



Northamptonshire Highways



Northamptonshire
County Council

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NORTHAMPTON NORTH WEST RELIEF ROAD

Outline Construction Environmental Management Plan (CEMP)





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(CEMP)

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CONTENTS

1	INTRODUCTION	1
2	GENERAL CONSTRUCTION INFORMATION	3
3	ENVIRONMENTAL MANAGEMENT FRAMEWORK	5
4	ENVIRONMENTAL MANAGEMENT PLANS	9
5	REFERENCES	21

1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1. This Outline Construction Environment Management Plan (CEMP) has been prepared as part of the planning application for the Northampton North-West Relief Road (hereafter referred to as the 'Proposed Scheme'). The Proposed Scheme is described in detail in **Chapter 3: Description of the Proposed Scheme (Volume II of the ES)**.
- 1.1.2. The environmental management of the construction works for the Proposed Scheme will be delivered through the development of a full CEMP. The full CEMP will be prepared by the appointed Contractor, in consultation with relevant statutory consultees prior to the start of construction works on-site.

1.2 PURPOSE OF THIS DOCUMENT

- 1.2.1. The aim of this Outline CEMP is to provide a framework from which the full CEMP will be produced as part of a planning condition following approval of the planning application. The CEMP will provide assurance to the decision maker and stakeholders that appropriate measures for preventing and reducing environmental effects will be adopted during the construction of the Proposed Scheme.
- 1.2.2. The purpose of a CEMP is to set out the approach towards, and framework for, environmental management during the construction phase (including site preparation) and to provide mitigation against potentially adverse construction impacts on environmental resources, residents and businesses. Both standard environmental good practice and project specific mitigation are included within this Outline CEMP.
- 1.2.3. The full CEMP should set out the Contractor's roles and responsibilities as well as methods of environmental controls that would be employed, including:
- Training and briefing;
 - Risk assessments and mitigation;
 - Stakeholder engagement; and
 - Monitoring, to be undertaken during the construction of the Proposed Scheme.
- 1.2.4. This Outline CEMP covers all elements of the Project as described in **Chapter 3: Description of the Proposed Scheme (Volume II of the ES)**, although some measures will only be relevant to specific design elements or specific works, and this will be made clear in the text of the document.
- 1.2.5. The approved CEMP will be used as an environmental management and monitoring tool for the duration of the construction phase. The full CEMP will be kept on-site as a live document, being updated as and when required (for example to recognise changes in regulations, good practice guidance, actions from on-site audits or a change in situation on-site). The approved full CEMP will fall within the scope of the Contractor's externally certified environmental management systems, and as such will be subject to independent audits by the relevant certification bodies.

- 1.2.6. This Outline CEMP, which has been produced in accordance with IAN Interim Advice Note 183/14: Environmental Management Plans (**Ref. 1**), describes how the construction activities would be undertaken and managed in accordance with environmental mitigation commitments as well as contractual and legislative requirements, and construction industry best practice.

1.3 CONTENT AND STRUCTURE

- 1.3.1. This Outline CEMP includes the following topics:

- Community liaison;
- Nuisance management including measures to avoid or minimise the impacts of construction activities (including; dust, noise, vibration and lighting);
- Site waste and materials management measures;
- Surface and ground water protection measures;
- Pollution control measures;
- Landscape and visual mitigation (such as retention of existing trees and minimising visual intrusion of construction activities);
- Ecological mitigation measures including avoidance of sensitive features; and
- Environmental training requirements.

- 1.3.2. In considering these environmental matters, information is provided on:

- Roles and responsibilities (Section 3.1);
- Communication and co-ordination (Section 3.2);
- Training and awareness (Section 3.2);
- Checking, monitoring, auditing and corrective action (Section 3.5);
- Good practice environmental control measures (Section 4); and
- Where embedded mitigation and additional mitigation has been incorporated and secured (Section 4).

2 GENERAL CONSTRUCTION INFORMATION

2.1 CONSTRUCTION PROGRAMME

- 2.1.1. Subject to planning consent being granted by the Secretary of State, it is anticipated that construction of the Proposed Scheme would commence in Q1 2020 and be operational by early 2022.
- 2.1.2. An indicative construction programme is presented in Table 2-1.

Table 2-1 - Indicative Construction Programme

Activity	Programme
Advance works	TBC
Site clearance	Q1 2020
Site mobilisation	Q2 2020
Construction of Railway Overbridge	Q3 2020 – Q1 2021
Construction of South Embankment	Q3 2020 – Q4 2020
Construction of Sandy Lane Roundabout	Q3 2020 – Q1 2021
Construction of River Nene Crossing and Carriageway (<i>Sandy Lane Roundabout to Brampton Lane Roundabout</i>)	Q3 2020 – Q1 2021
Construction of Brampton Lane Roundabout – Phase 1	Q3 2020 – Q4 2020
Construction of Brampton Lane Roundabout – Phase 2	Q4 2020 – Q1 2021
Construction of North Embankment	Q3 2020 – Q3 2021
Construction of Carriageway (Sandy Lane Roundabout to Railway Overbridge)	Q4 2020 – Q3 2021
Construction of Carriageway (Railway Overbridge to Dallington Grange Roundabout)	Q2 2021 – Q3 2021

2.2 TIMING OF WORKS

- 2.2.1. Construction will be programmed to ensure that construction activities are undertaken in a timely manner while minimising environmental risk as far as possible e.g. seasonal sensitivities or weather will be considered. The works programme will be agreed with Northamptonshire County Council prior to construction commencing on site. Construction activities will be scheduled so that the works have the potential to avoid impact upon ecological receptors in periods of seasonal activity i.e. bird breeding season.

2.3 WORKING HOURS

- 2.3.1. The construction working times will be as follows:
- 08:00 to 18:00 - Monday to Friday; and
 - 08:00 to 13:00 - Saturday.

- 2.3.2. The contractor may then wish to liaise with environmental health and the planning authority where there is a specific need to depart from this, such as the night working for the bridge deck and quieter activities either side of the core hours.

2.4 RAILWAY POSSESSIONS

- 2.4.1. It is anticipated that up to 12 overnight possessions of the railway will be necessary to construct the bridge deck. These will run from 11pm Saturday to 5am Sunday on consecutive weekends towards the end of the bridge construction programme. During these overnight operations the bridge beams will be placed followed by in-situ concreting works to safely secure the bridge over the railway.

2.5 OVERNIGHT WORKS

- 2.5.1. Overnight works are likely to be required to complete the tie in works on Sandy Lane, Northampton Road, Welford Road and Brampton Lane. Short term closures of these roads are likely to be needed to complete the tie in works and utilities diversions as well as traffic under traffic management at other times, particularly for the Brampton Lane roundabout where the roundabout is constructed online. The detailed design will be developed in partnership with the contractor to minimise disruption during construction.

2.6 EMERGENCY PLANNING

- 2.6.1. The Contractor should prepare and submit to the county planning authority, as part of the full CEMP, details of the emergency procedures and processes to be followed based upon the anticipated hazards and their construction operations. These emergency processes should include as a minimum:
- Notification procedures for the emergency services;
 - Emergency measures in the event of severe weather (including storms, gales, wave surges and extreme temperatures);
 - Emergency measures in the event of flood;
 - Spill response procedures drawn up in consultation with the Environment Agency (EA).

2.7 BELOW GROUND ARCHAEOLOGICAL REMAINS

- 2.7.1. There is potential for currently unknown below ground heritage assets within the construction site. An archaeological trial trench evaluation will be conducted on Site from 28th May 2019. The objective of the evaluation, as set out in the Written Scheme of Investigation (WSI) (**Appendix 9.3: Northampton North-west Relief Road, Written Scheme of Investigation, Archaeological Evaluation (Volume III of the ES)**), is to establish the presence/absence, character and date of any archaeological remains.
- 2.7.2. Following the results of the trial trenching a mitigation strategy will be agreed with the County Archaeological Advisor

3 ENVIRONMENTAL MANAGEMENT FRAMEWORK

3.1 ROLES AND RESPONSIBILITIES

- 3.1.1. The following sections outline the responsibilities of those parties involved in the construction of the project however these roles are indicative and may not be exhaustive.

NORTHAMPTONSHIRE COUNTY COUNCIL

- 3.1.2. In terms of the environmental management, Northamptonshire County Council is the responsible party for the overall delivery of the project in compliance with environmental legislation. The mitigation set out in this Outline Construction Environmental Management Plan (CEMP) and any requirements to be implemented as part of the EIA process.

CONTRACTOR

- 3.1.3. The Contractor will be appointed by Northamptonshire County Council to undertake the construction of the Project. The Contractor is required to comply with the mitigation and provisions within the Outline CEMP along with any planning conditions imposed in the Environmental Statement associated with the Proposed Scheme.

ENVIRONMENTAL MANAGER

- 3.1.4. Northamptonshire County Council or the Contractor will appoint an Environmental Manager for the duration of the construction of the Proposed Scheme and during of any restoration works. This is to ensure that the environmental interests of the Site are safeguarded. The Environmental Manager will have the authority to review method statements, recommend actions as appropriate and oversee works. This will include the authority to temporarily stop works if required as appropriate where poor practices or mitigation is not appropriately implemented or adhered too.
- 3.1.5. The Environmental Manager will work with the Contractor to ensure the implementation of and compliance with the provisions of the approved full CEMP, licenses, consents, and other conditions required for the Proposed Scheme.

ENVIRONMENTAL CLERK OF WORKS

- 3.1.6. The Environmental Manager may be assisted by an Environmental Clerk of Works (ECoW). The ECoW would perform specific specialist tasks that require expert knowledge, such as observations and watching briefs. This role may be performed by a suitably qualified individual or a team of individuals with differing expertise.

3.2 COMMUNICATIONS AND TRAINING

COMMUNITY LIAISON

- 3.2.1. The following steps will be taken by Northamptonshire County Council and/or the Contractor to make the public aware of the activities on-site and the available lines of communication with the Proposed Scheme:
- Neighbouring residents and occupiers will be notified of the start of construction activities and the likely duration of the construction period;

- A telephone number for environmental complaints will be published local to the Site. A dedicated person will be responsible for dealing with complaints and will have the appropriate authority to resolve complaints. An 'out of hours' telephone number will be made available if required.
- Liaison will be maintained with the Northamptonshire County Council Environmental Health Officer for the duration of the construction period;
- Any complaints relating to noise and dust to be received, the details of which shall be passed onto the Northamptonshire County Council Environmental Health Officer for verification purposes; and
- Should any unforeseen event occur on the Site that has the potential to cause pollution, then the relevant statutory regulatory bodies will be notified immediately.

ENVIRONMENTAL SITE MEETINGS

- 3.2.2. Environmental meetings will be held throughout the duration of the construction period to disseminate environmental information. The frequency of which will not be less than once a month and shall be determined by the Contractor. Environmental lessons learned or issues will be reported at these meetings along with any updates or changes to the environmental management plans.

SITE SIGNAGE AND NOTICE BOARDS

- 3.2.3. Construction site working areas will be clearly marked with warnings and signage to ensure that they are avoided by members of the public. Site notice boards for information purposes to Site personnel will be positioned within a centralised location and will display method statements, emergency contacts and relevant statutory and non-statutory advice and guidance.

SITE INDUCTIONS

- 3.2.4. The Contractor will ensure all employees, suppliers, visitors, and sub-contractors to the Site received induction training. The Site Induction will include a summary of environmental risks associated with the Proposed Scheme and the relevant methods and standards. Relevant methods and standards specific to a role will be highlighted.

TRAINING IN ENVIRONMENTAL REQUIREMENTS

- 3.2.5. The Contractor will ensure that all personnel are suitably trained in general site good practice and environmental emergency response procedures, including the use of spill kits, concrete washing out, and silt mitigation. Emergency response training and good practice will be provided by a suitably qualified person. Toolbox talks will be provided as task briefings based on environmental standards and method statements. They will be site specific and identify receptors and provide advice on any specific procedures that need to be followed and the mitigation measures that require implementing. A programme of toolbox talks will be drawn up by the Environmental Manager based on the requirements of the site.

3.3 METHOD STATEMENTS AND SITE ENVIRONMENTAL STANDARDS

- 3.3.1. The Contractor will prepare method statements for specific construction activities and site environmental standards for day-to-day Site operations such as housekeeping, material storage, and waste management.

- 3.3.2. The method statements will be based on standard good practice measures (as set out within relevant management plans in **Section 4** of this Outline CEMP), statutory requirements, environmental sensitivities, and any planning conditions associated with the planning approval.
- 3.3.3. Site Environmental Standards will be printed on A3 posters, placed on site notice boards and used as a briefing tool on-site. They will also form the basis of toolbox talks for relevant Site operations.
- 3.3.4. The method statement will be communicated to all or task specific personnel ahead of the commencement of the relevant activities using an agreed instruction format (e.g. toolbox talks).

3.4 MONITORING AND AUDITING

INSPECTIONS

- 3.4.1. The Site will be inspected at regular intervals to ensure implementation of good practice and compliance with measures set out within the approved full CEMP. The inspection and auditing schedule will be agreed by the Contractor in consultation with the Environmental Manager and ECoW, if required, prior to commencement of construction. The project roles will be defined by the full CEMP. A programme of the following is anticipated:
 - Daily inspections;
 - Weekly inspections;
 - Monthly Audits;
 - Monthly Complaint Reporting; and
 - Ongoing Environmental Monitoring.

3.5 GENERAL ENVIRONMENTAL MANAGEMENT MEASURES

SAFETY

- 3.5.1. The Contractor has the daily responsibility to maintain Health and Safety throughout the construction period. A risk assessment and method statement (RAMS) will be produced and detail how risk will be minimised.

CONSTRUCTION SITE HOUSEKEEPING

- 3.5.2. Construction housekeeping will be implemented on-site during the construction works including securing the area and maintaining the site compounds, transport access routes, and working areas, as applicable.

STORAGE OF FUELS AND CHEMICALS

- 3.5.3. The Contractor will ensure that both fuels and chemicals are properly stored onsite and that they are stored as applicable to the fuel storage type requirements. All fuel and chemical stored onsite will be secured appropriately and within bunds too include 110% of the fuel capacity.
- 3.5.4. Control of substances hazardous to health (COSHH) data sheets will be provided, where necessary and depending on fuel storage on-site, to all Site personnel and sub-contractors by toolbox talks.

WELFARE FACILITIES

- 3.5.5. Welfare cabins, toilets and drying facilities' in line with the regulations will be provided by the Contractor with both grey and foul water discharged into a septic tank on-site for appropriate disposal.

PUBLIC RIGHTS OF WAY

- 3.5.6. There are Public Rights of Way (PRoW) present both within the northern and southern areas of the Site, in addition, National Cycle Route 6 (connecting Watford in London with Threlkeld in Cumbria) follows an off-road (old railway line) route alongside the River Nene to the east of the site boundary.
- 3.5.7. Existing Public Rights of Way (PRoW) and cycle routes will remain open for public use wherever reasonably practicable. However, during construction, restrictions may be required on footways / roads for pedestrians and cyclists near the Site to ensure their safety. When such restrictions are in place, alternative PRoW routes will be offered and current walkways, together with the improvements associated with the Proposed Scheme, will be opened as soon as possible.
- 3.5.8. In some instances, diverted or realigned PRoW may need to pass through areas required for construction of the Proposed Scheme. Routes through these areas will be provided where it is safe and reasonably practicable to do so. The approach to managing all rights of way which interact with the construction of the Proposed will be confirmed in discussions with Northamptonshire County Council at the detailed design stage.

LIGHTING

- 3.5.9. The Proposed Scheme Site will require artificial lighting during construction to provide a safe working environment during hours of darkness. Artificial lighting can be a nuisance to any nearby residence and can disrupt nocturnal species. A lighting strategy will be prepared for the Proposed Scheme as part of the full CEMP. The lighting strategy will adhere to the requirements of the Institution of Lighting Professionals GN01 'Guidance Notes for the Reduction of Obtrusive Light' (**Ref. 2**) and Bat Conservation Trust's (BCT) interim guidance on artificial lighting and wildlife (**Ref. 3**).
- 3.5.10. Task lighting will be employed to minimise lighting impacts on the Site. Where reasonably practicable, task lighting will face away from nearby properties. The type of task lighting employed for different activities will vary depending on the nature of those activities and be commensurate with the works being undertaken. Whilst providing a work environment to meet the illuminance levels, the below measures would be employed by the Contractor to minimise the effect on the surrounding area and wildlife:
- Minimise glare caused by poorly directed security and flood lighting by positioning lights at less than 70 degrees and directed away from the boundary of any operational construction area. The installation of ballasts or shields on the lights will be used, where appropriate;
 - Minimise light spill by avoiding poorly sited lights on the boundary of the construction site;
 - Minimise sky glow by use of modern flood lights with appropriate shields to avoid light spilling upwards;
 - Minimise task lighting near the Milton Keynes to Rugby railway line, lighting proposals will be discussed and agreed with Network Rail.

4 ENVIRONMENTAL MANAGEMENT PLANS

4.1 INTRODUCTION

- 4.1.1. The following sections outline the likely contents of the topic specific Management Plans which will be developed as part of the full CEMP. The contents are not exhaustive and will be finalised by the Contractor as part of a planning condition.

4.2 AIR QUALITY

INTRODUCTION

- 4.2.1. The commitments relating to air quality within this Outline CEMP have been drawn from the assessment of significant effects upon air quality, which is included in **Chapter 6: Air Quality (Volume II of the ES)**. Full details of the Contractor's mitigation measures for dealing with air quality impacts should be included in the full CEMP.

MITIGATION

- 4.2.2. The following mitigation are proposed, with reference to Institute of Air Quality Management (IAQM) Guidance (**Ref. 4**), that are commensurate to the scale and nature of the construction activities. The mitigation measures focus on controlling fugitive releases of construction-phase dust and should be implemented by the Contractor through the full CEMP. Such measures should include, but are not limited to:
- Dust generating activities (e.g., cutting, grinding and sawing) will be minimised and weather conditions considered prior to conducting potentially dust emitting activities;
 - Fine material will not be stockpiled to an excessive height to prevent exposure to wind and/ or dust nuisance;
 - Roads and accesses will be kept clean;
 - Where possible, plant will be located away from construction site boundaries that are close to residential areas;
 - Water will be used as a dust suppressant, where applicable;
 - Drop heights of material will be kept to a minimum;
 - Distances from crushing plant to stockpiles will be kept to the minimum practicable to control dust generation associated with the fall of materials;
 - Skips will be securely covered;
 - Soiling, seeding, planting or sealing of completed earthworks will be completed as soon as reasonably practicable following completion of earthworks;
 - Dust suppression and the maintenance of the surface of access routes will be appropriate to avoid dust as far as practicable, considering the intended level of trafficking;
 - Wheel Wash facilities at major site exits to minimise trackout of dust;
 - Material will not be burnt on site; and
 - Engines will be switched off when not in operation.
- 4.2.3. In submitting the full CEMP, the Contractor should stipulate the following to ensure the mitigation is implemented effectively, continually monitored, and updated accordingly:
- Identification of a nominated Environmental Manager;
 - Notification procedures where potentially significant dust generating activities are required;

- Method statements for the control of dust in such locations and complaint receipt; and
- Management procedures to ensure issues are addressed should they be raised by the public.

4.2.4. The full CEMP should stipulate that the Contractor should ensure that the Environment Agency's Pollution Prevention Guidelines (PPGs) are followed and that all sub-contractors are aware of control measures.

MONITORING

4.2.5. Given the proximity of receptors considered sensitive to construction activities, monitoring of dust and particulate matter should be incorporated into the full CEMP:

- Daily on-site and off-site inspections should be undertaken, where receptors (including roads) are nearby to monitor dust. The inspection results should be recorded and made available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary; and
- The frequency of site inspections should be increased when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

4.3 NOISE AND VIBRATION

INTRODUCTION

4.3.1. The Contractor should, as far as reasonably practicable, seek to control and limit unacceptable noise and vibration when undertaking construction activities. Full details will be included in the full CEMP. The commitments relating to noise and vibration within this Outline CEMP have been drawn from the assessment of significant effects upon noise and vibration, which is included in **Chapter 13: Noise and Vibration (Volume II of the ES)**.

MITIGATION

4.3.2. The Contractor shall comply with the following construction noise and vibration mitigation measures, including the adoption of Best Practicable Means (BPM), as defined in the Control of Pollution Act 1974 (**Ref. 5**), together with the specific requirements of this Outline CEMP.

4.3.3. Based on the principles of BPM, appropriate noise and vibration mitigation measures will be implemented, including:

- Any compressors brought on to site should be silenced or sound reduced models fitted with acoustic enclosures;
- All pneumatic tools should be fitted with silencers or mufflers;
- Deliveries should be programmed to arrive during daytime hours only. Care should be taken when unloading vehicles to minimise noise.
- Delivery vehicles should be routed to minimise disturbance to residents. Delivery vehicles should be prohibited from waiting within or near the site with their engines running;
- All plant items should be properly maintained and operated according to manufacturers' recommendations in such a manner as to avoid causing excessive noise; and
- All plant should be sited so that the noise impact at nearby noise sensitive properties is minimised.

MONITORING

- 4.3.4. The Contractor will complete a programme of noise and vibration monitoring:
- To measure the performance of noise and vibration control measures;
 - To ascertain noise and vibration from items of plant; and
 - To provide confirmation that noise and vibration thresholds are not exceeded.
- 4.3.5. A proposed programme of monitoring must be set out in the full CEMP.

4.4 BIODIVERSITY

INTRODUCTION

- 4.4.1. The commitments relating to biodiversity within this Outline CEMP have been drawn from the assessment of significant effects upon ecological resources, which is included in **Chapter 7: Biodiversity (Volume II of the ES)**, significant effects upon landscape resource, which is included in **Chapter 11: Landscape and Visual (Volume II of the ES)**, and **Appendix 1.3: Detailed Arboricultural Report (Volume III of the ES)**.

ADDITIONAL SURVEY REQUIREMENTS

- 4.4.2. Prior to commencement of construction works, surveys for kingfisher, bats, and badgers will need to be undertaken within the study areas identified within **Chapter 7: Biodiversity (Volume II of the ES)**. These surveys have been scheduled for 2019 and the results will confirm precise conditions prior to construction starting on site, and Natural England licensing requirements.
- 4.4.3. Construction works that directly impacts upon protected species would be subject to a mitigation or conservation licence(s) from Natural England to avoid an offence under the Wildlife and Countryside Act 1981 (as amended) (**Ref. 6**). These licences will be in place prior to the commencement of work, and work would be undertaken in line with the mitigation requirements and conditions of the licence(s).

MITIGATION

- 4.4.4. Appropriate regard for the protection of local habitats and protected species during the construction of the Project includes the following measures.

General Site Management

- 4.4.5. General construction management measures that are relevant to the ecological, landscape, and arboricultural receptors on site include:
- Measures to prevent the spread of any invasive species across and beyond the Site. Exclusion zones around identified areas of invasive species where no works are to take place will be implemented to ensure these species are not disturbed by works. The invasive species removal will be carried out by a specialist contractor and will include the removal of soil from areas where Himalayan balsam and New Zealand pygmy-weed has been identified, to ensure that the potential seed bank within the soil is also removed.
 - A lighting strategy, to account for badger, bat, otter, and barn owl behaviour, will ensure nocturnal species are not adversely affected by on-site lighting. The lighting strategy will follow guidance produced by the Institution of Lighting Professionals (ILP) in conjunction with the Bat Conservation Trust (BCT).

- Construction compounds and on-site working areas should be sited away from watercourses and running water habitats to avoid/ minimise the risk of polluted run-off/ waste water entering these habitats from the compounds

Badger Protection

4.4.6. The following measures have been identified to mitigate any potential impacts on badger populations located within and adjacent to the Site which will be impacted by the Proposed Scheme, these measures will be implemented through a Species Protection Plan (SPP) as part of the full CEMP:

- Advice on requirements for licencing to exclude and close badger setts and precautions to ensure that retained badger setts are not disturbed because of construction works. Where badger setts are to be retained and construction works are required nearby, a 30m buffer zone will be established around setts where no construction works are to take place. Requirements for buffer zones will be identified and enforced on Site by a suitably experienced ecologist.
- Where it is identified that construction works will result in the loss of badger setts, these will be excluded and closed prior to works commencing. Any sett exclusions or closures will be done under a Natural England mitigation licence. If any main or annex setts are identified as requiring closure, replacement artificial setts may be required as a condition of any Natural England mitigation licence.
- Measures to be put in place on Site to ensure works will minimise the risk of disturbance, killing, or injuring of badgers on Site. Such measures will include:
 - Avoiding working at night where possible to minimise disturbance of badgers on Site;
 - Covering of exposed excavations daily or incorporating animal ladders into such excavations to ensure animals to not become trapped; and
 - Installation of badger proof fencing around works and spoil to exclude badgers from accessing them or where this is not possible, enforcements of speed limits of 5mph for on Site traffic to minimise the risk of collisions with badgers. As there is the potential for both badgers and otters to access the Site, otter proof fencing will be used in preference of badger proof fencing as it will prevent both badgers and otters from accessing the Site.

Bat Protection

4.4.7. The following measures have been identified to mitigate any potential impacts on bat populations located within and adjacent to the Site which will be impacted by the Proposed Scheme, these measures will be implemented through a Species Protection Plan (SPP) as part of the full CEMP:

- Licensing requirements: At the time of writing, no known bat roosts will be lost to the Proposed Scheme, although this may be subject to further surveys undertaken in 2019.
- Any trees identified as being suitable to support roosting bats will be soft-felled under the watching brief of a licensed ecologist. A suitably experienced ecologist will inspect the trees for evidence of roosting bats prior to felling. If evidence of a bat roost, or a roosting bat itself is identified, then felling works will stop and a Natural England European protected species (EPS) mitigation licence will be required to fell the tree. Conditions of any such licence may include the provision of compensatory roost features prior to felling the tree.
- Where buildings and trees identified as suitable for roosting bats are to be retained, suitable buffer zones, determined within the bat SPP, will be established around such features where

works are not to take place to avoid disturbance to any bats roosts. In addition, tree protection plans will be created for retained features such as trees and hedgerows.

- The SPP will also include recommendations for the provision of artificial roosting opportunities such as bat boxes, to be incorporated into suitable retained features such as woodland and mature trees or where this is not possible, into created areas of scattered trees.

Bird Protection (including Barn Owl and Kingfisher)

4.4.8. The following measures have been identified to mitigate any potential impacts on highly sensitive bird populations located within and adjacent to the Site which will be impacted by the Proposed Scheme, these measures will be implemented through a Species Protection Plan (SPP) as part of the full CEMP:

- Where activities will result in increased noise levels above 70dB, such as piling activities (regarding the construction of the River Nene Crossing) will be timed to avoid sensitive periods for birds such as the dawn chorus.
- A precautionary works method statement (PWMS) will be produced to cover all activities that will affect breeding birds. Clearance of habitats identified as suitable for nesting bird species will be carried out outside of the breeding bird season (considered to be March-September inclusive) where possible. Where this is not possible, vegetation clearance of these habitats will be carried out under the watching brief of a suitably experienced ecologist. Where any active nests are identified, a buffer zone of a minimum of 5m will be established around the nest where no works are to take place. This buffer zone should remain until a suitably experienced ecologist can confirm all chicks have fledged.
- Prior to any construction works commencing, all active and potential barn owl nest sites identified within 150m of the Proposed Scheme will be capped to prevent barn owls from accessing them. Compensatory nest sites should be in place prior to this. This will be carried out by a barn owl licensed ecologist.
- Should nesting kingfishers be confirmed within 100m of the Proposed Scheme, then any suitable nesting kingfisher features, such as holes in the banks, should be sealed (outside of the breeding season and prior to works commencing) to ensure that kingfishers cannot occupy them prior to works. Compensatory nest sites should be in place prior to this.

Otter Protection

4.4.9. The following measures have been identified to mitigate any potential impacts on otter populations located within and adjacent to the Site which will be impacted by the Proposed Scheme, these measures will be implemented through a Species Protection Plan (SPP) as part of the full CEMP:

- No works should take place within 30m of any confirmed newly discovered otter holt. If works are required that are likely to result in the disturbance of an otter holt, the holt will be closed under an EPS mitigation licence prior to work. As part of the conditions of any such licence and artificial replacement sett will be created prior to the holt's closure. Details of licensing requirements will be contained within the full CEMP as well as recommendations for the provision of artificial holts.

- Otter proof fencing will be installed around any work areas or spoil mounds adjacent to watercourses to prevent otters from accessing the Site. Specifications of otter proof fencing will be included within the full CEMP. In addition, all open excavations should be covered overnight or incorporate an animal ladder to animals from becoming trapped in them.

Reptile Protection

- 4.4.10. The following measures have been identified to mitigate any potential impacts on reptile populations located within and adjacent to the Site which will be impacted by the Proposed Scheme:
- A PWMS for reptiles will be produced to detail the clearance of habitats identified as suitable for common reptile species. Clearance works should be carried out outside of the active reptile and nesting bird season (considered to be March to October inclusive). If this is not possible, phased clearance (strimming to 1500mm, then to ground level) should be carried out under the watching brief of a SEE. Should the removal of any habitats or features identified as suitable for hibernating reptiles such as the bases of hedgerows and rubble piles be required, such clearance will only be carried out outside of the reptile hibernation period (considered to be November to March inclusive).

Landscaping and Arboriculture

- 4.4.11. Landscaping works would be undertaken as soon as practicable upon completion of the earthworks.
- 4.4.12. Soil conditions are critical for the successful long-term establishment of woodland vegetation on the embankments. Un-compacted soils at appropriate depths will be included for all woodland planting areas, and the specification will require the decompaction of subsoils under planting areas, particularly on the road embankments.
- 4.4.13. Woodland and hedgerow planting will be composed of locally native species such as beech, holly, whitebeam, hornbeam, field maple, hawthorn, blackthorn and dogwood. Final species selection will be subject to ecological advice, lineside planting guidance for near the railway and consultation with Natural England.
- 4.4.14. Where not planted, embankment slopes and other areas forming part of the Proposed Scheme, such as around the Highway Balancing Ponds and across the Flood Storage Replacement Areas, will be seeded with species-rich grassland. Species mixes to be determined to suit the anticipated soil and ecological conditions.
- 4.4.15. Floodplain marsh and reed-beds will be established on the margins of the attenuation ponds and in any permanent damp areas of the flood compensation areas.
- 4.4.16. Locally appropriate materials should be used in the design of the River Nene Crossing and Railway overbridge.
- 4.4.17. No construction works should take place within the root protection zone (RPZ) of any retained trees and all trees would be protected according to measures to be set out in an Arboricultural Method Statement, which shall form part of the full CEMP. The Arboricultural Method Statement shall provide for the provision of information relating to the protection of retained trees within future tree planting areas.

- 4.4.18. The Arboricultural Method Statement to be provided as part of the full CEMP must be in accordance with the Outline Arboricultural Method Statement included within **Appendix 1.3: Detailed Arboricultural Report (Volume III of the ES)**.

MONITORING

- 4.4.19. If any main badger sett require closure under licence, an artificial compensatory sett will likely be required (to be detailed within the Natural England licence application). This artificial sett will require monitoring post-construction to ensure its success and continued use, to ascertain the success of the mitigation. Full details will be confirmed in the SPP.
- 4.4.20. A Habitat Management Plan (HMP) will be prepared for areas of habitat creation, management, and monitoring as part of the Proposed Scheme. The HMP will be prepared in consultation with Northamptonshire County Council, Daventry District Council, Northampton Borough Council, and the Bedfordshire, Cambridgeshire and Northamptonshire Wildlife Trust.
- 4.4.21. The HMP will detail the long-term management measures required to ensure to habitats created alongside the Proposed Scheme achieve the target conditions that have been set so that the Proposed Scheme will achieve a net gain in biodiversity (**Appendix 7.15: Biodiversity Net Gain Assessment (Volume III of the ES)**). The NPPF (Ref. 7-14) sets a duty to '*pursue opportunities for securing measurable net gains for biodiversity*'.¹ The target conditions and timescales will vary between habitats depending on difficulty to create (e.g. woodland creation may require 25 years to achieve the target condition).
- 4.4.22. The HMP will provide details on the monitoring and maintenance of any compensation measures for protected and notable species, such as bird and bat boxes, as well as any artificial compensatory badger setts and otter holts, should they be required (subject to pre-works surveys). The management measures detailed for the various habitat types will also take into account the habitat requirements of the various protected species surrounding the Site.
- 4.4.23. The HMP will include a strategy for the ongoing management of the non-statutory designations, during construction and operation of the Proposed Scheme, with the aim of increasing the ecological value of Grange Farm Fields pLWS and upgrading its designation to LWS.
- 4.4.24. The HMP will also include monitoring and maintenance of any ecological feature created as part of the Proposed Scheme, including monitoring the uptake and suitability of bat and bird boxes, and monitoring plant failure and habitat health.

4.5 ROAD DRAINAGE AND THE WATER ENVIRONMENT

INTRODUCTION

- 4.5.1. The commitments relating to the water environment within this Outline CEMP have been drawn from the assessment of significant effects upon the water environment which is included in **Chapter 15: Road Drainage and the Water Environment (Volume II of the ES)**.

¹ In the Spring Statement to Parliament on 13 March 2019, the chancellor set out plans to mandate biodiversity net gain as part of the Environment Bill. At the time of writing this report, this has yet to be translated into legislation but would make the inclusion of biodiversity net-gain as part of developments mandatory.

MITIGATION

- 4.5.2. The Contractor should include the following mitigation measures within the full CEMP and implement standard good practice pollution prevention measures in construction to protect the surrounding water environment.

Managing sediment entrainment and pollution of watercourses

- Avoid the positioning of stockpiles near to watercourses, ensure they are located outside of the flood zone. Stockpiles should be located a minimum of 10m from the top of bank;
- Cover stockpiles when not in use;
- Contain stockpiles with bunds or sediment fences;
- Control of runoff during construction. This may include creating temporary drainage systems to both alleviate flood risk and help to prevent sediment laden runoff entering the watercourse;
- Compliance with the relevant sections of BS6031:2009 Code of Practice for Earthworks (British Standards, 2009) with respect to protection of water quality and control of site drainage including washings, dewatering, abstractions and surface water;
- Safe containment of chemicals, use of drip trays and provision of emergency spill kits;
- The use of silt fences, silt traps, filter bunds, settlement basins and/or proprietary units such as a 'siltbuster' to treat sediment laden water generated on site before discharge;
- Availability of oil absorbent booms on site to be deployed in the event of a significant spillage;
- Regular inspection of control and treatment measures to ensure they are working effectively;
- Regular checking of construction plant for oil and fuel leaks, particularly when construction works are undertaken in or near the existing site water bodies;
- Collection of waste fuels and other fluid contaminants in leak-proof containers prior to removal from construction site to an approved recycling processing facility;
- Concrete mixing and washing areas shall be located more than 10m from any watercourse; have settlement and re-circulation systems for water reuse; have a contained area for washing out of concrete batching plant or ready-mix lorries; and collect wash-waters and, where necessary, contain wash-water for authorised off-site disposal. Wash-water from concrete shall not be discharged into the watercourse;
- Avoiding vehicle cleaning near to existing watercourses;
- Dewatering working areas to maintain a dry construction area and passing any water generated by the dewatering process through silt busters or sediment tanks prior to returning this water to the watercourses;
- Dewatering as shallow groundwater is encountered, there may be a need to pass the water through a silt buster or settlement pond if the abstracted water has a high sediment load; and
- Lining any temporary excavations to prevent infiltration of contaminants to the groundwater.

Managing flood risk

- Adoption and implementation of a Flood Evacuation Plan;
- Sign up for flood warnings and check online warnings regularly;
- Avoid works during high flow events and intense rainfall events;
- Site compound(s) located outside of the floodplain; and
- Do not store materials and mobile machinery within the floodplain.

Groundwater Management

- 4.5.3. Groundwater levels and local geological conditions at locations of proposed below ground excavations should be investigated during an additional stage of Ground Investigation. This will allow to establish dewatering requirements during construction. If groundwater dewatering is required, a dewatering strategy should be developed aiming to keep groundwater level and groundwater flow impacts to a local scale, also considering proximity to groundwater receptors including Groundwater Dependent Terrestrial Ecosystems.

4.6 MATERIALS AND WASTE

INTRODUCTION

- 4.6.1. The commitments relating to materials and waste within this Outline CEMP have been drawn from the assessment of significant effects, included in **Chapter 12: Materials and Waste (Volume II of the ES)**.

MITIGATION

- 4.6.2. The following mitigation measures have been confirmed at the preliminary design stage and considered as part of the assessment of construction phase impacts and effects.

Materials

- Design for the future: Construction is considered in the design in accordance with obligations under the Construction (Design and Management) Regulations 2015 (**Ref. 7**).
- The full CEMP will include the implementation of a Materials Management Plan (MMP) in accordance with the Contaminated Land: Applications in Real Environments (CL: AIRE) Definition of Waste: Code of Practice (**Ref. 8**).

Arisings and waste

- Early contractor engagement: A construction organisation is being engaged through an Early Contractor Involvement (ECI) to work alongside the detailed design of the Proposed Scheme. This will ensure all opportunities to minimise waste and get best value from the Proposed Scheme are taken.
- Identify areas for stockpiling and storing wastes: The protection of topsoil will be given attention to ensure that it can be re-used within verges and landscaped areas.
- The use of a Site Waste Management Plan (SWMP) is still considered good practice to ensure that construction wastes are dealt with in an appropriate manner and in accordance with the 'waste hierarchy'. The Contractor would prepare a SWMP as part of the full CEMP. The SWMP would monitor aspects relating to:
 - Responsibility for resource management;
 - The types and volumes of waste generated;
 - The management of waste – the reduction, reuse and recycling.;
 - The use of Contractors to ensure waste is correctly recycled or disposed of responsibly and legally;
 - The measurement and monitoring of the quantity of waste generated by the project; and
 - The use of a reporting and recoding tool.

4.7 GEOLOGY AND SOILS

INTRODUCTION

- 4.7.1. The commitments relating to land contamination within this Outline CEMP have been drawn from the assessment of significant effects upon geology and soils, which is included in **Chapter 10: Geology and Soils (Volume II of the ES)**.

MITIGATION

- 4.7.2. The Scheme would adhere to pollution prevention guidance and best practice during the construction phase which would be incorporated into and managed via the full CEMP.

Agricultural land and soils

- 4.7.3. Agricultural soils would be stripped and reused where possible. The construction phase will be designed to minimise the amount of temporary land take required within agricultural areas. The final design will need to consider the sensitivity of agricultural land and minimise permanent land take where practicable.

Soil Handling Strategy

- 4.7.4. A suitable soil handling strategy will be prepared as part of the full CEMP to help preserve land quality on the temporary land take areas and to make effective use of the soils from the areas of permanent land take. The strategy should help to preserve the soil and retain soil functions such as water and carbon storage.

Soil Management Strategy

- 4.7.5. Soil management operations will be prepared as part of the full CEMP in accordance with the Ministry of Agriculture, Fisheries, and Food (MAFF) Good Practice Guide for Handling Soils (**Ref. 9**) and The Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (**Ref. 10**).
- 4.7.6. The soil management strategy would be based on site specific conditions and would be applied depending on the planned construction and earthworks methodologies adopted, but would include:
- Stripping of topsoil and subsoil, when weather and soil conditions are suitable.
 - Separating storage and management of topsoil and subsoil storage heaps.
 - Return of topsoil/subsoil to the original areas, in separate layers (where possible and where these areas are not occupied by permanent new infrastructure);
 - Use of appropriate machinery to minimise soil compaction (e.g. reduce the use of heavy plant or tracked vehicles passing over organic soils);
 - Relief of compaction of restored soils (i.e. dig out, aerating any highly compacted area of organic soil);
 - Surface stripping and storage of topsoil/subsoil (subject to other environmental constraints, such as the presence of buried archaeological remains); and
 - Dust suppression measures, such as damping down, during periods of dry weather.

Detriment to Human Health

4.7.7. The following measures would be implemented during the construction phase to mitigate risks to human health (construction workers, surroundings site visitor/occupants) during both the construction phase of the Proposed Scheme:

- Earthworks to comply to Control of Asbestos Regulation (HSE 2012) (**Ref. 11**);
- Earthworks to be undertaken in accordance with a suitable Earthworks Specification, which will be referenced alongside the MMP and included details of the verification requirements for both imported materials and site on materials;
- Should significant unexpected contamination be encountered during the construction phase works should be stopped, and a suitable remedial measures design implemented, once agreed with the regulator. The CEMP will include a procedure for dealing with encountering unexpected contamination;
- Construction workers to wear appropriate personal protective equipment (PPE), monitoring equipment and Respiratory Protective Equipment (RPE) where required to mitigate the potential risk of exposure to hazardous gas / vapour and / or depleted oxygen levels;
- Temporary shoring to be used in excavations when working with loose or unstable ground; and
- Should contamination be encountered as part of additional ground investigation or construction works, a suitable remedial strategy would be formulated and approved with the regulators to suitably mitigate the effects. Such measures may include the requirement for landscapes areas to be capped to mitigate risks from e.g. asbestos fibres.

Migration of ground gas

4.7.8. Following further ground investigation surveys on-site, mitigation measures may be required to limit the potential effects from the migration and accumulation of ground gas in enclosed spaces as part of the detailed design. If required such measures may include the installation of venting and or alarms within confined spaces such as service ducts, junction boxes etc.

4.7.9. Measures taken to mitigate the risk posed to construction workers from the accumulation of ground gas in confined spaces during construction will be specified within the full CEMP and will include, but not be limited to:

- All works would be conducted in line with HSE publication, Safe Work in Confined Spaces (**Ref. 12**).
- Gas monitoring equipment to be used by all operatives entering below ground confined spaces.

4.8 PEOPLE AND COMMUNITIES

INTRODUCTION

4.8.1. The commitments relating to people and communities within this Outline CEMP have been drawn from the assessment of significant effects, included in **Chapter 14: People and Communities (Volume II of the ES)**.

MITIGATION

- 4.8.2. The following mitigation measures should be implemented in the full CEMP by the Contractor to reduce potential effects to sensitive receptors including travellers (non-motorised users (NMUs) and motorised users), communities, and people.
- Reinstatement of agricultural land before operation which is used temporarily during construction to agriculture (as secured by temporary agreement), where this is the agreed end use, particularly areas used for temporary construction compounds;
 - Consultation with agricultural land owners and where possible agreement of access arrangements to reduce potential severance to agricultural fields so that farming activities can be maintained.
 - As part of the full CEMP, the Contractor should produce a full Construction Traffic Management Plan (CTMP) for the construction phase, which would be agreed by Northamptonshire County Councils Highways Team;
 - The proposed construction methodology will be developed by the Contractor, as part of the detailed design stage, in accordance with relevant Acts and Regulations to ensure there are no safety impacts upon the public, road users and construction staff during the construction phase.
 - The public and businesses will be informed of the nature, timing and duration of construction activities and the duration of the construction works;
 - Construction plant that is not in use would be separated from public access points. Where practicable, non-motorised user (NMU) movements would be separated from construction activity and vehicle/machinery movements;
 - The provision of appropriate and quality temporary PRow diversions for Public Footpath HW44 and Bridleway HW6, which are established prior to construction, and clear directions for any alternative routes and appropriate alternative diversions, would be clearly publicised by the Contractor to maintain public access;
 - Temporary diversion of NMU routes to enable NMUs to still utilise the area for recreation and reduce negative effects as far as possible.
 - Public notices would be issued in advance to inform residents and businesses of dates and durations of road and rights of way closures; and
 - The Contractor would ensure provision and maintenance of suitable and sufficient signs and barriers indicating temporary and permanent closures to public accesses and rights of way.

4.9 LAND REINSTATEMENT AND RESTORATION

- 4.9.1. A Land Reinstatement and Restoration Management Plan will set out good practice measures for the re-instatement of the Project Site once construction has been finalised which will be specified within the full CEMP. Implementation of restoration measures to reduce the effects of the following will be considered: compaction of sub-soil, visual intrusion, and exposed ground.

5 REFERENCES

- **Ref. 1:** IAN Interim Advice Note 183/14: Environmental Management Plans, Highways England, June 2014
- **Ref. 2:** GN01 'Guidance Notes for the Reduction of Obtrusive Light', Institution of Lighting Professionals, 2011
- **Ref. 3:** Guidance on the assessment of dust from demolition and construction Version 1,1, Institute of Air Quality Management, 2016
- **Ref. 4:** Control of Pollution Act 1974 [<https://www.legislation.gov.uk/ukpga/1974/40>]
- **Ref. 5:** Wildlife and Countryside Act 1981 (as amended) [<https://www.legislation.gov.uk/ukpga/1981/69>]
- **Ref. 6:** Environmental good practice on site (fourth edition) (C741). CIRIA, 2015
- **Ref. 7:** Construction (Design and Management) Regulations 2015.
- **Ref. 8:** Contaminated Land: Applications in Real Environments (CL: AIRE) Definition of Waste: Code of Practice, 2008
- **Ref. 9:** Ministry of Agriculture, Fisheries, and Food (MAFF), Good Practice Guide for Handling Soils, 2000
- **Ref. 10:** The Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, DEFRA, 2009
- **Ref. 11:** Control of Asbestos Regulation 2012 [<http://www.legislation.gov.uk/uksi/2012/632/contents/made>]
- **Ref. 12:** Safe Work in Confined Spaces, Health and Safety Executive (HSE), 1997



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