defra guidance[1].

4.3.2 To ensure that overall soil quality is retained, soils should only be handled under specific circumstances that ensure adverse impacts are minimised. Specifically, this relates to soils being in a sufficiently dry state to minimise the risk of compaction and smearing as both cause a deterioration of soil quality and hinder the reinstatement of high-quality soils.

4.3.3 Such considerations are particularly relevant to within the Order Limits, which predominantly consists of clay and heavy clay loam soils that are highly susceptible to structural damage when handled with high moisture content or in a plastic state. In addition, the Scheme is within a floodplain and subject to a high-water table, and seasonal waterlogging (evident at the time of surveying), and therefore it is critical to plan soil handling operations within the limited time period that they will suitably dry enough to do so.

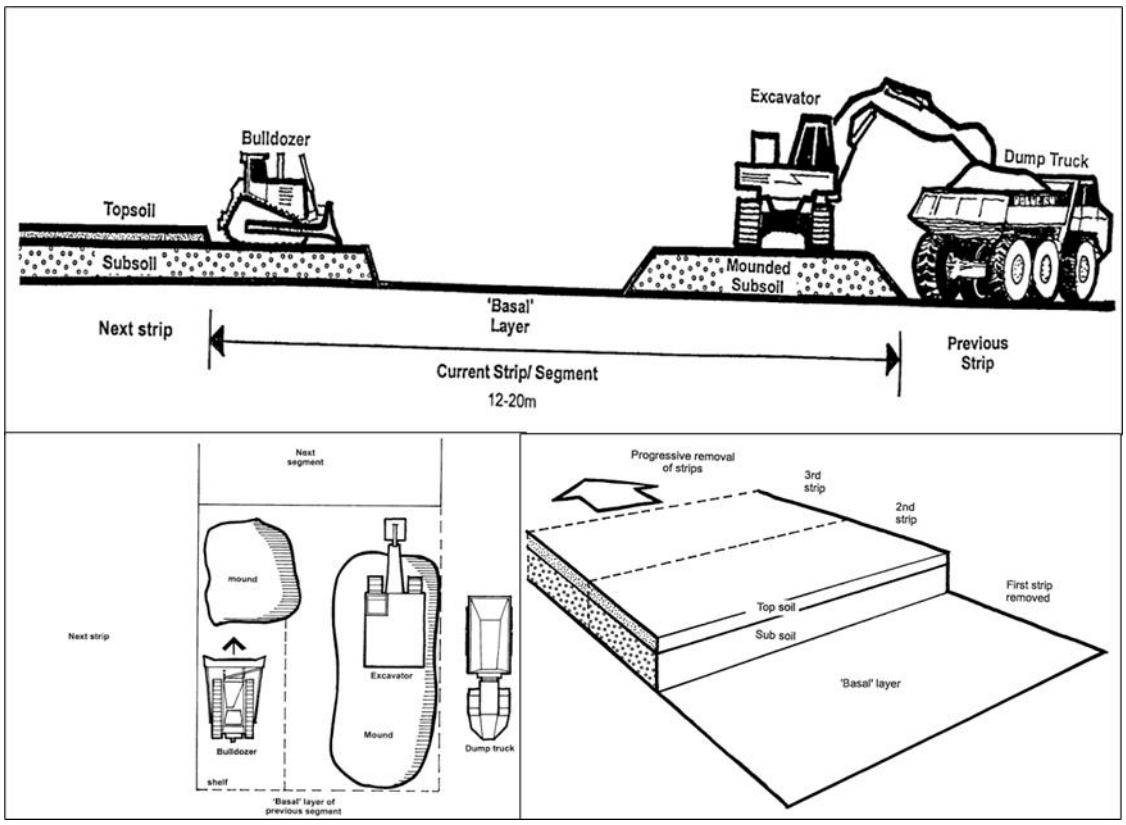
Appropriate weather and ground conditions

4.3.4 Similarly, it is recommended that handling is not undertaken when there is heavy rain (such as slow-moving depressions or intense showers) or there are other forms of heavy precipitation (such as hail, snow) for a spell. This also includes instances in which soils are waterlogged, frozen, covered by snow or if pools of water are present.

4.4 Soil stripping

It is recommended that tracked/low ground pressure vehicles are used throughout stripping and haulage to reduce structural damage through compaction. More specifically, that soil strip is undertaken using a bulldozer; loading by the use of a 360^0 excavator; haulage by articulated dump-trucks and that a sequential system of *bed* stripping is adopted as depicted in Figure 4.1 overleaf.

Figure 4.1: Topsoil stripping with bulldozer, 360^0 excavator and articulated dump-truck



Source: Ministry of Agriculture, Fisheries and Food (MAFF) (2000) Good Practice Guide for Handling Soils.

Topsoil stripping

4.4.1 Topsoil should be stripped from all areas to be disturbed by earthworks, construction and storage. Areas designated as haul routes and access tracks should be designed to accommodate two passing vehicles, to avoid traversing surrounding soils, and should be stripped of topsoil to avoid compaction.

4.4.2 Topsoil should be stripped to its maximum depth and no deeper.

4.4.3 In summary, the following should be adhered to at all times during the construction process:

- Vegetation cleared prior to stripping to ensure it is not incorporated within stockpiled soils. If herbicide is to be used, this should be undertaken at least two weeks prior to the commencement of stripping operations.
- Stripping undertaken during the driest possible conditions.
- Soils stripped with comparatively wetter profiles or horizons to be stockpiled separately where applicable to allow for subsequent reconditioning prior to reinstatement.
- Soil stripping stopped during or directly after heavy rain, or when water is pooled on the surface.

- Where required, stripping to be conducted in the presence of an archaeological watching brief. Refer to the Archaeological Management Plan **(TR010065/APP/6.8)** for further details on archaeological requirements for the Scheme.
- Where possible, tracked equipment to be used to reduce compaction.
- Vehicles required for stripping and haulage to stay on the designated routes to avoid additional compaction.
- Wheeled vehicles to be kept off topsoil where possible.
- Dust generation to be kept to a minimum to avoid air pollution as required by Reference AQ1 of the Register of Environmental Actions and commitments in the First Iteration EMP **(TR010065/APP/6.5)**.
- Topsoil should not be stripped below the specified depths, as this would reduce topsoil fertility and overall quality.

Subsoil stripping

4.4.4 Where it is required for subsoils to be stripped, it should be ensured that the maximum depth of topsoil has been stripped. During subsoil stripping, the following list should be adhered to at all times:

- Stripping should be undertaken during the driest possible conditions.
- Upper and lower subsoil should be stripped separately.
- Soils stripped with comparatively wetter horizons to be stockpiled separately where applicable to allow for subsequent reconditioning prior to reinstatement.
- Where possible, tracked equipment should be used to reduce compaction.
- Dust generation should be kept to a minimum to avoid air pollution when subsoils are dry.
- Soil stripping should be stopped during or directly after heavy rain, or when water is pooled on the surface (please refer to Section 4.3 of this report for soil handling constraints with regard to weather conditions).
- Subsoils should not be stripped below the specified depths.
- Subsoils and topsoil should be stripped separately.
- Vehicles required for stripping and haulage should stay on the designated haul routes to avoid additional compaction.

4.5 Soil stockpiling

4.5.1 The information included within this section is suitably tailored to site-specific information available at the time of writing.

4.5.2 Stockpile construction should take place on dry, flat ground, avoiding hollows and situated away from tree crowns, ditches, watercourses, boreholes or other areas where they might disturb local surface drainage. Vegetation and waste must be cleared from the intended locations prior to stripping operations, although it may be preferable to retain vegetation surrounding nearby ditches and watercourses or

establish grass buffer strips following stockpiling, to minimise drainage disturbances.

4.5.3 Topsoils and subsoils should be stockpiled separately throughout the Scheme to limit mixing and soil quality deterioration. Different soil types identified should also be stored separately as should soils that have been identified in the accompanying Appendix 9.4 (Soil Nutrient Survey Report) of the ES Appendices **(TR010065/APP/6.3)** as *low nutrient,* and are therefore of value for specific landscaping purposes. To meet these requirements stripped soils should be stored locally wherever practicable. This will help to avoid the mixing of different soil types or soils from different fields/farms and reduce the potential of avoidable structural damage resulting from unnecessary double-handling and excessive trafficking.

4.5.4 If it becomes necessary to store topsoil significant distances from where it will be reinstated, it is particularly important that soils are not transported in a wet non-plastic state to minimise soil degradation associated with such situations. In particular, this relates to ensuring that soils are not wet before loading and transporting them.

4.5.5 In any instances in which storing different soil types together is unavoidable, a suitable separating material such as a geotextile membrane or straw may be used, although this approach should be minimised wherever possible.

Stockpile formation

4.5.6 In line with Defra (2009) guidance[1], the accepted method for forming stockpiles is detailed below and highlights the distinctions between dry, plastic, and wet (non-plastic) soils.

Method 1: Soil stockpile formation on dry non-plastic soils

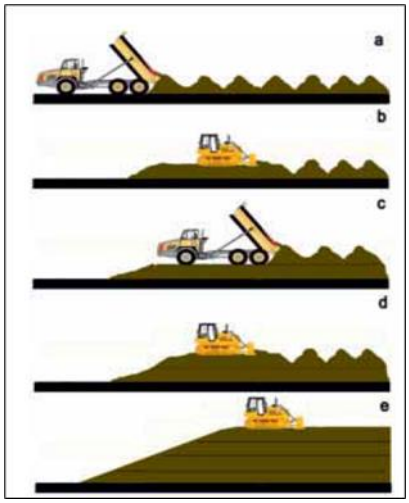
4.5.7 The excavated soils contained within dump trucks should be tipped in heaps as demonstrated in Figure 4-2-a. After designated stockpile areas are filled with soil heaps, tracked excavators or dozers may start to level and firm soil heaps, as demonstrated in Figure 4-2-b and Figure 4-2-c. Following this, the sequence may be repeated as depicted in Figure 4-2-d and Figure 4-2-c When stockpiles reach their planned dimensions (height maximum 2 metres), a tracked vehicle should firm soils and shape and smooth sides to the planned slope angle.

Method 2: Soil stockpile formation on wet plastic soils

4.5.8 Excavated soils from dump trucks should be tipped in heaps to form ‘windrows’, as depicted in Figure 4-3-a. This should again be undertaken in order, beginning with the furthest end of stockpile to the

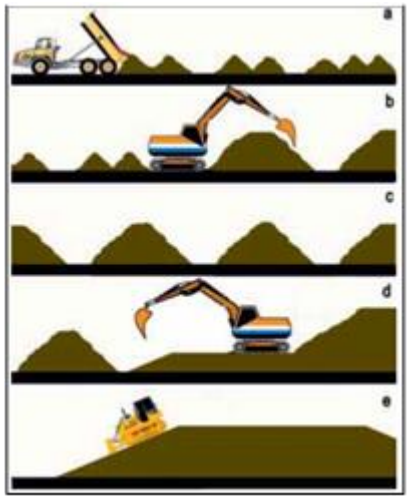
access entrance. Space between 'windrows' should be sufficient for tracked vehicles to work between them to form larger 'windrows', which may be up to 2 metres maximum height for dry soils (Figure 4-3-b and Figure 4-3-c). Once soils are dry, 'windrows' may be formed into a larger stockpile (Figure 4-3-d and Figure 4-3-e), for which the surface of stockpile should be firmed and shaped to the planned gradient.

Figure 4-2: Stockpile formation from dry soils



Source: Defra (2009) Code of Practice on Sustainable Soils on Construction Sites.

Figure 4-3: Stockpile formation from wet soils



Source: Defra (2009) Code of Practice on Sustainable Soils on Construction Sites.

4.5.9 Other considerations and requirements for stockpile formation include:

- Stockpile heights should be a maximum of 2 metres in height.
- Soils will have a natural angle of repose of up to 40°, though this depends on texture and soil moisture content. However, for stable stockpiles to be formed, slope angles should be 30° to reduce the risk of erosion and guard the integrity of the soil structure. For stockpiles to be maintained over six

months and grass seeded, a maximum side slope angle of 25° should be adopted.

- Gaps between stockpiles should be left for passing vehicles, which should not run over stockpiles unnecessarily.

Stockpile maintenance

4.5.10 Once soil stockpiles have been formed, the area should be cordoned off with secure fencing or tape to prevent any disturbances or contamination by other construction activities. This should distinctively mark out the areas set out for soil stockpile storage. As discussed in paragraph 4.5.3, different soil types and topsoils and subsoils should be stored separately, compounding the importance of clear stockpile signage.

4.5.11 If stockpiles are to be stored for a period of over six months, they should be seeded with a grass/clover mixture to minimise soil erosion and reduce ingression by weeds which may spread seed onto adjacent land. If weeds appear during the summer months, they should be removed by herbicide spraying or by mowing/strimming to prevent seed spreading.

4.5.12 A stockpile and windrow database should be produced by the PC Site Officer to accurately record all appropriate details regarding stored soils. To ensure that the correct soils are reinstated, this should include:

- Farm name
- Field name/code
- Projected end-use
- Date soil was stripped, date soil was moved to stockpile or windrow, or date soil was changed from stockpile to windrow storage
- Soil depth stripped
- Whether soil is stored in a stockpile or windrow
- Soil type
- Topsoil or subsoil segregation (ideally additionally segregating between upper and lower subsoil)
- Sign off upon eventual reinstatement

4.5.13 For an example stockpile record card, please refer to Appendix D.

4.6 Soil reinstatement and reuse

Soil reconditioning

4.6.1 Prior to reinstatement, some soils will require reconditioning to restore quality and structure following stockpiling. Any observations of plastic

soils or anaerobic conditions will need to be remediated by the method outlined in Defra (2009)[1] guidance. This is summarised below:

- Tip soils in heaps to form 'windrows' (2 metres height maximum). This should start at the furthest point along the stockpile area and run toward the access point. Windrows should be spaced to allow for vehicles between them.
- Windrows should be produced with a rough surface to maximise drying.
- No machinery should traverse the windrows as this may damage the suitability of the soil for reuse.
- Windrows should be turned through until all soil has been exposed to the air to facilitate drying.
- Once drying is complete and soils are non-plastic, the windrows can be re-combined to produce larger stockpiles if required (without mixing topsoil and subsoil).
- Reformed stockpiles can be regraded and compacted using a tracked machine to inhibit the infiltration of rainwater.

4.6.2 Following the same Defra guidance[1], all receiving substrates that are to be reinstated must be de-compacted prior to receiving topsoil or subsoil. De-compaction promotes deeper root growth and reduces flood risk by reducing the impedance of water drainage.

4.6.3 The method of de-compaction equipment suitability is dependent on both the scale and extent of compaction that has occurred. The various methods – in conjunction with the rationale behind using each – are listed below and illustrated in Figure 4-4.

- A small (1-5 tonne) to medium sized (13 tonne) tracked excavator, fitted with a single rigid tine is effective in restricted areas, such as road verges.
- In more open areas, a tractor-drawn subsoiler is capable of loosening soil that is not too heavily or deeply compacted. Compressed air injection can also be used to de-compact the soil profile in such locations.
- Deep compaction can only be effectively relieved using heavy duty ripping equipment, such as a single rigid tine device.

Soil placement

4.6.4 Stockpiled or imported soil needs to be carefully assessed by the PC prior to placement to first determine its suitability for handling and subsequently its quality. As part of this assessment, soils should undergo visual and tactile examination to determine soil wetness, structure, consistency, foreign objects, and construction debris etc.

4.6.5 Once it has been established that stockpiled or reconditioned soils are suitable for reinstatement, or construction of specific soil profiles for Scheme landscaping designs, they should be tipped and spread according to the 'Loose-tipping' method as defined by Defra guidance[1]. This is generally accepted as the industry standard for soil

placement, as it provides the best means of reinstating soils with minimum damage to soil structure.

Figure 4-4: Top: (left to Right) Tractor-drawn tines; Large winged ripping tine; Topsoil rake on 3 tonne excavator. Bottom: Single ripper tooth for relieving compaction to a depth of 600mm

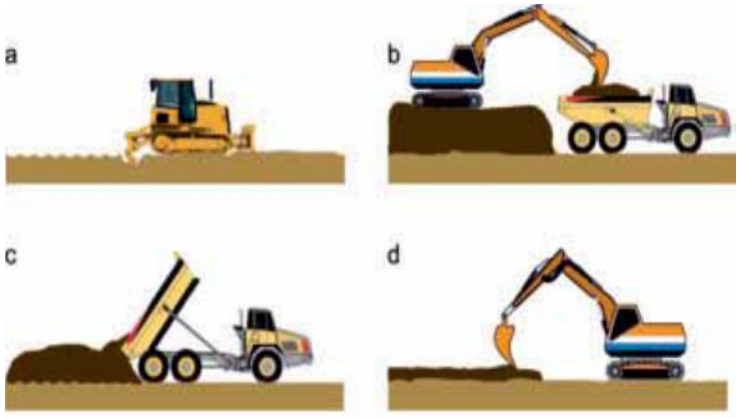
Source: Defra (2009) Code of Practice on Sustainable Soils on Construction Sites.

4.6.6 The 'Loose-tipping' method is detailed below and illustrated in Figure 4-5 and Figure 4-6.

- Soils should only be handled when dry or slightly moist and work must be suspended if sustained heavy rainfall occurs during or immediately before spreading. Work should not be restarted until the ground has had at least one full day to dry.
- All alien objects (ie construction debris, wire, rope, wood, metal, plastic) should be removed from both receiving land and stockpiled soils before reinstatement. Any large foreign objects brought to the surface during wing-tine ripper soil loosening must also be identified and removed.
- The specified method entails working to a strip system whereby stripping vehicles may easily pass each other.
- Prior to soil placement, the receiving ground (whether a basal layer or compacted subsoil) must first be loosened with a wing-tine ripper to an appropriate depth.
- A hydraulic excavator (fitted with a toothed-bucket to avoid excessive smearing) should be used to load soil from stockpiles into dump-trucks. Dump-trucks may then discharge soils onto receiving surfaces.
- In order to spread the freshly dumped soil to the required thickness, an excavator must be situated adjacent to where the soil was discharged.
- Soils should be spread to the appropriate depth for the area of reinstatement, which is dependent on the original profile or the requirements of any landscaping design.
- The correct soil type and associated order of soil horizons must be reinstated.

- If topsoil and subsoils are being reinstated in an area, the whole strip length must be restored with subsoil first before the process is repeated with topsoil.
- Where topsoil and subsoil are being placed, topsoil must be lifted onto subsoil without the excavator travelling on the newly placed subsoil. Only when one strip has been completed should the next be started.
- Different topsoil and subsoil resources must not be mixed during placement.
- For soils which are cloddy in structure, the excavator bucket must be used to break up the clods.
- Once tipped or spread the soil must not be trafficked by construction vehicles.

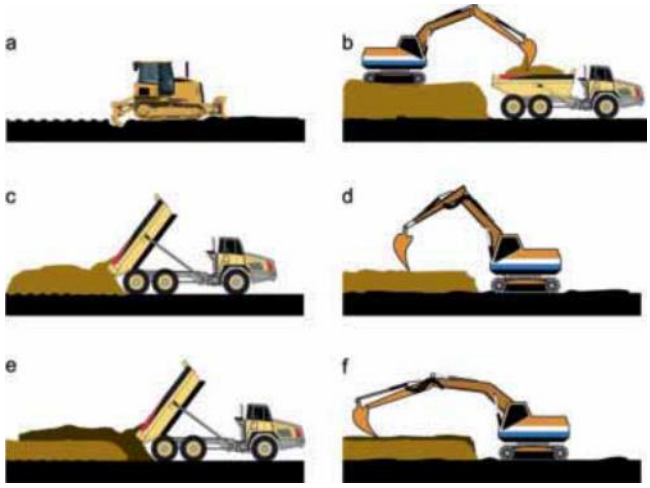
Figure 4-5: Loose-tipping method for topsoil placement only



a) **Loosening the subsoil of the receiving ground**
b) **Loading of topsoil from the stockpile**
c) **Back-tipping topsoil onto the loosened subsoil**
d) **Levelling topsoil**

Source: Defra (2009) Code of Practice on Sustainable Soils on Construction Sites.

Figure 4-6: Loose-tipping method for subsoil and topsoil placement



a) **Loosening the substrate of the receiving ground**
b) **Loading the subsoil from stockpile**
c) **Back-tipping subsoil onto loosened substrate**
d) **Levelling subsoil**
e) **Back-tipping topsoil**
f) **Spreading topsoil over subsoil using excavator working on substrate**

Source: Defra (2009) Code of Practice on Sustainable Soils on Construction Sites.

4.6.7 Areas where soil resources have been reinstated should be clearly marked by barrier tape and exclusion signs. Soils in these areas must not be disturbed by trafficking or used for material storage, soil stockpile areas or as temporary construction compounds.

4.6.8 Where importation of topsoil is required for spreading on areas of newly constructed earthworks, a soil certificate will be required in accordance with BS 3882:2015**Error! Bookmark not defined.** to ensure that the topsoil provides suitable substrates for native plant species and to maximise biodiversity, in accordance with industry best practice.

4.7 Aftercare and monitoring

4.7.1 Although well-executed soil management will minimise damage to soil resources, it is crucial to adhere to a period of aftercare and soil monitoring to ensure that reinstated soils, or soils constructed for landscaping purposes, are functional to the required level. Monitoring of reinstated soils should be undertaken by an appropriately qualified soil scientist (appointed by the Principal Contractor).

4.7.2 For this reason, Defra guidance[1] suggests that reinstated soils should be subject to a five year period of aftercare. During this period, it is required that both soil and plant health is closely monitored to swiftly identify and rectify deficiencies. Guidance recommends 'hand digging small trial pits or auger holes at representative locations at agreed intervals with the landowner, or where adverse impacts are identified. Adverse impacts include instances such as the identification of water seepage (indicating waterlogged conditions) or grey/olive coloration and a sour odour (typical of soils suffering from anaerobic conditions). Following monitoring, aftercare reports should be produced by the Principal Contractor, reporting upon the inspections conducted, results and dates.

4.7.3 Although aftercare represents a crucial stage of the soil management process, an aftercare plan should not be relied upon as an alternative to sound soil handling procedures at any stage of the management process.

4.8 References

[1] Department for Environment, Food and Rural Affairs (DEFRA) (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.

[2] Landis Soil Series. Available at: [redacted]. (Last Accessed December 2023).

[3] Hodge, C.A.H. (1984). Soils and their use in Eastern England *(Bulletin / Soil Survey of England and Wales).*

[4] Department for Environment, Food and Rural Affairs (DEFRA) (2009). Safeguarding our Soils. A strategy for England. Available at: Safeguarding our Soils - A Strategy for England (publishing.service.gov.uk). (Last Accessed December 2023)

[5] British Standards Institution (BSI) (2015). BS 3882 Specification for topsoil.

[6] British Standards Institution (BSI) (2013), BS 8601 Specification for subsoil.

[7] CL:AIRE (2011). The Definition of Waste: Development Industry Code of Practice. Available: [redacted] (Last Accessed December 2023).

[8] British Geological Survey. *GeoIndex Geological Map Viewer.* Available at: [redacted] (Last Accessed December 2023).

[9] The Met Office, Soil Survey and Land Research Centre and Ministry of Agriculture, Fisheries and Food (1989). *Climatological Data for Agricultural Land Classification.*

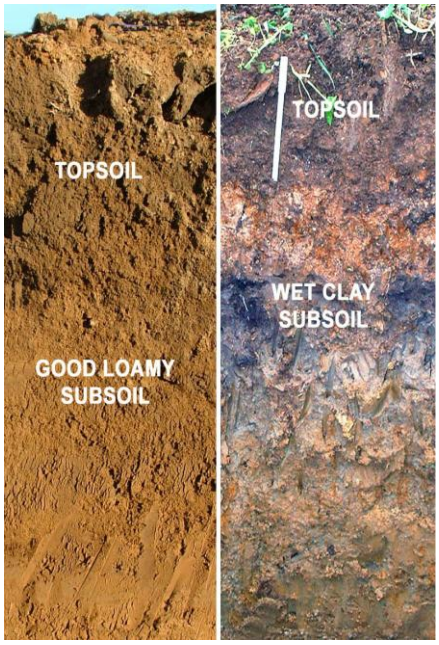
[10] Environment Agency. *Flood Map for Planning.* (November 2023).

[11] Hodge, C.A.H. (1984). Soils and their use in Eastern England (Bulletin / Soil Survey of England and Wales).

Appendix A: Toolbox talks

TOOLBOX TALK 1

FINDING OUT WHAT RE-USABLE SOIL RESOURCES ARE ON SITE



WHAT?

Inadequate identification and protection of clean soil resources can result in:

- good soil becoming mixed with spoil or contaminated materials that then need to be disposed of to landfill; and
- a need to import soils for landscaping.

WHY?

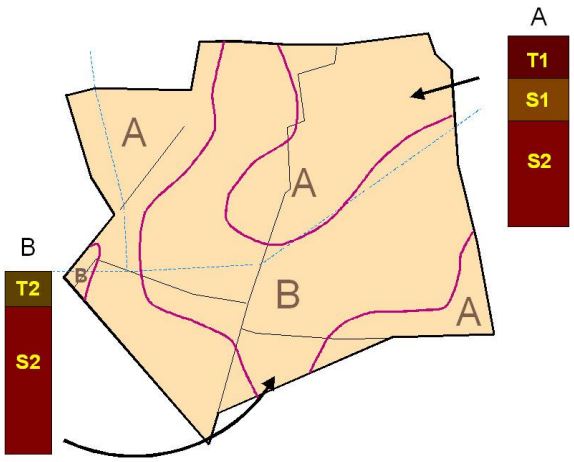
- **Avoid environmental harm:** Topsoil that is reused beneficially reduces the impacts of needing to treat it or to dispose of it to landfill.
- **Reduce costs:** Good topsoil can be expensive to import into a site. Topsoil that becomes mixed with subsoil or wastes will have to treated or even be sent to tip and incur landfill tax.

DO

- ✓ Commission a soil resources survey before any earthmoving operations start.
- ✓ Ensure that the survey is carried out by suitably qualified and experienced soil scientist (www.soilscientist.org).
- ✓ Ensure that analyses are undertaken by an appropriate UKAS/MCERTS accredited laboratory
- ✓ Ensure liaison between the soil resource survey and other ground investigations as each might have information useful to the other.
- ✓ Incorporate the results into the site Materials Management Plan and/or Site Waste Management Plan.

DON'T

X Rely on a geotechnical survey or investigation of land contamination for detailed information on re-usable topsoil and subsoil resources.



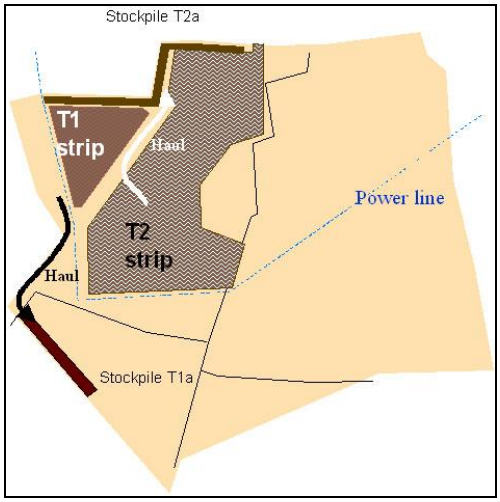
TOOLBOX TALK 2

SOIL PLANNING & MANAGEMENT

WHAT?

Careful management of soils is an important aspect of sustainable use of materials that are being stripped, whether for sale off-site or for retaining on-site for later landscape preparation.

Without a proper soil management strategy there is the risk of losing, damaging or contaminating valuable soil resources.



WHY?

- **Avoid environmental harm:** Inadequate planning will increase the risk of good soil resources becoming damaged or sterilised.
- **Reduce costs:** Failure to use on-site soil materials to their maximum potential might necessitate costly import of replacement soils.

DO

- ✓ Develop a soil management strategy well before works commence on site.
- ✓ Ensure that there is sufficient space to stockpile all soils that are to remain on site.
- ✓ Investigate beneficial off-site uses for all soil materials that are surplus to requirement.
- ✓ Plan site works so that soil stripping and replacement can be undertaken in summer months.
- ✓ Identify a person responsible for supervising soil management.
- ✓ Clearly mark out all haul routes and areas to be protected from construction activity.

DON'T

- X Leave soil management to chance.
- X Make haul routes wider than necessary to accommodate two passing vehicles.

- X Allow indiscriminate vehicle movements across soils to be reused.

TOOLBOX TALK 3

STRIPPING TOPSOIL

WHAT?

Topsoil is a finite resource that is essential for creating new landscapes or gardens and supporting the growth of trees, grass or other vegetation within them.

It is very easily damaged by heavy machinery excavating it or running over it, so needs very careful handling when being stripped.

WHY?

- **Avoid environmental harm:** Topsoil that is reused beneficially reduces the impacts of needing to dispose of it to landfill.
- **Avoid environmental harm and prosecution:** Soil that becomes over compacted will not absorb rainwater, increasing the risk of muddy water running off into watercourses and causing pollution and breaching discharge consents.
- **Reduce costs:** Good topsoil can be expensive to import into a site. Topsoil that becomes mixed with subsoil or wastes will have to be sent to tip and incur landfill tax.

DO

- ✓ Ensure that the method statement has been properly explained
- ✓ Make sure that vegetation has been killed or cleared before stripping starts
- ✓ Strip topsoil in the driest condition possible.

- ✓ Keep stripping and haul vehicles to designated routes and wheeled vehicles off topsoil.

DON'T

- X Strip soils during or after heavy rainfall or when there are pools of water on the surface.
- X Strip topsoil too deeply so that subsoil becomes incorporated, thereby reducing fertility.
- X Remove topsoil from below the spread of trees to be retained.
- X Drive vehicles unnecessarily over topsoil.

TOOLBOX TALK 4

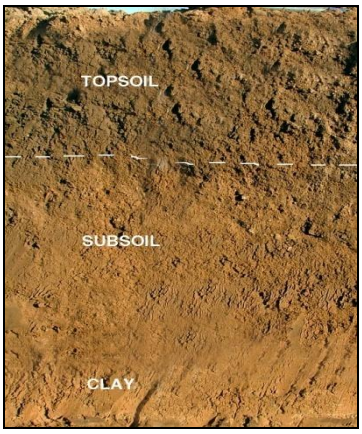
STRIPPING SUBSOIL

WHAT?

The subsoil is an essential component of most soils, transmitting rainfall to deeper layers or watercourses and enabling trees, shrubs and grass to root deeply and access additional moisture in summer.

Subsoil that becomes over-compacted through construction machinery running over it is the major cause of landscape failure because of waterlogging above it in winter and restriction to roots in summer.

A loamy subsoil can be blended with compost or other organic matter to manufacture a topsoil substitute on sites that are lacking topsoil.



WHY?

- **Avoid environmental harm and prosecution:** Soil that becomes overcompacted will not absorb rainwater, increasing the risk of muddy water running off into watercourses and causing pollution and breaching discharge consents.
- **Reduce costs:** Maintaining the subsoil in good condition will prevent the need for remedial works, such as the installation of drains, in areas to be planted or landscaped.
- **Reduce costs:** Using subsoil and organic matter to manufacture a topsoil substitute avoids costly import of natural topsoil into brownfield sites.

DO

- ✓ Ensure that the method statement has been properly explained
- ✓ Strip subsoil in the driest condition possible.
- ✓ Use tracked equipment wherever possible to reduce compaction.
- ✓ Keep stripping and haul vehicles to designated routes and wheeled vehicles off subsoil.

DON'T

- X Strip soils during or after heavy rainfall or when there are pools of water on the surface.
- X Strip together subsoils of different quality and composition (e.g. clay with sand).
- X Drive vehicles over subsoil.

TOOLBOX TALK 5

STOCKPILING SOIL

WHAT?

Soils that are stripped for later re-use have to be temporarily stockpiled on site.

If stockpiling is done incorrectly the physical condition of the soil can be damaged irreversibly, resulting in a loss of a valuable resource.

If soil, spoil and waste become mixed by mismanagement the soil resource will become unusable.

WHY?

- **Avoid environmental harm and prosecution:** Stockpiles that are too steep or that are left unvegetated risk erosion with muddy water running off into watercourses, causing pollution and breaching discharge consents.
- **Contribute to site safety:** Stockpiles badly constructed or badly sited can be a health and safety risk.
- **Reduce costs:** Maintaining stockpiled soil in good condition will benefit areas to be planted or landscaped, avoiding the need for remedial works.
- **Reduce costs:** Keeping topsoil and subsoil separate will keep them usable and avoid tipping charges.

DO

- ✓ Ensure that the method statement has been properly explained.
- ✓ Remove vegetation and waste materials from storage areas before forming stockpiles.
- ✓ Stockpile soil in the driest condition possible.
- ✓ Use tracked equipment wherever possible to reduce compaction.
- ✓ Protect stockpiles from erosion by seeding or covering them.
- ✓ Use clear signage to identify stockpile contents.

DON'T

- X Stockpile soils of different quality and composition together, especially topsoil and subsoil.
- X Locate stockpiles close to retained trees, drains, watercourses, excavations or the site of future excavations.
- X Stockpile subsoil or waste materials on top of topsoil.
- X Steepen stockpile sides beyond a slope of 1 in 1.75 (30°) in order to reduce the risk of erosion.
- X Allow vehicles to run over stockpiles except during construction of them.

TOOLBOX TALK 6

SPREADING SOIL

WHAT?

It is essential to provide a structured, uncompacted and well-aerated soil profile for the successful establishment and subsequent growth of vegetation and to absorb excess rain.

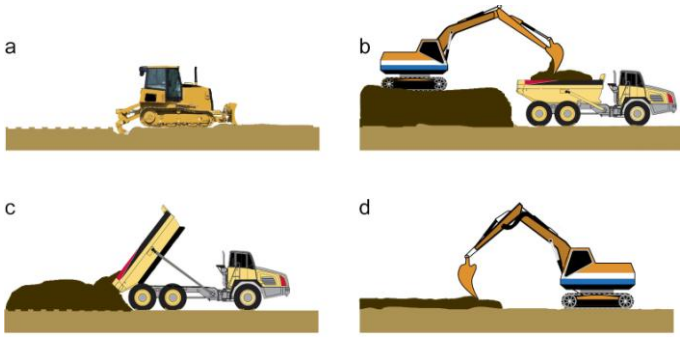
However, where heavy machinery has to handle large volumes of soil, soil structure can easily be destroyed by over-compaction thereby compromising soil functions.

WHY?

- **Avoid environmental harm:** Soils replaced too compact cannot absorb rainfall. This leads to increased run-off and flood risk and risks causing pollution and breaching discharge consents.
- **Reduce costs:** Over-compacted soil will require remedial treatment, increasing project costs.

DO

- ✓ Ensure that the method statement has been properly explained.
- ✓ Handle and place soil in the driest condition possible.



- ✓ Use tracked equipment wherever possible to reduce compaction.
- ✓ Decompact subsoil before placing topsoil.
- ✓ Fully re-aerate anaerobic topsoil before planting, turfing or seeding.
- ✓ Ensure that the physical condition of the entire soil profile (topsoil and subsoil) will promote sufficient aeration, drainage and root growth.

DON'T

- X Place or cultivate soils during or after heavy rainfall or when soils are wet and plastic.
- X Take construction machinery over topsoil that has been placed.
- X Place topsoil too deeply - 'more' is not necessarily 'better'.
- X Plant into wet anaerobic topsoil.

TOOLBOX TALK 7

SOURCING TOPSOIL

WHAT?

On many sites topsoil is either completely absent or there is insufficient quantity to meet landscaping needs.

On sites that have adequate topsoil when site preparation commences, space constraints might necessitate sale or disposal off-site and importation of new topsoil or topsoil substitute later in the project.

Beware! The term 'topsoil' can mean a whole variety of things, depending on whether you are buying, selling, hauling, using, specifying or testing the material.

WHY?

- **Protect natural resources:** Finding a use for natural topsoil that is surplus to requirements on another site helps to preserve natural resources.
- **Avoid environmental harm:** Using a topsoil substitute of verified quality helps recycling of organic wastes, such as green compost, and reduces the quantity going to landfill.
- **Contribute to health and safety:** Soil that is contaminated and/or contains 'sharps' is a risk to site workers, landscape contractors and the eventual occupants of the development.

DO

- ✓ Fully investigate on-site resources before considering a source of topsoil from outside the site.
- ✓ Use a reputable supplier.
- ✓ Establish through appropriate analysis, that the topsoil is suitable for the intended purpose.
- ✓ Ensure that all the correct waste Regulations have been met, and if necessary, the correct Environmental Permit or exemption(s) has been obtained before soils are imported.

DON'T

- X Accept non-documented or unverified loads of topsoil.
- X Use a standard specification for all plantings as different species and land uses have different topsoil requirements.
- X Accept topsoil that is too cloddy or wet or that contains visible evidence of plastics, concrete, etc.

TOOLBOX TALK 8

MANUFACTURING TOPSOIL

WHAT?

On many sites topsoil is either completely absent or there is insufficient quantity to meet landscaping needs.

Manufacturing topsoil on site using discard subsoil or substrate material mixed with imported organic matter can sometimes be a better solution than trying to source suitable and consistent natural topsoil.

Mixing can either be carried out at central site location using screening machines or excavator buckets or by spreading organic matter on the subsoil surface and cultivating in.

Imported organic ameliorants may be subject to waste management licensing or will come under a Waste Quality Protocol.

WHY?

- **Protect natural resources:** Finding a use for suitable subsoil helps to preserve natural resources.
- **Avoid environmental harm:** Using recycled organic matter such as composts or biosolids helps to reduce the waste stream going to landfill.
- **Reduce costs:** Reusing surplus subsoil or mineral material avoids sending it to landfill and the considerable costs involved.

DO

- ✓ Determine if there is shortfall of site topsoil at an early stage in the project.
- ✓ Determine whether topsoil manufacture is feasible by considering the quality of surplus subsoil, programme, space and landscape requirements.
- ✓ Ensure that all imported soil ameliorants are in accordance with Waste Regulations.

DON'T

- X Wait until there is a stockpile of surplus subsoil before considering topsoil manufacture.

TOOLBOX TALK 9

SOIL AFTERCARE

WHAT?

Even if soils are handled carefully there can be damage to their structure that is not repaired by initial cultivation after spreading.

Structurally-weakened soils tend to settle and self-compact after placement, consequently suffering from waterlogging and anaerobism (oxygen-deficiency).

Even in uncompacted situations it can take between 1 and 3 years for the soil structure to stabilise and provide the necessary drainage and aeration for plant roots and the soil's fauna and flora to function properly.

WHY?

- **Avoid environmental harm:** Compact, degraded, soils increase the risk of ponding and flooding.
- **Improve marketability of the site:** Waterlogging and anaerobism are the most common soil-related causes for plant failure on landscaping schemes, detracting from the appearance of a site.
- **Reduce costs:** Failed landscaping schemes can be expensive to remedy.

DO

- ✓ Ensure that soil health as well as plant health is closely monitored during the aftercare period.
- ✓ Correct deficiencies as soon as they are detected.

DON'T

- X Rely on aftercare as an alternative to good soil management – careful soil handling, storage and placement will save on aftercare costs and result in long-term benefits to the development.
- X Assume that soils will function adequately immediately after planting.

TOOLBOX TALK 10

USE OF SURPLUS SOIL

WHAT?

One hectare of topsoil, the most productive soil layer, can contain up to 5 tonnes of living organisms but because it can take more than 500 years to form 2 cm, topsoil is in practical terms non-renewable.

In many localities particularly urban areas, uncontaminated topsoil is in short supply for creating gardens, parks, roadside verges and landscaping schemes.

There will sometimes also be off-site uses for subsoil in restoring landfills, spoil tips, etc.

WHY?

- **Protect natural resources:** Soil is a finite resource which provides many functions apart from supporting vegetation.
- **Reduce costs:** Finding sustainable off-site uses will save the costs of taking surplus soil to tip or accommodating it on site.

DO

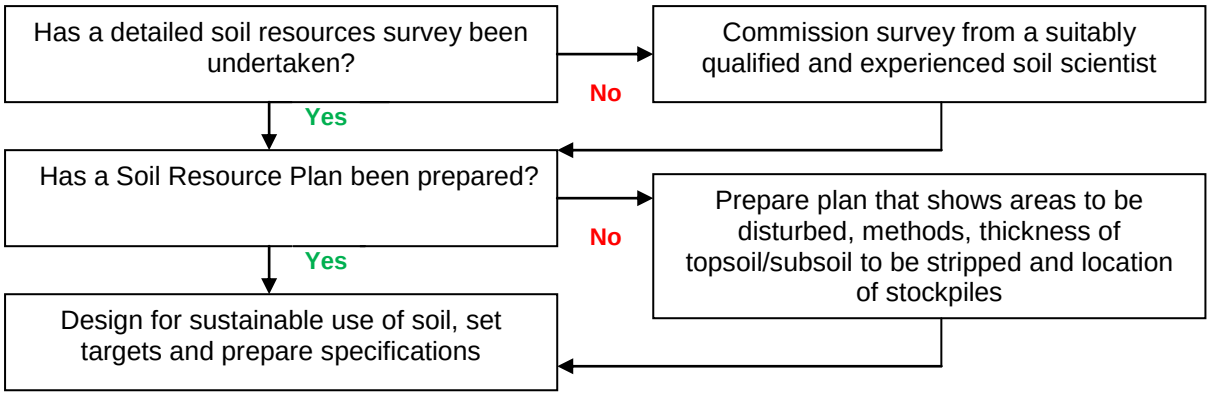
- ✓ Calculate soil surpluses at an early stage in the project.
- ✓ Analyse topsoil according to BS3882:2007 to assist in finding a market for it.
- ✓ Make use of contractor contacts, waste recycling networks and local authority knowledge to seek sustainable off-site uses.

DON'T

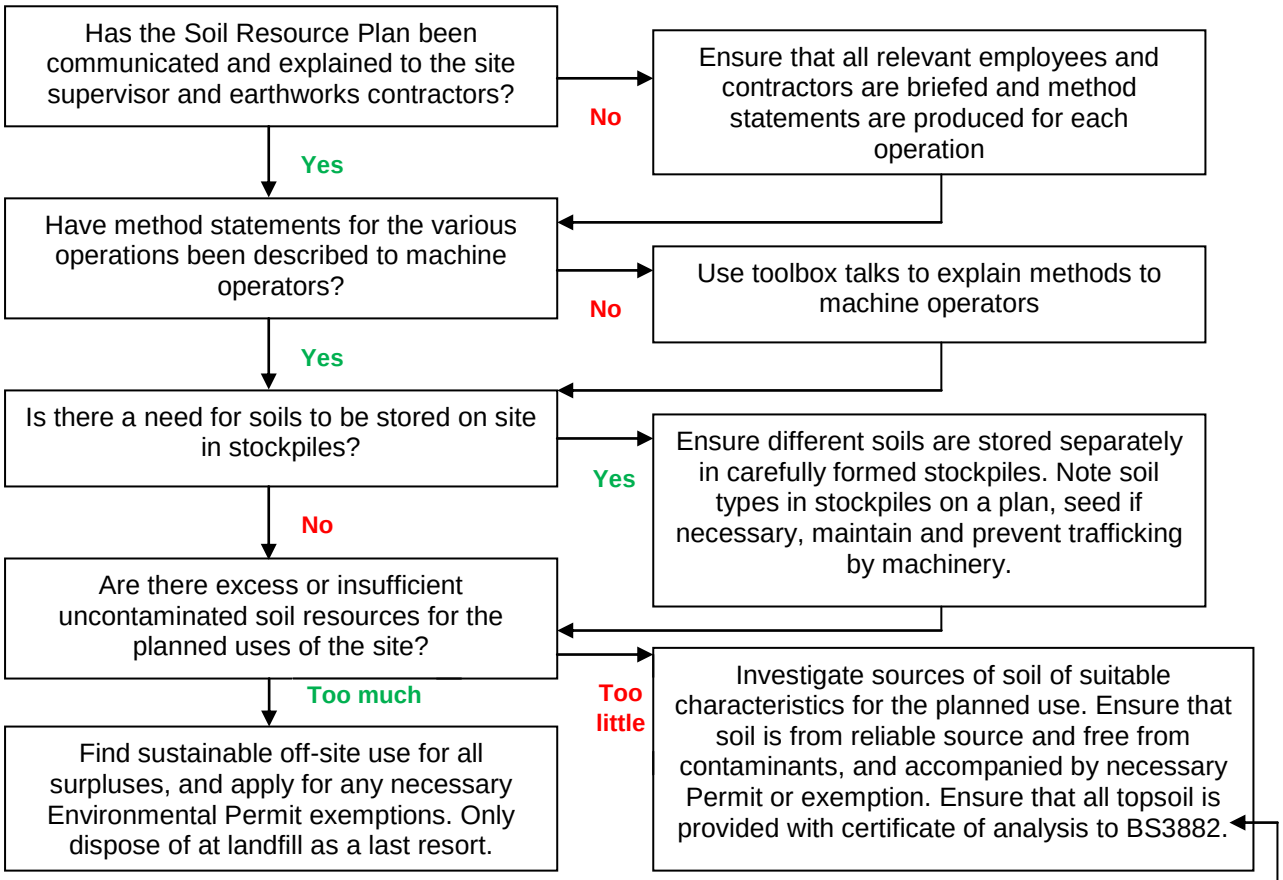
- X Bury topsoil deeply on site unless there are no sustainable off-site uses.
- X Forget to ensure that all off-site uses are in accordance with current waste legislation e.g. Environmental Permit exemptions.

Appendix B: Pre-construction planning

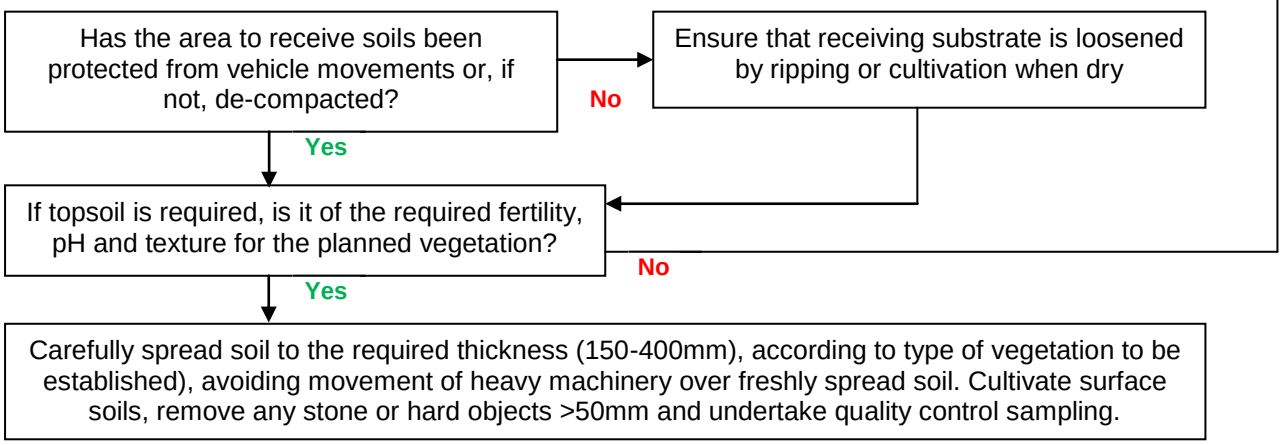
PRE-CONSTRUCTION PLANNING



SOIL MANAGEMENT DURING CONSTRUCTION



LANDSCAPE, HABITAT OR GARDEN CREATION



Appendix C: Operation checklist

OPERATION CHECKLISTS

1. Pre-development soil audit

	✓ X
Have uncontaminated soil resources been identified on site?	
Has a detailed Soil Resource Survey of them been carried out by a suitably qualified soil scientist?	
Has a detailed report of the results been placed on file?	
Has the report been used to identify soil surpluses and soil deficits?	
Has space been identified for storage of any soils to be retained on-site for re-use?	

2. Soil Resource Planning

	✓ X
Has a detailed Soil Resource Plan been produced?	
Has sufficient space been identified to store soils to be retained on site?	
Have volumes of each soil type been calculated?	
Has the type(s) of re-use been identified for each soil type to be retained?	
Have measures been put in place to protect soils to be stored or left in place from vehicle traffic?	
Has a qualified person been identified to supervise soil management?	

3. Topsoil stripping

	✓ X
Is uncontaminated topsoil to be stripped from the site for re-use?	
Has surface vegetation been removed or killed?	
Has the overall soil stripping plan been developed and communicated to machine operators?	
Has topsoil stripping depth been defined and communicated to machine operators?	
Has the appropriate equipment been selected for stripping the topsoil?	
Does the working plan avoid machines travelling over topsoils to be re-used?	
Have stripping activities been scheduled to avoid wet conditions?	
Is there provision to stand-down equipment if heavy rain occurs during topsoil stripping?	

4. Subsoil stripping

	✓ X
Is uncontaminated subsoil to be stripped from the site for re-use?	
Has the overall soil stripping plan been developed and communicated to machine operators?	
Has subsoil stripping depth been defined and communicated to machine operators?	
Has the appropriate equipment been selected for stripping the soil?	
Does the working plan avoid machines travelling over subsoils to be re-used?	
Have stripping activities been scheduled to avoid wet conditions?	
Is there provision to stand-down equipment if heavy rain occurs during topsoil stripping?	

5. Soil stockpiling

	✓ X
Has sufficient space been identified to store soils to be retained on site?	
Has topsoil been removed from areas earmarked for storing subsoil or other materials?	
Are stockpiles located away from retained trees, current or future excavations, voids or watercourses?	
Are stockpiles likely to be relocated before the contents are re-used?	
Have stockpile construction methods been (or will they be) adjusted to deal with wet soils?	
Have stockpile side slopes and top been tracked down for stability and weather proofing?	
Are stockpiles to be seeded with grass?	
Is there a maintenance plan in place for management of stockpile vegetation?	
Have the contents of each stockpile been accurately recorded on a plan and on signs?	

6. Soil placement

	✓ X
Are topsoils or subsoils to be spread?	
Has the overall soil placement plan been developed and communicated to machine operators?	
Has the spreading thickness for each layer been defined and marked out using level boards	
Has the appropriate equipment been selected for decompacting subsoil and spreading topsoil?	
Have appropriate work methods been defined to avoid machinery traffic over newly placed soil?	
Have spreading activities been scheduled to avoid wet conditions?	
Is there provision to stand-down equipment if heavy rain occurs during soil spreading?	

7. Sourcing and importing soil

	✓ X
Is soil to be imported to site?	
Have the soil composition requirements been properly defined for the different planned uses?	
Has the source of the imported soils been verified?	
Is the soil natural (e.g. stripped from a field or stockpiled from a field)?	
Is the soil manufactured or blended from one or more components?	
Do imported topsoils come with a verified analysis to BS3882:2007?	
Have all waste legislation requirements been met for all imported soil?	
Is there an appropriate quality control and inspection strategy for individual loads?	

8. Topsoil manufacture

	✓ X
Is topsoil to be manufactured on site?	
Has the feasibility been assessed and source components been analysed?	
Have all waste legislation requirements been met for all imported components?	
Has a mixing method statement been prepared for producing soils of each composition required?	

9. Soil aftercare

	✓ X
Is there a plan in place to check soil and vegetation health after spreading?	
Are there provisions in the landscape maintenance contract for remediation of ongoing soil deficiencies such as soil compaction?	
Have all waste legislation requirements been met?	

10. Uses for surplus soil

	✓ X
Are there surplus resources of clean soil on site?	
Have the soil needs of nearby developments or reclamations been investigated?	
Has the surplus soil been advertised on soil or waste exchange networks?	
Are all waste legislation requirements being met for soils to be exported?	

Appendix D: Stockpile record card

Table D-1: Example of a stockpile record card

Stockpile identification		**Record**	**Additional notes**
Stockpile ID:			
Stockpile establishment date (dd/mm/yyyy):			
Stockpile location (e.g. coordinates):			
Source (e.g. farm name, field):			
Intended soil end use:			
Soil horizon	**Soil type**	**Depths (cm)**	**Volume (m^3)**
Topsoil			
Subsoil 1			
Subsoil 2			
Subsoil 3			
Stockpile maintenance		**Record**	**Additional notes (e.g. type of seed, type of maintenance)**
Grass/clover seeded?		☐ No ☐ Yes – establishment date (dd/mm/yyyy):	
Grass/clover cover maintenance date(s) (dd/mm/yyyy):		Year 1: Year 2: Year 3: Year 4: Year 5:	
Graphical record?		☐ Stockpile sketch map (inc. horizons) ☐ Photograph	

Appendix C: Environmental method statements

As outlined in Table 1-1, environmental method statements are to be produced as part of the Second Iteration EMP prior to construction by the PC. Method statements will be prepared, but not limited to the following disciplines:

- Biodiversity
- Arboriculture
- Soils and contamination

Task specific WSI will be produced outside of the First, Second and Third Iteration EMPs by the archaeological contractor for each of the works outlined in the AMP **(TR010065/APP/6.8).**

Appendix D: Emergency procedures and record of any environmental incidents

This appendix will be produced as part of the Second Iteration EMP, prior to construction by the PC. The following information will be included as part of this:

- confirmation of procedures in the event of an environmental emergency
- a record of environmental incidents (in table format) if occurred, to include the following information:
  - date and location of the incident
  - details of the reporting procedure followed
  - description of the incident and relevant legislation
  - remedial actions
  - lessons learnt
  - details of any contact with enforcing bodies

Appendix E: Copy of evaluation of change register

This appendix will be produced prior to construction by the PC.

Appendix F: Final environmental investigation and monitoring reports

This appendix is to be produced as part of the Second Iteration EMP by the PC and will include copies of relevant reports relating to:

- protected species and habitats
- cultural heritage investigation
- any other environmental monitoring undertaken for the Scheme

It's noted that Section 5.3 of this First Iteration EMP summarises the ecological surveys that have been undertaken at this stage and provides references of associated reports that present the findings of these surveys.