highways england

A47 Wansford to Sutton Dualling

Scheme Number: TR010039

Volume 7
7.5 Environmental Management Plan

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Infrastructure Planning

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

A47 Wansford to Sutton Development Consent Order 202[x]

7.5 ENVIRONMENTAL MANAGEMENT PLAN

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Rev 0	July 2021	Application Issue
Rev 1	January 2022	Deadline 1
Rev 2	February 2022	Deadline 2
Rev 3	May 2022	Deadline 6

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1. Introduction and background

1.1.1. Highways England (the Applicant) has submitted an application under Section 37 of the Planning Act 2008 (the 2008 Act) to the Secretary of State via the Planning Inspectorate (the Inspectorate) for an order to grant development consent (DCO) for the A47 Wansford to Sutton Scheme (hereafter referred to as 'the Proposed Scheme').

1.1.2. This Environmental Management Plan (EMP) is based on the current design of the Proposed Scheme presented in the DCO application. It has been prepared in accordance with the following:

- The Environmental Statement (ES) (**TR010039/APP/6.1**).
- Design Manual for Roads and Bridges (DMRB) LA 120 Environmental management plans[1].
- Asset Data Management Manual (ADMM) v11.0 Parts 2 and 3 (in particular for Environmental Information System (EnvIS) requirements)[2].

1.1.3. Galliford Try are the Principal Designer and Principal Contractor for the Proposed Scheme, as defined under the Construction (Design and Management) Regulations 2015. Galliford Try will hereby be referred to as the Principal Contractor (PC) throughout this EMP.

1.1.4. The EMP (First iteration) is a live document that evolves with iterations. This iteration refers to outline environmental management plans which will be developed into full management plans when the Second iteration is prepared. These include:

- Outline Site Waste Management Plan (**TR010039/APP/6.3**)
- Outline Traffic Management Plan (**TR010039/APP/7.6**)
- Outline Landscape and Ecology Management Plan (Appendix B of this EMP)
- Outline Construction Noise and Dust Management Plan (Appendix B of this EMP)

1.1.5. Following the Secretary of State's approval of the DCO for the Proposed Scheme, the EMP (First iteration) will be updated, a minimum of two times, to reference specific requirements relating to the various phases of construction.

[1] Highways England (2020) Design Manual for Roads and Bridges LA 120 Environmental management plans [online] available at [redacted] (last accessed 30 September 2020).

[2] ADMM v11 Part 2 – Requirements and Additional Information [redacted]

The following environmental management plans will be prepared as part of the Second iteration.

- Annex B.1 Materials Management Plan (MMP)
- Annex B.2 Soil Management Plan
- Annex B.3 Construction Noise and Dust Management Plan
- Annex B.4 Construction Communication Strategy
- Annex B.5 Landscape and Ecology Management Plan
- Annex B.6 Biosecurity Management Plan[3]
- Annex B.7 Water Monitoring and Management Plan
- Annex B.8 Detailed Heritage Written Scheme of Investigation (WSI) (Mitigation Strategy)
- Annex B.9 INNS Management Plan
- Annex B.10 Operational UXO Emergency Response Plan

1.1.6. The Second iteration (Construction) of the EMP will be updated by the Principal Contractor (PC) once the design and construction plans have been finalised and prior to commencement of construction. This will align with the following documents and requirements:

- Environmental Statement (ES) (**TR010039/APP/6.1**)
- DMRB LA 104 Environmental assessment and monitoring
- DMRB LA 117 Landscape design
- DMRB LA118 Biodiversity design
- DMRB GG 182 Major schemes: Enabling handover into operation and maintenance
- Asset Data Management Manual (ASMM) v11.0 Parts 2 and 3 (in particular for Environmental Information System (EnvIS) requirements)
- Manual of Contract Documents for Highways Works (MCHW)

1.1.7. Early survey works and later stage construction works will be required to comply with applicable environmental legislation together with any additional environmental controls imposed prior to or included within the DCO, and the requirements of the second iteration EMP for construction. It will be managed alongside Galliford Try's business management system to ensure compliance with the International Organisation for Standardisation (ISO) 14001 requirements.

[3] The management of INNS will be included in the Biosecurity Management Plan or within its own management plan.

1.1.8. The Third iteration of the EMP will be refined at the end of the construction stage to support future management and operation of the Proposed Scheme.

1.2. Purpose of this EMP

1.2.1. The EMP (First iteration) provides clear and concise information which states how the mitigation and management of environmental effects will be delivered and maintained and assigns responsibility for undertaking the described actions in this report and the ES (**TR010039/APP/6.1**).

1.2.2. The EMP:

- identifies roles and responsibilities
- identifies risks, their associated control measures, compliance and corrective actions
- establishes procedures for communication, monitoring, audit mechanisms and reporting of control measures
- would be reviewed regularly to ensure it is achieving the environmental protection required
- provides a clear audit trail outlining the modifications from any previous iteration

1.2.3. This EMP (First iteration) takes due consideration of the documents submitted to the Planning Inspectorate and assessments undertaken on behalf of Highways England, as well as the DCO for the Proposed Scheme itself. It identifies mitigation and environmental issues associated with the stages of the project. The EMP (First iteration) sets out the control of environmental effects through all lifecycle stages from the design stage. Table 1.1 outlines the requirements.

Table 1.1: Delivery schedule and update requirement of EMP[4]

Project Stage	EMP iteration	Produced / refined
Design	First iteration of EMP (formerly outline EMP) produced during the design stage for the preferred option.	Produced
Construction (refined for the consented project)	Second iteration of EMP (formerly construction EMP) refined during the construction stage for the consented project, in advance of construction.	Refined
End of construction	Third iteration of EMP (formerly handover EMP) building on the construction EMP refined at the end of the construction stage to support future management and operation.	Refined

[4] Source: Design Manual for Roads and Bridges, LA 120 Environmental management plan (Revision 1), table 2.2

Consultation

1.2.4. Consultation on the first and second iterations of this EMP will be undertaken with the Environment Agency, Peterborough City Council, the local planning authority and the Local Highway Authority.

1.3. The Proposed Scheme

Location

1.3.1. The Proposed Scheme is located on a single-carriageway section of the A47 which runs from the A1 in the west, near Wansford, to the dual-carriageway section near the village of Sutton in the east. The Proposed Scheme site location is shown on Figure 1.1 **(TR010039/APP/6.2)**

1.3.2. Peterborough lies approximately 9km east of the link. Beyond Peterborough, the A47 continues to Norwich and towards the east coast at Great Yarmouth. The corridor intersects with key strategic routes including the A1, A10 and A11, which provide links to other urban centres including Cambridge, Ely and London.

Programme

1.3.3. The indicative construction programme for the Proposed Scheme has been informed by the PC. During the detailed design stage for the Proposed Scheme the PC will refine the construction programme.

1.3.4. Current start of works is scheduled for March 2023. Construction is anticipated to take approximately 18 months. This would be carried out in phases, so not all sections of the Proposed Scheme would be under construction for the full period. Early ecological works will be required to be undertaken pre-construction.

1.3.5. Enabling and site preparation work would be largely carried out during Phase 0, with the main works carried out during Phases 1 to 5 before final compound removal in Phase 6.

Table 1.2: Construction phasing programme

Phase	Traffic management stage	Approximate programme	Key Construction Activities
0	Pre-Works: Site Clearance and Construction compound set-up	1 month (month 0) Mar 2023	Compound and welfare areas constructed for main works. Hardstanding areas will be constructed, no topsoil will be stripped but laid over with geotextile and subbase installed. The main welfare facilities and car parking will be established on the existing surfaced area at the end of the existing picnic area

Phase	Traffic management stage	Approximate programme	Key Construction Activities
1a	Offline works to enable partial installation of utilities diversion – no changes to original traffic flows	<2 month (month 1 - 2)	Part of the offline works will be built to enable utility diversion works prior to the main works.
2a	Offline works with no changes to the original traffic flows along the existing A47 or A1. Traffic management at side roads undertaken as required to enable offline A47 construction works.	**Main work activities:** Approx. 4 months (month 1 - 4) **Kerb, gullies, pavements & finishing works** Approx. 6 months (month 7 – 12)	Work activities include construction of offline mainline, side roads, earthworks, drainage, subbases and bitumen bound layers, kerbs, gullies, pavements and finishing works (lamp columns, signs, top-soiling, line marking, road restraint systems, fencing and re-instatement earthworks for landscaping).
2b	Offline works with no changes to the original traffic flows along the existing A47 or A1. Traffic management at side roads undertaken as required to enable offline A47 construction works.	Approx. 3 months (month 7 - 9)	Construction of the offline structure includes - Sacrewell underbridge (S05). Work activities include site clearance, construction of Sacrewell underpass, reinforced structures backfill, reinstatement earthworks, topsoiling
3a	A47 online works – Construction of alignment south of Sacrewell Farm to section west of the scheduled monument. Appropriate traffic diversions will be put in place to allow traffic to move between old and new A47 alignment.	**Main work activities:** Approx. 5 months (month 1- 5) **Kerb, gullies, pavements & finishing works** Approx. 4 months (month 9 -12)	Work activities include construction of mainline, earthworks drainage, subbases and bitumen bound layers, kerbs, gullies, pavements and finishing works (lamp columns, signs, top-soiling, line marking, road restraint systems, fencing and re-instatement earthworks for landscaping).
3b	A47 online works – Construction of alignment tie-in to existing carriageway (eastern extent) and removal of Nene Way roundabout.	**Main work activities:** Approx. 4 months (month 2 - 7)	Work activities include construction of mainline, earthworks drainage, subbases and bitumen bound layers, kerbs, gullies, pavements and finishing works (lamp columns, signs, top-soiling, line marking, road restraint systems,

Phase	Traffic management stage	Approximate programme	Key Construction Activities
	Appropriate traffic diversions will be put in place to allow traffic to connect to the A47 between east and west and Nene Way roundabout.	**Pavement & Finishing works** Approx. 2 months (month 10 - 11)	fencing and re-instatement earthworks) for landscaping.
3c	A47 online works – Construction of alignment west of the Wansford eastern roundabout to section east of Sacrewell Farm access road. Traffic will be diverted along the southern link road and a ramp will connect the traffic to the new A47 southern carriageway.	**Main work activities:** Approx. 3 months (month 3 - 5) **Kerb, gullies, pavements & finishing works** Approx. 4 months (month 11 -13)	Work activities include construction of mainline, earthworks drainage, subbases and bitumen bound layers, kerbs, gullies, pavements and finishing works (lamp columns, signs, top-soiling, line marking, road restraint systems, fencing and re-instatement earthworks for landscaping).
3d	A47 online works – construction of the Wansford Sluice (S04) Appropriate traffic diversions will be put in place to allow traffic to connect to the A47 between east and west and Nene Way roundabout.	Approx. 2 months (month 6 – 7)	Construction of the offline structure includes- Sacrewell underbridge (S05) and Wansford Sluice (S04). Works include site clearance, earthworks; culvert installation; reinforced structure backfill; reinstatement earthworks and topsoiling.
3e	A47 online works – Construction of alignment next to existing Sacrewell Farm access road. Appropriate traffic diversions will be put in place to allow traffic to move between old and new A47 alignment.	**Main work activities:** Approx. 4 months (month 9 - 12) **Pavement & Finishing works** Approx. 1 month (month 17)	Work activities include construction of mainline, earthworks drainage, subbases and bitumen bound layers, kerbs, gullies, pavements and finishing works (lamp columns, signs, top-soiling, line marking, road restraint systems, fencing and re-instatement earthworks) for landscaping.
3f	Demolition works – Demolition of Old Station House	Approx. 1 month (month 6)	Work activities include site clearance, utility works, demolition, reinstatement of earthworks and topsoiling. Demolition will be phased and under the supervision of an Ecological Clerk of Works.

Phase	Traffic management stage	Approximate programme	Key Construction Activities
4a	Construction of side roads and tie-ins Sutton Heath roundabout to Sutton Heath Road; Sutton Heath roundabout to existing A47; and existing A47 to Peterborough Road Traffic management will be required for the construction of tie-ins for vehicles using the A47 from the surrounding side roads	Approx. 10 months (month 1 -11)	Work activities include construction of mainline, drainage, subbases and bitumen bound layers, kerbs, gullies, pavements and finishing works (lamp columns, signs, top-soiling, line marking, road restraint systems, fencing and re-instatement earthworks) for landscaping.
4b	Construction of Wansford NMU underpass (S02).	Likely approx. 3 months. To be confirmed by the PC at detailed design stage. Bat hotel construction 1 year prior	Construction of the offline structure includes- Wansford Walking, Cycling, Horse-Riding (WCH) underpass (S02) Work activities include site clearance, earthworks, new structure works, bridge deck assembly, reinforced structures backfill, re-instatement earthworks and topsoiling.
5	Construction of A1 alternative access to properties. Traffic management may be required to ensure safe working near A1	3 months (month 8)	Work activities include site clearance utility works (including diversion) and carriageway construction.
6	Compound Removal	1 month (month 18)	Compounds and site welfare will be removed. Hardstanding areas will be removed and the site re-topsoiled. Area will be re-landscaped as required.

1.3.6. It is expected that the majority of construction works would normally take place between 07.00 – 19.00 Monday to Friday and 07.00 – 19.00 on Saturday. There may be exceptions to these hours for oversized deliveries, and junction tie-ins. There are likely to be extended working hours in the summer months to take advantage of the daylight or weather. Any works undertaken out-with the hours stated above or works required during hours of darkness will be agreed with the local planning authority.

The need for the Proposed Scheme

1.3.7. The existing A47 provides a connection for people, places, businesses and enables access to employment, healthcare, education and other community assets.

1.3.8. The Wansford to Sutton section of the A47 is approximately 2.6km long, located to the west of Peterborough between the existing junction with the A1 and the

Nene Way roundabout near Sutton. Whilst around half of the A47 is already built to dual carriageway, the Wansford to Sutton section is not. This section of A47 acts as a bottleneck, resulting in congestion, leading to longer journey times and a poor safety record[5].

1.3.9. In developing the Proposed Scheme, the aim is to address these issues by improving the traffic flow, reducing journey times on the route, increasing the route safety and resilience and improving the environment. The improvements to the Proposed Scheme will also support economic growth.

Outline of proposed works

1.3.10. The Proposed Scheme comprises the dualling of the section of the A47 between Wansford and Sutton including a new free-flow link road from the A1 southbound to A47 eastbound, roundabout upgrades, and associated side road alterations with provision of Walking, Cycling, Horse-Riding (WCH) connections. The Proposed Scheme is shown in Figure 2.1 (**TR010030/APP/6.2**).

1.3.11. The Proposed Scheme is a slightly offline alignment running parallel to the north of the existing A47.

1.3.12. Key elements of the Proposed Scheme include:

- approximately 2.6km of new dual carriageway constructed largely offline of the existing A47, including the construction of two new underpasses
- a new free-flow link road connecting the existing A1 southbound carriageway to the new A47 eastbound carriageway
- a new link road from the Wansford eastern roundabout to provide access to Sacrewell Farm, the petrol filling station and the Anglian Water pumping station
- closure of the existing access to Sacrewell Farm with a new underpass connecting to the farm from the link road provided
- a new slip road from the new A47 westbound carriageway also providing access to the petrol filling station
- a link road from the new A47 Sutton Heath roundabout, linking into Sutton Heath Road and Langley Bush Road
- new junction arrangements for access to Sutton Heath Road and Langley Bush Road
- closure of the existing accesses to the A47 from Sutton Heath Road, Sutton Drift and Upton Road
- new passing places and limited widening along Upton Drift (also referenced as Main Road)

[5] More details can be found in the A47 Wansford to Sutton Dualling Traffic Forecasting Package Report (Sweco 2021)

- new walking and cycling routes, including a new underpass at the disused railway
- new safer access to the properties on the A1, north of Windgate Way
- installation of boundary fencing, safety barriers and signage
- new drainage systems including:
  - two new outfalls to the River Nene
  - a new outfall to Wittering Brook
  - extension of the A1 culvert at the Mill Stream
  - realignment and extension of the A47 Wansford Sluice
  - drainage ditch interceptors
  - new attenuation basins, with pollution control devices, to control discharges to local watercourses
- River Nene compensatory flood storage area
- works to alter or divert utilities infrastructure such as electricity lines, water pipelines and telecommunications lines
- temporary compounds, material storage areas and vehicle parking required during construction
- environmental mitigation measures

1.3.13. A more detailed description of the Proposed Scheme is provided within ES Chapter 2 'The Proposed Scheme' (**TR010039/APP/6.1**).

1.3.14. An Environmental Masterplan (**TR010039/APP/6.8**) has been prepared for the Proposed Scheme. Works must be implemented in accordance with the Environmental Masterplan (**TR010039/APP/6.8**), to minimise the effects associated with landscape and visual impact, cultural heritage setting and biodiversity. The Proposed Scheme once operational will reflect the environmental design.

Objectives of the Proposed Scheme

1.3.15. The Proposed Scheme aims to meet the following objectives:

Supporting economic growth

1.3.16. The Scheme will improve journey times and journey time reliability. This will help contribute to sustainable economic growth by providing benefits such as effectively bringing businesses closer together and encouraging more people to join the labour market as a result of reduced commuting costs.

Making a safer network

1.3.17. Improving road safety for all road users by designing to modern highway standards appropriate for a major A road.

Providing a more free-flowing network

1.3.18. Increasing the resilience of the A1 / A47 junction to cope with incidents such as collisions, breakdowns, maintenance and extreme weather. The improved A47 section from Wansford to Sutton will be more reliable, reducing journey times and providing capacity for future traffic growth.

Creating an accessible and integrated network

1.3.19. Ensuring the proposals take into account the local communities' access to the road network, and provide a safer route between the communities for walking, cycling, horse-riders and other road users.

2. Team roles and responsibilities

2.1.1. This EMP has been prepared by environmental professionals as part of the Principal Designer team. The authors are appropriately qualified and have a demonstrable knowledge, experience and competence in the environmental management field. Reference should be made to the competent expert sections given within the relevant Environmental Statement chapters **(TR010039/APP/6.1)**.

2.2. Site roles and responsibilities

2.2.1. The site-based roles and the organisation of responsibilities in relation to environmental management are summarised below. 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 and will be allocated to a suitably qualified person. Key role personnel will be approved by Highways England.

2.3. Project management organisation

2.3.1. Overseeing management of the Proposed Scheme will be directed by Highways England and any appointed Employer's Agent for the Proposed Scheme. Highways England will delegate some site supervision roles and procure specialist consultants to supervise, monitor or check the PC's Method Statements and sensitive activities where required. The key scheme roles for Highways England and the PC are listed in Table 1.3. Individual names and contact details will need to be confirmed and inserted where applicable by Highways England and the PC once appointed and confirmed.

Table 1.3: General site contacts and responsibilities

Role	Stage of Proposed Scheme involvement	Contact and Organisation	Telephone	Email
Highways England Project Manager	All	Jonathan Donlevy Highways England	[redacted]	[redacted]
PC Design / Technical Manager	PCF (Highways England Project Control Framework) Stage 3 (Preliminary Design) – Stage 6 (Construction, commissioning and handover)	[TBC] Galliford Try	[TBC]	[TBC]
PC Senior Site Manager	PCF Stage 5 (construction Preparation) – Stage 6	[TBC] Galliford Try	[TBC]	[TBC]
PC Site Supervisors	Stage 5 - 6	[TBC] Galliford Try	[TBC]	[TBC]
PC Regional HS&S Manager	Stage 5 - 6	[TBC] Galliford Try	[TBC]	[TBC]
PC Regional Environmental & Sustainability Manager	Stage 5 - 6	[TBC] Galliford Try	[TBC]	[TBC]
PC HS&S Advisor	Stage 5 - 6	[TBC] Galliford Try	[TBC]	[TBC]

Role	Stage of Proposed Scheme involvement	Contact and Organisation	Telephone	Email
Community Relations Officer	Stage 5 - 6	[TBC]	[TBC]	[TBC]
Waste Champion	Stage 5 - 6	[TBC]	[TBC]	[TBC]
Spill Responders	Stage 5 - 6	[TBC]	[TBC]	[TBC]
PC Environmental Specialist(s)	Stage 5 - 6	[TBC] Galliford Try	[TBC]	[TBC]

2.4. Environmental management responsibilities

2.4.1. The PC is responsible for producing the Second EMP once the design and construction plans have been finalised. The PC is responsible for ensuring that all site environmental permissions are obtained, and site activities conform with the conditions defined within these permissions. The PC will identify the environmental requirements within method statements and ensure that they are produced, reviewed on time, and communicated to the necessary persons. The PC is responsible for ensuring that environmental risk assessments are effectively monitored, reviewed and communicated.

2.4.2. Highways England and delegated consultants acting on their behalf, PC and subcontractors are all responsible for complying with the Proposed 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.

2.4.3. 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. Where required, environmental specialists will be consulted to provide advice on specific issues or site activities, in consultation with the PC. The main environmental roles and responsibilities are shown in Table 1.4.

Table 1.4: Overview of role responsibilities

Role	Responsibility
Highways England (HE) Project Manager	Oversee implementation of Proposed Scheme and the individuals undertaking specific roles and duties. To be reported to as per contract requirements and internal organisation Environmental Management System (EMS).
PC project director	Responsible for overall management of the construction phase of the Proposed Scheme and therefore has overall responsibility for the environmental performance of the Proposed Scheme. Regularly communicating with Highways England on environmental matters as they arise.
PC senior project manager	Responsible for management of all construction activities. Must be aware of the environmental statutory requirements affecting site activities and seek further advice, if necessary. Ensure that all site environmental permissions are obtained, and site activities conform with the conditions defined within these permissions. Identify the environmental requirements within method statements and ensure that they are produced, reviewed on time, and communicated to the necessary persons. Ensure that environmental risk assessments are effectively monitored, reviewed and communicated. Organise and plan workplaces so that work is conducted in accordance with Galliford Try's business management system. Ensure adequate supplies of environmental control equipment (for example spill response equipment) are available and are appropriately used. Ensure all new employees, contractors and visitors, including delivery drivers, are instructed on site specific environmental requirements. Ensure site specific environmental training needs are identified and training programmes are undertaken for all levels of site staff and contractors and ensure that records are maintained by the environmental manager. Report any significant environmental incidents, disciplinary action or enforcing bodies' visits to the health and safety manager. Monitor the performance of personnel and activities under their control and ensure arrangements are in place so that all personnel can work in a manner which minimises risks to them and to the environment. Assist and support the environmental manager and statutory bodies in the investigation of any incidents. Undertake a programme of regular project environmental inspections in liaison with the environmental site representatives.

Role	Responsibility
	Complete any corrective actions identified and provide status report to the employer's project manager.
PC Design / Technical Manager	Ensure that designs are carried out in compliance with the relevant legislation, the PC's Environmental Policy and Standards, guidelines, approved codes of practice and other requirements including adherence to HE standards and the commitments in the EMP. Ensure that regular design reviews and assessments are jointly undertaken with the design and operational staff, as appropriate. Ensure that regular design reviews and assessments are jointly undertaken with HE SES, Ops, NOMS, ROC. Ensure competency assessments are carried out where design consultants are employed
PC Senior Site Manager	Be aware of the environmental statutory requirements affecting site activities and seek further advice, if necessary. Ensure that all site environmental permissions are obtained, and conformance of the conditions defined within these permissions. Ensure that environmental risk assessments are effectively monitored, reviewed and communicated. Organise and plan workplaces so work is conducted in accordance with PC's Environmental Standards. Identify the environmental requirements within method statements and ensure that they are produced and reviewed on time. Identify method statements' required distribution (e.g. foremen, supervisors, operatives) and ensure that they are followed and controlled, as appropriate. Ensure adequate supplies of environmental control equipment (e.g., spill response equipment) are available and are appropriately used. Accompany all Regulatory enforcement officers during any site visits. Ensure all new employees, contractors and visitors, including delivery drivers, are instructed on project specific environmental requirements. Ensure site specific environmental training needs are identified and training programmes are undertaken for all levels of site staff and contractors. Ensure all Supervisors and contractors are aware of their environmental responsibilities. Report any significant environmental incidents, disciplinary action or enforcing bodies' visits to the HS&S Advisor.

Role	Responsibility
PC Site Supervisors	Be aware of the environmental statutory requirements affecting operations and seek further advice, if necessary. Ensure all new employees, contractors and visitors, including delivery drivers, are instructed on project specific environmental requirements. Ensure that all relevant persons are briefed on the contents of environmental risk assessments / method statements and monitor operatives (including contractors) for compliance. Ensure that an adequate supply of environmental control equipment (e.g., spill response equipment) is kept on the site and implement disciplinary procedures against any employee who abuses or does not make full use of this equipment, when required. In conjunction with the Senior Site Manager plan environmental standards into work activities. In conjunction with the Senior Site Manager discuss environmental matters with all supervisors, including contractors, on a regular basis. Ensure all PC inspections are carried out as prescribed in the Company HS&S management system. Make full use of the services of the HS&S Advisors and co-operate with them to achieve PC's Environmental Standards. Follow PC's Environmental Standards and report any problems in achieving these standards to the Senior Site Manager and HS&S Advisor. Ensure that the requirements of all environmental risk assessments are brought to the attention of all operatives involved, including contractors. Follow PC environmental standards and report any problems in achieving these standards to the project manager and environmental manager. Actively encourage employees to report environmental problems as soon as they are discovered or if they are anticipated in the future. Ensure compliance with HE standards for the commitments within this EMP.
PC Regional Health Safety & Security Advisor Manager	Liaise with Business Unit Managers on operational environmental issues. Assist project management to ensure that the Proposed Scheme meet PC's Environmental Standards. Ensure the collation of environmental performance information, as provided by workplace management. Where working practices are observed that pose a significant environmental risk, ensure that, where possible, the activity is stopped; inform Site and Business Unit management immediately; provide appropriate support, advice and assistance in identifying and implementing the necessary remedial actions.

Role	Responsibility
	Ensure that the relevant manager is advised if operations are not achieving PC's Environmental Standards, and further advise the Operations Director, Business Unit Managing Director and C&I Head of Health and Safety, as appropriate. Assist Business Units in the environmental performance management of contractors. Ensure that significant environmental incidents are reported promptly to the Business Unit Directors, C&I Head of Health and Safety and regulators, as appropriate. Investigate all environmental incidents as required by PC's Environmental Standards and make known and discuss any significant findings / recommendations within the Business, as appropriate. In conjunction with the operational staff, identify areas / operations that require specific environmental improvement and assist in the organising or undertaking of such improvements, as appropriate. Provide feedback to the C&I Environmental Manager on the effectiveness of the C&I's HS&S management systems and any improvements necessary. Assist Head of Health and Safety and C&I Environmental Manager in maintaining high corporate environmental management standards across the C&I.
PC Regional Environmental & Sustainability Manager	Where working practices are observed that pose a significant environmental risk, ensure that, where possible, the activity is stopped; inform Site and Business Unit management immediately; provide appropriate support, advice and assistance in identifying and implementing the necessary remedial actions. Provide specialist environmental input to operational staff through advice, guidance and support e.g., on environmental legislation and industry best environmental practice. Provide detailed support / guidance in the planning stages of a new project e.g., review the adequacy of environmental risk assessments. Liaise with Business Unit Managers on operational environmental issues. Provide information in the form of instructions, Best Practice Guidance, Codes of Practice, Environmental Information Sheets etc. as appropriate, and ensure operational staff are provided with C&I communications on effective environmental working practices and alerts. Assist operational staff in the review of environmentally high-risk contractors' method statements, provide appropriate assistance in assessing other environmentally related method statements, and monitor the implementation of the same in the workplace, as appropriate. Ensure that the relevant manager is advised if operations are not achieving GT's environmental standards, and further advise the Operations Director, Business Unit Managing Director and C&I Head of Health and Safety, as appropriate.

Role	Responsibility
	Assist project management through advice, information, training and encouragement as appropriate to ensure that the Proposed Scheme continually meet GT's environmental standards. Promote involvement in environmental management of all operational staff by discussion, briefings, training sessions and effective communication. Assist in the investigation of all environmental incidents as required by GT's Environmental Standards and make known and discuss any significant findings / recommendations. Ensure that significant environmental incidents are reported promptly to the Business Unit Directors, C&I Head of Health and Safety and regulators, as appropriate. Ensure communication with the regulators regarding all relevant environmental inspections and incidents. In conjunction with the operational staff, identify areas / operations that require specific environmental improvement and assist in the organising or undertaking of such improvements, as appropriate. Provide Highways England with Quarterly Carbon figures as required.
PC Health Safety & Security Advisor	Where working practices are observed that pose a significant environmental risk, ensure that, where possible, the activity is stopped; inform Site and Business Unit management immediately; provide appropriate support, advice and assistance in identifying and implementing the necessary remedial actions. Liaise with Business Unit Managers on operational environmental issues. Ensure compliance with Highways England systems and polices and Rtb. Provide detailed support / guidance in the planning stages of a new project e.g., preparing the project environmental plans. Provide information in the form of instructions, Best Practice Guidance, Codes of Practice, Environmental Information Sheets etc. as appropriate, and ensure operational staff are provided with C&I communications on effective environmental working practices and alerts. Collate environmental information, as provided by workplace management, for monthly reports. Assist operational staff in the review of environmentally high-risk contractors' method statements, provide appropriate assistance in assessing other environmentally related method statements, and monitor the implementation of the same in the workplace, as appropriate. Ensure that the relevant manager is advised if operations are not achieving PC's environmental standards, and further advise the Operations Director, Business Unit Managing Director and C&I Head of Health and Safety, as appropriate.

Role	Responsibility
	Assist project management through advice, information, training and encouragement as appropriate to ensure that the Proposed Scheme continually meets PC's environmental standards. Promote involvement in environmental management of all operational staff by discussion, briefings, training sessions and effective communication. Ensure induction instructions are reviewed regularly for relevance to current operations and ensure that they are being effectively communicated. Ensure that all staff, including office-based personnel, receives appropriate environmental training and instruction. Monitor the Business Units to ensure that all staff, including office-based personnel, receive appropriate environmental training and instructions. Assist Business Units in the environmental performance management of contractors. Ensure that significant environmental incidents are reported promptly to the Business Unit Directors, C&I Head of Health and Safety and regulators, as appropriate. Assist in the investigation of all environmental incidents as required by GT's Environmental Standards and make known and discuss any significant findings / recommendations. Ensure communication with regulators regarding all relevant environmental inspections and incidents. Carry out environmental inspections at all workplaces on a regular basis, as appropriate, to ensure compliance with the GT Environmental Policy and Standards. In conjunction with the operational staff, identify areas / operations that require specific environmental improvement and assist in the organising or undertaking of such improvements, as appropriate. Provide feedback to the C&I Environmental Manager on the effectiveness of the HS&S management system and any improvements necessary.
Community relations officer	Communications with the public, stakeholders and other interested parties, outreach and education, where appropriate. Respond to any concerns or complaints raised by the public in relation to the works. Communication with local residents during construction to highlight potential periods of disruption. Liaise with the PM on landowner and community concerns relating to the works and act as the main interface with these stakeholders.

Role	Responsibility
	Maintain a log of complaints relating to the environment and ensure the PM is aware of any complaints. Engaging with local schools and colleges to inform pupils and students about the Proposed Scheme. Ensuring that the needs of groups with protected characteristics as identified within the Equality Act 2010 are considered during the construction process. Communicate with road users, affected landowners, statutory consultees and stakeholders. Ensure that the Highways England's project manager is informed of any concerns or complaints relating to the Proposed Scheme. Inform road users, affected landowners and stakeholders of scheme progress, and notify them of any construction activities that may cause inconvenience.
Waste Champion	Drive waste performance improvement including on-site materials and waste management practices. Verify the validity of disposal site permits, licenses and / or exemptions.in line with CL:AIRE MMP Ensure that the GT waste transfer note (HS&S-FRM-W01-03) is completed in full for all non-hazardous waste streams removed from site for reuse, recycling and / or disposal. Ensure that hazardous waste consignment notes are fully completed for hazardous waste streams removed from site.
Spill Responders	Ensure spill response equipment is available and well maintained. Respond to any spill incident that occurs on-site as long as it is safe to do so. Complete an Environmental Incident Report (HS&S-FRM-A01-02) following any spill incident.

Role	Responsibility
PC Environmental Specialist(s)	**Contamination and Remediation Specialist** • To provide specialist spill response services to the Proposed Scheme in the event of a significant spill incident. • To remove waste spill clean-up materials and to provide the site team with all waste duty of care paperwork associated with the disposal of waste spill clean-up materials. **Waste Contractor** • Refer to the Site Waste Management Plan (SWMP). **Ecological Clerk of Works** • Conduct Phase 1 Habitat Survey(s) where the presence of protected ecological resources are known / suspected. • Conduct extended Phase 2 Habitat Survey(s) to assess the potential presence of protected fauna and / or flora, if required as a result of a Phase 1 Habitat Survey. • Conduct protected faunal species surveys where their presence has been identified. • Develop / review method statement(s) for the management of protected species that includes all relevant recommendations made within ecological surveys. • Liaise with ecological regulatory bodies to ensure the suitability of method statements. • Obtain and fully implement the conditions of a European Protected Species Licence i.e., Development Licence, if required. • Implement with the assistance of the site team all physical and management controls, defined with method statements and licences, to protect known flora / fauna. • Monitor site works to assure conformance with method statements and / or licences. • Regularly discuss progress and issues with the Senior Site Manager.

Role	Responsibility
	Archaeologist • Develop and submit a mitigation strategy (Detailed Heritage Written Scheme of Investigation) to regulatory bodies for works that may impact known or suspected cultural heritage assets. This should include site-specific mitigation, general watching briefs where necessary and protocols for dealing with unexpected discoveries of cultural heritage assets during construction. • Preparation of method statements for the work specified in the agreed Detailed Heritage Written Scheme of Investigation • Obtain in conjunction with the Senior Site Manager all relevant regulatory permissions. • Implement with the assistance of the site team all physical and management controls, defined with method statements and licences, to protect known or suspected cultural heritage assets from construction activities. • Report the identification of any unexpected cultural heritage asset to the relevant regulatory body. • Recommend site works be suspended, if necessary, where any unexpected cultural heritage assets are identified. • Regularly discuss progress and issues with the Senior Site Manager. **Arboricultural Consultant** • Prepare a Tree Method Statement. • Conduct tree felling / surgery works as per the scope of contract and BS5837:2012 Trees in Relation to Design, Demolition and Construction.

3. Record of environmental actions and commitments

3.1. Introduction

3.1.1. The Record of Environmental Actions and Commitments (REAC) contained in Table 1.5 identifies the environmental commitments included within the Environmental Statement (ES) (**TR010039b/APP/6.1**) to address the potential environmental effects of the Proposed Scheme.

3.1.1. The REAC will be updated as the Proposed Scheme progresses. Monthly reviews will be undertaken where additional mitigation measures will be considered. On completion of the Proposed Scheme the Third iteration of the EMP will be finalised. This will inform the development of the Environmental Management Plan for handover (formally the HEMP). This is the main vehicle for passing essential environmental information and crucially to the body responsible for the future maintenance and operation of the asset.

Table 1.5: Record of Environmental Actions and Commitments

Ref	Source of Objective Document Ref	Objective	Action (including specific location if applicable)	Assumption (on which the action is based)	Achievement criteria and reporting / monitoring requirement (if applicable)	How the action is to be implemented / achieved	Responsible person(s)	When P = Pre-construction C = Construction O = Operation A = All	Completion Record
General (G)									
G1	ES Chapter 2 The Proposed Scheme (**TR010039/APP/6.1**)	Hours of working	Construction works will take place mainly during the daytime. Construction works outside of normal construction hours of 07:00-19:00 weekdays and 07:00-19:00 on Saturdays shall be minimised as far as practicable. Night working may take place from 20:00- 06:00. There may be exceptions to these hours for oversized deliveries, and junction tie-ins. There are likely to be extended working hours in the summer months to take advantage of the daylight or weather. Where works outside of these hours are unavoidable, the PC will consult with the local planning authority, and agree appropriate methods of mitigation that account for the location of works, hours of work and expected duration.	Indicative information from the PC	Regular site audits	Contractual responsibilities between Highways England and the PC	PC Senior Site Manager	P C	Signed: Date:
G2	ES Chapter 7 Landscape and Visual effects (**TR010039/APP/6.1**)	Reduce light disturbance for sensitive receptors	**During works:** Lighting shall be at the minimum luminosity necessary and use low energy consumption fittings. Lighting shall comply with the Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN016 and the provisions of BS 5489 Code of practice for the design of road lighting, where applicable. Lighting will be directional, and positioned sympathetically, to minimise light spill and disturbance for sensitive receptors. Night lighting will only take place in areas that have had vegetation cleared during the daytime, to avoid affecting species which may be present in uncleared areas. **During operation:** All proposed operational mitigation will be designed to minimise light spill onto residential properties and habitats which support commuting and foraging bats. Where lighting columns back onto residential properties and/or sensitive receptors, backlight shields or similar mitigation will be required to mitigate significant effects. Lighting at the junction will be designed with backlight shields and LED bulbs to reduce light spill onto habitats which support commuting and foraging bats.	Sensitive receptors within the vicinity of the site (as identified in Appendix 7.7 Lighting Assessment (**TR010039/APP/6.3**)	Regular site audits and compliance with EMP (**TR010039/APP/7.5**)	Contractual responsibilities between Highways England and the PC	Project Manager	P C	Signed: Date:
G3	ES Chapter 10 Materials and waste (**TR010039/APP/6.1**)	Avoidance of double handling of materials	Material deliveries shall be programmed in advance and on an "as required" basis to avoid temporary storage and double handling, where possible.	Not applicable	Compliance with a Materials Management Plan	Contractual responsibilities between Highways England and the PC	General Foreman	P C	Signed: Date:

Ref	Source of Objective Document Ref	Objective	Action (including specific location if applicable)	Assumption (on which the action is based)	Achievement criteria and reporting / monitoring requirement (if applicable)	How the action is to be implemented / achieved	Responsible person(s)	When P = Pre-construction C = Construction O = Operation A = All	Completion Record
G4	General ES (ES Chapter 2) (**TR010039/APP/6.1**)	Ensure traffic flows on the existing A47 and local roads are maintained during construction	The PC will prepare a Traffic Management Plan to manage the routing of construction traffic based on the outline Traffic Management Plan (**TR010039/APP/7.8**). Consultees including Peterborough City Council (PCC) and Royal Mail need to be acknowledged as a consultee on construction traffic management document and referenced in the list of parties that will be notified on closures and diversions during the construction period. Appropriate traffic management measures will be put in place to ensure that traffic flows on the existing A47 and other local roads are maintained, whilst allowing safe working at the interface between the existing road network and the Proposed Scheme. Routing of deliveries where possible and practicable will be along the existing A47. The PC will seek to reduce worker vehicle movements and HGV movements, particularly at peak periods.	Local road and existing A47 is used regularly	Compliance with the Traffic Management Plan (**TR010039/APP/7.6**)	Contractual responsibilities between Highways England and the PC	Project Manager	P C	Signed: Date:
G5	ES Chapter 7 Landscape and Visual effects (**TR010039/APP/6.1**)	To reduce the visual impacts of the construction works for nearby sensitive receptors	To reduce visual effects of the Proposed Scheme during construction, The PC will employ considered approach to minimise visual impact, for example: • keeping a tidy and organised site • temporary storage of soil mounds in linear bunds in locations where this would be beneficial to the visual screening of construction works • soil storage mounds managed in accordance with series 600 to assist visual integration of earthworks • protection of retained vegetation in accordance with British Standard (BS) 5837:2012	Construction works can be visually intrusive	Compliance with the Environmental Masterplan (**TR010039/APP/6.8**)	Contractual responsibilities between Highways England and the PC	Project Manager and General Foreman	P C	Signed: Date:
G6	ES Chapter 8 Biodiversity (**TR010039/APP/6.1**)	Protection of protected species during construction	During construction, toolbox talks and other briefings will be carried out to ensure operatives can: • Identify habitats suitable for protected species, individual species themselves, and understand measures required when these species are encountered. In the event that any protected or priority species which were not previously identified in the ES (or any nesting birds) are found during construction, the work in the vicinity of the identified species must cease and it reported immediately to the Ecological Clerk of Works (ECoW).	Ecology surveys have indicated the presence of protected species	The PC will update the EMP with Toolbox talks, The PC will comply with the requirements of the EMP (**TR010039/APP/7.5**)	Contractual responsibilities between Highways England and the PC	Works Manager and General Foreman	C	Signed: Date:

Ref	Source of Objective Document Ref	Objective	Action (including specific location if applicable)	Assumption (on which the action is based)	Achievement criteria and reporting / monitoring requirement (if applicable)	How the action is to be implemented / achieved	Responsible person(s)	When P = Pre-construction C = Construction O = Operation A = All	Completion Record
G7	ES Chapter 12 Population and human health (**TR010039/APP/6.1**)	Ensure positive community relations	Communication with residents will take place during construction to highlight potential periods of disruption. This will be via appropriate and expedient means of communication, and an appointed Community Relations Officer. The Highways England Customer Contact Centre will be available to deal with queries and complaints from the public. An information line will be staffed and a complaint management system in place, used on other major infrastructure projects, to ensure complaints are investigated, action is taken, and the complainant receives a response. A Community Relations Officer will be appointed who will be responsible for these specific tasks and will prepare a community relations strategy to outline how these tasks will be undertaken. A forum will be established to disseminate construction information to the consultees.	Consultation with the local community	National Considerate Constructor's Scheme and establish a forum to disseminate construction information to the consultees. A community relations strategy is to be produced at the pre-construction stage.	Contractual responsibilities between Highways England and the PC	Stakeholder Manager/ Public Liaison Officer	P C	Signed: Date:
G8	ES Chapter 7 Landscape and Visual effects (**TR010039/APP/6.1**)	To ensure all proposed embedded environmental mitigation elements retain their function not withstanding any design amendments within the vertical and horizontal limits of deviation.	Construction to take place in accordance with the Environmental Masterplan (**TR010039/APP/6.8**) and actions of the EMP which will be submitted as part of the DCO application. Where design amendments within the vertical and horizontal limits of deviation are required, environmental mitigation measures such as noise bunds and barriers will undergo the same vertical and horizontal changes to ensure mitigation measures are still effective.	Potential for mitigation bunds to lose their function as noise / landscape / visual screening	Compliance with the Environmental Masterplan (**TR010039/APP/6.8**) submitted as part of the DCO application	Contractual responsibilities between Highways England and the PC, and the requirements of the DCO	Project Manager	P C	Signed: Date:
G9	General ES (all chapters) (**TR010039/APP/6.1**)	EMP iteration	The PC will further develop the EMP prior to commencement of works based on the current EMP. It will include the implementation of industry standard practice and control measures for environmental impacts. Any design changes which require an update to mitigation proposed will be updated in the Second iteration of the EMP.	Not applicable	The EMP will be updated by the PC once the design and construction plans have been finalised and prior to commencement of construction. The 3rd iteration of the EMP will be refined at the end of the construction stage to support future management and operation of the Proposed Scheme.	Contractual responsibilities between Highways England and the PC	Project Manager	P C	Signed: Date:
G10	ES Chapter 10 Materials and waste	Protection of local network	Wheel washing facilities will be installed at all compounds and material storage areas to mitigate the risk of construction material fouling the local network. This may involve a simple	The local road network is used by construction traffic	Installation and use of facilities.	Contractual responsibilities between Highways England and the PC	Works Manager/ General	C	Signed: Date:

Ref	Source of Objective Document Ref	Objective	Action (including specific location if applicable)	Assumption (on which the action is based)	Achievement criteria and reporting / monitoring requirement (if applicable)	How the action is to be implemented / achieved	Responsible person(s)	When P = Pre-construction C = Construction O = Operation A = All	Completion Record
	(TR010039/APP/6.1)		coarse gravel running surface or jet wash, or in the case of a heavily used exit point, wheel washers.				Foreman		
G11	General ES (TR010039/APP/6.1)	Utilities diversion	Safe digging practices and suitable permitting will be applied during the works, along with thorough site investigations prior to the works, as non-intrusive survey methods seldom manage to locate plastic mains. National Grid Electrical Transmission 400kV overhead lines & towers cross the Proposed Scheme. Measures to maintain access & minimum safe clearance to be incorporated into the design.	Diversion of utilities required as part of the Proposed Scheme	Confirmation that permits required (detailed in Table 1.6 Consents and permissions) have been granted. Approved utilities plans to show access and minimum safe clearance.	Contractual responsibilities between Highways England and the Principal Contractor.	Works Manager/ General Foreman	P C	Initial: Signed:
G12	ES Chapter 7 Landscape and Visual effects (TR010039/APP/6.1)	Site restoration	Pre-works photography to be undertaken to prior to any construction works to provide a detailed baseline record. Photography to be used to demonstrate site restoration and replanting has been successful.	Site restoration	Monitoring and comparison of the site restoration post construction, which is to be returned to pre-construction conditions.	Undertaking of pre works photography by PC	Senior Project Manager	C O	Initial: Signed:
Air quality (AQ)									
AQ1	Air quality (ES Chapter 5) (TR010039/APP/6.1)	To limit and control emissions to air during construction on sensitive receptors	1. The construction dust assessment has concluded there are no significant effects with the Proposed Scheme for human and ecological receptors. The assessment has been used to inform the best practice mitigation measures in the Environmental Management Plan (EMP). Based on a construction dust risk potential of high for the project, the following activities are recommended to monitor the effectiveness of the proposed mitigation measures which will be included in the EMP: Development of Construction Noise and Dust Management Plan with measures to monitor effectiveness of mitigation as part of the EMP 2. Daily onsite and off-site inspections to be included in EMP 3. Record of complaints/exceptional dust events to be included in EMP	Community receptors and ecological designated sites sensitive to changes in dust within the vicinity of the Proposed Scheme (as identified in Chapter 5 of the ES (TR010039/APP/6.1) and presented in ES Figure 5.1 (TR010039APP/6.2).	No justified complaints of dust nuisance from receptors in the vicinity of the Proposed Scheme.	Regular Site Audits Compliance with the Construction Noise and Dust Management Plan. Compliance with Section 61	Project Manager	P C	Signed: Date:
Cultural heritage (CH)									

Ref	Source of Objective Document Ref	Objective	Action (including specific location if applicable)	Assumption (on which the action is based)	Achievement criteria and reporting / monitoring requirement (if applicable)	How the action is to be implemented / achieved	Responsible person(s)	When P = Pre-construction C = Construction O = Operation A = All	Completion Record
CH1	Cultural Heritage (ES Chapter 6) (**TR010039/APP/6.1**)	To limit impacts on the setting and location of heritage assets and historic landscape	Sensitive vegetation planting design along the route corridor, side roads and east of the proposed Sutton Heath Roundabout to screen and enhance the setting of heritage receptors (such as Sacrewell Farm, Stibbington Conservation area, Sutton Conservation area and Model farmhouse).	Environmental Impact Assessment (EIA) - Cultural heritage assessment	Compliance with the Environmental Masterplan (**TR010039/APP/6.8**) submitted as part of the DCO application	Environmental Masterplan Landscape and planting design	PC will liaise with specialist	P C	Signed: Date:
CH2	Cultural Heritage (ES Chapter 6) (**TR010039/APP/6.1**)	To limit impacts on the setting and location of heritage assets and historic landscape	All recording and conservation measures will be secured through DCO condition and captured within a Heritage Mitigation Strategy which will be agreed with Historic England and consulted on with Peterborough City Council as appropriate. Historic England should be the primary consultee of any works potentially affecting the scheduled monument and Peterborough City Council for all other locations. However, both bodies should be kept informed of all works and given the opportunity to offer technical advice. The Heritage Mitigation Strategy would include measures to ensure adequate monitoring, adaptation to change based on arising information, analysis, reporting and archiving, as well as methods of public dissemination appropriate to the results. The WSI shall set out the appropriate standards and guidance that apply to the works. Peterborough City Council usually requires archaeological written schemes of investigation (WSIs) to be written by the appointed archaeological contractor undertaking the work, in response to a work-specific brief provided by PCC. In order to undertake appropriate procurement a project-wide archaeological mitigation strategy, will be prepared for agreement. This would include reference to outline briefs provided by PCC, layouts of the areas of works, minimum standards, roles and responsibilities and monitoring arrangements. Once an archaeological contractor(s) is appointed, detailed briefs will be requested from PCC and the archaeological contractor will submit WSIs for each brief. The agreed WSIs will be appended to the Heritage Mitigation Strategy.. Both the strategy and WSIs would be live documents, to be updated as results emerge from the works and allowing for a rolling consultation on appropriate methodology with the consultees.	EIA – Cultural heritage assessment	Compliance with the Written Scheme of Investigation which will be agreed with Historic England and Peterborough City Council	Written Scheme of Investigation	PC will liaise with appropriate specialist	P C	Signed: Date:
CH3	Cultural Heritage (ES Chapter 6) (**TR010039/APP/6.1**)	To promote the historical assets in the areas	Heritage enhancement in the area will be reviewed at detailed design and can be achieved through the installation or improvement of information boards and signages. Examples of this could be brown signs for Sacrewell Farm and information	EIA – Cultural heritage assessment	Compliance with the Written Scheme of Investigation which will be agreed with Historic	At detailed design, the design team will review the EMP (**TR010039/APP/7.5**) and update this action.	Design Manager	P C	Signed: Date:

Ref	Source of Objective Document Ref	Objective	Action (including specific location if applicable)	Assumption (on which the action is based)	Achievement criteria and reporting / monitoring requirement (if applicable)	How the action is to be implemented / achieved	Responsible person(s)	When P = Pre-construction C = Construction O = Operation A = All	Completion Record
			signs to identify assets such as Ermine Street Roman Road and the Nene Way. Original building materials from demolition of the Former Wansford railway station will be made available to reputable organisations for the purposes of historic building restoration and reclamation. Preference shall be given to local railway organisations or projects first. While the former station building itself and the gate piers must be removed due to engineering concerns, there is a potential for the linesman's hut and elements of the platform to be retained. Detailed design will include examination of options for retention of these elements in consultation with the Peterborough Council Conservation Officer as the relevant authority and Historic England as a technical advisor. It is likely that the results of mitigation excavations and building recording will be of sufficient interest to warrant engagement with the local communities through outreach and education. Where this is identified in consultation with Historic England and Peterborough City Council, it should be noted that this would form part of necessary appropriate mitigation rather than optional enhancement.		England and Peterborough City Council				
CH4	Cultural Heritage (ES Chapter 6) (**TR010039/APP/6.1**)	Protection and / or conservation of heritage assets during construction	Certain assets in the Proposed Scheme boundary are to be excluded from the works and will be recorded and protected during construction (for example fencing). These assets include Royal Observer Corps bunker (50635). This will be monitored for effectiveness during the works and the need for, scope and scale of any further works would be discussed with Peterborough City Council's Archaeological Officer and Senior Conservation Officer as appropriate. Protocols will be established following best practice guidance to ensure vibration levels are kept within acceptable tolerances (as defined in BS 5228-2), to avoid damage, and to halt or alter works methodology should tolerances be exceeded. Historic building recording of the locally listed former Wansford Railway Station (WAN01) and associated railway bridge (WAN02) will be carried out to Level 3 according to Historic England's guidance for investigating and recording historic buildings (Historic England, 2016)[6]. To also be included in the recording are the linesman's hut, platform, cast iron gate piers, and the railway earthworks within the landownership boundary	EIA - Cultural heritage assessment	Regular monitoring and inspection to ensure the assets are protected Condition surveys of the buildings Assets will be fully recorded, conserved, and restored. An appropriate specialist will be consulted on the methodology to record, conserve, and restore The scope of protection of heritage assets during the construction will be agreed where	EMP Condition surveys and structural risk assessments Construction noise and vibration management plan Heritage Mitigation Strategy	Works Manager will liaise with specialist	P C	Signed: Date:

[6] Historic England (2016), Understanding Historic Building – A guidance to Good Recording Practice.

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			of Wansford Railway Station (WAN01) and the Proposed Scheme boundary. Heath House (WAN11) will also be included for context but will not be subject to full recording, due to being unaffected by the Proposed Scheme other than through loss of group value. Historic building recording of the Grade II listed wall to the east of Model Farmhouse alongside a full structural survey and construction risk assessment will be undertaken prior to the starting of any permanent or temporary works nearby. This will enable design of appropriate preventative measures in consultation with the Peterborough City Council's Archaeological Officer and Conservation Officer. Such measures are likely to include protective fencing but may also include preventative conservation works. Recording will be undertaken to Level 2 according to Historic England's guidance for investigating and recording historic buildings. These measures will be included in the Heritage Mitigation Strategy. A milestone (WAN05) was not identified on the site walkover and was presumed in Appendix 6.1 to have been removed, along with other milestones confirmed to be absent. However, the location was heavily overgrown at the time of survey and the asset has since been located. The Heritage Mitigation Strategy will include measures to record, protect, conserve/restore and remove/reinstall if necessary, The asset will then be proposed for listing to Grade II or for local listing as appropriate. Pre-construction and construction-integrated recording can include works typically thought of as evaluation such as geophysics and trenching		appropriate with Peterborough City Council (PCC) Archaeological Officer and Senior Conservation Officer, and Historic England before construction				
CH5	Cultural Heritage (ES Chapter 6) (**TR010039/APP/6.1**)	Preservation in-situ of known and potential archaeological resources during the final design phase	The final layout for temporary structures, services, haul routes, storage methods etc. shall take into account the location of the known and potential archaeological resources within the footprint of the Proposed Scheme identified during the EIA cultural heritage assessment. Where possible known and potential archaeological remains should be preserved in-situ where reasonably practicable by avoidance. Where impacts cannot be avoided appropriate mitigation for preservation by record shall be included in the Heritage Mitigation Strategy.	EIA - Cultural heritage assessment	Scope of mitigation required to be included in the Heritage Mitigation Strategy	Highways England chosen Archaeological specialist will liaise with PC Heritage Mitigation Strategy	Project Manager, Design Team	P	Signed: Date:
CH6	Cultural Heritage (ES Chapter 6) (**TR010039/APP/6.1**)	Mitigation of impact on known and potential archaeological remains	As detailed in CH2, a Heritage Mitigation Strategy will be prepared by an archaeological specialist and will include the methodology for all archaeological mitigation requirements. All recording and conservation measures will be captured within	EIA - Cultural heritage assessment	Consultation with the Local Authority Archaeology Advisor (Peterborough City	Contractual responsibilities between Highways England and the PC Heritage Mitigation Strategy	Project Manager, Design Team	P C (Reporting may	Signed: Date:

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			the Heritage Mitigation Strategy which will be agreed with Peterborough City Council. Preservation by record will be an appropriate method to mitigate adverse effects. Identified remains are not of such complexity and sensitivity that preservation in situ would be necessary. However, good practice dictates that where remains need not be disturbed, they shall be protected to ensure they are preserved for the future. All archaeological potential zones within the Proposed Scheme boundary are subject to archaeological excavation and recording by various methods. The precise scope of this work will be set out in the Heritage Mitigation Strategy agreed with Peterborough City Council as the relevant authority, with Historic England providing technical advice. Archaeological methods may need to adapt to changing conditions and discoveries throughout the works. Recommendations are set out below but, these should be seen as a strategy and a starting point for agreement. A starting point for preservation by record for zones of identified archaeological potential includes the following from the ES: • Archaeological monitoring of GI works to make additional observations in previously tested and untested areas, recommendation of appropriate design and mitigation response. Locations of test pits and boreholes will be reviewed to minimise harm to potential archaeological remains, whether designated or non-designated. • Archaeological monitoring of groundworks in zone 1 (north bank of the River Nene at the west end of the Proposed Scheme). The attending archaeologist will scan all arisings with a metal detector for ferrous and non-ferrous metal finds. Examination of any such potentially high-status finds would add to the understanding of results from zone 2, even though they would be unstratified. Ecofacts and pottery fragments would be of much lower potential value due to disturbance by dredging but, will still be subject to recording if identified during monitoring. • Exclusion of zone 5 from the construction site through placement of appropriate barriers. An archaeological observer will be present during all works within 30m of the Scheduled Monument to ensure there is no damage and to appropriately record any potentially related unstratified finds not		Council) and Historic England. Appropriate mitigation to be included in the Heritage Mitigation Strategy and agreed with Peterborough City Council and Cambridgeshire County Council Environmental Services.	Appointment of an archaeological subcontractor to undertake the agreed works		continue into the operation phase)	

Ref	Source of Objective Document Ref	Objective	Action (including specific location if applicable)	Assumption (on which the action is based)	Achievement criteria and reporting / monitoring requirement (if applicable)	How the action is to be implemented / achieved	Responsible person(s)	When P = Pre-construction C = Construction O = Operation A = All	Completion Record
			previously recorded as set out below (for example during excavation of existing road and verge layers). • Pre-construction excavation for zones 2, 3, 6, 7, 8 and 9. These zones contain the main locations of sensitive remains and will likely require the most time to excavate appropriately. Sampling levels should be agreed in advance of works but, will require flexibility to adapt to the emerging archaeological remains in consultation with Peterborough City Council. Advance excavation will limit the risk to the subsequent construction phase programme. • Construction-integrated recording for zone 4. This zone has been disturbed through excavation for utilities, dredging operations and construction of the existing A47 carriageway and petrol station. There are also known buried and overhead services here that would present logistical problems for pre-construction recording. The time required for adequate recording will be less and it may be more efficient to schedule the works during topsoil stripping for construction. This could take the form of archaeological monitoring of topsoil stripping by the civils contractor with programme allowance for recording of exposed remains before further earth-moving. Alternatively, the removal of overhead lines may take place before archaeological recording and the area fully recorded before handing over to the main construction works. • Archaeological monitoring with potential construction integrated recording in all other parts of the Proposed Scheme save for the exclusions set out in paragraph 6.6.70of ES Chapter 6 Cultural Heritage (**TR010039/APP/6.1**). This work should focus on the mapping of archaeological features related to zones 2-9 and recovering dating evidence to clarify the results of previous excavation in those areas. The monitoring will also provide a safety net to catch any unexpected remains of archaeological value. The monitoring would be targeted on areas of impact defined during detailed design of temporary works at PCF stage 5. • Parts of Zones 6, 8 and 9 have not been archaeologically tested. While the above recommendations apply to these areas equally, they do not preclude further investigative works such as geophysical and trenching surveys. Any investigations would be designed in consultation with Peterborough City Council and would be used to refine the design of appropriate mitigation works.						

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CH7	Cultural Heritage (ES Chapter 6) **(TR010039/APP/6.1)**	To deal with unexpected archaeological discoveries during construction	During and prior to construction, a protocol for unexpected archaeological discoveries will be developed as part of the WSI (Mitigation Strategy). This protocol will be agreed with Historic England and consulted on with Peterborough City Council and Cambridgeshire County Council Environmental Services, in advance and is likely to include: • Toolbox talks or other instruction methods to allow operatives to identify potential archaeological remains • Protocols for protection, recording, and archiving of relevant finds • Protocols and communications plans for temporarily halting works and consulting with the relevant stakeholders in the event of unexpected remains of high or very high value / sensitivity. Protocols and communications plans will be included in the WSI (Mitigation Strategy). Monitoring of any protection measures would be undertaken during construction to ensure that they remain effective including regular inspections of temporary fencing. These measures will be set out in the Heritage Mitigation Strategy	EIA - Cultural heritage assessment	Protocol to be included in the Heritage Mitigation Strategy and agreed with Peterborough City Council Environmental Services and Conservation Officer and Historic England Archaeological monitoring at St Peter's Church to be included in the Heritage Mitigation Strategy and agreed with Peterborough City Council Environmental Services	Highways England chosen Archaeological specialist will liaise with PC Heritage Mitigation Strategy	Project Manager, Highways England	P C	Signed: Date:
CH8	Cultural Heritage (ES Chapter 6) **(TR010039/APP/6.1)**	Monitoring of archaeological mitigation strategy	Due to the potential for significant adverse effects to archaeological remains and heritage assets, monitoring of any protection measures would be undertaken during construction to ensure that they remain effective including regular inspections of temporary fencing. Monitoring measures and protocols for managing any disturbance or removal of archaeological remains and heritage assets will be detailed within the WSI (Mitigation Strategy) and compliance will be secured by Requirement 9 to the DCO (**TR010039/APP/3.1**). These measures will be set out in the Heritage Mitigation Strategy	EIA - Cultural heritage assessment	Monitoring to be included in the Heritage Mitigation Strategy and agreed with Peterborough City Council Environmental Services, Huntingdonshire District Council and Historic England	Contractual responsibilities between Highways England and the PC, and the Requirement 9 of the DCO (**TR010039/APP/3.1**) Heritage Mitigation Strategy	Project Manager, Highways England	P C	Signed: Date:
CH9	Cultural Heritage (ES Chapter 6) **(TR010039/APP/6.1)**	Replacement of trees removed	Trees removed from the verge north of Model Farmhouse and the associated wall (1331283 and 1127438) will be replaced with trees of similar species as close as possible to the original locations, to retain the effect of the partial screening adding to the sense of transition into/out of the settlement at these assets.	EIA - Cultural heritage assessment	Environmental Masterplan All proposed landscape and visual mitigation measures to be implemented by the year of opening with planting to have	Contractual responsibilities between Highways England and the PC, and the Requirement 9 of the DCO (**TR010039/APP/3.1**)	Project Manager, Highways England	P C	Signed: Date:

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					established by year 15				
CH10	Cultural Heritage (ES Chapter 6) (**TR010039/APP/6.1**)	Unknown archaeology	An overlying risk of unknown archaeology throughout the Proposed Scheme is presented by the potential discovery of downed World War II aircraft. The proposed development lies on a line between RAF Wittering and the various European WWII theatres. HER points are given for assets such as these but they have a very low degree of accuracy, meaning that aircraft crash sites and potential war graves should be considered a risk throughout the Proposed Scheme.	EIA - Cultural heritage assessment	Protocol to be included in the Heritage Mitigation Strategy and agreed with Peterborough City Council Environmental Services and Conservation Officer and Historic England	Contractual responsibilities between Highways England and the PC, and the Requirement 9 of the DCO (**TR010039/APP/3.1**)	Project Manager, Highways England	P C	Signed: Date:
Landscape and visual effects (LV)									
LV1	Landscape and visual (ES Chapter 7) (**TR010039/APP/6.1**)	Protection and enhancement of the landscape character and sense of place	The Environmental Masterplan (The Environmental Masterplan (**TR010039/APP/6.8**) sets out the additional proposed landscape and visual mitigation of the Proposed Scheme. At this more detailed level, mitigation aims to also achieve the following: • New hedgerow, tree, and woodland planting to screen the Proposed Scheme. • New hedgerow planting to integrate the Proposed Scheme with the existing field pattern.	EIA - Landscape and visual impact assessment	Environmental Masterplan All proposed landscape and visual mitigation measures to be implemented by the year of opening with planting to have established by year 15	Regular site inspections and audits	Design Team. Design Manager/ Project Manager PC Environmental Specialist	A	Signed: Date:
LV2	Landscape and visual (ES Chapter 7) (**TR010039/APP/6.1**)	To ensure the establishment of the landscape character and visual effects	The maintenance of mitigation such as planting and seeding after the construction period will be the responsibility of the Principal Contractor ensuring all proposed mitigation reaches maturity. Planting and seeding, proposed as mitigation for landscape and visual effects, would be maintained in order to achieve their full establishment throughout the construction contract. This will be detailed in the landscape and ecology management plan produced during detailed design and reported in the second iteration of the EMP (Construction) Planting and seeding, proposed as mitigation for landscape and visual effects, would be maintained in order to achieve their full establishment throughout construction and then handed over for a landscape-establishment maintenance	Sensitive landscape and visual receptors and ecology receptors within close proximity to the Proposed Scheme.	Successfully implement Environmental Masterplan Sheets 1-7 (**TR010039/APP/6.8**) and compliance with the outline Landscape Management Plan (oLEMP).	To be implemented by Highways England and the PC	Project Manager, Detailed Design team and Highways England	O	Signed: Date:

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			period of three years, prior to handover to the future maintaining authority for on-going highway maintenance.						
LV3	Landscape and visual (ES Chapter 7) (**TR010039/APP/6.1**)	To limit the impact of construction on existing trees and vegetation to be retained	The PC will engage an Arboricultural consultant to: • Undertake detailed pre-construction surveys (including T20 to determine its status). • complete an Arboricultural method statement. The method statement shall include, but not limited to the following: o Tree protection measures in compliance with BS5837:2012 (Trees in relation to design, demolition, and construction – Recommendations) during the construction phase. o Maintenance and monitoring requirements of the tree protection measures o Schedule of trees to be removed and retained in compliance with Environmental Masterplan (**TR040039/APP/6.8**) and Appendix 7.7 Arboricultural Impact Assessment (**TR040039/APP/6.3**). o Tree root protection zones o Contingency plan (chemical spillage, collision, emergency access to the root protection zone) • monitor tree protection measures on site. This shall include, but are not limited to the following: o Checking the robustness and positioning of tree protection fencing. o Checking that no materials or plant are stored within the tree root protection areas (RPAs) All trees to be retained or removed are identified within the Arboricultural Impact Assessment.	Arboricultural Impact Assessment. Trees to be retained are within close proximity to the works.	Arboricultural survey. Regular site audits and adherence to the Arboricultural Method Statement.	To be implemented by the PC and the PC's Arboriculturalist	PC and the specialist	C	Signed: Date:
LV4	Landscape and visual (ES Chapter 7) (**TR010039/APP/6.1**)	Protection and enhancement of the landscape character and sense of place Replanting to mitigate loss of	Retain or replace and reinforce existing vegetation where this contributes to the distinctive qualities of the landscape, in accordance with the Environmental Masterplan (**TR010039/APP/6.8**). Select plant and grass species appropriate to the locality and with consideration of seasonal variations.	EIA – Landscape and visual impact assessment	Environmental Masterplan	Regular site inspections and audits	Design Team/ Design Manager/ Project Manager Senior Site Manager	P C	Signed: Date:

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		trees	Refer to Environmental Masterplan (**TR010039/APP/6.8**) for detail of planting proposals.						

LV5	Landscape and visual (ES Chapter 7) (**TR010039/APP/6.1**)	Site restoration	Should access be required for machinery or pedestrians within the RPAs of any retained trees, ground protection will be installed. This ground protection will be required to avoid direct damage to the roots of the trees as well as preventing compaction of the soil. In accordance with section 6.2.3 of BS5837:2012 this ground protection will need to be fit for the purpose of supporting any traffic entering the RPA without causing compaction of the soil below. For pedestrian traffic, a single layer of scaffold or 19mm ply boards laid on top of driven scaffold framework or laid onto a compressible layer of sharp sand or woodchip on a geotextile membrane should be adequate. If access is required within the RPAs of retained trees for plant and machinery, the level of ground protection may need to be increased to proprietary inter-locking boards on a compressible layer, or a cellular confinement system similar to that shown in Appendix 8 (**TR010039/APP/6.3**). Tree protection fencing should be installed around the perimeter of the extent of the canopy spread of retained groups and woodlands, and around the RPAs of all retained trees. In line with Section 6.2.2 of BS 5837:2012, which requires that the tree protection barriers be fit for the purpose of excluding construction activity and that they provide adequate protection to the trees and hedge, it is proposed that they will consist of 2m tall, welded mesh panels supported by upright poles driven into the ground. Each panel will be secured to its neighbour with a minimum of 2 anti-tamper couplers secured so that they can only be undone from inside the Construction Exclusion Zone (CEZ). The panels will be further supported by stabilizer struts which will be pinned to the ground. Examples of suitable fencing configurations are included in Appendix 7 (**TR010039/APP/6.3**). Inside the CEZ the following prohibitions will be complied with: ▪ No excavations, including by hand; ▪ No storage of machinery; ▪ No storage or handling of building materials, fuel, chemicals or spoil; ▪ No fires; ▪ No vehicular access; ▪ No pedestrian access; ▪ No alteration, increase or decrease, to existing ground levels; ▪ No excavation or installation of services.	Site restoration	Monitoring and comparison of the site restoration post construction	To be implemented by the PC and the PC's Arboriculturalist	Works Manager	C O	Signed: Date:

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LV6	Landscape and visual (ES Chapter 7) (**TR010039/APP/6.1**)	Construction phase	Mitigation during construction will comprise: • Keeping a tidy and organised site. • Materials delivered on an 'as needed' basis to prevent unnecessary stockpiles. • Protection of retained vegetation in accordance with British Standard (BS) 5837:2012 (see Arboricultural Impact assessment at Appendix 7.6) (**TR010039/APP/6.3**).	EIA – Landscape and visual impact assessment	Regular site audits	To be implemented by Highways England and the PC	Project Manager, Detailed Design team and Highways England	O	Signed: Date:
Biodiversity (BD)									
BD1	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To reduce the impact of pollution on ancient woodland and the potential impact of habitat pollution through air quality, surface water run off, water level or drainage changes, sedimentation and accidental spillages.	Reduction of permanent habitat loss where possible has been embedded in the design. Pollution during construction would be mitigated by using best practice methods for pollution prevention and water management. Impacts of flood risk would be managed by the implementation of a construction-phase drainage system. To reduce air pollution, best practice mitigation measures would be included in the EMP within Annex B.3 as part of Construction Noise and Dust Management Plan which includes ongoing monitoring.	EIA – Biodiversity assessment and ecological surveys	Monitoring and comparison of the site restoration post construction	EMP Construction Noise and Dust Management Plan LEMP	Design Team/ project Manager will liaise with specialist	P C	Signed: Date:
BD2	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To mitigate the permanent loss of habitat from Sutton Meadows County Wildlife Site (CWS) and Sutton Disused Railway. To also mitigate temporary loss of habitat through the flood storage and trenching and potential indirect impacts upon all CWS from pollution of habitat from air quality and surface water runoff, water level changes,	To mitigate the partial loss of the Sutton Meadows North CWS, through the construction of the new westbound carriageway, new areas of restored species rich grassland/wildflower meadow would be established between the existing A47 and new access road to Sacrewell Farm (TL 07871 99661). This grassland would be seeded with a tailored seed mix consistent with the species found within the CWS communities. This habitat would be managed in accordance with a bespoke habitat management plan which would be developed with the future environmental managers. Details shown on the Environmental Masterplan. To compensate the loss of two oak trees in the CWS, additional oaks would be planted in the woodland planting south of the A47 aimed at reducing visual impacts near wittering brook and within the CWS mitigation area at TL 07871 99661. Where possible all willows would be retained in the CWS as this is the foundation of the CWS citation. If any willows are to be removed each one would be replaced with two white willows (2:1). To enhance the existing CWS, further white willow would be planted along the River Nene east of wittering	EIA – Biodiversity assessment and ecological surveys	Environmental Masterplan Monitoring and comparison of the site restoration post construction	On-site monitoring EMP Construction Noise and Dust Management Plan LEMP	Design Team/ Project Manager will liaise with specialist	P C	Signed: Date:

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		sedimentation and accidental spillages.	brook. This would help maintain the long term cited features of this site whilst also providing screening to reduce visual impacts and suitable habitat for invertebrates and birds. Where possible construction vehicles should be excluded from driving over Sutton Meadow CWS. If this is not possible, heavy duty ground protection should be installed to protect the soil and turf and seed bank. Once constructed, the new flood storage area within the CWS (TL 08903 99499) east of wittering brook would be planted back to the pre-existing flood meadow habitat. The two headwalls would be constructed on the banks of the River Nene CWS would have sumps within the catchpit chambers to collect any remaining sediment which has not been collected in the planted attenuation basins before it discharges into the River Nene. Each outfall would also have flow controls built in which would further help reduce any sedimentation and a penstock installed to limit pollution events. Where the trench is to be dug through the CWS as part of the installation of drainage from the attenuation basin north of A47, the turf and sub soil must be used in the backfilling to maintain the pre-existing seedbank. Turf strips shall be removed first and stored in situ, and spoil would be stored in-situ on a tarpaulin and bunded to prevent it washing into nearby watercourses. This would then be used in the backfilling. This process will be detailed in the EMP. Reduction of as much permanent habitat loss as possible has been embedded in the design for Sutton Disused Railway CWS. Pollution during construction would be mitigated by using best practice methods for pollution prevention and water management. Impacts of flood risk would be managed by the implementation of a construction-phase drainage system. To reduce air pollution, best practice mitigation measures would be included in the EMP as part of the Construction Noise and Dust Management Plan which includes ongoing monitoring.						
BD3	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To minimise the loss of the permanent habitat loss and indirect effects	Reduction of permanent habitat loss where possible has been embedded in the design. Species poor hedgerows would be gap filled to increase species diversity and quality across the site. Any hedgerow deemed species rich or 'important' would be translocated and not lost. Where translocation takes place, a risk assessment will be undertaken to assess the potential for failure and a backup plan proposed if needed. New species	EIA – Biodiversity assessment and ecological surveys	Pre-construction surveys	EMP Construction Noise and Dust Management Plan LEMP Hedgerow Translocation Risk Assessment	Design Team/ Project Manager will liaise with specialist	P C	Signed: Date:

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			rich hedgerows with trees would be planted in addition to areas of deciduous woodland. Meadow grassland would be replanted. Species-rich grassland areas are to be created. The seed mix for unimproved calcareous grassland will be either collected from cuttings on site or created from the botanical species created. All pollution events would be managed though best practice guidance and continually monitored throughout construction as part of the water drainage strategy and Construction Noise and Dust Management Plan within the EMP.						
BD4	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To avoid disturbance on wintering birds and breeding birds	Reduction of as much permanent habitat loss as possible has been embedded in the design and where possible, habitat planting would be undertaken before the start of construction to minimise the intervening period between vegetation clearance and the establishment of the new habitat. Timing of vegetation clearance works is to take place outside of the bird nesting season. If it goes into nesting season, the areas to be cleared would be checked by an Ecological Clerk of Works immediately prior to clearance. Any nests or young would be avoided until the birds have fledged. For some species (rook, Corvus frugilegus, grey heron, Ardea cinerea, etc.) the nesting season does not conform to March – August (inclusive) timeframe and nesting often commenced before March. Therefore, where these have been identified works on tree removal should be completed between September to February. Areas of temporary land clearance would be remediated with native trees and shrubs and species-rich grassland. Bird boxes would be installed on remaining trees at a density of between 10 and 40 nest boxes per hectare. Gaps created in hedgerows would be infilled where possible and additional hedgerow, woodland, scrub habitat would be included in the landscape plans to help mitigate the loss of suitable habitat. Disturbance from noise would be mitigated by use of temporary noise barriers, quieter plant, leaving a buffer zone around sensitive receptors and reducing time on noisy activities. Real-time noise monitoring shall be provided on sites where there are sensitive ecological receptors. Vibration would be reduced with early warning, pre-condition surveys, short work durations, and vibration monitoring. Night lighting during construction would be directed away from sensitive features and should not affect these species. Pollution during construction would be mitigated using best practice methods for pollution prevention and water	EIA – Biodiversity assessment and ecological surveys	Pre-clearance ecological surveys Construction noise management plan Environmental Masterplan Landscape Environmental Management Plan (LEMP)	On-site monitoring	Project Manager will liaise with specialist	P C	Signed: Date:

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			management. Surface water monitoring during construction would also be implemented and will be outlined within the temporary surface water drainage strategy within the EMP. Installation of bird next boxes suitable for tit species, kestrel, sparrowhawk, barn owl and tawny owl should in installed in suitably retained habitat which would help mitigate the loss of existing habitat. Creation of kingfisher nesting banks at the water vole mitigation areas at Sacrewell Farm along with mallard nest tubes. Areas of temporary land clearance would be remediated with native trees and shrubs and species-rich grassland which would create wintering foraging habitat. Night lighting during construction would be directed away from sensitive biodiversity resources and should not affect these species. All pollution events would be managed through best practice guidance and continued monitoring throughout construction as part of the water drainage strategy and dust management plan within the EMP.						
BD5	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To avoid disturbance to species during site clearance and construction activities	Pre-construction ecological surveys are required prior to any site clearance by an Ecological Clerk of Works (ECoW) and prior to vegetation clearance. If any protected species are found, they will be moved to a safe suitable area. Timings will be stipulated in the **Landscape and Ecology Management Plan** (LEMP). Tool-box talks will be given by the on-site ECoW to contractors and site operatives to raise awareness. Areas of temporary land clearance will be replanted with native trees and shrubs and species-rich grassland as per the Environmental Masterplan. Excavations to be covered at night or a ramp left in so animals can climb out. Necessary measures to safeguard excavations to be undertaken in accordance with best practice construction measures.	EIA –Biodiversity assessment	Pre-clearance ecological surveys	On-site monitoring LEMP	Ecological Clerk of Works (ECoW)	P	Signed: Date:
BD6	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To prevent or minimise the introduction or spread of Invasive Non Native Species (INNS) during construction	The introduction of INNS during construction would be mitigated by implementation of an INNS Management Plan. This would contain knowledge of appropriate treatment methods to ensure that construction proceeds within the legal framework to ensure prevention of spread both within and beyond the Proposed Scheme boundary.	EIA - Biodiversity assessment and surveys	Pre-construction surveys	INNS Management Plan	Ecological Clerk of Works (ECoW) and Project Manager	P C	Signed: Date

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BD7	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To prevent or minimise the impact of nuisance or pollution impact during construction activities	The Principal Contractor must comply with construction best practice in relation to pollution prevention and water management as set out in Construction Industry research and Information Association (CIRIA) Guidelines ((Soubry (2001), Murnane et al. (2006), Charles and Edwards (2015)), and the Environment Agency's approach to groundwater protection (Environment Agency, 2017) and groundwater protection guides (Environment Agency, 2017 a), as required under the Water Framework Directive. The Principal Contractor must comply with construction best practice for drainage around the main compound, to minimise or prevent risk of pollution incident. Construction vehicles will be excluded from driving over species rich grassland (as shown on Figure 8.1 (Designated Sites) (**TR010039/APP/6.2**)). If this is not possible, the Principal Contractor must ensure heavy duty ground protection is installed to protect the soil and turf. The Principal Contractor must ensure night lighting during construction will be directed away from sensitive biodiversity resources (EMP Ref G2), as identified in the LEMP. Where possible, lighting will be designed with backlight shields and LED bulbs, directional, and positioned sympathetically, to minimise light spill and disturbance for sensitive receptors including notable habitats. The Principal Contractor must ensure any hedgerow deemed species rich or 'important' will be translocated and not lost, with locations provided in the LEMP. Species poor hedgerows will be gap filled to increase species diversity and quality across the site. New species rich hedgerows with trees will be planted in addition to deciduous woodland.	EIA – Biodiversity assessments	Pre-construction surveys	EMP Construction Noise and Dust Management Plan LEMP	Project Manager will liaise with specialist	P C	Signed: Date
BD8	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To avoid disturbance on Protected Species and habitat for barn owl	Creation of areas of rough grassland would be included as part of the landscape plans to mitigate the loss of suitable foraging habitat. This would be set back from the road verge and separated from the road by a shrub belt in order to prevent road casualties. Scattered trees would be planted alongside the new carriageway which would in-directly create low-fly screening enabling barn owl to cross the road at a suitable height. Night lighting during construction would be directed away from sensitive biodiversity resources and Type I foraging habitat. Installation of barn owl boxes no closer than 1km to the Proposed Scheme through landholder agreements would help in enhancing the area for the species.	EIA – ecological surveys	Barn owl boxes will continue to be monitored during the operational phase and road kill surveys undertaken post construction to monitor the effectiveness of the mitigation.	Regular monitoring LEMP	Project Manager will liaise with specialist	A	Signed: Date

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BD9	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To avoid disturbance on Protected Species and habitat for bats	Disturbance and destruction of bat roosts to be fully mitigated as it requires a Natural England licence. This would include the installation of bat boxes on retained mature trees prior to enabling works and the building of a stone structured bat house to mitigate the loss of the maternity roost at Station House. These works would be supervised by an ecologist accredited under this licence. Disturbance from noise and vibration would be mitigated by deployment of temporary noise barriers, quieter plant and reducing time on noisy activities. Night lighting during construction would be directed away from sensitive features and should not affect this species. Habitat loss and severance from the larger footprint of the new road cannot be mitigated at the start of construction. It would be compensated for as each phase of the road is completed with increased and enhanced tree planting as a remediation measure. Compensatory planting is proposed along the verges of the Proposed Scheme to mitigate the loss of foraging habitats and to shield suitable habitat and roosts from disturbance. Copses of trees and woodland grassland mosaics are proposed along the Proposed Scheme to act as 'stepping-stones' between suitable roosting and foraging habitat. Targeted planting at the dismantled railway underpass have been designed to encourage use by bats to maintain connectivity and enable bats to fly under the existing disused railway bridge and under the new A47 and retained 'old' A47. In addition to landscape planting, a 3m environmental barrier would be built to the north and south of the new A47 at TL 08887 99608 and would extend east and west for 270m on each carriageway. This would assist in raising the flight height above the carriageway for those/ bats which do not use the dismantled railway underpass.	EIA - ecological surveys	Crossing points to be monitored during operation and if required, changes to the EMP can be made.	Licence requirements LEMP	Project Manager will liaise with specialist	A	Signed: Date:
BD10	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To avoid disturbance on Protected Species and habitat for Great Crested Newts (GCN)	If this species is found present within 500m of the Proposed Scheme in the remaining surveys (that could not be completed due to covid-19), then works would need to be undertaken in those parts of the site affected under a Natural England mitigation licence. It would be necessary to find or create suitable receptor sites (either within Proposed Scheme boundary or through landowner agreement) that include both breeding and terrestrial habitat. Newts would be removed from the area of works prior to commencement. Enhancement of the site to encourage this species back into the area includes the creation of tree lines, hedgerows, copses, species-rich grassland and an attenuation pond with associated wetland planting.	EIA - ecological surveys	EMP All pollution events will be managed though best practice guidance and continued monitored throughout construction as part of the water drainage strategy and Construction Noise and Dust Management Plan within the EMP	Licence requirements	Design Team/ Project Manager will liaise with specialist	A	Signed: Date:

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BD11	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To avoid disturbance on Protected and Notable Species and habitat for mammals (otter, spined loach, bullhead, brown hare, hedgehog, European eel)	Construction areas to be fenced off and all excavations to be covered at night or a ramp left in so animals can climb out. Permanent badger fencing systems would be installed in key areas throughout the Proposed Scheme which would indirectly also assist in mitigating for operational traffic mortality on otter. Water and air pollution events would be managed though best practice guidance and continually monitored throughout construction as part of the water drainage strategy and Construction Noise and Dust Management Plan within the EMP. Night lighting during construction would be directed away from sensitive biodiversity resources and should not affect this species. Vegetation clearance would be undertaken under the supervision of an ECoW. Tool-box talks would be given by the ECoW and excavations would either be covered at night, or a ramp left in, so animals can climb out. Construction would take place mainly throughout the daytime, and night lighting would only take place in areas that have had vegetation cleared during the daytime. Night lighting during construction would not affect these species.	EIA - ecological surveys	EMP	Regular monitoring and surveys as required Construction noise management plan	Works Manager will liaise with specialist	P C	Signed: Date
BD12	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To avoid disturbance on Protected Species and habitat for water vole	A Natural England licence would be obtained prior to work taking place in the Wittering Brook. Under this licence, where water vole habitat would be lost through the construction of the road, water voles would be trapped out and translocated by suitably qualified ecologists in springtime to a receptor area. The receptor areas would be located within existing wetland habitat west of Sacrewell Farm pond at TF 07619 00090. This receptor site would have a suitably managed ditch for approximately 380m and two receptor ponds linked by a pipe and open ditch. The receptor site would be managed and enhanced prior to the translocation works to ensure that the habitat can mature so the site is suitable to receive the water voles. Mesh fencing would be erected in the area of Wittering Brook where the water voles have been moved from during the duration of the works there. It would be removed as soon as works have finished in the area. Pollution during construction would be mitigated by using best practice methods for pollution prevention and water management. Surface water monitoring during construction would also be implemented and will be outlined within the temporary surface water drainage strategy within the EMP.	EIA - ecological surveys	EMP (second iteration)	Licence requirements Water vole licence method statement	Project Manager will liaise with specialist	A	Signed: Date:

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			Night lighting during construction would be directed away from sensitive features and should not affect these species. Works must be more than 5m from the top of the banks of Wittering Brook and no works directly are in the stream.						
BD13	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To avoid disturbance on Protected Species and habitat for badger	Reduction of permanent habitat loss where possible has been embedded in the design. The new road would result in the direct loss of one badger sett and would need permanently excluding prior to works under a licence from Natural England. To compensate for this loss a new badger sett would be built in newly planted woodland habitat west of Deep Springs house (TL 09136 99482). Instead of building a new badger tunnel under the A47 the pre-existing dismantled railway line underpass would be the dedicated crossing point for badger. Along both the northern and southern side of the new A47 specific badger fencing (5km in total) would be installed to guide badgers to this safe crossing point. Signage and Heras fencing would be installed around setts within the Proposed Scheme boundary which may be disturbed to provide a suitable buffer zone. An ECoW would conduct a toolbox talks for all site personnel (including sub-contractors) prior to commencement of works and supervise works within buffer zones. All excavations to be covered at night or a ramp left in so animals can climb out. Night lighting during construction would be directed away from sensitive features and should not affect this species.	EIA - ecological surveys	EMP (second iteration)	Licence requirements	Works Manager will liaise with specialist	A	Signed: Date:
BD14	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To ensure data on Protected Species is valid and robust	European Protected Species surveys remain valid for a period of two years after completion. Where a protected species survey was undertaken over this time period and construction works has not yet commenced, the PC will appoint a suitably qualified ecologist to update the survey information and undertake a pre-construction site survey to identify the presence of potential protected species on site.	Protected Species will move around site and survey information greater than two years may not reflect current situ.	If updated surveys are required, the suitably qualified ecologists shall prepare an updated report including mitigation (if required). The report shall be agreed with Natural England and Local Authority Biodiversity Officer.	Contractual responsibilities between Highways England and the PC	Project Manager will liaise with specialist	P	Signed: Date:
BD15	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To create a diverse botanical population	The reduction in use of nutrient rich topsoil across the site will enable a more diverse botanical population to colonise newly created bare ground. Where possible construction vehicles should be excluded from driving over species rich grassland. If this is not possible,	EIA –Biodiversity assessment	EMP	Environmental Masterplan	Project Manager will liaise with specialist	C O	Signed: Date:

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			heavy duty ground protection should be installed to protect the soil and turf. Where any trenching is required in species rich grassland, turf strips shall be removed first and stored in situ, and spoil would be stored in-situ on a tarpaulin and bunded to prevent it washing into nearby watercourses. It would then be reused as part of the backfilling						
BD16	Biodiversity (ES Chapter 8) (**TR010039/APP/6.1**)	To protect reptiles	Suitable habitats would be searched by an Ecological Clerk of Works prior to vegetation clearance. If any are found, they would be moved to a safe suitable area. Site clearance (excavation) would commence when reptiles are active during March to October inclusive.	EIA –Biodiversity assessment	Pre-clearance ecological surveys	Contractual responsibilities between Highways England and the PC Environmental Masterplan LEMP	Works Manager will liaise with specialist	P C	Signed: Date:
Geology and soils									
GS1	Geology and soils (ES Chapter 9) (**TR010039/APP/6.1**)	To ensure identified risks associated with contamination are appropriately managed and minimised	Measures will include (but not be limited to): • Ensuring adequate space for storage of topsoil and subsoil which must be segregated during excavation. • Protection of watercourses from entry of polluting matter. • Stripping, storing, and reinstating of soils using best practice measures to minimise the risk of degradation to soils. • Controls during construction for identification of unexpected contamination (these controls will be determined during the second iteration of the EMP). • Suppression of odour and dust using best practice measures.	EIA – Geology and soils assessment Integration design approach with other topics.	Soil Management Plan (SMP) including a Soil Resource Plan and a Soil Handling Strategy Materials Management Plan (MMP) On-site monitoring	On-site monitoring	Project Manager will liaise with specialist	P C	Signed: Date:
GS2	Geology and Soils (ES Chapter 9) (**TR010039/APP/6.1**)	To manage the potential risks associated with made ground and organic deposits underlying the Proposed Scheme	Measures will include (but not be limited to): • Monitoring of potential ground-gases and vapours in confined spaces during construction. • Design of in-ground structures to appropriate concrete design class. • Suitable Personal Protective Equipment (PPE) and hygiene practices for construction and maintenance workers.	EIA – Geology and soils assessment	On-site monitoring	Health Safety Method Statements	Works Manager	P C	Signed: Date:
GS3	Geology and Soils (ES Chapter 9) (**TR010039/APP/6.1**)	To manage the impacts on soils from temporary and permanent	Measures will be secured in a SMP and will include (but not be limited to):	EIA – Geology and soils assessment	On-site monitoring	Soil Management Plan (SMP) including a Soil Resource Plan and a Soil Handling Strategy Materials Management Plan	Project Manager will liaise with specialist	P C	Signed: Date:

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		land take	Best practice measures for soil stripping, handling and storage • Stripping, storing and reinstating of soils with regard to BS 3882:2015 using best practice measures to minimise the risk of degradation to soils. • Specific areas of soils identified shall be protected from earthworks and construction activities. These will be identified in the SMP • Clear demarcation of the construction compound and working areas to prevent and minimise access onto adjacent areas of agricultural land Measures will be secured in a Materials Management Plan (MMP) and will include (but not be limited to): • Minimisation of over-excavation of soils • Ensure that soils from permanent land take areas are reused within the Proposed Scheme where possible, as identified in the MMP • Where there are excess soils generated, these will be saved and reused outside the Proposed Scheme where there are opportunities to do so • Restoration of temporary land take areas to their former condition, based on pre-construction site surveys. • Construction vehicles will be confined to designated haul routes where possible			(MMP)			
GS4	Geology and Soils (ES Chapter 9) (**TR010039/APP/6.1**)	The protection of soil structure and quality – to prevent degradation of soils both within and outside the permanent and temporary development areas	Where necessary for protection from earthworks and construction activities, agricultural soils will be stripped, stored and replaced to their baseline condition, as far as practicable. Stripping, storing and reinstating of soils with regard to BS 3882:2015 using best practice measures to minimise the risk of degradation to soils.	Construction works and earthworks can damage agricultural soils	Detailed in the SMP	Contractual responsibilities between Highways England and the PC	Works Manager	C	Signed: Date:
GS5	Geology and Soils (ES Chapter 9) (**TR010039/APP/6.1**)	To protect agricultural land and soils	Construction compound and working areas will include a clear demarcation (fence) of the construction area and prevent access onto adjacent areas of agricultural land that could result in further compaction or damage of soils as far as practicable. Construction vehicles will be confined to designated haul routes to reduce the potential risk of compaction of soil.	Construction works can damage soils or cause compaction	Compliance with the EMP and Traffic Management Plan.	Contractual responsibilities between Highways England and the PC	Works Manager	P C	Signed: Date:

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Material assets and waste (MA)									
MA1	Material assets and waste (ES Chapter 10) (**TR010039/APP/6.1**)	Responsible sourcing of materials	• Design for re-use and recovery by identifying, securing and using materials that already exist on the Proposed Scheme, or can be sourced from other projects. A CDW recovery and or recycling rate of 70% will be set in the environmental management plan (EMP) (**TR010039/APP/7.5**). • Design for materials optimisation by simplifying layout and form to minimise material use. Using standard design parameters, maximising the use of renewable materials and materials with recycled content in line with the 31% target (to be set in the EMP) for the east of England region as provided in the National and Regional Guidelines for Aggregates Provision in England 2005 and 2020. • Design for offsite construction by maximising the use of prefabricated structures and components, encouraging a process assembly rather than construction on the site. • Design for the future by considering extent to which key materials can be demounted and recycled. • Design for waste efficient procurement. • Engineering plan configurations and layouts that show how the most effective use of materials assets (including site-won arisings) can be achieved. • As part of their construction assessment, the Principal Contractor will include the option of using local waste management facilities for waste management, in line with the proximity principle, which is to manage waste as close to the point of generation as possible, so as to reduce the carbon footprint of managing waste from the Proposed Scheme.	EIA –Material assessment	Appropriate project key performance indicators (KPI) to be set. A construction and demolition waste recovery and or recycling rate of 70% will be set. Use of renewable materials and materials with recycled content in line with the east of England region's 31% target. Measures to encourage local and responsible resourcing of material assets (for example through adoption of Buildings Research Establishment (BRE) developed BES 6001). Where required, import of clean naturally occurring soils and stones from another development site would be undertaken in accordance with a Materials Management Plan (MMP).	EMP (second iteration) to provide detailed information on the duty of care documents that will be needed, such as the waste transfer notes and consignment notes, as well as strategies to be implemented to minimise waste generation and increase re-use and recycle. MMP (developed in accordance with the CL:AIRE Definition of Waste Code of Practice (DoW CoP), Version 2, 2011 to monitor and track the movement, storage and placement of imported soils and stones.	Design Team/ Design Manager/ Project Manager will liaise with specialist	P C	Signed: Date
MA2	Material assets and waste (ES Chapter 10) (**TR010039/APP/6.1**)	To adopt good waste management practices and follow the waste hierarchy	• Consideration, in accordance with the waste hierarchy, to the re-use of waste generated on-site before it is transported off-site for re-use or disposal. • Use of construction, demolition and excavation waste (with treatment) within the Proposed Scheme boundary that meets the appropriate Waste and Resources Action Programme (WRAP) Quality Protocols. • Use of site won recycled material assets within the Proposed Scheme boundary without the need for treatment, and without the need for waste exemption (https://www.gov.uk/government/collections/waste-exemptions-using-waste), or the application of the CL:AIRE	EIA - Waste assessment	Appropriate project KPI set in MA1. A CDW recovery and or recycling rate of 70% will be set. Use of site-won construction, demolition and excavation waste (with treatment) in accordance with	As detailed in MA1 plus MMP (developed in accordance with the CL:AIRE DoW CoP) as detailed in MA1. Monitoring of waste generation during construction via the SWMP including the quantities and types of waste generated, as well as the duty of care information for the contractors transferring the waste and the	Design Team/ Design Manager/ Project Manager will liaise with specialist	P C	Signed: Date:

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			Definition of Waste Code of Practice (DoW CoP), Version 2 (published March 2011). • Re-use of site won excavated materials within the Proposed Scheme boundary without the need for treatment, and by meeting waste exemption, or CL:AIRE DoW CoP (published March 2011) criteria. • The adoption of the good practice in construction waste management principles outlined in WRAP guidance document Achieving good practice Waste Minimisation and Management, Guidance for construction clients, design teams and contractors. • Re-use and recycling of materials offsite where re-use within the Proposed Scheme boundary is not possible. • Use of material logistics planning to manage procurement, storage and use of material assets and minimise damage, over ordering and wastage. • Measures to encourage local and responsible resourcing of material assets (for example through adoption of Buildings Research Establishment (BRE) developed BES (BRE Environmental and Sustainability standard) 6001 Responsible Sourcing of Construction Products and efficiencies by minimal ordering of materials. • A requirement for waste to be appropriately segregated and stored or stockpiled on-site by waste type, to ensure waste remains in a suitable condition to be re-used. • A requirement for wastes that cannot be re-used or recycled on-site to be transported only to appropriately permitted recycling or disposal sites.		WRAP best practice and quality Protocols. Use of site won recycled material assets without the need for treatment, and without the need for waste exemption or the application of the CL:AIRE DoW CoP. Re-use of site won excavated materials without the need for treatment by meeting waste exemption, or CL:AIRE DoW CoP criteria. Implementation of the SWMP.	sites the waste is taken to for management.			
MA3	Material assets and waste (ES Chapter 10) (**TR010039/APP/6.1**)	To explore all options for reuse of surplus material	The adoption of best practice to promote the re-use of construction, demolition and excavation waste over transport off-site for re-use or disposal. Use of construction, demolition and excavation waste (with treatment) within the Proposed Scheme boundary that meets the appropriate WRAP Quality Protocols. Management of waste in accordance with the SWMP. A requirement for waste to be appropriately segregated and stored or stockpiled on-site by waste type, to ensure waste remains in a suitable condition to be re-used. Consider re-use of suitable surplus excavated material outside of the Proposed Scheme boundary. Wastes that cannot be reused or recycled on-site to be transported only to appropriately permitted recycling or disposal sites.	EIA - Materials assessment	Appropriate project KPI set in MA1. Where required, export of site-won clean naturally occurring soils and stones to another development site would be undertaken in accordance with the MMP. Implementation of the SWMP.	EMP as detailed in MA1. MMP (developed in accordance with the CL:AIRE DoW CoP) as detailed in MA1. Monitoring of waste generation during construction via the SWMP as detailed in MA2.	Project Manager will liaise with specialist	P C	Signed: Date:

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MA4	Material assets and waste (ES Chapter 10) (**TR010039/APP/6.1**)	Enhancement opportunities to explore all options for reuse of surplus material	Explore potential opportunities include the re-use of suitable surplus excavated materials on local developments concurrent to the construction phase of the Proposed Scheme, providing materials for the Block Fen and Langwood Fen restoration schemes and quarry restorations (see Table 10-3 and section 10.7.8). Old Station House is proposed to be demolished as part of the Proposed Scheme. Potential opportunity includes re-use of materials (bricks) to create new features (such as 'bat-hotel') as part of the environmental mitigation. Potential opportunities to re-use suitable surplus material outside of the Proposed Scheme boundary to improve environmental outcomes for a wide range of receptors. Opportunities include, for example, construction of noise and landscape bunding within other sections of the A47 where improvements are planned, and the need has been previously identified (where land availability allows). Use of surplus recycled or recovered materials in community projects. For example, utilising recycled mulch from tree felling on any adjacent community facilities.	EIA - Materials assessment	Appropriate project KPI set in MA1. Where required, export of site-won clean naturally occurring soils and stones to another development site would be undertaken in accordance with the MMP. Implementation of the SWMP.	EMP as detailed in MA1. MMP (developed in accordance with the CL:AIRE DoW CoP) as detailed in MA1. Monitoring of waste generation during construction via the SWMP as detailed in MA2.	Project Manager will liaise with specialist	P C	Signed: Date:
Noise and vibration (NV)									
NV1	Noise and vibration (ES Chapter 11) (**TR010039/APP/6.1**)	Reduction of construction noise	Construction works will take place mainly during the daytime. Construction works outside of the normal construction hours of 07:00-19:00 weekday and 07:00-13:00 on Saturdays shall be minimised as far as practicable. Night working also may take place between 20:00- 06:00, including on Saturdays. Mitigation measures in the form of temporary noise barriers or site hoarding shall be provided at the areas: • 6, 8, 10, 12 Great North Road, PE8 6HJ • Sacrewell Farm and Country Centre, PE8 6HJ This is only necessary where construction activity in the vicinity of the receptor will exceed 10 days or nights in any 15 consecutive days or nights; or for a total number of days exceeding 40 in any six consecutive months. If local roads need to be used for diversion routes, different routes should be chosen for each closure, and residents along routes likely to be affected by night-time traffic diversions with potential for significant noise effects will be notified in advance of arrangements. In addition to the above mitigation measures, best practice noise and vibration mitigation techniques shall be employed and include:	EIA - Noise impact assessment	On-site monitoring	Real time noise and vibration monitoring EMP Traffic Management Plan Construction Noise Management Plan Construction Communication Strategy	Design Team/ Project Manager will liaise with specialist	P C	Signed: Date:

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			• Select quieter plant than the preliminary construction plant used within this assessment. • Ensure equipment is maintained, in good working order, and is used in accordance with the manufacturer's instructions. • Use equipment that is fitted with silencers or mufflers. •Set time restrictions on certain noisy and vibratory activities such as earthworks and surfacing. • Manage deliveries to prevent queuing of site traffic. • Do not leave plant running unnecessarily. • Plant with highly directional sound emissions shall be angled so that the direction of highest sound emissions does not face towards receptors where possible. • Materials to be lowered instead of dropped from height. • Alternative reversing warning systems (such as white noise alarms) shall be employed. • The Principal Contractor shall advise members of the construction team during toolbox talk briefings on quieter working methods. • Any fixed plant such as generators shall be positioned at least 20m from nearest receptor and shall have temporary/mobile noise screens erected around them where possible and necessary. For construction activities that could result in vibration levels at nearby receptors that exceed SOAEL (such as compaction works within 30m of residential receptors), the Principal Contractor shall: • inform the occupiers of the likely times and duration of works at least one week prior to works commencing; • carry these works out during the daytime (as currently proposed); • monitor the vibration levels; and • subject to securing permission from property owners, carry out a building condition survey to identify any sensitive aspects of the building and to ensure the current status of the building is recorded. • Where pilling is used to construct overbridges and retained cuttings, rotary piling techniques will be used. These construction vibration mitigation measures are required for works generating significant levels of vibration in the vicinity of the following receptors: • 1 & 2 Abbotts Wood Cottages, Great North Road, PE8 6HJ						

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			• 6, 8, 10, 12 Great North Road, PE8 6HJ • Heath House, Sutton Heath Road, PE5 7XH Where the Principal Contractor's preferred plant departs considerably from the plant types, durations of use, and locations as defined in Appendix 11.5 of the ES, the Principal Contractor will consider noise and vibration, consult with the environmental health department at the local authority, and agree appropriate methods of mitigation and monitoring that account for the location of works, hours of work and expected duration as necessary. This could form part of a Section 61 prior consent application under the Control of Pollution Act 1974, or a less formal route may be possible pending discussions with the Local Authority. The contractor is to assess noise and vibration for the construction stages and locations that have been determined in the ES, based on the precise locations of plant and durations of work, and set the location of the barrier/solid site hoarding so that provides screening to the residential receptors that are identified where necessary and possible.						
NV2	Noise and vibration (ES Chapter 11) (**TR010039/APP/6.1**)	Reduction of temporary construction noise	Measures in the form of temporary noise barriers or site hoarding shall be provided at the areas represented by the residential receptors. This is only necessary where construction activity in the vicinity of the receptor will exceed 10 days or nights in any 15 consecutive days or nights; or for a total number of days exceeding 40 in any six consecutive months. The precise locations and heights of the temporary barriers is to be determined by the Principal Contractor and confirmed to the local authority as part of the further detailed construction noise assessments.	Design intervention	Adherence to Detailed Design drawings and Specification. Airborne sound insulation category B2 in accordance with BS EN 1793-2:2012.	Environmental Masterplan (**TR010039/APP/6.8**)	Design Team/ Project Manager	C	Signed: Date:
NV3	Noise and vibration (ES Chapter 11) (**TR010039/APP/6.1**)	Reduction of operational noise	The A47 dual carriageway as shown on the Environmental Masterplan (**TR010039/APP/6.8**) shall be surfaced with a low-noise road surface. Bridges will be surfaced with hot rolled asphalt (HRA). The surface material shall be specified to reduce road traffic noise when compared with conventional surfacing.	Design intervention	Adherence to Detailed Design drawings and Specification.	Environmental Masterplan (**TR010039/APP/6.8**)	Project Manager Senior Site Manager	C	Signed: Date:
Population and human health (PH)									

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PH1	Population and human health (ES Chapter 12) (**TR010039/APP/6.1**)	To minimise disruption to access for local residents during construction and to keep them informed	During construction, diversions would be provided as part of the mitigation for the Proposed Scheme, therefore access to community facilities and healthcare facilities would be retained. Due to the alternative access routes, the reduction in access is not considered to have a detrimental effect to the human health of the communities and therefore the health outcome is assessed as neutral. Mitigation measures have been proposed to ensure paths are maintained throughout the construction period, by using diversion routes. This would be agreed with the local authority and would reduce any adverse effects. During construction, access to green and open space would be maintained by the existing A47 and local roads. Mitigation would be in place to reduce impacts from construction traffic through the Traffic Management Plan (TMP). PRoW access would be maintained or where this is not possible, diversions will be put in place to ensure access to green and open space (Wansford Pasture and Standen's Pasture nature reserves, and Wansford picnic area) is maintained. Communication with local residents would take place during construction to highlight potential periods of disruption. This would be via newsletters, radio announcements, the Highways England scheme web-page, and an appointed Community Liaison Officer.	EIA – Population and human health assessment	Community Liaison Officer checks	Traffic Management Plan Highways England scheme web-page	Project Manager and Community Liaison Officer	P C	Signed: Date:
PH2	Population and human health (ES Chapter 12) (**TR010039/APP/6.1**)	To prevent any disruption and severance of existing accessibility	At the A47/A1 western roundabout, new crossings for cyclists will be provided on the A47 western arm and on the A6118 southern arm to replace the off-road facilities provided at the two existing A47/A1 roundabouts. The new crossings will allow cyclists to connect between the existing A47 to the west of A1 and the proposed on-road route cycle route along Old North Road and Peterborough Road within Wansford which lead to the recently upgraded all-user permissive route (Wansford Nene Way Permissive 1) which passes beneath the A1. The new crossings will also facilitate access to the existing underpass under the A47 where cyclists are required to dismount. New signage will be provided to direct cyclists from the A47/A1 western roundabout via Old North Road and Peterborough Road through Wansford, to the recently upgraded all users permissive route (Wansford Nene Way Permissive 1). 1A continuation of the recently upgraded all-user route (Wansford Nene Way Permissive 1) will be provided which follows the alignment of the existing access road that will be retained but upgraded, as far as the proposed new access for Sacrewell Farm. Beyond this point, the new east to west route will become a shared footway/cycleway to the point where the upgraded access road will connect with the new A47	EIA – Population and human health assessment	Approval as part of DCO process	Design intervention	Design Team/ Design Manager/ Project Manager	P	Signed: Date:

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			alignment. This will replace a section of permissive footpath Wansford Annual Maintenance 113 that passes in front of the pumping station. A new permissive bridleway, albeit substandard in width, will be provided adjacent to the new access road for Sacrewell Farm. The new access will pass under the A47 via a new underbridge so users will no longer be required to cross the A47 at-grade. This new permissive bridleway will replace a section of permissive footpath Wansford Hereward Way Permissive 3 and permissive footpath Wansford Hereward Way Permissive 2. An appropriate crossing facility will be incorporated on the existing access road to be upgraded to connect between these sections of WCH infrastructure. A combined east to west footway/cycleway will be provided from the petrol filling station, at the point where it links with the new A47 alignment and follows the southern frontage of the new A47 alignment to a point where the route joins the old alignment of the A47. A new 61m section of footpath (PRoW) will be provided to allow a connection between the new footway/cycleway and footpath Wansford 4. This new section of footpath will replace a 31m section of footpath Wansford 4 which will be lost to the Proposed Scheme. The new footway/cycleway will also connect to the proposed pedestrian and cyclist underpass via the disused railway at Sutton Heath Road. A new all-user route will be provided on the new access road for Sacrewell Farm. The new access will pass under the A47 via a new underbridge so users will no longer be required to cross the A47 at-grade. This new all user route, which will have permissive access rights, will replace a section of permissive footpath Wansford Hereward Way Permissive 3 and permissive footpath Wansford Hereward Way Permissive 2. An appropriate crossing facility will be incorporated on the existing access road to be upgraded to connect between these sections of WCH infrastructure. A combined east to west footway/cycleway will be provided from the petrol filling station, at the point where is links with the new A47 alignment and follow the southern frontage of the new A47 alignment to a point where the route joins the old alignment of the A47. The route would allow connections to footpath Wansford 4 and the proposed pedestrian and cyclist underpass via the disused railway at Sutton Heath Road. A new underpass suitable for use by pedestrians and cyclists will be provided allowing a connection between the proposed footway/cycleway on the southern side of the new A47 alignment and the section of Sutton Heath Road which will become a cul-de-sac as a result of the proposed scheme. The proposed underpass will utilise the dismantled railway alignment that is in a cutting at this point. Signage will be provided on Sutton Heath Road to direct pedestrians and					

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			cyclists to the underpass allowing them to pass beneath the new A47 alignment. A shared footway/cycleway will be provided on the old alignment of the A47, that will be closed to traffic, to provide a link between the proposed underpass and the point where the new side road linking to Peterborough Road (Ailsworth) is to be provided. A shared footway/cycleway will also be provided on the section of The Drift that will be severed by the proposed scheme to a point where the Drift is stopped up. The route from The Drift will then continue as an on-road route to allow cyclists to connect with bridleway Sutton 3 to the south east. A shared footway/cycleway will be provided along the southern side of the proposed new side road alignment that links between the proposed new roundabout on the A47 and Peterborough Road (at Ailsworth). This new side road utilises the old alignment of the A47. At the Peterborough Road/Nene Way junction, a crossing and transitions will be provided to allow cyclists to return to the carriageway on Peterborough Road to the east into Ailsworth.						
Road drainage and the water environment (RD)									
RD1	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	To minimise the potential to impact of accidental spillages and leakages on sediment-sensitive surface water features and protect the aquatic environment during construction.	Appropriate storage of construction materials, including bunding of storage tanks, use of silt fencing and covering stockpiles. Spill kits will be located on sites near to ordinary watercourses or drainage ditches and within the works compounds and staff shall be trained in their use. Emergency response procedures to handle any leakages or spillages of potentially contaminating substances. No pollution pathways will be created between the construction sites, including material lay down areas, and ordinary watercourses or drainage ditches.	EIA	EMP Temporary surface water drainage strategy within the Water Monitoring and Management Plan. Surface water monitoring prior to, during and after the construction phase due to the presence of sensitive ecological receptors and sediment sensitive water bodies. Requirements to be confirmed with the Environment Agency.	Surface water monitoring. Adhere to CIRIA guidelines on control of water pollution on linear construction sites (C648) and environmental best practice on site (C741) EMP (to be updated with emergency response procedures and temporary surface water drainage strategy).	Works Manager will liaise with specialist	P C	Signed: Date:
RD2	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	To minimise impacts on the water environment	The proposed A47 culvert at Wittering Brook and the A1 Mill Stream culvert extension shall accommodate natural river bed material in the base of the culvert, together with a mammal ledge above the design flood level to maintain habitat connectivity as per DMRB standards. The creation of a ditch and ponds / wetland adjacent to Mill Stream must provide suitable water depth for water voles.	EIA and geomorphological assessment	Inclusion in Environmental Masterplan On-site monitoring	On-site monitoring	Design Team/ Project Manager will liaise with specialist	P C	Signed: Date:

Ref	Source of Objective Document Ref	Objective	Action (including specific location if applicable)	Assumption (on which the action is based)	Achievement criteria and reporting / monitoring requirement (if applicable)	How the action is to be implemented / achieved	Responsible person(s)	When P = Pre-construction C = Construction O = Operation A = All	Completion Record
			Riparian planting, the creation of the ditch and ponds / wetland adjacent to Mill Stream shall offset any negative impacts of the additional culverting Pollution control devices such as penstocks shall also be provided in order to reduce any pollution that may occur.						
RD3	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	To minimise the potential to impact on surface water receptors	This will be managed by the implementation of a construction-phase drainage strategy. A temporary surface water drainage strategy must be developed and be incorporated into the EMP (Water Monitoring and Management Plan) to prevent increased flood risk to people and property elsewhere, and to manage pollution risks. Drainage must be constructed in the early stages of the Proposed Scheme. Increased flood risk and negative impacts on surface water receptors caused by an increase in impermeable area, leading to an increase in the peak flow rate, volume or change in the direction of surface water runoff, must be managed by the implementation of a temporary surface water drainage strategy The strategy shall adopt SuDS principles to attenuate runoff to greenfield runoff rates, or as a minimum existing runoff rates as well as provide water treatment; this must be incorporated into the EMP (Water Monitoring and Management Plan)	EIA – and supporting assessments	On-site monitoring	Consent requirements	Design Team/ Project Manager will liaise with specialist	P C	Signed: Date:
RD4	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	To mitigate the negative potential negative impact on biodiversity and aquatic ecology caused by the loss of water features.	The provision of one replacement pond is required for each pond lost in the location of the Proposed Scheme (a total of two ponds lost). The replacement pond shall be constructed prior to the existing ponds being lost. This shall mitigate the potential negative impact on biodiversity and aquatic ecology caused by the loss of these water features. The location of the replacement ponds within the Proposed Scheme boundary is shown on the Environmental Masterplan. This has been discussed, along with detailed mitigation requirements of the replacement ponds in Chapter 8, Biodiversity.	EIA – and supporting assessments	On-site monitoring	On-site monitoring	Design Team/ Project Manager will liaise with specialist	P C	Signed: Date:
RD5	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	To protect potable water supplies, designated sites and the groundwater environment	Where groundwater control is required, isolation techniques shall be considered in preference to dewatering, if feasible, in order to limit impacts to baseflow, spring flows and any downgradient designated sites. Any dewatering activities would be subject to approval from the Environment Agency and obtaining the relevant licences and permits. Further investigations and impact assessments would be required as part of the licensing process to confirm rates of abstraction and area of influence and identify potential receptors, including springs, within the area of influence. Groundwater monitoring (levels and quality) between the dewatering locations and down-gradient receptors is likely to be a condition of the dewatering licence. Careful consideration of the dewatering discharge points would be required to	EIA – groundwater assessment	Supplementary ground investigation to confirm dewatering requirements. Confirmation of inflow rates, groundwater level & quality information and production of a hydrogeological impact assessment report required as part of the abstraction licence application	Licence requirements (including groundwater monitoring)	Design Team/ Project Manager will liaise with specialist	P C	Signed: Date:

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			minimise both the resource impacts on the groundwater catchment and quality impacts on the receiving water body. Discharges must only be made with the appropriate consents or permits in place and any non-compliant discharges would be collected and disposed of off-site at a licensed facility.		process – to be approved by the Environment Agency (process can take >12 months). This will require a water features survey to confirm details of unlicensed abstractions / additional water features such as springs in vicinity of dewatering activities.				
RD6	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	To protect the River Nene	There are construction activities planned within 8m of an Environment Agency designated main river (River Nene) and its floodplain. This includes the construction of new outfalls, embankments, floodplain compensation storage area and the Proposed Scheme. As such, consent in the form of a Flood Risk Activity Permit would be required from the Environment Agency. The potential increase in flood risk and negative impacts on surface water receptors shall be managed by the implementation of a construction-phase drainage system, where the construction would take place offline.	EIA – and supporting assessments	On-site monitoring	Permit requirements	Project Manager will liaise with specialist	P C	Signed: Date:
RD7	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	To protect ordinary watercourses	Obtain an ordinary watercourse consent from the Lead Local Flood Authority (Peterborough City Council) for any works associated with ordinary watercourses.	EIA – and supporting assessments	On-site monitoring	Consent requirements	Project Manager will liaise with specialist	P C	Signed: Date:
RD8	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	To minimise any operational increase in flood risk and deterioration of aquatic environment / Water Framework Directive status during operation.	The proposed increase in areas of hard standing and alteration of ground elevations due to re-profiling would result in an increase in peak flow rates and volumes discharging to the Mill Stream, Wittering Brook and it tributary, the River Nene and the unnamed watercourse to the east of the Proposed Scheme boundary, particularly within areas of Flood Zones 2 and 3. Any increase in surface water runoff shall be attenuated using detention basins or oversized pipes. Where the existing drainage is being adapted, the drainage is designed to attenuate to existing runoff rates and includes a 1 in 100-year storm event plus 20% climate change allowance to allow for changes in peak rainfall intensity. Where carriageway widening or realignment occurs the additional contributing area would be attenuated to greenfield runoff rates up to a 1 in 100-year storm event plus 40% climate change. Where an attenuation basin is not required, attenuation would be in the form of flow controls and oversized	EIA – and supporting assessments	Surface water monitoring prior to, during and after the construction phase due to the presence of sensitive ecological receptors and sediment sensitive water bodies. Supplementary ground investigation to confirm ground conditions in areas not previously investigated. Water features surveys to confirm spring locations, groundwater (including	Through Permit and Consent Requirements	Design Team/ Design Manager/ Project Manager will liaise with specialist	O	Signed: Date:

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			pipes. This would ensure there is no increase in peak surface water runoff rates resulting from the Proposed Scheme. Further details can be found in the Drainage strategy. A vegetated detention basin is required to treat highway runoff from catchment P123 (See Surface water quality assessment). Vegetated detention and infiltrations basins shall be provided as an enhancement for all remaining highway drainage catchments. The existing water quality pollution risk at the outfall to the east and outside of the Proposed Scheme boundary shall be investigated, and if required a solution developed, under the Highways England's Environment and Wellbeing Designated Fund as an additional enhancement. The use of filter drains in the road drainage design is to be reviewed in detailed design. If no other solutions are identified, these shall include an impermeable liner to avoid untreated discharges to groundwater. Where filter drains are required for subsurface drainage, road runoff is to be isolated and conveyed to the drainage system via carrier pipes. Water features surveys required within zone of influence to confirm presence of, and likely impact on, springs. Groundwater level and quality monitoring before, during and after construction. A section of Wittering Brook watercourse would be culverted 10m west from the existing culvert with a minor watercourse realignment. A natural bed shall be installed in the base of the proposed box culvert and a mammal ledge provided to maintain connectivity of habitat. The proposed culvert mitigates the volume of floodplain lost. This mitigates floodplain loss in the 1 in 100-year plus 35% climate change event, whilst achieving freeboard requirements in the 1 in 100-year plus 65% climate change event. To mitigate the loss of River Nene floodplain (560m^3), flood compensatory storage area shall be provided on a volume for volume basis between Flood Zone 3 and the 1 in 100-year plus 35% climate change level, 9,8 and 10,5mAOD respectively. The proposed location for the flood compensation is taken from the left embankment of the River Nene, downstream of the Wittering Brook and River Nene confluence; this has been agreed with the Environment Agency.		springs) monitoring prior to, during and after construction phase. Drainage Strategy and Flood Risk Assessment including hydraulic modelling to be approved by the Environment Agency, Lead Local Flood Authority (Peterborough City Council).				
RD9	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	To minimise the risk of erosion of the watercourse banks and bed due to the discharge from	Flow rates and velocities must be kept to a minimum. All surface water runoff from road runoff must be attenuated to greenfield runoff rates, or no greater than existing where there is no increase in hardstanding, at source using SuDS systems such as attenuation basins. Scour protection downstream of the outfall must be provided to ensure the risk of erosion is minimised. The proposed outfalls	EIA - water quality assessment, drainage strategy geomorphological assessment	Surface water and groundwater monitoring prior to and during and after the construction phase due to the presence of	Groundwater monitoring Surface water monitoring after the construction phase.	Project Manager will liaise with specialist	A	Signed: Date:

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		the proposed outfalls. To also minimise the impact the loss of riparian banks and bed including associated habitat.	must be set back into the bank to minimise the impact on flow conveyance and minimise the impact of erosion and scouring of river banks. Wittering Brook A47 culvert and the A1 Mill Stream culvert extension would result in the loss of riparian banks and bed including associated habitat. To mitigate against the impacts, the culverts must be constructed to maintain a natural sediment bed at the base of the culvert and a mammal ledge should be provided above the design flood level. This would maintain connectivity of the habitat and allow mammal passage.		sensitive ecological receptor				
RD10	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	Approval of construction method statements	Construction method statements and risk assessments must be approved by the Environment Agency where construction activities are likely to intercept the saturated aquifer, especially adjacent to S05 Sacrewell Farm Underbridge. The construction method statements must include the use of best practice methods to minimise creation of contamination pathways and generation of suspended solids. Monitoring of down-gradient receptors must be undertaken before, during and after construction.	EIA - water quality assessment, drainage strategy geomorphological assessment	Surface water and groundwater monitoring prior to and during and after the construction phase due to the presence of sensitive ecological receptor	Groundwater monitoring Surface water monitoring after the construction phase.	Project Manager will liaise with specialist	A	Signed: Date:
RD11	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	Monitoring of groundwater features	Monitoring of groundwater features at risk from pollution shall be carried out prior to and during the construction phase, subject to confirmation with the Environment Agency. This would comprise groundwater level and quality monitoring at suitable points between activities on-site that may result in groundwater impacts and the down-gradient receptors identified that are at risk of these impacts. Activities likely to require groundwater monitoring include any construction activities intercepting the saturated aquifer, those identified as having the potential to impact on groundwater quality at down-gradient receptors, and dewatering activities.	EIA - water quality assessment, drainage strategy geomorphological assessment	Surface water and groundwater monitoring prior to and during and after the construction phase due to the presence of sensitive ecological receptor	Groundwater monitoring Surface water monitoring after the construction phase.	Project Manager will liaise with specialist	A	Signed: Date:
RD12	Road drainage and the water environment (ES Chapter 13) (**TR010039/APP/6.1**)	To maintain surface water flow paths and local land drainage connectivity	Existing surface water land drains immediately to the north and west of the existing A47 junction with Upton Road shall be maintained or facilitated through interception using appropriately designed collection drains and cross-drains. Cross-drains must be designed to convey a 1 in 100-year flow including an additional climate change allowance in order to maintain connectivity of surface water flooding pathways and to mitigate against any increase in flood risk both upstream and downstream of the Proposed Scheme.	EIA – flood risk assessment and drainage strategy	Revised Drainage Strategy and Flood Risk Assessment to be approved by the Environment Agency, Lead Local Flood Authority (Peterborough City Council) following detailed design.	Through permit and consent requirements	Design Team/ Design Manager/ Project Manager will liaise with specialist	P C	Signed: Date:

Ref	Source of Objective Document Ref	Objective	Action (including specific location if applicable)	Assumption (on which the action is based)	Achievement criteria and reporting / monitoring requirement (if applicable)	How the action is to be implemented / achieved	Responsible person(s)	When P = Pre-construction C = Construction O = Operation A = All	Completion Record
Climate									
C1	Climate (ES Chapter 14) (TR010039/APP/6.1)	Reduce carbon emissions	Optimise of the re-use of existing site won and recycled materials thereby minimising as far as possible the use of primary aggregates and other off-site sourced construction materials. This will be done pursuant to WRAP protocols, UK Government initiatives and other applicable standards and guidance for the use of recycled and secondary aggregates and bituminous materials (e.g. BS EN 1308 and PD6691). Develop a comprehensive and holistic materials management plan that allows for optimised management of materials across construction including re-use of site won earthworks materials and thereby minimising earthworks import. This will involve the processing and stabilisation of soils to minimise mass haul and may include the use of recycled tyre bales to facilitate core earthworks construction pursuant to PAS108 standards and current UK construction best practice. Undertake an appropriate intrusive pavement survey (expected Spring 2021) and engagement with supply chain and by implementing industry best practice seek to optimise pavement construction for both the mainline and offline works. With appropriate recycling and reuse of existing pavement and optimised design for both reconstructed and new highway, the overall volume of pavement construction may be lowered, with concomitant reduction in importation and movement of materials and associated construction activity. Use innovative applications to reduce the carbon emissions associated with construction compounds and support facilities. Considering many options such as EcoSmart Welfare cabins which harness green energy (Solar and hydrogen cells), solar construction lighting, rainwater harvesting, and electric site vehicles with EV charging on site, avoiding the use of conventional on-site power sources (diesel generators). Any options to be taken forward to construction will be confirmed at PCF Stage 5.	Carbon calculations using the HE carbon tool	Carbon savings to be reported	The Design team will review the Carbon calculations at detailed design stage	Design team in consultation with the Project Manager and Highways England	P C	Signed: Date:
C2	Climate (ES Chapter 14) (TR010039/APP/6.1)	Evaluate the final carbon emissions	In accordance with the DMRB LA 114, projects shall seek to minimise carbon emissions as far as possible in all cases in order to contribute to the UK's net reduction in carbon emissions. Mitigation of effects on climate (i.e. carbon emissions associated with the Proposed Scheme) take place throughout the design process in accordance with the principles of PAS 2080: Carbon Management in Infrastructure, i.e. baselining, target setting and monitoring.	Carbon calculations using the HE carbon tool	Carbon savings to be reported	The Design team will review the Carbon calculations at detailed design stage. Once on site, recording of construction activity, material deliveries, plant used and fuel consumption.	Project Manager	A	Signed: Date:

Ref	Source of Objective Document Ref	Objective	Action (including specific location if applicable)	Assumption (on which the action is based)	Achievement criteria and reporting / monitoring requirement (if applicable)	How the action is to be implemented / achieved	Responsible person(s)	When P = Pre-construction C = Construction O = Operation A = All	Completion Record
			Monitoring of carbon emissions associated with the construction of the Proposed Scheme will be undertaken as per Highways England requirements to meet their key performance indicator "Carbon dioxide equivalents (or CO2e) in tonnes associated with the Supply Chain's activities" (Highways England 2019).						
C3	Climate (ES Chapter 14) (TR010039/APP/6.1)	Evaluate climate change projections	No significant adverse effects as a result of climate have been identified therefore no monitoring is required. However, it is noted that climate change projections are likely to change within the appraisal period of the Proposed Scheme, therefore the vulnerability of the Proposed Scheme to such changes will be reviewed as and when updated projections become available.	Climate change projections are anticipated to change.	Revised projections as required using the HE Carbon Tool	The Design team will review the Carbon calculations at detailed design stage using the HE Carbon Tool detailed design stage.	Design team in consultation with the Project Manager and Highways England	P	Initial: Signed:

4. Consents and permissions

4.1. Consents and agreement position statements

4.1.1. A Consents and Agreements Position Statement (**TR010039/APP/3.3**) has been submitted as part of the DCO application, which sets out Highways England's intended strategy for obtaining the consents and associated agreements needed to implement the Proposed Scheme. It lists the consents and agreements which are expected to be necessary to implement the Proposed Scheme and confirm how these consents will be obtained (subject to the Proposed Scheme attaining development consent).

4.1.2. This chapter outlines the consents, permissions and agreements that will be, or will likely be, sought by the Highways England or the PC, so far as they relate to the environmental aspects of the Proposed Scheme.

4.1.3. [Note: This chapter will need to be updated for the Second Iteration EMP (construction) to cover developments through the detailed design and construction planning phase, and throughout the construction phase, in order to capture all relevant items.]

4.2. Consents and permission

4.2.1. As outlined in the Consents and Agreements Position Statement (**TR010039/APP/3.3**), the principal consent for the Proposed Scheme will be the DCO. The DCO process provides development consent for the works and enable land acquisition, along with other consents and powers to be dealt with at the same time.

4.2.2. Several additional consents and permissions that may also need to be sought separately from the DCO are outlined in the Consents and Agreement Position Statement (**TR010039/APP/3.3**). These additional consents and permissions are noted in Table 1.6. It is the responsibility of the PC and the appropriate appointed specialist to obtain these licences and in sufficient time to accord with the programme and prevent unavoidable delays.

Table 1.6: Consents and Permissions that may be required to deliver the EMP

Type	Consent / Licence Agreement and Legislation	Consenting Authority	Requirement
Protected Species Licence Bat, water vole, GCN and badger	European Protected Species Licence under The Conservation of Habitat and Species Regulations 2017 (the Habitats Regulations); Wildlife and Countryside Act 1981 (as amended)	Natural England	To be confirmed following completion of pre-construction surveys. PC or subcontractor to apply for licence prior to works starting.
Diversion of watercourses	Water Resources Act 1991	Lead local Flood Authority (Peterborough City Council)	Construction activities planned for the diversion of watercourses prior to works starting.
Flood Risk Activity Permit (temporary and permanent works affecting a main rivers)	Environmental Permitting (England and Wales) Regulations 2016 Act (as amended) Flood and Water Management Act (2010)	Environment Agency	There are construction activities planned within 8m of an Environment Agency designated main river (River Nene) and its floodplain. This includes the construction of new outfalls and flood compensation storage, As such, consent in the form of a Flood Risk Activity Permit would be required from the Environment Agency.
Ordinary Watercourse Consent (temporary and permanent works affecting ordinary watercourses)	Flood and Water Management Act (2010) Land Drainage Act 1991 Section 23	Lead Local Flood Authority (Peterborough City Council)	Construction activities are planned adjacent to, in and over ordinary watercourses managed by Peterborough City Council. Land Drainage Consent application will be required to allow for any temporary or permanent works that may affect the flow of an ordinary watercourse (i.e. all watercourses/ ditches that can convey water at times (except Main Rivers)). PC to instruct consultant to achieve LLFA approvals and inform PC whether they are required and PC or subcontractor to apply for consent prior to works starting.
Abstraction licence for construction dewatering	Water Resources (Abstraction and Impounding) Regulations 2008 & Water Abstraction and Impounding	Environment Agency	Works within the saturated aquifer may require dewatering. Dewatering volumes above 100m^3/day require a transfer or abstraction licence. A licensing

Type	Consent / Licence Agreement and Legislation	Consenting Authority	Requirement
	(Exemptions) Regulations 2017). Discharge of water from dewatering operations (Environmental Permitting (England and Wales) Regulations 2010).		exemption limit may be reduced to 50m^3/day, depending on whether there are conservation sites within 500m or springs, wells or boreholes used to supply water for any lawful use within 250m of the proposed abstraction. Licensing will be subject to further impact assessments on any identified receptors. PC to confirm whether required and PC or subcontractor to apply for consent prior to works starting.
Water discharge permit	Water Resources (Abstraction and Impounding) Regulations 2008 & Water Abstraction and Impounding (Exemptions) Regulations 2017). Discharge of water from dewatering operations (Environmental Permitting (England and Wales) Regulations 2010).	Environment Agency	Discharging of dewatered volumes may also require a bespoke discharge permit. Treatment measures may be required depending on the quality of water abstracted, and the receiving waterbody. PC or subcontractor to apply for permit prior to works starting.
Waste and materials	Environmental permit or registered exemption Pollution Prevention and Control Act 1999 The Environmental Permitting (England and Wales) Regulations 2016 (as amended)	Environment Agency	For the treatment or re-use of waste on site. PC or subcontractor to apply for permit or exemption prior to works starting.
Waste and materials	Mobile plant permit Pollution Prevention and Control Act 1999, The Environmental Permitting (England and Wales) Regulations 2016 (as amended)	Environment Agency	If the PC or sub-contractor does not have their own mobile plant permit.
Waste and materials	CL:aire Materials Management Plan. CL:aire (2001) Definition of Waste: Development Industry Code of	Environment Agency	It is considered that the majority of soil materials excavated during the works could be reused within the Order Limits following guidance in CL:aire (2001) Definition of Waste:

Type	Consent / Licence Agreement and Legislation	Consenting Authority	Requirement
	Practice (V.2) (DoW COP).		Development Industry Code of Practice (V.2) (DoW COP).
Waste and materials	Control of Asbestos Regulations (2012)	HSE	The management of the pile of potential asbestos panels on site.
Noise and vibration during the construction stage	Section 61 prior consent for work on construction sites Control of Pollution Act 1974.	Local authority	Consent would provide Highways England protection from subsequent action by the local authority under Section 61 of the Control of Pollution Act 1974 or under Section 80 of the Environmental Protection Act 1990. Prior consent is required 28 days minimum, prior to the start of works if a construction phase is expected to exceed the noise levels and duration which would cause a significant adverse impact at a noise sensitive receptor.

5. Environmental asset data and as built drawings

5.1. Introduction

5.1.1. The requirements for the Highways England environmental information system (EnvIS) for the Proposed Scheme are identified in the Asset Data Management Manual (ADMM) version 11 part 2 Requirements and additional information April 2020[7].

5.1.2. This document specifies requirements for asset data management, detailed guidance, information and descriptions of each highway asset type including environmental assets. ADMM part 2.1 Generic asset data requirements section 2.1.7 describes it as:

5.1.3. "a system for defining and categorising the man-made or natural assets within and surrounding the Strategic Road Network (SRN). EnvIS contains environmental data and is displayed in the Highways Agency Geographical Information System (HAGIS)."

5.1.4. The data within EnvIS identifies the asset, location, condition and broad management requirements. It is also used in the review and reporting of the environmental performance of both Highways England and its service providers.

5.1.5. In accordance with DMRB LA120 Environmental management plans, this section has been refined to include relevant data as specified in the design stage EMP.

5.2. Environmental data types

5.2.1. ADMM part 2.2 Asset class specific requirements section 13 Environmental, environmental inventory data describes each environmental asset on the Proposed Scheme in terms of what it is, where it is and what it does.

5.2.2. The full asset data requirements for each asset sub-class can be found in ADMM section 13.4 Environmental inventory data.

5.2.3. The environmental inventory asset data should be broken down by point, line or polygon features into GIS environmental inventory.

5.3. Collection and submission of EnvIS data

5.3.1. ADMM states that environmental data will be collected and amended over time in a cycle of continual improvement.

[7] Highways England Asset Management Development Group – ADMM Part 2 – Requirements and Additional Information

5.3.2. Achieving this continual improvement requires adherence to regular and specific data submission targets, ensuring those data submissions are of the required standard. The phasing of data submissions is to be agreed by the PC with Highways England. It is proposed that environmental data is submitted on completion of:

- site surveys for example ecological and arboricultural
- site clearance
- construction activities including for example seeding and planting

5.3.3. Prior to the preparation and submission of as-built data Galliford Try must request an extract of the existing environmental data. To do this a shapefile polygon of the Proposed Scheme extents shall be supplied to the EnvIS support mailbox identified in the ADMM. This extract should then be used to identify any assets that have been removed or amended by the Proposed Scheme to inform the central database accordingly.

5.3.4. For major projects aligning with the Highways England Project Control Framework (PCF), the key milestone to be achieved for data handover is Milestone 2 - Stages 6 (Construction, commissioning and handover) and 7 (closeout) 3rd iteration of the EMP.

5.3.5. Final as-built environmental inventory should be submitted by the end of PCF Stages 6 and 7. The 3rd iteration of the EMP will not be signed off by the Highways England Environment Group regional environmental advisor without confirmation that environmental data has been submitted and fully validated.

5.3.6. Full details can be found in the ADMM.

5.4. Protected species surveys

5.4.1. The following species surveys have been undertaken to inform the environmental assessment (**TR010039/APP/6.1**):

- Phase I habitat and update survey (2016, 2017, 2018, 2020)
- Phase 2 Botanical surveys (2016, 2017, 2018, 2020)
- Fungi survey (2017, 2020)
- Terrestrial invertebrates (2017, 2020)
- Aquatic invertebrates (2017, 2018, 2020)
- White-clawed crayfish (2017)
- Great crested newts (2016, 2020)
- Reptiles (2017, 2018, 2020)
- Birds - breeding; migratory; and wintering (2017, 2018, 2020)

- Barn owl (2019, 2020)
- Bats (2016, 2017, 2020)
- Otter and water vole (2017, 2018)
- Badger (2017, 2018, 2019, 2020)

5.5. Further surveys to be obtained prior to construction

5.5.1. The following surveys will be required to be undertaken prior to construction:

- Agricultural Land Classification survey
- Archaeological trenching over the remaining identified areas
- Arboricultural detailed surveys
- Supplementary ground investigation
- Pre-construction excavation for direct impacts in Zones 2, 3, 6, 7, 8 and 9 (as defined in Chapter 6 of the ES (**TR010039/APP/6.1**) and figure 6.3 (**TR010039/APP/6.2**).
- Pre-works photography for site condition
- Condition surveys and structural risk assessments for Model Farm and Wall
- Pre-construction ecological surveys including
  - Wintering birds
  - Breeding birds
  - Vegetation clearance
  - Barn owl
  - Great Crested Newts (GCN)
  - Badger
  - Water Vole
  - Otter
  - Reptile
- Surface water monitoring
- Groundwater monitoring

6. Details of maintenance and EMP monitoring activities

6.1.1. The section sets out the systems required for monitoring, inspecting, reporting and auditing the environmental requirements set out in the ES and EMP REAC submitted as part of the DCO application.

6.1.2. In accordance with DMRB LA 120 Environmental management plans, this section also refines the following aspects of maintenance and EMP for construction monitoring activities where known as follows:

- procedures for monitoring and reviewing compliance including inspection, audit frequency and reporting
- assessment criteria to identify success (evaluation)
- procedures for rectification of breaching or failings of EMP for construction measures (correction)

6.2. Environmental monitoring activities

6.2.1. The ES (**TR010039/APP/6.1**) and REAC set out a number of requirements for environmental monitoring to ensure that the identified mitigation measures and actions can be tracked and closed out when completed. Some of these are specific such as noise monitoring, others are more general and will be covered by regular inspections and audits.

6.2.2. Full details are shown in the updated REAC at section 3 Table 1.7. A summary of the environmental monitoring requirements including inspection, auditing and reporting requirements is presented at Table 1.7 below.

Table 1.7: Environmental monitoring requirements

REAC Reference	Objective	Source of Monitoring requirements	Summary of individual inspection, auditing and reporting requirements
CH2 and CH6	Preservation by record or protection of archaeological remains	All recording and conservation measures will be secured through DCO requirements and captured within a WSI (Mitigation Strategy) which will be agreed with Historic England and Peterborough City Council. Appointment of an archaeological subcontractor to undertake the agreed works (which will include monitoring).	Monitoring requirements identified in the Written Scheme of Investigation. Toolbox talks that include instruction methods to allow operatives to identify potential archaeological remains. Regular site audits during construction. Publication of results of archaeological works.
CH4	Protection of heritage assets during	Three assets in the Proposed Scheme boundary are to be excluded from the works and will	Regular monitoring and inspection to ensure the assets are protected.

REAC Reference	Objective	Source of Monitoring requirements	Summary of individual inspection, auditing and reporting requirements
	construction phase	be recorded and protected during construction. These assets include the milestone opposite	Condition surveys of the buildings and structural risk assessments. The scope of preservation by record will be agreed with Peterborough City Council and Huntingdonshire District Council.
LV4	Protection of retained vegetation	Trees to be retained as presented in the Appendix 7.6 Arboricultural Impact Assessment (**TR010039/APP/6.3**).	The Principal Contractor shall appoint an arboricultural consultant to complete an arboricultural method statement. The method statement will outline tree protection measures and monitoring requirement.
LV5	Landscape planting and creation of new and replacement habitat	Mitigation included in ES Chapter 7 Landscape and visual and Chapter 8 Biodiversity (**TR010039/APP/6.1**). Environmental Masterplan (**TR010039/APP/6.8**) and Landscape and Ecology Management Plan (**TR010039/APP/7.5**).	Newly created or enhanced habitats will be managed and monitored for three years after planting. Post-development monitoring will be required for newly created habitats and protected species as per licence commitments. Habitats, bird and bat boxes will be monitored and managed for three years after they have been created.
BD9	Protection of bat roosts	Mitigation included in the ES Chapter 8 Biodiversity (**TR010039/APP/6.1**).	Bat roosts disturbed by construction and bat boxes erected would be monitored during operation. Crossing points and their mitigation in the construction phase to be monitored during operation and if required, mitigation would be altered. Lighting would be directional, and positioned sympathetically, to minimise light spill and disturbance for sensitive biodiversity resources including foraging bats. Subsequent monitoring and reporting requirements will be set out within the OLEMP including potential requirements for remedial action. Should adverse effects to these species be identified during the monitoring, further mitigation

REAC Reference	Objective	Source of Monitoring requirements	Summary of individual inspection, auditing and reporting requirements
			including potential remedial action and monitoring would be discussed and agreed with the relevant consultees and implemented by the Principal Contractor. The bat crossing points (fencing and planting) would be monitored in years one, three and five after operation of the proposed road commences. This is specific bat mitigation separate to licence requirements added to the Proposed Scheme at design stage.
BD4	Protection of breeding birds	Mitigation included in the Chapter 8 Biodiversity (**TR010039/APP/6.1**).	Timing of vegetation clearance to outside of the breeding season which runs from March to August (inclusive) to minimise the risk of mortality of breeding birds. If inside of this season, vegetation clearance will be undertaken under the supervision of an Ecological Clerk of Works (ECoW). Subsequent monitoring and reporting requirements will be set out within the OLEMP including potential requirements for remedial action. Should adverse effects to these species be identified during the monitoring, further mitigation including potential remedial action and monitoring would be discussed and agreed with the relevant consultees and implemented by the Principal Contractor
BD1, BD2, BD3, BD4, BD5, BD6, BD7, BD8, BD9, BD10, BD11, BD12, BD13, BD14, BD15, BD16	Vegetation clearance	Mitigation included in the ES Chapter 8 Biodiversity (**TR010039/APP/6.1**).	Vegetation clearance will be supervised by an ECoW and timings stipulated in the **Landscape and Ecology Management Plan.**

REAC Reference	Objective	Source of Monitoring requirements	Summary of individual inspection, auditing and reporting requirements
BD1, BD2, BD3, BD4, BD5, BD6, BD7, BD8, BD9, BD10, BD11	Protection of newly created habitat	Mitigation included in the ES Chapter 8 Biodiversity (**TR010039/APP/6.1**).	Post-development monitoring will be required for newly created habitats and protected species and will be detailed in the **Landscape and Ecology Management Plan (LEMP).** Habitats, bird and bat boxes will be monitored and managed for five years after they have been created. Further details will be identified as part of a LEMP.
BD9	Monitoring protected bat species	Mitigation included in the ES Chapter 8 Biodiversity (**TR010039/APP/6.1**).	The bat crossing points that have been mitigated with bat hops of large trees will be monitored by re-surveying in years one, three and five after operation of the proposed road commences. Further details will be identified as part of a LEMP.
BD8, BD11, BD13, BD12	Protection of water vole, badger, barn owl and otter	Mitigation included in the ES Chapter 8 Biodiversity (**TR010039/APP/6.1**).	Road casualty surveys would be required for five years post construction to assess ongoing impacts on badger, otter and barn owl on the site to assess whether mitigation provided is effective in reducing impacts on these species. Species to be licensed, bat, water vole and badger would be monitored as part of the respective licences for the requisite length of time after construction completion. Monitoring surveys would be consistent with the methodologies used to inform this assessment for comparisons to be made, and a report should be produced annually. Should adverse effects to these species be identified during the monitoring, further mitigation and monitoring would be discussed and agreed with the relevant consultees and implemented by the Principal Contractor. Daily site audits of the fencing and buffer zone checks will take place during construction.
GS3	Protection of site soils	Mitigation included in ES Chapter 9 Geology and soils (**TR010039/APP/6.1**).	Soil stripping, handling and storage will be monitored / audited to ensure that it follows procedures outlined in the Soil Management Plan. Following reinstatement of the

REAC Reference	Objective	Source of Monitoring requirements	Summary of individual inspection, auditing and reporting requirements
			temporary land-take, there would be a programme of monitoring of soil conditions to identify if there are soil problems which need to be remediated. This would include an assessment of the problem and design of a suitable remediation such as subsoiling or drainage followed by crop establishment.
MA2	Monitoring waste recovery rate and proportion of secondary and recycled aggregate	Mitigation included in ES Chapter 10 Material assets and waste (**TR010039/APP/6.1**).	The PC shall develop a Site Waste Management Plan. The SWMP shall include procedures for monitoring the overall construction waste recovery rate and the proportion of secondary and recycled aggregate used in the Proposed Scheme, in order to confirm the assessment of materials impacts.
NV1	Likely significant environmental effects from noise and/or vibration during construction shall be monitored.	Mitigation included in ES Chapter 11 Noise and vibration (**TR010039/APP/6.1**).	Checking that noise and vibration management procedures and practices are sufficient to ensure that significant adverse effects are avoided. Verification that specific noise and vibration mitigation measures are in place for activities where there is potential for likely significant effects to occur in their absence. Measurement of vibration during bulldozer, compaction or vibratory rolling works where these occur within 30m of vibration sensitive receptors. Measurement of vibration during construction works which occur within 10m of the Listed Wall at Model Farm.
NV2 and NV3	Protection of sensitive noise receptors during construction and operation	Mitigation included in the ES Chapter 11 Noise and Vibration (**TR010039/APP/6.1**).	The likely significant environmental effects from noise during operation shall be monitored and include: • Ensuring mitigation measures included within the design are incorporated with the as-built project. Where they are not included, measures will be taken to

REAC Reference	Objective	Source of Monitoring requirements	Summary of individual inspection, auditing and reporting requirements
			ensure resultant noise levels, taking account of any additional mitigation installed but not included in the assessed design, are no higher than those set out in this assessment. • Ensuring specifications of noise mitigation measures, including barriers and low noise surfaces, meet design specifications.
RD1, RD2, RD3, RD4, RD5, RD6, RD7, RD7, RD8 and RD9	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase.	Mitigation included in the ES Chapter 13 Road Drainage and the Water Environment (**TR010039/APP/6.1**).	Inspections and audits along with general monitoring and reporting of effectiveness of control measures to be carried out throughout the construction programme shall be incorporated into the Water monitoring and management plan. The mitigation strategies implemented will be reviewed regularly to best suit the practices currently being undertaken on site.

6.3. Inspection, reporting and auditing requirements

6.3.1. The PC shall ensure compliance with the requirements of the ES (**TR010039/APP/6.1**), REAC and the EMP (**TR010039/APP/7.5**) for construction and associated management plans and method statements, environmental legislation and regulations as well as any Highways England or statutory obligations.

6.3.2. The environmental performance of the monitoring requirements identified in Table 6.1 will be continuously inspected, reported and audited by the PC via the following methods:

- Regular site audits and monitoring will be undertaken by the environmental manager, the ecological clerk of works (ECoW), archaeological clerk of works or the arboricultural consultant (as appropriate).
- Ecological activities under licence and works with European protected species can only be undertaken by a suitably licensed ecologist.
- Site safety and environmental reviews (SSERs) will be carried out by members of the construction team. There will be a requirement to complete a specified number of SSERs per month depending on the type of work ongoing.

- PC general foremen and engineers will inspect their work areas on a daily basis.
- Spot checks by the PC construction team will be undertaken of supply chain briefings, risk assessments, method statements, check sheets and permits.
- Periodic audits and checks by the PC regional environmental advisor and environment and sustainability manager.
- Periodic reviews will be undertaken by PC construction team of all relevant management plans, method statements and risk assessments.

6.3.3. There will be a central filing system in place for any checklists, inspection reports, monitoring records, consents, permits, waste transfer notes and consignment notes in line with the PC's business management system. This documentation will be used to demonstrate compliance with the requirements of this EMP for construction.

6.4. Evaluation and control process

6.4.1. There will be an evaluation process established by Highways England and the PC to review the success of all monitoring and mitigation requirements identified in Table 6.1 and any other requirements arising.

6.4.2. The evaluation process will include a description of any difficulties encountered in the delivery of measures to mitigate and manage the environmental effects. It will also include the main uncertainties arising from any forecasting of measures to mitigate and manage the environmental effects.

6.5. Corrective actions

6.5.1. There will also be the establishment of procedures for control measures and correction actions. Any findings and environmental data will be shared with the appropriate team on a periodic basis to ensure that any corrective and remedial action required is undertaken in a timely manner with a date of completion agreed. The health and safety team will also analyse the findings and data for any arising trends. Pro-active actions such as methodology reviews, re-briefings and toolbox talks will be implemented based on the trends of the data.

6.5.2. The PC site staff will produce site diaries which will include the recording of corrective actions. In addition, the health and safety site advisor will complete a monthly site safety and environment report which are kept on the internal shared Viewpoint document management system.

6.5.3. The PC's standards shall be rigorously implemented and incorporate the following requirements shown at Table 6.2 under ISO 14001. The Galliford Try Environmental Standards within Galliford Try's Environmental Management Systems are also provided in Table 1.8.

Table 1.8: ISO 14001 Standards

ISO14001 Standard	Principal Contractor Standard
HS&E-STD-E03	Ecological management
HS&E-STD-E04	Environmental emergency preparedness and response
HS&E-STD-E05	Project environmental design
HS&E-STD-E06	Environmental risk assessment

7. Induction, training and briefing procedures for staff

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

7.1.2. The PC will be responsible for site inductions and training of all personnel including visitors, full time staff and supply chain providers.

7.1.3. The PC will work in accordance with their business management system to ensure compliance with the International Organisation for Standardisation (ISO) 14001 requirements as listed at Table 6-2.

7.1.4. The PC environment policy statement will be clearly displayed, and all personnel will be made aware of it, along with the relevant environmental legislation and the contents of the REAC.

7.1.5. In accordance with DMRB LA 120 Environmental management plans, this section of the EMP for construction is required to refine the following aspects of induction, training and briefing:

- A summary of the environmental aspects of the Proposed Scheme
- Awareness of EMP for construction contents
- Site induction
- On-site training

7.2. Site induction

7.2.1. Prior to commencing work on site, all personnel will be required to attend a site induction where the PC will communicate the environmental objectives and requirements of the Proposed Scheme, as well as the responsibilities of the workforce.

7.2.2. The site induction will cover the topics relating to the environment to a level of sufficient detail for the workforce and appropriate to the work being undertaken. Topics would include but are not limited to:

- A summary of the environmental aspects of the Proposed Scheme
- An introduction to the EMP for construction (2nd iteration)
- Environmental site rules
- Preventing nuisance (noise, dust, vibration and odours)
- Communication with road users, affected landowners and stakeholders
- Earthworks and excavations

- Site traffic protocols
- Spill kit use and locations
- Refuelling, mechanical repairs and site maintenance
- Chemical handling and storage
- Emergency spill procedures
- Tree root protection areas
- Waste and energy management
- Reporting of environmental observations and suggestions
- Biodiversity protection and enhancement
- Works in the vicinity of the watercourse
- Heritage and archaeology assets

7.3. On-site training

7.3.1. Those undertaking any activities that could result in an adverse environmental impact will receive additional training which shall be led by the Environmental Manager or environmental or ecological clerk of works (ECoW). This training will include reference to the importance of adhering to the contents of this EMP for construction and the potential consequences of departure from any specified method statements. The PC will establish a regime of toolbox talks in agreement with the supply chain. There will be a target of a minimum of one toolbox talk on an environmental topic per month with records of the attendance kept.

7.3.2. An indicative list of appropriate toolbox talks is provided in Table 1.9. More topics will be added to the list as necessary as construction progresses.

Table 1.9: Indicative toolbox talk titles

Principal Contractor – Toolbox talk reference	Toolbox talk title
HS&S-TBT-C04-301	Archaeology
HS&S-TBT-E03-301	Tree protection
HS&S-TBT-E03-302	Japanese knotweed
HS&S-TBT-E03-303	Himalayan balsam
HS&S-TBT-E03-304	Giant hogweed
HS&S-TBT-E03-305	Bats
HS&S-TBT-E03-306	Badgers

Principal Contractor – Toolbox talk reference	Toolbox talk title
HS&S-TBT-E03-307	Great crested newts
HS&S-TBT-E03-309	Slow worms
HS&S-TBT-E03-310	Water voles
HS&S-TBT-E03-311	Birds
HS&S-TBT-E03-312	New Zealand pygmy weed
HS&S-TBT-E03-317	Hazel dormice
HS&S-TBT-E03-319	Bees
HS&S-TBT-E04-301	Spill control
HS&S-TBT-E04-302	Petrol, diesel and oils
HS&S-TBT-L03-301	Re-useable soil resources on-site
HS&S-TBT-L03-302	Soil planning and management
HS&S-TBT-L03-303	Stripping topsoil
HS&S-TBT-L03-304	Stripping sub-soil
HS&S-TBT-L03-305	Stockpiling soil
HS&S-TBT-L03-306	Spreading soil
HS&S-TBT-L03-307	Sourcing topsoil
HS&S-TBT-L03-308	Manufacturing topsoil
HS&S-TBT-L03-309	Soil aftercare
HS&S-TBT-L03-310	Use of surplus soil
HS&S-TBT-L03-311	Working with previously developed land
HS&S-TBT-N02-301	Dust and air quality
HS&S-TBT-N02-302	Noise and vibration
HS&S-TBT-N02-303	Be a good neighbour
HS&S-TBT-R02-301	Materials management and housekeeping
HS&S-TBT-R02-302	Energy conservation – construction site good practice

Principal Contractor – Toolbox talk reference	Toolbox talk title
HS&S-TBT-R02-303	Timber procurement
HS&S-TBT-W01-301	Waste management
HS&S-TBT-W01-302	Storage of waste
HS&S-TBT-W01-303	Waste segregation
HS&S-TBT-W05-301	Water pollution prevention
HS&S-TBT- W05-302	Water pollution – silt
HS&S-TBT- W05-303	Water pollution – cement and concrete
HS&S-TBT- W05-304	Pumping and over-pumping
HS&S-TBT- W05-305	Washing down plant and machinery
HS&S-TBT- W05-306	Bentonite

7.3.3. Any members of workforce disregarding any health, safety or environmental rules and arrangements detailed in this EMP will (in the first instance) receive a written warning from the project director and re-briefed as appropriate.

7.4. Criteria for evaluation of training effectiveness

7.4.1. Continuous monitoring of environmental performance will take place via regular Site Safety and Environmental Reviews (SSERs), which establishes employees' and subcontractors' compliance to the requirements of the EMS, this EMP, and the Client and statutory obligations.

[Note: This section should be updated at the next milestone stage (Development phase (Construction Preparation)) to describe the construction staff training procedures which should include providing staff with a summary of the environmental aspects of the projects; awareness of EMP contents; a site induction; and on-site training.

8. References and glossary

8.1. References

8.1.1. References are included as footnotes in the text.

8.2. Glossary

Table 1.9: Glossary

Terms or abbreviation	Definition
ADMM	Asset Data Management Manual (Highway England)
CDM 2015	The Construction (Design and Management) Regulations 2015
CLRA	Contaminated land risk assessment
COSHH	Control of Substances Hazardous to Health Regulations 2002 as amended
DCO	Development consent order
DIP	Delivery integration partner
DfT	Department for Transport
DHWSI	Detailed Heritage Written Scheme of Investigation
DMRB	Design Manual for Roads and Bridges
ECoW	Ecological clerk of works
EHO	Environmental health officer
EIA	Environmental impact assessment
EMP for construction	Environmental management plan for the construction stage
EnvIS	Highways England environmental information system
EPS	European protected species
ES	Environmental Statement
GT	Galliford Try
HE	Highways England
HS&S	Health site and safety
ISO 140001	International Organisation for Standardisation Standard for Environmental management systems

Terms or abbreviation	Definition
MCHW	Manual of Contract Documents for Highways Works
MMP	Materials management plan
NE	Natural England
PC	Principal Contractor
PCF	Project Control Framework – Highways England's process for managing projects
PRoW	Public rights of way
RDP	Regional delivery partnership
REAC	Record of environmental actions and commitments
RNAS	Royal naval air station
RPG	Registered park and garden
SAC	Special area of conservation
SMP	Soil management plan
SoS	Secretary of State for Transport
SRN	Strategic road network
SSER	Site safety and environmental records
SSSI	Site of special scientific interest
SWMP	Site waste management plan
TBT	Toolbox talk – A short presentation to the workforce on any aspect pf the Proposed Scheme including health, safety, wellbeing or environment.
UXO	Unexploded Ordnance
WSI	Written scheme of investigation

Annex A- Figure 1.1 (Scheme Overview) and Figure 2.1(Environmental Constraints)

Annex B- Relevant Management Plans

To be produced prior to construction (in the EMP Second iteration) by the Principal Contractor. This section will include:

- Annex B.1 Materials Management Plan (MMP)
- Annex B.2 Soil Management Plan
- Annex B.3 Construction Noise and Dust Management Plan
- Annex B.4 Construction Communication Strategy
- Annex B.5 Landscape and Ecology Management Plan (LEMP)
- Annex B.6 Biosecurity Management Plan
- Annex B.7 Water Monitoring and Management Plan
- Annex B.8 Detailed Heritage Written Scheme of Investigation (DHWSI) (Mitigation Strategy)
- Annex B.9 INNS Management Plan
- Annex B.10 Operational UXO Emergency Response Plan

NOTE: that the outline Site Waste Management Plan (**TR010039/APP/6.3**) and outline Traffic Management Plan (**TR010039/APP/7.5**) are separate documents as part of the DCO submission. These are to be progressed as part of the second iteration of the EMP in parallel with the annexes listed above.

Annex B.3 Construction Noise and Dust Management Plan

The Institute of Air Quality Management (IAQM)[8] recommends that the following hierarchy principles (drawn from similar well-established mitigation hierarchies used for EIA development and for dealing with pollution exposure in workplace/occupational situations) be used as the basis for mitigating the operational air quality impacts associated with general development schemes. This hierarchy is suitable both for impacts caused by a potentially polluting new development, and for the impact of exposure of new occupants of a development proposed in an area of existing poor air quality.

I. Preference should be given to preventing or avoiding exposure/impacts to the pollutant in the first place by eliminating or isolating potential sources or by replacing sources or activities with alternatives. This is usually best achieved through taking air quality considerations into account at the development scheme design stage.

II. Reduction and minimisation of exposure/impacts should next be considered once all options for prevention/avoidance have been implemented so far as is reasonably practicable (both technically and economically). To achieve this reduction/ minimisation, preference should be given first to:

    a. mitigation measures that act on the source; before

    b. mitigation measures that act on the pathway, which in turn should take preference over

    c. mitigation measures at or close to the point of receptor exposure all subject to the efficacy, cost and practicability of the available solutions. In each case, measures that are designed or engineered to operate passively are preferred to active measures that require continual intervention, management or a change in people's behaviours.

III. Off-setting a new development's air quality impact by proportionately contributing to air quality improvements elsewhere (including those identified in air quality action plans and low emission strategies) should only be considered once the solutions for preventing/avoiding, and then for reducing/minimising, the development-specific impacts have been exhausted. Even then, offsetting should be limited to measures that are likely to have a beneficial impact on air quality in the vicinity of the development site. It is not appropriate to attempt to offset local air quality impacts by measures that may have some effect remote from the vicinity of the development site.

IV. The Control of Pollution Act 1974[9] offers protection against disturbance to residents that might be affected by construction noise and vibration. Section 60 of the Act enables a local authority to serve a notice specifying its noise control requirements covering plant or machinery hours of working, and levels of noise that can be

[8] IAQM. (2018). *Mitigation of Development Air Quality Impacts.* Available: [redacted]. Last accessed 18.02.2021.
[9] Department of the Environment (1974) Control of Pollution Act

emitted. Section 61 relates to prior consent in which the contractor consults with the local authority and provides an application prior to construction works commencing to obtain approval for the methods to be used and the steps proposed to minimise noise resulting from the works. If the local authority considers that the application contains sufficient information and that "best practicable means" of noise control are being implemented, and if works are being carried out in accordance with the applications, it would not serve a notice under Section 60.

BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Parts 1[10] & 2[11] provides guidance on noise and vibration emissions and control from construction sites.

The Principal Contractor shall implement construction noise and vibration mitigation measures as defined in Chapter 11 (Noise and Vibration) of the Environmental Statement for the Proposed Scheme and summarised below.

- Assessment of Construction Noise and Vibration where the Principal Contractor's preferred plant departs considerably from the assumptions within Appendix 11.5 f the Environmental Statement, or where works outside of the normal construction hours are unavoidable (for example certain tie-in works). Where this is required, the Principal Contractor shall consult with the Local Authority by Section 61 application or less formal means as necessary.
- Use of temporary noise barriers or solid site hoarding shall be provided where identified in the ES Chapter (Table 11-18). Precise heights and locations to be determined by the Principal Contractor as part of their construction noise assessments.
- Implementation of 'best practicable means' for noise and vibration mitigation.
- Ensure the proposed plant noise emissions are similar or below the preliminary construction plant noise levels used within the ES Chapter 11 assessments; and that the plant is the quietest available for the proposed use.
- Ensure equipment is maintained, in good working order, and is used in accordance with the manufacturer's instructions.
- Use equipment that is fitted with silencers or mufflers where available and necessary.
- Set time restrictions on certain noisy and vibratory activities such as earthworks and surfacing where necessary.

[10] British Standards Institution (2008). BS 5228-1:2009+A1:2014. Code of practice for noise and vibration control on construction and open sites. Noise.
[11] British Standards Institution (2008). BS 5228-2:2009+A1:2014. Code of practice for noise and vibration control on construction and open sites. Vibration.

- Manage deliveries to prevent queuing of site traffic.
- Do not leave plant running unnecessarily.
- Plant with highly directional sound emissions shall be angled so that the direction of highest sound emissions does not face towards receptors where possible.
- Materials to be lowered instead of dropped from height.
- Alternative reversing warning systems (such as white noise alarms) shall be employed.
- The Principal Contractor shall advise members of the construction team during toolbox talk briefings on quieter working methods.
- Any fixed plant such as generators shall be positioned at least 20m from nearest receptor and shall have temporary/mobile noise screens erected around them where possible and necessary.
- Communicate the likely duration, start and finish dates, and that measures are being employed to reduce noise and vibration with the local community.
- Letter drops explaining this would aid communication with the local community where possible and necessary.
- A dedicated site contact for the public and a complaints-handling procedure shall also be put in place.
- Construction activities with high vibration emissions are defined in Chapter 11 of the ES chapter. Where these occur within 30m of sensitive receptors the Principal Contractor shall:
  - inform the occupiers of the likely times and duration of works at least one week prior to works commencing.
  - carry these works out during the daytime.
  - monitor the vibration levels.
  - subject to securing permission from property owners, carry out a building condition survey to identify any sensitive aspects of the building and to ensure the current status of the building is recorded.

V. These will be progressed by the contractor when implementing the Construction Noise and Dust Management Plan

Annex B.5 Outline Landscape and Ecological Management Plan

Scope and purpose of Outline LEMP

This Outline Landscape and Ecology Management Plan (OLEMP) provides a framework for achieving the 'vision' of the Environmental Masterplan (**TR010039/APP/6.8**) for the A47 Wansford To Sutton Dualling (the Proposed Scheme).

The management plans within this OLEMP are a draft and would be further developed during detailed design and described within the final Landscape and Ecology Management Plan (LEMP).

The Proposed Scheme lies adjacent to the River Nene and the Nene Valley. Arable farmland is the predominant land cover in the area, divided into relatively small agricultural enclosures interconnected by narrow rural lanes, and defined by hedgerows and ditches throughout the landscape. The fields are interspersed with fragmented patches of woodland and clusters of farms and residential settlements.

The OLEMP forms part of the strategy for successfully integrating the Proposed Scheme within this landscape and ensuring the mitigation of many of the related impacts identified within the Environmental Statement (ES).

Schedule 2 of the draft DCO includes Requirements relevant to Landscape and Ecology, namely:

- Requirement 2 (Detailed Design)
- Requirement 3 (Environmental Management Plan)
- Requirement 4 (Landscaping)
- Requirement 10 (Fencing)

These Requirements have been used to inform the management and monitoring plans as detailed within this OLEMP.

Following completion of construction, the detailed landscape management proposals shall be set out by the contractor in an updated version of the EMP, and responsibility for maintenance would be taken on by Highways England.

For the initial 3-year period following completion of construction, the detailed landscape management proposals shall be set out by the contractor in a Handover Environmental Management Plan (HEMP), responsibility for which would be taken on by the Principal Contractor. The HEMP would then be subject to a process of ongoing review and amendment during the lifetime of the Proposed Scheme to ensure it remains relevant. Highways England's LD 117 Landscape Design Handbook states that the landscape management plans would be updated annually and formally reviewed every five years.

The OLEMP should be read in conjunction with the following:

- The EMP and associated annexes

- Appendices 30/1 to 30/11 of the Manual of Contract Documents for Highway Works (MCHW) Specification for Landscape Works[12]
- Highways England Routine and Winter Service Code[13]
- Highways England Network Management Manual[14]
- Highways England DMRB LD 117 Landscape Design[15]
- Highways England DMRB LD 118 Biodiversity Design [16]

This document begins by setting out the approach and a summary of the landscape and ecological requirements within the context for the Proposed Scheme. Three sections then discuss the pre-construction plans, construction / habitat creation plans and post-construction / monitoring and maintenance plans required for landscape and biodiversity across the Proposed Scheme. These plans range from ground preparation to long-term management, maintenance and monitoring, including safeguarding flora and fauna, legal compliance, habitat creation and wildlife structures.

Approach

The Proposed Scheme offers the opportunity to create an attractive setting for the dual carriageway, reflecting valued landscape characteristics which would better integrate within the landscape and respect the National Character Areas (NCA) for which the Proposed Scheme and its landscape context are located within.

Highways England's The Road to Good Design[17] outlines ten design principles for roads. Design principle no.4 – 'fits in context' states: "The aesthetic quality of a road and its design in relation to the places through which it passes, is integral to its function and the experience of those that use it. Good road design demonstrates sensitivity to the landscape, heritage and local community, seeking to enhance the place while being true to structural necessities. It builds a legacy for the future."

The OLEMP has been prepared to address mitigation requirements for both ecology and landscape assets in combination with the EMP and Environmental Masterplan (**TR010039/APP/6.8**). The design rationale has focused on replacement of vegetation lost during construction, enhancing natural habitats, providing screening vegetation and integrating the Proposed Scheme into the landscape. Where planting is proposed, it would include native species reflecting those currently on site and would be of local provenance.

[12] Highways England, Manual of Contract Documents for Highways Works, Volume 1 Specification for Highways Works, Series 3000 Landscape and Ecology, May 2001: [redacted] accessed March 2021

[13] Highways England, Design Manual for Roads and Bridges, Routine and Winter Service Code, 2009: [redacted] accessed March 2021

[14] Highways England, Design Manual for Roads and Bridges, Network Management Manual, Issue 1, Amend No. 8, July [redacted], accessed March 2021

[15] Highways England, LD 117 – Landscape Design, March 2020: [redacted], accessed March 2021

[16] Highways England, LD 118 Biodiversity Design: [redacted] accessed March 2021

[17] Highways England, The Road to Good Design, 2018: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010026/TR010026-000913-6.4(C)%20Outline%20CEMP%20Annexes%20(Tracked)%20(Deadline%206).pdf, accessed March 2021

The overarching objectives of the OLEMP are:

- To promote the conservation, protection and improvement of the physical, natural and historic environment within the Proposed Scheme and its setting.
- To diversify ecological value through the retention, so far as reasonably practicable, of the existing hedgerows, trees and habitats and to enhance these through restoration and creation of diverse habitats offering greater botanical and faunal interest to the Proposed Scheme.
- To ensure design and maintenance of landscape components that preserve and enhance the character of the landscape and the local distinctiveness through creation of a mosaic landscape features and habitats, including woodland areas, hedgerows, biodiversity ponds and scattered trees, species-rich grasslands.
- To provide a positive road user experience and appreciation of the surrounding landscape.
- To create new structural planting which links with existing habitats and to take account of species that are locally appropriate.
- To use indigenous species of local provenance wherever appropriate.
- To provide a variety of foraging, nesting and roosting opportunities for protected and notable species, including bats, reptiles and birds.
- To create floristically rich habitats, to support a greater assemblage of species and give rise to enhanced foraging opportunities.
- To provide a framework for monitoring and reviewing the landscape implementation and establishment.

The final mitigation measures during construction would be detailed within the next iteration of the EMP which would include the LEMP.

Roles and Responsibilities

A full-time Environmental Manager would be responsible for developing the next iteration of the EMP and implementing during construction.

The effective implementation of the OLEMP requires that roles and responsibilities are clearly defined and understood. Specific job titles, roles and responsibilities will be defined by the contractor. The key environmental management roles involved in the delivery of the OLEMP are identified in Table 1.1.

Table 1.1 Environmental management key site personnel

Role	Contact	Organisation
Environmental Manager	TBC	Highways England/Contractor
Environmental Clerk of Works	TBC	Highways England/Contractor
Environmental Specialists	TBC	Highways England/Contractor

The Ecological Clerk of Works (ECoW) would be responsible for ensuring construction mitigation measures are correctly deployed, monitored and maintained, including vegetation clearance, species exclusion, dead hedging, light spill and pollution prevention.

At the start of the works contractors would be informed what to look for during works via Toolbox Talks by the ECoW. Should any protected or notable species be found during any tree planting activities works would stop immediately and an ecologist / ECoW would be contacted. The ecologist would advise how the works should proceed and measures to be taken to minimise disturbance to protected or notable species and hence avoid potential legal infringement, and as set out in Requirement 3 of the draft DCO.

LEMP Structure

The LEMP will included the following structure and will be populated in the next iteration of the EMP:

- **Requirements**
- **Summary of landscape context and mitigation**
- **Summary of ecology context and mitigation**
- **Pre-Construction Measures, including:**
    - Surveys
    - Permits and licences
    - Protection plans
    - Habitat creation
- **Construction Measures, including:**
    - Surveys
    - Permits and licences
    - Protection plans
    - Habitat creation
    - Landscape planting
- **Post-Construction Measures, including:**
    - Monitoring and Maintenance
    - Handover of Maintenance Obligations

Annex C- Environmental Method Statement

To be produced prior to construction by the Principal Contractor. This section will include:

- Arboricultural Method Statement
- Health and safety method statement
- Foundation Works Risk Assessment
- Water vole licence method statement
- Construction method statement for water

Annex D- Emergency procedures and record and environmental incidents

To be produced prior to construction by the Principal Contractor. This section will include:

- 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.

ENVIRONMENTAL INCIDENT REPORT FORM
HS&S-FRM-A01-02

Business Unit:	
Project Name & Number	**Date & Time of Incident:**
Site Contact & Tel. No.	**Reported By:**

SIGNIFICANT INCIDENT ☐

Definition:

- *Any release to land, water or air resulting in a breach of an environmental regulation*
- *A spill of a hazardous material that cannot be controlled or has entered, or could enter, a drain or watercourse*
- *Damage to protected flora, fauna or protected habitats and conservation areas*
- *Receipt of any enforcement action from a regulatory body.*

MINOR INCIDENT ☐

Definition:

- Any emission of dust, odour, noise, vibration and / or light to the external environment such that it results in a complaint from project and / or non-project personnel
- A spill of a hazardous material that can be controlled or has not entered, and cannot enter, a drain or watercourse
- Any action that has the potential to cause a negative visual impact e.g., mud on the public highway; poor soil management that could result in poor agricultural or amenity reinstatement standards.

UNEXPECTED ENVIRONMENTAL FIND ☐

Definition: *An environmental event that has affected construction progress but was identified before any environmental legislation was breached; hence, allowing time for corrective action(s) to be made e.g., discovery of nesting birds; protected flora / fauna; archaeology; contaminated land; fly-tipped waste.* ***N.B. This would not apply if preconstruction surveys / inspections were <u>not</u> conducted but, if had been conducted, would have identified the problem before construction works commenced.***

Type of impact / issue: *(Tick all that apply)*

Emission / Discharge	Spill to Water ☐	Spill to Land ☐	Emission to Air ☐	Waste on Land ☐	
	Other ☐:				
Environmental Damage	Archaeology ☐	Cultural Heritage ☐	Ecology ☐	Materials ☐	
	Other ☐:				
Nuisance	Noise ☐	Dust ☐	Odour ☐	Light ☐	Vibration ☐
	Other ☐:				
Unexpected Environmental Find	Ecology ☐	Cultural Heritage ☐	Water ☐	Land ☐	Waste ☐
	Other ☐:				

Was the identified incident the result of a complaint from an external party?	Yes ☐ No ☐

Annex E- Copy of evaluation of change register

To be produced during DCO examination by the design team. This section should include:

- A record of any design changes after the completion of the Environmental Statement.
- A description as to how these design changes have been assessed and any environmental actions required as a result of these changes (e.g. further environmental survey required).

Annex F- Final environmental investigation and monitoring reports

To be produced prior to construction by the Principal Contractor. This section should include:

- Copies of relevant reports (relating to protected species/ habitats and cultural heritage investigations, and any environmental monitoring reports) or cross reference to the locations of these easily if accessible elsewhere.